

TABLE A. $^{40}\text{Ar}/^{39}\text{Ar}$ DATA AND AGES ON ANORTHOCLASE FROM PUMICE CLASTS IN THE TOROTO TUFF AND NINIKAA TUFF, KOOBI FORA, NORTHERN KENYA

Temperature (°C)	^{39}Ar (10^{-15}mol)	^{37}Ar (10^{-16}mol)	^{36}Ar (10^{-17}mol)	^{40}Ar (10^{-15}mol)	100 Rad. ^{40}Ar Total 40	Calculated age (Ma)
<i>81-123 (KF123) Anorthoclase, Ninikaa Tuff, 150-350 μm, 1.173 g, J = 0.000893</i>						
660	468 ± 1	111 ± 1	772 ± 7	3183 ± 5	28.0	3.06 ± 0.07
730	776 ± 1	174 ± 1	336 ± 3	2455 ± 4	58.8	2.99 ± 0.03
780	824 ± 1	183 ± 1	265 ± 7	2348 ± 2	65.8	3.02 ± 0.04
820	1059 ± 1	231 ± 1	270 ± 6	2774 ± 2	70.3	2.96 ± 0.03
860	1349 ± 1	290 ± 1	294 ± 5	3416 ± 3	73.6	3.00 ± 0.02
890	1258 ± 1	269 ± 1	268 ± 4	3165 ± 2	74.0	3.00 ± 0.02
920	1341 ± 1	282 ± 2	239 ± 6	3243 ± 2	77.2	3.00 ± 0.03
950	1431 ± 2	295 ± 1	236 ± 4	3405 ± 3	78.5	3.00 ± 0.02
980	1524 ± 1	307 ± 1	241 ± 5	3616 ± 3	79.3	3.03 ± 0.02
1005	1292 ± 1	256 ± 1	216 ± 5	3115 ± 2	78.4	3.04 ± 0.02
1035	1016 ± 1	197 ± 1	202 ± 8	2514 ± 1	75.2	2.99 ± 0.04
1070	881 ± 1	170 ± 1	164 ± 7	2171 ± 2	76.7	3.04 ± 0.04
1110	787 ± 1	152 ± 1	172 ± 3	2036 ± 1	74.0	3.08 ± 0.02
1160	916 ± 1	191 ± 1	222 ± 7	2440 ± 2	72.2	3.10 ± 0.04
1250	469 ± 1	96 ± 1	228 ± 8	1608 ± 3	57.3	3.16 ± 0.09
Total	15391	3204	4125	41489		3.02 ± 0.03
<i>81-123 (KF123) Anorthoclase, direct total fusion, 0.181 g, J = 0.000893</i>						
1600	2238 ± 3	463 ± 1	620 ± 8	6057 ± 4	68.8	3.00 ± 0.02
<i>78-1073B (KF73) Anorthoclase, Toroto Tuff, 210-420 μm, 0.79^a g, J = 0.000746</i>						
660	140 ± 1	163 ± 3	148 ± 5	823 ± 1	46.6	3.68 ± 0.13
720	235 ± 1	58 ± 3	116 ± 4	943 ± 1	63.1	3.41 ± 0.07
770	274 ± 1	17 ± 2	75 ± 8	915 ± 1	75.0	3.36 ± 0.11
820	423 ± 1	16 ± 4	107 ± 4	1359 ± 1	76.1	3.28 ± 0.05
860	413 ± 1	18 ± 4	68 ± 11	1249 ± 1	83.2	3.38 ± 0.12
895	365 ± 1	11 ± 4	90 ± 5	1182 ± 2	76.8	3.35 ± 0.07
930	422 ± 1	13 ± 3	71 ± 4	1252 ± 1	82.6	3.29 ± 0.05
970	478 ± 1	16 ± 2	88 ± 5	1428 ± 2	81.0	3.25 ± 0.05
1010	753 ± 1	27 ± 2	105 ± 4	2158 ± 2	84.9	3.27 ± 0.04
1050	853 ± 1	30 ± 2	87 ± 5	2403 ± 2	88.6	3.35 ± 0.04
1070	908 ± 1	36 ± 4	90 ± 2	2528 ± 2	88.7	3.32 ± 0.04
1095	2454 ± 4	79 ± 1	223 ± 3	6780 ± 9	89.5	3.32 ± 0.04
1115	502 ± 1	14 ± 2	69 ± 2	1450 ± 2	85.2	3.31 ± 0.04
1155	87 ± 1	1 ± 2	40 ± 7	345 ± 2	65.2	3.46 ± 0.33
1260	52 ± 1	3 ± 3	88 ± 6	390 ± 1	33.2	3.35 ± 0.44
Total	8359	502	1465	25205		3.33 ± 0.06
<i>78-1073B (KF73) Anorthoclase, direct total fusion, 0.108 g, J = 0.000746</i>						
1500	1084 ± 1	76 ± 1	294 ± 4	3572 ± 3	75.0	3.32 ± 0.04
<i>78-1075A (KF75) Anorthoclase, Toroto Tuff, 210-420 μm, 0.744 g, J = 0.000755</i>						
620	109 ± 1	17 ± 3	446 ± 6	1562 ± 2	15.5	3.03 ± 0.24
700	116 ± 1	16 ± 1	89 ± 6	533 ± 1	50.4	3.16 ± 0.21
760	368 ± 1	35 ± 4	113 ± 3	1226 ± 1	72.1	3.27 ± 0.03
820	391 ± 1	30 ± 4	79 ± 5	1208 ± 1	80.0	3.36 ± 0.05
870	603 ± 1	34 ± 2	114 ± 3	1817 ± 1	80.7	3.31 ± 0.03
910	620 ± 1	32 ± 1	106 ± 5	1846 ± 4	82.4	3.34 ± 0.04
950	734 ± 1	39 ± 1	162 ± 8	2301 ± 2	78.5	3.35 ± 0.05
985	682 ± 2	26 ± 3	135 ± 6	2085 ± 4	80.2	3.34 ± 0.04
1015	646 ± 1	30 ± 2	340 ± 7	2594 ± 4	60.7	3.32 ± 0.05
1045	589 ± 1	25 ± 3	133 ± 5	1837 ± 1	78.0	3.31 ± 0.04
1065	512 ± 1	26 ± 4	182 ± 14	1790 ± 1	69.4	3.30 ± 0.11
1090	505 ± 1	20 ± 3	251 ± 12	1988 ± 1	62.2	3.33 ± 0.10
1120	437 ± 1	19 ± 3	190 ± 6	1610 ± 3	64.4	3.23 ± 0.06
1170	668 ± 1	32 ± 3	436 ± 7	2927 ± 3	55.5	3.31 ± 0.05
1270	743 ± 1	34 ± 2	3291 ± 3	11490 ± 9	15.2	3.21 ± 0.06
Total	7723	415	6067	36814		3.30 ± 0.06
<i>78-1075A (KF75) Anorthoclase, direct total fusion, 0.102 g, J = 0.000755</i>						
1600	849 ± 2	43 ± 2	261 ± 7	2883 ± 2	72.6	3.35 ± 0.04

$\lambda = 5.543 \times 10^{-10} \text{a}^{-1}$. Errors at level of one standard deviation.
 Data corrected for mass spectrometer discrimination. ^{37}Ar and ^{39}Ar corrected for decay. Line blanks have not been applied. Amounts of each Ar isotope derived from measured sensitivity of mass spectrometer. Relative amounts for a given analysis are precise to within uncertainties, but absolute amounts may have uncertainty of ~10%.
 Measured values for $(^{40}\text{Ar}/^{39}\text{Ar})_K$ correction factor: for 78-1073, 78-1075 = 0.022 ± 0.003 ; for 81-123 = 0.027 ± 0.013

TABLE B. $^{40}\text{Ar}/^{39}\text{Ar}$ DATA AND AGES ON ANORTHOCLEASE FROM PUMICE CLASTS IN THE MALBE TUFF AND SILBO TUFF, KOOBI FORA REGION, NORTHERN KENYA

Temperature (°C)	^{39}Ar (10^{-15}mol)	^{37}Ar (10^{-16}mol)	^{36}Ar (10^{-17}mol)	^{40}Ar (10^{-15}mol)	100 Rad. ^{40}Ar Total ^{40}Ar	Calculated age (Ma)
<i>81-152 (KF152) Anorthoclase from pumice, Silbo Tuff, 150-350 μm, 1.157 g, J = 0.000530</i>						
660	297 ± 1	18 ± 5	456 ± 8	1589 ± 1	14.7	0.753 ± 0.078
740	355 ± 1	8 ± 4	183 ± 8	805 ± 1	31.7	0.686 ± 0.050
790	505 ± 1	5 ± 2	152 ± 3	856 ± 1	46.2	0.748 ± 0.016
840	578 ± 1	9 ± 3	146 ± 3	874 ± 2	49.1	0.710 ± 0.016
900	709 ± 1	--	147 ± 4	986 ± 2	54.1	0.719 ± 0.016
950	869 ± 1	12 ± 2	150 ± 3	1115 ± 2	58.4	0.716 ± 0.010
980	1015 ± 1	11 ± 3	178 ± 6	1304 ± 1	57.8	0.710 ± 0.017
1010	869 ± 1	14 ± 2	126 ± 6	1027 ± 1	61.8	0.698 ± 0.019
1040	1027 ± 2	18 ± 3	140 ± 6	1203 ± 1	63.6	0.712 ± 0.017
1070	1037 ± 1	12 ± 3	127 ± 6	1180 ± 1	66.2	0.719 ± 0.016
1100	929 ± 1	11 ± 4	112 ± 7	1064 ± 1	66.7	0.731 ± 0.021
1140	999 ± 1	9 ± 4	134 ± 6	1174 ± 1	64.2	0.721 ± 0.017
1180	821 ± 1	8 ± 4	101 ± 8	960 ± 1	66.8	0.747 ± 0.027
1225	546 ± 1	7 ± 4	78 ± 6	679 ± 1	64.0	0.760 ± 0.033
1295	287 ± 1	1 ± 2	76 ± 3	444 ± 1	48.2	0.714 ± 0.025
Total	10843	143	2306	15260		0.72 ± 0.02
<i>81-152 (KF152) Anorthoclase, direct total fusion, 0.130 g, J = 0.000530</i>						
1600	1246 ± 1	15 ± 2	393 ± 7	2147 ± 1	44.4	0.732 ± 0.016
<i>79-17 (7722-109A) Anorthoclase from pumice, Malbe Tuff, 125-350 μm, 1.158 g, J = 0.000589</i>						
650	238 ± 1	77 ± 1	582 ± 7	2171 ± 2	20.7	1.999 ± 0.095
740	474 ± 1	76 ± 2	355 ± 9	1836 ± 1	42.7	1.758 ± 0.063
800	451 ± 1	62 ± 1	244 ± 2	1484 ± 1	51.2	1.786 ± 0.020
850	790 ± 1	107 ± 1	322 ± 6	2310 ± 1	58.5	1.818 ± 0.024
890	975 ± 1	134 ± 1	361 ± 5	2765 ± 2	61.2	1.843 ± 0.018
930	1050 ± 1	140 ± 3	339 ± 5	2807 ± 2	64.0	1.818 ± 0.017
960	1043 ± 1	134 ± 3	283 ± 4	2692 ± 2	68.6	1.881 ± 0.016
990	1021 ± 1	135 ± 2	303 ± 5	2676 ± 2	66.3	1.846 ± 0.019
1020	865 ± 1	110 ± 2	239 ± 8	2209 ± 1	67.8	1.838 ± 0.032
1050	920 ± 1	115 ± 1	240 ± 8	2292 ± 1	67.8	1.821 ± 0.029
1080	695 ± 1	88 ± 1	178 ± 4	1771 ± 1	69.9	1.893 ± 0.020
1120	759 ± 1	99 ± 2	196 ± 4	1919 ± 1	69.6	1.869 ± 0.019
1180	1124 ± 1	158 ± 1	319 ± 8	2906 ± 2	67.3	1.848 ± 0.025
1340	465 ± 1	69 ± 2	186 ± 9	1369 ± 2	59.5	1.861 ± 0.065
Total	10870	1504	4147	31207		1.84 ± 0.03
<i>79-17 (7722-109A) Anorthoclase, direct total fusion, 0.175 g, J = 0.000589</i>						
1600	1649 ± 1	234 ± 1	845 ± 6	5384 ± 3	53.4	1.852 ± 0.015
<i>81-196 (KF196) Anorthoclase from pumice, Malbe Tuff, 150-350 μm, 1.200 g, J = 0.000560</i>						
700	448 ± 1	107 ± 3	427 ± 5	2029 ± 1	37.7	1.727 ± 0.036
780	678 ± 1	149 ± 1	251 ± 3	1969 ± 1	62.2	1.823 ± 0.018
850	818 ± 1	174 ± 1	204 ± 8	2088 ± 1	71.0	1.830 ± 0.030
890	1177 ± 1	255 ± 2	315 ± 5	3075 ± 2	69.5	1.835 ± 0.015
935	1024 ± 1	217 ± 1	164 ± 2	2372 ± 1	79.4	1.857 ± 0.011
970	1105 ± 1	232 ± 2	1598 ± 6	6725 ± 4	29.7	1.825 ± 0.023
1000	950 ± 1	194 ± 1	335 ± 4	2732 ± 1	63.7	1.850 ± 0.016
1030	738 ± 1	150 ± 1	114 ± 9	1710 ± 1	80.1	1.875 ± 0.036
1060	821 ± 1	164 ± 1	122 ± 5	1852 ± 1	80.3	1.832 ± 0.021
1100	723 ± 1	142 ± 1	124 ± 6	1714 ± 1	78.5	1.878 ± 0.026
1150	936 ± 1	188 ± 1	161 ± 5	2208 ± 2	78.3	1.865 ± 0.018
1200	977 ± 1	199 ± 1	155 ± 3	2268 ± 1	79.6	1.867 ± 0.013
1300	405 ± 1	85 ± 1	125 ± 4	1118 ± 1	66.8	1.863 ± 0.030
Total	10800	2256	4095	31860		1.84 ± 0.02
<i>81-196 (KF196) Anorthoclase, direct total fusion, 0.295 g, J = 0.000555</i>						
1600	2558 ± 2	533 ± 2	646 ± 6	6637 ± 4	71.1	1.845 ± 0.012

$\lambda = 5.543 \times 10^{-10} \text{a}^{-1}$. Errors at level of one standard deviation.

See footnote to Table 3 for additional information.

Measured values for ($^{40}\text{Ar}/^{39}\text{Ar}$)_K correction factor: 81-152 = 0.024 ± 0.013; for 79-17 = 0.008 ± 0.001; for 81-196 = 0.006 ± 0.009.

TABLE C. $^{40}\text{Ar}/^{39}\text{Ar}$ DATA AND AGES ON ANORTHOCLASE FROM PUMICE CLASTS IN THE CHARI TUFF, KOOBI FORA REGION, NORTHERN KENYA

Temperature (°C)	^{39}Ar (10^{-15}mol)	^{37}Ar (10^{-16}mol)	^{36}Ar (10^{-17}mol)	^{40}Ar (10^{-15}mol)	100 Rad. ^{40}Ar Total ^{40}Ar	Calculated age (Ma)
<i>79-8 (7722/111B) Anorthoclase, 200-350 μm, 1.344 g, $J = 0.000634$</i>						
540	83 ± 1	-	445 ± 9	1435 ± 3	8.1	1.618 ± 0.354
610	151 ± 1	172 ± 211	250 ± 4	912 ± 1	18.5	1.281 ± 0.092
660	305 ± 1	51 ± 78	180 ± 7	941 ± 1	42.4	1.495 ± 0.073
720	533 ± 1	221 ± 101	152 ± 4	1103 ± 1	57.8	1.366 ± 0.028
780	748 ± 1	201 ± 54	135 ± 9	1334 ± 1	68.4	1.393 ± 0.040
825	790 ± 1	224 ± 71	134 ± 2	1377 ± 1	69.5	1.386 ± 0.011
860	852 ± 1	303 ± 22	133 ± 4	1415 ± 1	70.3	1.335 ± 0.016
895	651 ± 1	180 ± 74	83 ± 9	1063 ± 1	74.8	1.396 ± 0.047
925	678 ± 1	183 ± 80	82 ± 9	1080 ± 1	75.6	1.377 ± 0.048
955	1120 ± 1	167 ± 72	138 ± 9	1753 ± 1	74.5	1.334 ± 0.029
1000	1066 ± 1	74 ± 90	126 ± 9	1688 ± 1	75.8	1.372 ± 0.031
1040	999 ± 1	258 ± 26	141 ± 7	1650 ± 1	72.8	1.375 ± 0.025
1080	1273 ± 1	266 ± 51	563 ± 12	3287 ± 2	48.1	1.419 ± 0.033
1130	1009 ± 2	188 ± 73	620 ± 7	3251 ± 5	42.6	1.571 ± 0.027
1180	474 ± 1	76 ± 29	613 ± 6	2416 ± 3	24.4	1.420 ± 0.046
1230	155 ± 1	105 ± 53	670 ± 8	2216 ± 1	10.5	1.708 ± 0.169
Total	10887	2669	4465	26921		1.40 ± 0.06
<i>79-8 (7722/111B) Anorthoclase, direct total fusion, 0.561 g, $J = 0.000631$</i>						
1600	5527 ± 7	803 ± 136	4435 ± 9	20040 ± 37	33.7	1.39 ± 0.06
<i>81-144 (KF144) Anorthoclase, 150-350 μm, 1.203 g, $J = 0.000613$</i>						
640	270 ± 1	416 ± 9	650 ± 5	2266 ± 2	15.2	1.409 ± 0.061
710	449 ± 1	418 ± 9	461 ± 9	1912 ± 1	28.5	1.343 ± 0.067
770	699 ± 1	466 ± 10	432 ± 4	2145 ± 3	40.0	1.358 ± 0.022
810	756 ± 2	367 ± 10	247 ± 6	1675 ± 3	55.7	1.363 ± 0.026
850	815 ± 1	326 ± 3	306 ± 4	1909 ± 2	51.9	1.345 ± 0.018
880	758 ± 1	265 ± 2	172 ± 10	1475 ± 1	64.7	1.393 ± 0.043
915	672 ± 1	204 ± 5	157 ± 2	1298 ± 1	63.4	1.354 ± 0.013
940	700 ± 1	183 ± 7	180 ± 5	1411 ± 1	61.3	1.367 ± 0.025
970	686 ± 1	160 ± 3	150 ± 3	1298 ± 1	64.8	1.355 ± 0.017
1000	681 ± 1	143 ± 14	295 ± 6	1687 ± 2	47.5	1.301 ± 0.031
1030	670 ± 1	130 ± 11	783 ± 7	3164 ± 4	26.5	1.382 ± 0.035
1070	949 ± 1	183 ± 6	191 ± 6	1746 ± 1	66.6	1.354 ± 0.021
1110	675 ± 1	127 ± 9	127 ± 5	1248 ± 1	68.8	1.407 ± 0.024
1155	715 ± 1	150 ± 9	172 ± 3	1503 ± 1	65.3	1.516 ± 0.016
1250	406 ± 1	75 ± 6	165 ± 11	996 ± 1	50.1	1.359 ± 0.089
Total	9901	3613	4488	25733		1.37 ± 0.03

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TABLE C. $^{40}\text{Ar}/^{39}\text{Ar}$ DATA AND AGES ON ANORTHOCLASE FROM PUMICE CLASTS IN THE CHARI TUFF, KOOBI FORA REGION, NORTHERN KENYA (continued)

Temperature (°C)	^{39}Ar (10^{-15} mol)	^{37}Ar (10^{-16} mol)	^{36}Ar (10^{-17} mol)	^{40}Ar (10^{-15} mol)	100 Rad. ^{40}Ar Total ^{40}Ar	Calculated age (Ma)
<i>78-1060 (KF60) Anorthoclase, 180-350 μm, 1.135 g, $J = 0.000625$</i>						
670	339 ± 1	256 ± 4	429 ± 1	1680 ± 1	24.1	1.343 ± 0.020
735	616 ± 1	455 ± 7	215 ± 12	1437 ± 1	54.7	1.438 ± 0.066
790	943 ± 1	525 ± 5	211 ± 4	1866 ± 1	65.2	1.453 ± 0.016
835	1070 ± 1	454 ± 6	182 ± 7	1888 ± 1	69.9	1.388 ± 0.022
870	1056 ± 1	355 ± 3	143 ± 5	1732 ± 1	73.7	1.361 ± 0.018
905	889 ± 1	241 ± 7	127 ± 6	1453 ± 1	72.3	1.331 ± 0.023
935	1000 ± 1	228 ± 7	124 ± 5	1601 ± 1	75.1	1.354 ± 0.017
960	930 ± 1	192 ± 9	132 ± 2	1505 ± 1	72.1	1.315 ± 0.010
990	790 ± 1	128 ± 7	107 ± 5	1271 ± 2	73.2	1.326 ± 0.023
1035	856 ± 1	144 ± 3	116 ± 5	1407 ± 1	73.7	1.364 ± 0.022
1100	934 ± 1	180 ± 8	120 ± 4	1591 ± 1	75.9	1.457 ± 0.013
1220	459 ± 1	100 ± 5	117 ± 6	964 ± 1	62.8	1.484 ± 0.047
1440	167 ± 1	44 ± 7	244 ± 8	956 ± 1	24.1	1.555 ± 0.156
Total	10049	3302	2267	19351		1.38 ± 0.03
<i>78-1060 (KF60) Anorthoclase, direct total fusion, 0.17 g, $J = 0.000625$</i>						
1600	1250 ± 1	413 ± 11	296 ± 4	2477 ± 2	63.2	1.411 ± 0.013
<i>78-1064 (KF64) Anorthoclase, 180-350 μm, 1.229 g, $J = 0.000604$</i>						
620	300 ± 1	521 ± 4	455 ± 4	1815 ± 3	25.8	1.695 ± 0.048
690	394 ± 1	250 ± 4	173 ± 8	1070 ± 4	51.6	1.527 ± 0.071
745	473 ± 1	211 ± 3	128 ± 13	998 ± 1	61.2	1.408 ± 0.086
800	788 ± 2	317 ± 7	166 ± 6	1520 ± 3	66.7	1.402 ± 0.027
850	1045 ± 3	377 ± 6	154 ± 2	1858 ± 8	74.2	1.437 ± 0.014
890	1098 ± 2	349 ± 4	175 ± 9	1873 ± 5	71.0	1.319 ± 0.028
920	852 ± 1	220 ± 4	126 ± 5	1424 ± 2	72.4	1.319 ± 0.019
950	870 ± 1	191 ± 4	102 ± 4	1427 ± 1	77.5	1.383 ± 0.016
980	884 ± 2	168 ± 7	107 ± 9	1459 ± 2	76.9	1.382 ± 0.032
1015	905 ± 2	167 ± 7	136 ± 5	1543 ± 4	72.5	1.346 ± 0.020
1065	947 ± 2	162 ± 6	183 ± 6	1793 ± 4	68.6	1.413 ± 0.021
1140	788 ± 1	161 ± 6	934 ± 5	3895 ± 9	28.7	1.545 ± 0.026
1370	216 ± 1	40 ± 7	14060 ± 16	41810 ± 47	0.6	1.251 ± 0.676
Total	9560	3134	16899	62485		1.40 ± 0.04
<i>78-1064 (KF64) Anorthoclase, direct total fusion, 0.162 g, $J = 0.000604$</i>						
1600	1288 ± 2	507 ± 10	350 ± 5	2702 ± 2	60.7	1.385 ± 0.015

$\lambda = 5.543 \times 10^{-10} \text{a}^{-1}$. Errors at level of one standard deviation.

See footnote to Table 3 for additional information.

Measured values for $(^{40}\text{Ar}/^{39}\text{Ar})_K$ correction factor: for 79-8 = 0.033 ± 0.010 ;
for 81-144 = 0.021 ± 0.001 ; for 78-1060 = 0.034 ± 0.015 ; for 78-1064 = 0.025 ± 0.009 .