TABLE DR1. $^{40}Ar/^{39}Ar$ DATA FOR 92C81-H

Step	Temp (°C)	Time (Mins)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$ ($\times 10^{-2}$)	^{39}Ar ($\times 10^{-14}$ mol)	$^{40}Ar^*$ (%)	$^{40}Ar^*/^{39}Ar_K$	Ca/K	% ^{39}Ar released	Age (Ma)
1	800	10	73.038	1.881	20.547	0.684	17.00	12.455	3.58	2.60	197.84 ± 5.62
2	900	10	11.294	2.366	3.018	0.804	22.30	2.522	4.50	5.65	41.85 ± 2.25
3	980	10	5.239	3.046	0.560	5.316	72.00	3.780	5.80	25.82	62.37 ± 0.49
4	1010	10	4.803	2.835	0.316	4.424	84.20	4.051	5.39	42.61	66.75 ± 0.54
5	1040	10	5.004	2.715	0.354	3.993	82.40	4.132	5.16	57.77	68.07 ± 0.57
6	1070	10	4.510	2.352	0.243	3.430	87.20	3.938	4.48	70.79	64.94 ± 0.74
7	1100	10	8.015	2.672	1.337	0.506	52.80	4.235	5.09	72.71	69.73 ± 1.42
8	1130	10	7.762	2.811	1.231	0.987	55.40	4.306	5.35	76.46	70.88 ± 0.81
9	1170	10	6.230	2.806	0.666	3.146	71.20	4.443	5.34	88.40	73.08 ± 4.42
10	1200	10	21.325	2.848	5.841	0.717	19.90	4.250	5.42	91.12	69.97 ± 2.84
11	1450	10	46.197	2.912	14.188	2.340	9.70	4.469	5.54	100.00	73.52 ± 4.18

Note: J = 9.306 x 10^{-3} ± 0.262%, weight = 10.1 mg.

TABLE DR2. $^{40}Ar/^{39}Ar$ DATA FOR 92G84a-K

Step	Temp (°C)	Time (mins)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$ ($\times 10^{-2}$)	$^{36}Ar/^{39}Ar$ ($\times 10^{-3}$)	^{39}Ar ($\times 10^{-15}$ mol)	$^{40}Ar^*$ (%)	$^{40}Ar^*/^{39}Ar_K$	% $^{39}Ar_K$ released	1000/T (K)	Ln(D/r²)	Age (Ma)
1	450	15	71.30	38502.55	2279.07	0.00	-806.2	0.001	0.00	1.383	-34.906	0.02 ± 4355.31
2	550	15	47.63	3388.30	6.99	0.01	100.7	48.897	0.00	1.215	-31.340	676.87 ± 32.97
3	650	15	28.16	2.49	314.29	0.01	-229.9	0.001	0.00	1.083	-29.874	0.02 ± 696.73
4	750	15	1.24	7.08	1.02	12.24	74.0	0.920	0.79	0.978	-16.728	15.39 ± 0.11
5	800	15	1.19	1.44	0.48	25.86	85.7	1.017	2.45	0.932	-14.568	17.00 ± 0.12
6	850	15	1.20	0.68	0.46	38.76	86.4	1.037	4.95	0.890	-13.338	17.33 ± 0.08
7	900	15	2.12	2.46	3.54	69.79	49.3	1.044	9.44	0.853	-12.085	17.46 ± 0.14
8	950	15	1.27	0.63	0.62	121.10	83.4	1.062	17.24	0.818	-10.917	17.76 ± 0.09
9	1000	15	1.33	3.70	0.87	120.10	78.7	1.046	24.97	0.786	-10.466	17.48 ± 0.17
10	1100	15	1.54	1.37	1.40	214.80	71.3	1.097	38.80	0.728	-9.472	18.34 ± 0.10
11	1200	15	1.43	1.41	0.79	538.30	81.8	1.167	73.46	0.679	-7.898	19.50 ± 0.13
12	1300	15	1.66	0.01	1.26	402.70	75.8	1.255	99.40	0.636	-6.375	20.95 ± 0.42
13	1550	15	31.11	80.37	81.05	9.39	23.1	7.188	100.00	0.549	-5.849	116.87 ± 6.25

Note: J = 9.3108 x 10^{-3} ± 0.247%, weight = 8.79 mg, planar sheet diffusion model.

TABLE DR3. $^{40}Ar/^{39}Ar$ DATA FOR 92G84e-K

Step	Temp (°C)	Time (mins)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$ ($\times 10^{-2}$)	$^{36}Ar/^{39}Ar$ ($\times 10^{-2}$)	^{39}Ar ($\times 10^{-14}$ mol)	$^{40}Ar^*$ (%)	$^{40}Ar^*/^{39}Ar_K$	% $^{39}Ar_K$ released	1000/T (K)	Ln(D/r²)	log(r/r$_0$)	Age (Ma)
1	450	15	13.899	1.7991	3.8714	0.327	17.5	2.436	0.25	1.383	-19.024	0.0053	40.46 ± 1.73
2	450	30	7.335	0.0042	2.0088	0.250	18.7	1.372	0.44	1.383	-18.966	-0.0073	22.91 ± 1.61
3	550	15	1.925	1.4624	0.2682	2.037	57.5	1.106	2.00	1.215	-14.914	-0.0170	18.49 ± 0.31
4	550	30	1.993	1.3252	0.3402	1.633	48.2	0.961	3.26	1.215	-15.063	0.0154	16.08 ± 0.28
5	650	15	1.357	1.6432	0.1218	7.321	71.5	0.970	8.87	1.083	-12.034	0.0393	16.23 ± 0.14
6	650	30	1.407	1.4210	0.1415	3.926	68.4	0.962	11.88	1.083	-12.813	0.2085	16.09 ± 0.18
7	700	15	1.291	1.4993	0.0944	4.274	76.3	0.986	15.16	1.028	-11.770	0.2703	16.48 ± 0.19
8	750	15	1.354	1.4395	0.0912	7.454	78.1	1.058	20.87	0.977	-10.927	0.3474	17.69 ± 0.11
9	800	15	1.406	1.6649	0.1144	5.368	74.1	1.042	24.98	0.932	-11.014	0.6022	17.42 ± 0.14
10	850	15	1.859	1.3942	0.2657	5.416	58.4	1.048	29.14	0.890	-10.839	0.7790	17.53 ± 0.11
11	900	15	1.758	1.1649	0.2302	6.633	59.8	1.050	34.22	0.852	-10.479	0.8974	17.56 ± 0.12
12	950	15	1.537	0.9910	0.1580	9.317	67.9	1.043	41.36	0.818	-9.963	0.9659	17.44 ± 0.11
13	1000	15	1.444	0.7456	0.1030	12.490	77.0	1.113	50.94	0.785	-9.475	1.0262	18.60 ± 0.31
14	1050	15	1.402	0.7463	0.1074	11.870	75.4	1.057	60.04	0.756	-9.289	1.1396	17.67 ± 0.11
15	1100	960	3.538	0.6500	0.7648	38.260	35.4	1.252	87.84	0.728	-11.691	1.8037	20.92 ± 0.23
16	1150	15	3.989	1.4546	0.9688	0.879	27.6	1.100	88.51	0.703	-10.570	1.6929	18.38 ± 0.85
17	1200	15	1.973	0.6583	0.2441	3.254	62.1	1.225	91.01	0.679	-9.113	1.5000	20.46 ± 0.16
18	1240	15	2.149	0.3974	0.2924	4.446	58.5	1.258	94.42	0.661	-8.447	1.4483	21.01 ± 0.17
19	1550	10	5.923	0.7801	1.1833	7.282	40.5	2.399	100.00	0.549	-5.145	1.3134	39.87 ± 0.80

Note: J = 9.3132 x 10^{-3} ± 0.240%, weight = 8.28 mg, E = 47.40 kcal.mol^{-1}, D_0/r^2 = 1.188 x 10^6 sec^{-1}, planar sheet diffusion model.

TABLE DR4. $^{40}Ar/^{39}Ar$ DATA FOR 92G98-K

Step	Temp (°C)	Time (mins)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$ ($x10^{-2}$)	$^{36}Ar/^{39}Ar$ ($x10^{-2}$)	^{39}Ar ($x10^{-14}$ mol)	$^{40}Ar^*$ (%)	$^{40}Ar^*/^{39}Ar_K$	% $^{39}Ar_K$ released	1000/T (K)	Ln(D/r²)	log(r/r₀)	Age (Ma)
1	450	15	26.727	4.3277	6.7315	0.242	25.5	6.804	0.23	1.383	-19.192	-0.0063	110.87 ± 56.75
2	450	30	11.922	4.1845	3.5470	0.169	11.9	1.417	0.39	1.383	-19.249	0.0061	23.67 ± 1.75
3	550	15	2.409	2.4756	0.4418	1.373	44.7	1.078	1.70	1.215	-15.249	-0.0258	18.03 ± 0.37
4	550	30	2.614	3.3156	0.5208	1.033	40.1	1.049	2.68	1.215	-15.486	0.0257	17.55 ± 0.55
5	650	15	1.564	2.6522	0.1973	4.664	61.1	0.955	7.12	1.083	-12.480	0.0284	15.98 ± 0.10
6	650	30	1.666	1.9121	0.2276	2.457	58.1	0.967	9.46	1.083	-13.293	0.2049	16.18 ± 0.17
7	700	15	1.439	1.3673	0.1485	2.690	67.7	0.974	12.02	1.028	-12.247	0.2550	16.29 ± 0.15
8	750	15	1.552	1.2480	0.1669	5.830	66.5	1.032	17.57	0.977	-11.153	0.2675	17.26 ± 0.13
9	800	15	1.786	1.0656	0.2421	4.499	58.4	1.043	21.86	0.932	-11.125	0.4882	17.45 ± 0.16
10	850	15	1.741	1.2042	0.2281	3.643	59.7	1.040	25.33	0.890	-11.156	0.7016	17.39 ± 0.25
11	900	15	1.546	1.0453	0.1615	4.941	67.4	1.042	30.03	0.852	-10.691	0.7896	17.43 ± 0.17
12	950	15	1.581	0.7471	0.1752	7.091	65.5	1.036	36.79	0.818	-10.142	0.8439	17.32 ± 0.16
13	1000	15	1.500	0.7243	0.1454	8.461	69.6	1.044	44.85	0.785	-9.765	0.9220	17.46 ± 0.13
14	1050	15	1.731	0.7585	0.2246	7.183	60.1	1.040	51.69	0.756	-9.763	1.0694	17.39 ± 0.17
15	1100	15	1.758	0.6933	0.2229	6.576	61.0	1.072	57.95	0.728	-9.680	1.1884	17.93 ± 0.20
16	1100	930	4.361	1.5527	1.0415	26.74	28.8	1.254	83.42	0.728	-11.904	1.6713	20.96 ± 0.37
17	1150	15	3.902	0.6550	0.8813	0.782	32.6	1.270	84.17	0.703	-10.785	1.5558	21.22 ± 0.43
18	1200	15	2.672	0.8559	0.4708	2.311	47.0	1.255	86.37	0.679	-9.605	1.4183	20.96 ± 0.36
19	1250	15	2.097	0.6522	0.2938	6.638	57.3	1.202	92.69	0.657	-8.178	1.2194	20.09 ± 0.14
20	1300	15	2.686	0.4236	0.4453	3.730	50.0	1.344	96.25	0.636	-8.112	1.3090	22.45 ± 0.21
21	1350	15	4.471	0.7032	0.9158	1.496	38.9	1.738	97.67	0.616	-8.445	1.4789	28.98 ± 0.97
22	1450	15	4.938	1.6771	1.1124	1.815	32.9	1.625	99.40	0.580	-7.401	1.4302	27.10 ± 0.64
23	1550	10	14.417	4.0822	3.1699	0.630	34.9	5.027	100.00	0.549	-5.444	1.1638	82.56 ± 1.89

Note: J = 9.3157 x 10^{-3} ± 0.232%, weight = 8.54 mg, E = 45.57 kcal.mol^{-1}, D_0/r^2 = 2.673 x 10^5 sec^{-1}, planar sheet diffusion model.

TABLE DR5. $^{40}Ar/^{39}Ar$ DATA FOR 92N48-K

Step	Temp (°C)	Time (mins)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$ ($x10^{-2}$)	$^{36}Ar/^{39}Ar$ ($x10^{-3}$)	^{39}Ar ($x10^{-14}$ mol)	$^{40}Ar^*$ (%)	$^{40}Ar^*/^{39}Ar_K$	% $^{39}Ar_K$ released	1000/T (K)	Ln(D/r²)	Age (Ma)
1	450	15	11.708	4.119	33.103	0.419	16.2	1.901	0.23	1.383	-19.175	31.69 ± 1.57
2	450	30	2.625	0.007	5.347	0.323	38.7	1.017	0.41	1.383	-19.110	17.02 ± 0.40
3	550	15	1.501	2.670	1.625	2.704	66.3	0.995	1.91	1.215	-15.009	16.65 ± 0.13
4	550	30	1.245	0.002	0.768	2.064	79.5	0.991	3.05	1.215	-15.213	16.58 ± 0.28
5	650	15	1.351	1.153	1.048	6.992	75.1	1.014	6.92	1.083	-12.601	16.97 ± 0.12
6	650	30	1.339	1.810	0.607	3.954	84.6	1.133	9.11	1.083	-13.389	18.95 ± 0.12
7	700	15	1.345	0.179	0.554	4.059	85.8	1.154	11.36	1.028	-12.426	19.30 ± 0.16
8	750	15	1.576	0.218	1.113	7.086	77.4	1.220	15.28	0.977	-11.605	20.39 ± 0.18
9	800	15	2.785	1.624	4.260	5.261	53.9	1.499	18.20	0.932	-11.674	25.03 ± 0.29
10	850	15	2.102	1.038	2.018	5.095	70.4	1.480	21.02	0.890	-11.548	24.72 ± 0.22
11	900	15	1.867	2.146	1.346	5.564	77.3	1.444	24.10	0.852	-11.320	24.12 ± 0.17
12	950	15	1.818	2.360	1.398	6.602	75.8	1.378	27.75	0.818	-11.010	23.02 ± 0.24
13	1000	15	2.147	1.271	2.752	6.348	60.9	1.307	31.27	0.785	-10.919	21.84 ± 0.18
14	1050	15	2.221	2.072	3.326	7.421	54.6	1.212	35.38	0.756	-10.642	20.26 ± 0.21
15	1100	15	1.985	0.402	2.277	11.440	64.7	1.285	41.71	0.728	-10.063	21.47 ± 0.14
16	1100	960	2.095	0.639	2.125	66.220	68.7	1.439	78.37	0.728	-11.880	24.03 ± 0.18
17	1200	15	1.909	0.604	2.689	6.422	56.9	1.087	81.93	0.679	-9.422	18.18 ± 0.17
18	1240	15	1.763	1.176	2.178	17.350	62.0	1.093	91.54	0.661	-7.982	18.28 ± 0.14
19	1280	15	1.824	0.951	2.341	12.360	60.6	1.106	98.38	0.644	-7.203	18.50 ± 0.16
20	1350	15	5.831	8.141	15.591	2.286	20.6	1.201	99.64	0.616	-7.290	20.07 ± 0.50
21	1450	15	110.395	40.242	358.206	0.464	4.1	4.573	99.90	0.580	-7.463	75.28 ± 12.80
22	1550	15	120.056	93.608	389.049	0.180	5.0	6.035	100.00	0.549	-6.179	98.71 ± 14.89

Note: J = 9.3181 x 10^{-3} ± 0.225%, weight = 8.33 mg, E = 47.69 kcal.mol^{-1}, D_0/r^2 = 1.256 x 10^6 sec^{-1}, planar sheet diffusion model.

TABLE DR6. ANALYTICAL DATA FOR BIOTITE SAMPLES

Sample	J-factor ($\times 10^{-3}$)	^{40}Ar ($\times 10^{-14}$ mol)	^{39}Ar ($\times 10^{-14}$ mol)	^{37}Ar ($\times 10^{-16}$ mol)	^{36}Ar ($\times 10^{-16}$ mol)	$^{40}Ar^{*}$ (%)	$^{40}Ar^{*}/^{39}Ar_{K}$	% $^{39}Ar_{K}$ released	Age (Ma)
92C81-B	9.31	1.015	0.645	0.593	0.130	61.9	1.009	21.65	16.87 ± 0.50
92C81-B	9.31	0.781	0.620	0.573	0.044	81.2	1.023	42.45	17.09 ± 0.90
92C81-B	9.31	1.993	1.714	3.436	0.047	90.7	1.055	100.00	17.63 ± 0.11
92C81-B	9.31	3.825	2.979	4.602	0.221	82.5	1.038	total fusion	17.35 ± 0.36[1]
92G84a-B	9.96	6.929	2.985	1.218	1.369	70.1	0.950	total fusion	16.4 ± 0.5
92N48-B	9.56	2.921	2.188	2.036	0.213	82.0	1.032	total fusion	17.8 ± 0.2
92N49a-B	10.00	1.421	0.856	4.394	0.194	59.0	0.979	total fusion	17.6 ± 0.2

[1]Weighted mean of apparent ages for previous three steps.