DATA REPOSITORY ITEM 2003144

APPENDIX

$^{40}Ar/^{39}Ar$ analytical methods

All $^{40}Ar/^{39}Ar$ analyses were conducted at the $^{40}Ar/^{39}Ar$ geochronology laboratory at UC Santa Barbara. Samples were step-heated in a Staudecher-type furnace and analyzed on a Nier source MAP 216 mass spectrometer. Replicate temperature steps for the K-feldspar samples were conducted, especially at low temperature, to degas excess Ar. Samples were irradiated at the Oregon State University research reactor in the CLICIT facility and J-values were monitored using Taylor Creek Rhyolite sanidine using an assumed age of 27.92 Ma.

$^{40}Ar/^{39}Ar$ K-feldspar modeling procedures

Diffusion parameters E and $\log(D_0/r_0)$ were fit to the Arrhenius plot of the ^{39}Ar diffusion data. A best fit distribution of diffusion domains was then calculated. Randomly generated cooling histories were then applied to these diffusion domains to create synthetic age spectra using software developed by Lovera (1992). By comparing which cooling histories generated synthetic age spectra that best matched the actual age spectrum, best-fit cooling histories were selected. Reported cooling histories represent an average of best-fit cooling histories for a given sample.

TABLE DR1. $^{40}Ar/^{39}Ar$ DATA ON SANIDINE FROM 12.4 Ma IGNIMBRITE

Temperature (°C)	Time (min)	^{40}Ar (mol)	$^{40}Ar/^{39}Ar$	$^{38}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	K/Ca	× ^{39}Ar	^{40}Ar *	Age (Ma)
1200	13	1.2e-14	2.4950	0.0e+0	0.0468	0.0012	10	0.13332	0.858	12.1 ± 0.1
1200	15	7.3e-15	2.4111	0.0e+0	0.0767	0.0008	6.4	0.21652	0.908	12.4 ± 0.2
1200	15	7.4e-15	2.5215	0.0e+0	0.0480	0.0011	10	0.29718	0.869	12.4 ± 0.2
1220	12	2.5e-14	2.5470	0.0e+0	0.0783	0.0012	6.3	0.56995	0.861	12.4 ± 0.1
1000	15	4.9e-14	6.1462	0.0e+0	0.0658	0.0133	7.4	0.79211	0.361	12.6 ± 0.1
1220	15	2.0e-14	2.7072	0.0e+0	0.0556	0.0017	8.8	1.00000	0.810	12.4 ± 0.1

Sample:SB46-19
J=0.0031512
Total fusion age, TFA= 12.41 ± 0.05 Ma (including J)
Weighted mean plateau age, WMPA= 12.40 ± 0.05 Ma (including J)
Inverse isochron age =12.36 ± 0.06 Ma. (MSWD =1.17; 40Ar/36Ar=298.3 ± 2.1)
Steps used: 1200, 1200, 1200, 1220, 1000, 1220, (1–6/6 or 100% × 39Ar)
t = dwell time in minutes.
40(mol) = moles corrected for blank and reactor-produced 40.
Ratios are corrected for blanks, decay, and interference.
× 39Ar is cumulative, 40Ar* = rad fraction.

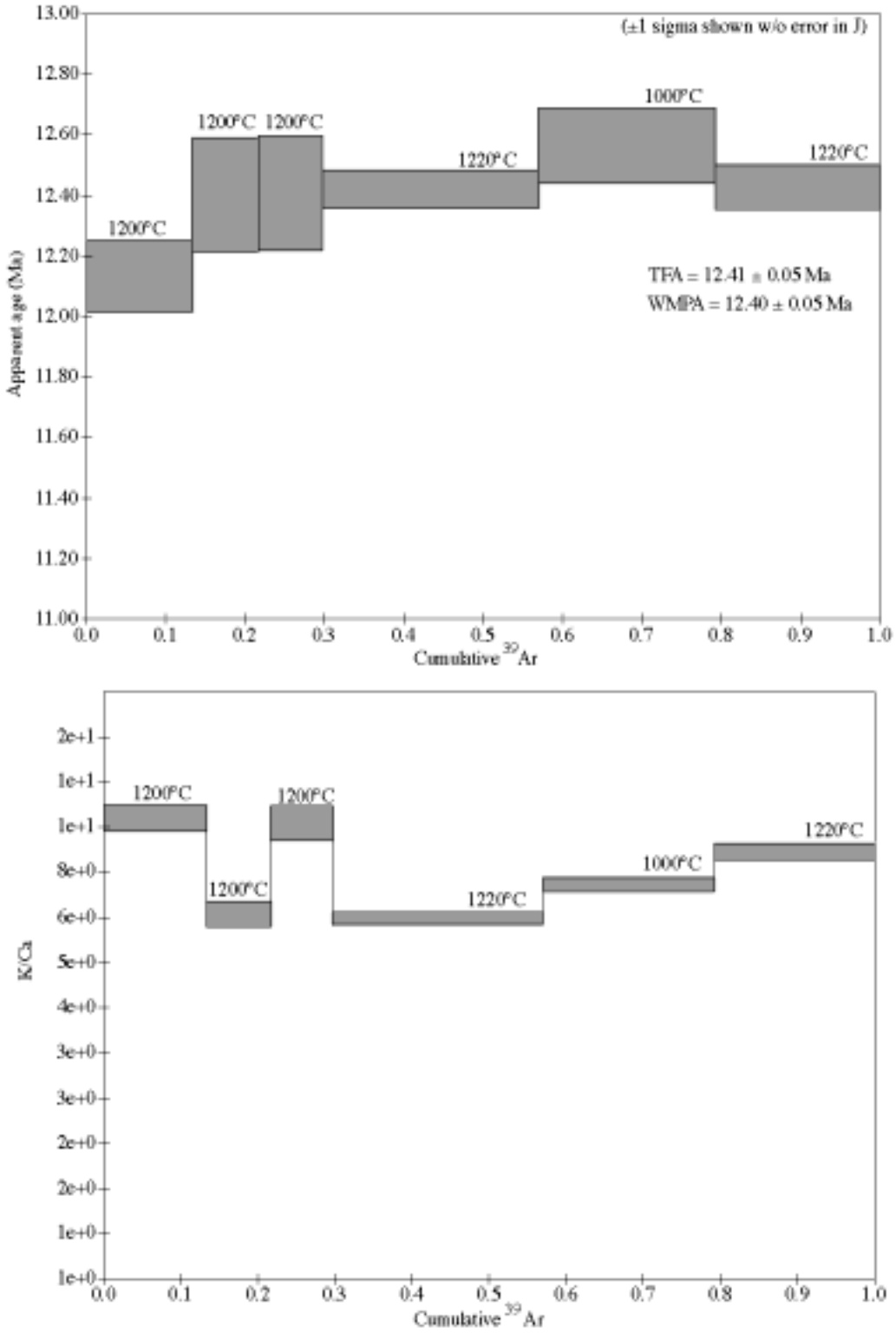

Figure DR1. $^{40}Ar/^{39}Ar$ age spectra (top) and K/Ca plot (bottom) on sanidine from the 12.4 Ma ignimbrite. The left four temperature steps are total fusion analyses on single or double grains of sanidine, whereas the last two temperature steps are step heating analyses of eight sanidine grains.

TABLE DR2. $^{40}Ar/^{39}Ar$ DATA FROM K-FELDSPAR SAMPLE M1

Temperature (°C)	Time (min)	^{40}Ar (mol)	$^{40}Ar/^{39}Ar$	$^{38}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	K/Ca	× ^{39}Ar	^{40}Ar *	Age (Ma)
500	25	2.8e-14	3.5696	0.0e+0	0.0113	0.0055	44	0.01377	0.543	14.8 ± 0.1
550	15	4.1e-14	2.7519	0.0e+0	0.0094	0.0026	52	0.02477	0.725	15.3 ± 0.1
550	25	2.9e-14	2.5313	0.0e+0	0.0082	0.0019	60	0.03310	0.781	15.1 ± 0.1
550	40	2.6e-14	2.5680	0.0e+0	0.0081	0.0019	60	0.04047	0.781	15.3 ± 0.1
600	15	3.4e-14	2.5671	0.0e+0	0.0102	0.0016	48	0.05028	0.815	16.0 ± 0.1
600	25	2.9e-14	2.3833	0.0e+0	0.0084	0.0011	58	0.05908	0.867	15.8 ± 0.1
650	15	5.3e-14	2.4256	0.0e+0	0.0098	0.0010	50	0.07491	0.876	16.2 ± 0.1
650	25	4.3e-14	2.2780	0.0e+0	0.0086	0.0006	57	0.08876	0.917	16.0 ± 0.1
680	15	4.1e-14	2.2583	0.0e+0	0.0081	0.0005	61	0.10215	0.934	16.1 ± 0.1
700	15	4.6e-14	2.2409	0.0e+0	0.0075	0.0005	65	0.11704	0.936	16.0 ± 0.0
700	25	4.3e-14	2.2008	0.0e+0	0.0064	0.0003	76	0.13132	0.954	16.0 ± 0.0
730	15	3.9e-14	2.2137	0.0e+0	0.0046	0.0004	107	0.14404	0.947	16.0 ± 0.1
760	15	4.9e-14	2.2170	0.0e+0	0.0062	0.0004	80	0.16032	0.950	16.1 ± 0.0
790	15	5.3e-14	2.2178	0.0e+0	0.0065	0.0004	75	0.17782	0.949	16.1 ± 0.0
820	15	4.9e-14	2.2284	0.0e+0	0.0125	0.0004	39	0.19394	0.948	16.2 ± 0.0
850	15	4.6e-14	2.2501	0.0e+0	0.0098	0.0004	50	0.20884	0.947	16.3 ± 0.0
880	15	4.7e-14	2.3120	0.0e+0	0.0101	0.0006	49	0.22379	0.928	16.4 ± 0.0
900	15	4.5e-14	2.3506	0.0e+0	0.0087	0.0007	57	0.23784	0.918	16.5 ± 0.0
900	25	4.6e-14	2.3217	0.0e+0	0.0068	0.0005	72	0.25248	0.940	16.7 ± 0.0
930	15	3.7e-14	2.3867	0.0e+0	0.0042	0.0006	116	0.26376	0.928	16.9 ± 0.1
960	15	4.9e-14	2.4469	0.0e+0	0.0044	0.0008	112	0.27835	0.905	16.9 ± 0.1
980	15	5.2e-14	2.4859	0.0e+0	0.0046	0.0009	107	0.29374	0.896	17.0 ± 0.0
1000	15	5.8e-14	2.5575	0.0e+0	0.0060	0.0011	81	0.31021	0.878	17.2 ± 0.0
1020	15	6.2e-14	2.6205	0.0e+0	0.0051	0.0012	96	0.32737	0.870	17.4 ± 0.0
1040	15	7.0e-14	2.6737	0.0e+0	0.0044	0.0012	111	0.34647	0.863	17.6 ± 0.0
1060	15	7.9e-14	2.7267	0.0e+0	0.0055	0.0014	89	0.36770	0.851	17.7 ± 0.0
1080	15	9.2e-14	2.7793	0.0e+0	0.0061	0.0015	80	0.39179	0.842	17.9 ± 0.0
1100	15	1.1e-13	2.8499	0.0e+0	0.0067	0.0017	73	0.42034	0.825	18.0 ± 0.0
1100	25	1.0e-13	2.8199	0.0e+0	0.0074	0.0015	67	0.44643	0.846	18.2 ± 0.0
1100	40	1.1e-13	2.8816	0.0e+0	0.0062	0.0016	79	0.47418	0.840	18.5 ± 0.0
1100	70	1.3e-13	2.9354	0.0e+0	0.0068	0.0017	72	0.50623	0.827	18.5 ± 0.0
1100	110	1.2e-13	2.9611	0.0e+0	0.0051	0.0018	95	0.53606	0.824	18.6 ± 0.0
1100	180	1.2e-13	2.8990	0.0e+0	0.0054	0.0015	91	0.56645	0.843	18.7 ± 0.0
1100	240	1.1e-13	2.8793	0.0e+0	0.0048	0.0014	103	0.59513	0.853	18.8 ± 0.0
1100	300	1.1e-13	2.8722	0.0e+0	0.0040	0.0014	123	0.62191	0.855	18.8 ± 0.0
1170	12	3.3e-14	3.1524	0.0e+0	0.0062	0.0026	79	0.62958	0.758	18.3 ± 0.1
1190	12	7.5e-14	3.3942	0.0e+0	0.0073	0.0034	67	0.64575	0.705	18.3 ± 0.1
1205	12	1.3e-13	3.3847	0.0e+0	0.0068	0.0032	72	0.67292	0.717	18.5 ± 0.0
1220	12	1.9e-13	3.2914	0.0e+0	0.0053	0.0029	93	0.71409	0.742	18.7 ± 0.0
1230	12	2.1e-13	3.2155	0.0e+0	0.0036	0.0025	137	0.76199	0.766	18.8 ± 0.0
1240	12	2.2e-13	3.1624	0.0e+0	0.0042	0.0023	118	0.81326	0.783	18.9 ± 0.0
1250	12	2.3e-13	3.0583	0.0e+0	0.0030	0.0019	164	0.86837	0.815	19.0 ± 0.0
1260	12	2.2e-13	3.0079	0.0e+0	0.0028	0.0017	174	0.92271	0.837	19.2 ± 0.0
1270	12	1.8e-13	2.9760	0.0e+0	0.0017	0.0015	284	0.96711	0.853	19.4 ± 0.0
1285	12	1.1e-13	2.9679	0.0e+0	0.0009	0.0014	553	0.99458	0.864	19.6 ± 0.0
1300	12	2.1e-14	3.0313	0.0e+0	0.0001	0.0015	4761	0.99962	0.857	19.8 ± 0.1
1320	20	3.2e-15	6.0975	0.0e+0	0.1175	0.0108	4.2	1.00000	0.475	22.1 ± 1.4

Sample: SB43-114
J=0.0042569
t = dwell time in minutes.
40(mol) = moles corrected for blank and reactor-produced 40.
Ratios are corrected for blanks, decay, and interference.
× 39Ar is cumulative, 40Ar* = rad fraction.

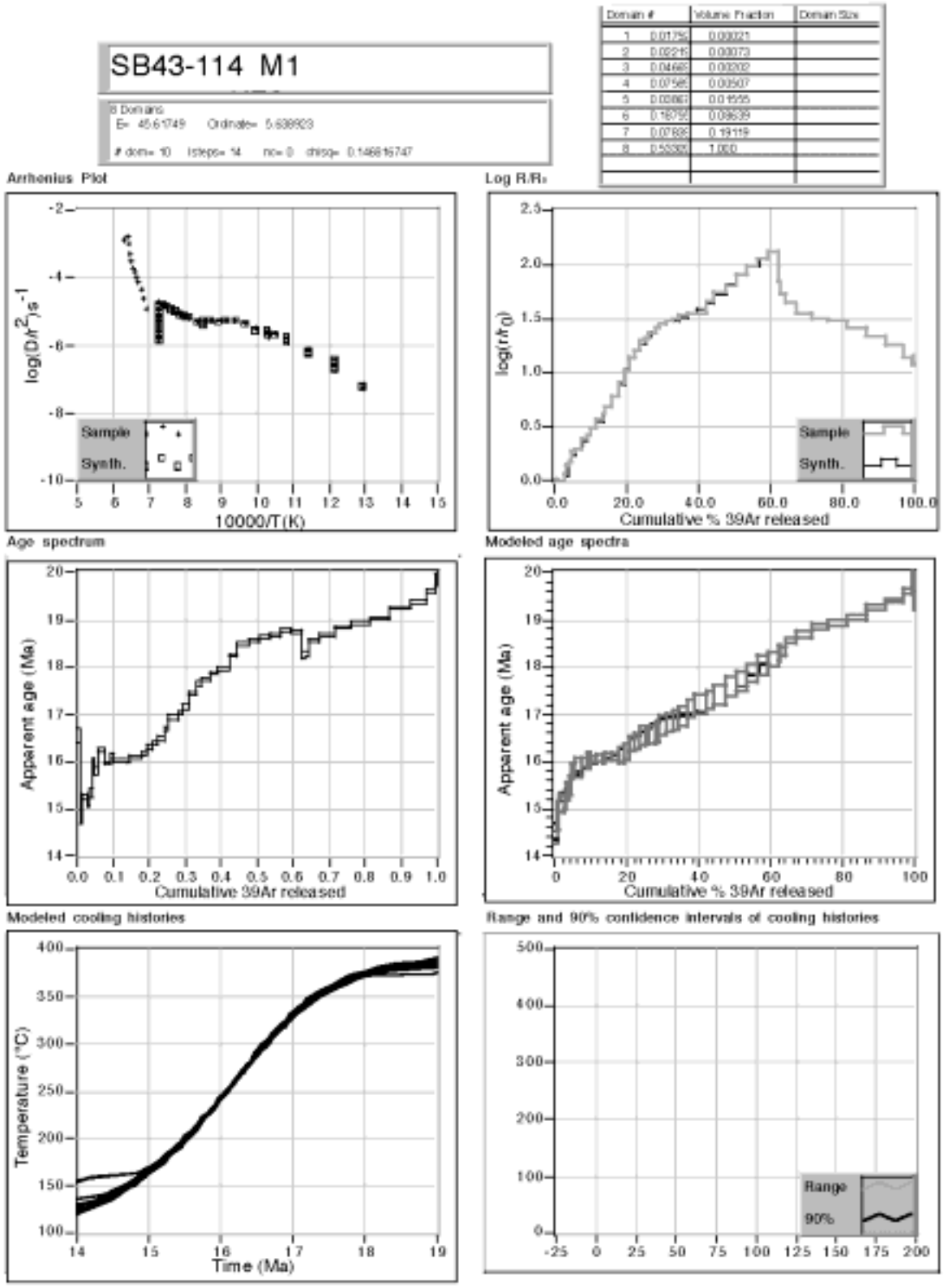

Figure DR2. Multi-domain diffusion modeling results for K-feldspar sample M1.

TABLE DR3. $^{40}Ar/^{39}Ar$ DATA FROM K-FELDSPAR SAMPLE M2

Temperature (°C)	Time (min)	^{40}Ar (mol)	$^{40}Ar/^{39}Ar$	$^{38}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	K/Ca	× ^{39}Ar	^{40}Ar *	Age (Ma)
500	12	6.8e-14	24.7545	3.1e-2	0.0202	0.0636	24	0.02261	0.241	21.2 ± 0.3
500	18	2.6e-14	14.4499	3.0e-4	0.0160	0.0324	31	0.03772	0.338	17.4 ± 0.2
500	25	2.0e-14	12.2318	0.0e+0	0.0136	0.0246	36	0.05129	0.405	17.7 ± 0.2
550	12	2.8e-14	8.1956	0.0e+0	0.0165	0.0107	30	0.07931	0.613	17.9 ± 0.1
550	18	2.1e-14	7.7061	0.0e+0	0.0163	0.0092	30	0.10134	0.646	17.8 ± 0.1
550	25	1.8e-14	7.6251	0.0e+0	0.0171	0.0090	29	0.12027	0.650	17.7 ± 0.1
600	15	3.3e-14	6.8491	0.0e+0	0.0189	0.0060	26	0.15974	0.743	18.2 ± 0.1
600	23	2.2e-14	6.2624	0.0e+0	0.0178	0.0041	27	0.18834	0.805	18.0 ± 0.1
640	15	3.9e-14	5.9420	0.0e+0	0.0199	0.0028	25	0.24249	0.859	18.2 ± 0.1
640	23	3.1e-14	5.7247	0.0e+0	0.0180	0.0022	27	0.28700	0.887	18.1 ± 0.1
640	40	3.3e-14	5.6522	0.0e+0	0.0174	0.0019	28	0.33514	0.902	18.2 ± 0.0
680	15	2.7e-14	5.5451	0.0e+0	0.0173	0.0014	28	0.37511	0.923	18.3 ± 0.1
680	23	2.5e-14	5.4959	0.0e+0	0.0144	0.0013	34	0.41251	0.928	18.2 ± 0.1
720	15	3.3e-14	5.4635	0.0e+0	0.0140	0.0011	35	0.46221	0.940	18.3 ± 0.0
720	23	2.8e-14	5.4285	0.0e+0	0.0126	0.0009	39	0.50543	0.952	18.5 ± 0.0
750	15	2.7e-14	5.4179	0.0e+0	0.0129	0.0008	38	0.54579	0.954	18.4 ± 0.0
780	15	3.1e-14	5.4144	0.0e+0	0.0132	0.0009	37	0.59347	0.953	18.4 ± 0.0
810	15	3.7e-14	5.4272	0.0e+0	0.0146	0.0008	34	0.64984	0.956	18.5 ± 0.0
840	15	3.4e-14	5.4373	0.0e+0	0.0155	0.0007	32	0.70151	0.959	18.6 ± 0.0
870	15	3.3e-14	5.4577	0.0e+0	0.0144	0.0009	34	0.75133	0.952	18.5 ± 0.0
900	15	3.3e-14	5.4945	0.0e+0	0.0122	0.0009	40	0.80037	0.949	18.6 ± 0.0
900	25	3.0e-14	5.5571	0.0e+0	0.0099	0.0011	49	0.84558	0.942	18.7 ± 0.0
920	15	2.1e-14	5.6871	0.0e+0	0.0088	0.0014	56	0.87595	0.925	18.8 ± 0.1
940	15	2.6e-14	5.8735	0.0e+0	0.0088	0.0020	56	0.91288	0.899	18.8 ± 0.1
960	15	3.1e-14	6.1462	0.0e+0	0.0080	0.0029	61	0.95431	0.858	18.8 ± 0.1
980	15	3.6e-14	6.4765	0.0e+0	0.0086	0.0040	57	1.00000	0.819	18.9 ± 0.1
1000	15	3.9e-14	6.7132	0.0e+0	0.0089	0.0046	55	0.02796	0.798	19.1 ± 0.1
1000	25	4.7e-14	6.7752	0.0e+0	0.0081	0.0047	61	0.06121	0.796	19.2 ± 0.0
1015	15	3.2e-14	7.0107	0.0e+0	0.0083	0.0054	59	0.08294	0.773	19.3 ± 0.1
1030	15	3.4e-14	7.1356	0.0e+0	0.0110	0.0059	45	0.10573	0.754	19.2 ± 0.1
1045	15	3.7e-14	7.3425	0.0e+0	0.0135	0.0065	36	0.12958	0.740	19.4 ± 0.1
1060	15	3.9e-14	7.4575	0.0e+0	0.0160	0.0066	31	0.15424	0.737	19.6 ± 0.1
1070	15	3.6e-14	7.4175	0.0e+0	0.0180	0.0065	27	0.17761	0.740	19.6 ± 0.1
1080	15	3.6e-14	7.4857	0.0e+0	0.0210	0.0068	23	0.20048	0.731	19.5 ± 0.1
1090	15	3.5e-14	7.4557	0.0e+0	0.0221	0.0065	22	0.22261	0.742	19.7 ± 0.1
1100	20	3.4e-14	7.3825	0.0e+0	0.0205	0.0062	24	0.24421	0.751	19.8 ± 0.1
1100	40	3.4e-14	7.0834	0.0e+0	0.0156	0.0053	31	0.26716	0.778	19.7 ± 0.1
1100	120	6.7e-14	6.8058	0.0e+0	0.0109	0.0042	45	0.31427	0.816	19.8 ± 0.0
1100	200	5.9e-14	6.6758	0.0e+0	0.0068	0.0037	72	0.35648	0.835	19.9 ± 0.0
1100	300	5.8e-14	6.6636	0.0e+0	0.0040	0.0038	124	0.39760	0.833	19.8 ± 0.0
1100	240	3.5e-14	6.6442	0.0e+0	0.0031	0.0037	159	0.42246	0.836	19.8 ± 0.1
1170	12	4.9e-14	7.5742	0.0e+0	0.0160	0.0063	31	0.45338	0.752	20.3 ± 0.1
1185	12	9.0e-14	7.6118	0.0e+0	0.0135	0.0065	36	0.50955	0.748	20.3 ± 0.0
1200	12	1.1e-13	7.5851	0.0e+0	0.0089	0.0064	55	0.57953	0.749	20.3 ± 0.0
1210	12	1.0e-13	7.5350	0.0e+0	0.0064	0.0063	77	0.64392	0.753	20.3 ± 0.0
1220	12	9.6e-14	7.4318	0.0e+0	0.0044	0.0059	113	0.70559	0.764	20.3 ± 0.0
1230	12	9.7e-14	7.3729	0.0e+0	0.0031	0.0057	156	0.76812	0.770	20.3 ± 0.0
1240	12	9.6e-14	7.3406	0.0e+0	0.0025	0.0056	199	0.83062	0.774	20.3 ± 0.0
1250	12	9.1e-14	7.2919	0.0e+0	0.0022	0.0054	227	0.88974	0.781	20.3 ± 0.0
1260	12	7.8e-14	7.2523	0.0e+0	0.0015	0.0052	322	0.94099	0.787	20.4 ± 0.0
1270	15	6.2e-14	7.3674	0.0e+0	0.0011	0.0056	430	0.98080	0.777	20.4 ± 0.0
1300	20	3.3e-14	8.1253	0.0e+0	0.0003	0.0078	1866	1.00000	0.715	20.7 ± 0.1

Sample: SB37-61

J=0.0019886
t = dwell time in minutes.
40(mol) = moles corrected for blank and reactor-produced 40.
Ratios are corrected for blanks, decay, and interference.
× 39Ar is cumulative, 40Ar* = rad fraction.

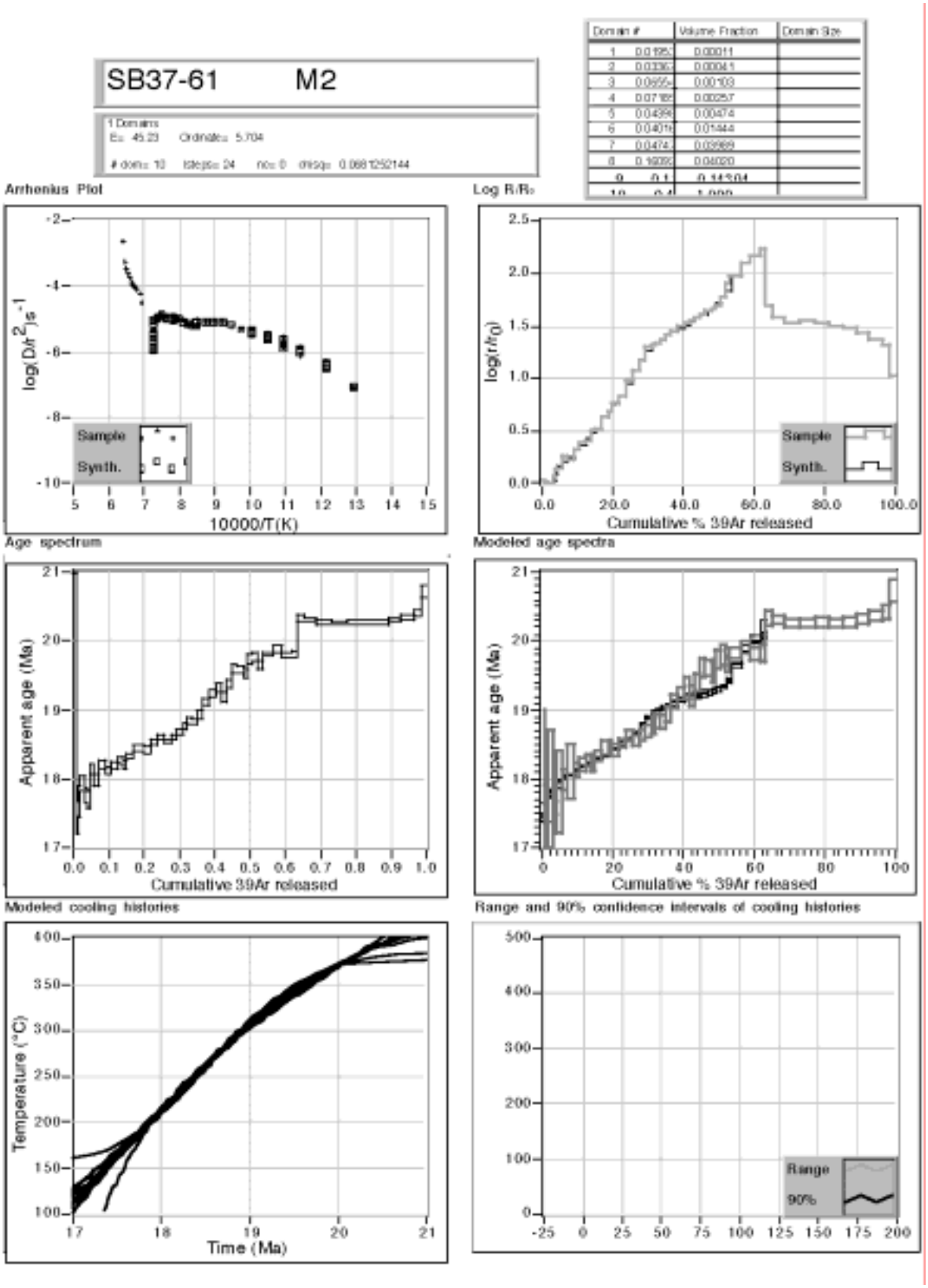

Figure DR3. Multi-domain diffusion modeling results for K-feldspar sample M2.

TABLE DR4. $^{40}Ar/^{39}Ar$ DATA FROM K-FELDSPAR SAMPLE M3

Temperature (°C)	Time (min)	^{40}Ar (mol)	$^{40}Ar/^{39}Ar$	$^{38}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	K/Ca	× ^{39}Ar	^{40}Ar *	Age (Ma)
500	12	4.6e-14	28.4871	9.2e-3	0.0239	0.0561	21	0.00571	0.418	42.4 ± 0.3
500	18	1.7e-14	12.1512	6.6e-4	0.0182	0.0211	27	0.01063	0.488	21.2 ± 0.3
500	25	1.4e-14	9.7965	0.0e+0	0.0169	0.0142	29	0.01548	0.572	20.1 ± 0.2
550	12	3.4e-14	10.2649	0.0e+0	0.0166	0.0102	29	0.02716	0.707	26.0 ± 0.1
550	18	2.0e-14	6.5792	0.0e+0	0.0156	0.0041	31	0.03780	0.815	19.2 ± 0.1
550	25	1.7e-14	6.2630	0.0e+0	0.0158	0.0030	31	0.04742	0.857	19.2 ± 0.1
600	15	5.1e-14	7.4755	0.0e+0	0.0182	0.0048	27	0.07124	0.811	21.7 ± 0.1
600	25	3.7e-14	5.8025	0.0e+0	0.0170	0.0015	29	0.09385	0.924	19.2 ± 0.0
600	40	3.8e-14	5.7308	0.0e+0	0.0156	0.0012	31	0.11728	0.938	19.3 ± 0.0
640	15	4.5e-14	6.1643	0.0e+0	0.0165	0.0021	30	0.14295	0.899	19.9 ± 0.0
640	25	4.7e-14	5.6232	0.0e+0	0.0157	0.0008	31	0.17212	0.956	19.3 ± 0.0
680	15	7.3e-14	5.9348	0.0e+0	0.0169	0.0014	29	0.21526	0.931	19.8 ± 0.0
680	25	7.1e-14	5.6131	0.0e+0	0.0136	0.0007	36	0.25994	0.963	19.4 ± 0.0
720	15	9.3e-14	5.7662	0.0e+0	0.0121	0.0010	41	0.31647	0.946	19.6 ± 0.0
720	25	8.6e-14	5.5808	0.0e+0	0.0102	0.0006	48	0.37067	0.971	19.4 ± 0.0
760	15	9.8e-14	5.7222	0.0e+0	0.0099	0.0008	49	0.43064	0.956	19.6 ± 0.0
760	25	8.6e-14	5.5710	0.0e+0	0.0096	0.0005	51	0.48485	0.973	19.4 ± 0.0
800	15	8.7e-14	5.6945	0.0e+0	0.0114	0.0007	43	0.53836	0.963	19.6 ± 0.0
800	25	7.5e-14	5.5977	0.0e+0	0.0121	0.0005	40	0.58530	0.974	19.5 ± 0.0
825	15	5.1e-14	5.6389	0.0e+0	0.0137	0.0005	36	0.61713	0.971	19.6 ± 0.0
850	15	5.8e-14	5.6744	0.0e+0	0.0144	0.0006	34	0.65293	0.969	19.7 ± 0.0
875	15	6.1e-14	5.7036	0.0e+0	0.0152	0.0007	32	0.69046	0.965	19.7 ± 0.0
900	15	6.3e-14	5.7543	0.0e+0	0.0142	0.0008	34	0.72885	0.959	19.8 ± 0.0
900	25	6.1e-14	5.7354	0.0e+0	0.0113	0.0007	44	0.76638	0.965	19.8 ± 0.0
920	15	4.1e-14	5.8918	0.0e+0	0.0095	0.0012	52	0.79058	0.942	19.9 ± 0.0
940	15	4.7e-14	6.0224	0.0e+0	0.0084	0.0014	59	0.81826	0.931	20.1 ± 0.0
960	15	5.4e-14	6.1882	0.0e+0	0.0076	0.0019	64	0.84911	0.911	20.2 ± 0.0
980	15	6.1e-14	6.3525	0.0e+0	0.0070	0.0022	70	0.88297	0.898	20.4 ± 0.0
990	15	5.7e-14	6.4927	0.0e+0	0.0063	0.0026	77	0.91359	0.882	20.5 ± 0.0
1000	15	5.5e-14	6.6978	0.0e+0	0.0065	0.0031	75	0.94263	0.865	20.7 ± 0.0
1000	25	6.8e-14	6.7347	0.0e+0	0.0061	0.0031	80	0.97824	0.862	20.8 ± 0.0
1010	15	4.3e-14	6.9838	0.0e+0	0.0067	0.0038	73	1.00000	0.838	20.9 ± 0.1
1020	15	4.6e-14	7.1256	0.0e+0	0.0059	0.0040	83	0.02201	0.833	21.2 ± 0.1
1030	15	4.6e-14	7.0484	0.0e+0	0.0070	0.0037	70	0.04443	0.844	21.3 ± 0.1
1040	15	4.8e-14	7.1401	0.0e+0	0.0076	0.0040	65	0.06728	0.834	21.3 ± 0.1
1050	15	4.7e-14	7.1015	0.0e+0	0.0076	0.0038	65	0.09019	0.842	21.4 ± 0.1
1060	15	4.7e-14	7.1088	0.0e+0	0.0082	0.0038	59	0.11304	0.844	21.5 ± 0.1
1070	15	4.6e-14	6.9901	0.0e+0	0.0084	0.0034	58	0.13564	0.857	21.4 ± 0.1
1080	15	4.6e-14	6.9991	0.0e+0	0.0090	0.0033	54	0.15793	0.859	21.5 ± 0.1
1090	15	4.5e-14	6.9972	0.0e+0	0.0097	0.0032	51	0.18004	0.863	21.6 ± 0.1
1100	15	4.4e-14	6.9289	0.0e+0	0.0109	0.0029	45	0.20190	0.876	21.7 ± 0.1
1100	22	4.8e-14	6.7148	0.0e+0	0.0101	0.0024	48	0.22626	0.896	21.5 ± 0.0
1100	30	5.0e-14	6.6634	0.0e+0	0.0092	0.0021	54	0.25195	0.907	21.6 ± 0.0
1100	40	5.2e-14	6.7024	0.0e+0	0.0087	0.0020	56	0.27857	0.910	21.8 ± 0.0
1100	60	6.0e-14	6.7299	0.0e+0	0.0083	0.0021	59	0.30918	0.910	21.9 ± 0.0
1100	90	6.9e-14	6.8202	0.0e+0	0.0081	0.0021	60	0.34382	0.909	22.2 ± 0.0
1100	150	7.8e-14	6.8930	0.0e+0	0.0065	0.0021	75	0.38256	0.909	22.4 ± 0.0
1100	200	6.9e-14	6.9886	0.0e+0	0.0054	0.0023	91	0.41665	0.903	22.6 ± 0.0

1100	300	7.6e-14	7.1520	0.0e+0	0.0049	0.0025	100	0.45320	0.897	23.0 ± 0.0
1100	300	6.3e-14	7.3215	0.0e+0	0.0051	0.0028	97	0.48265	0.886	23.2 ± 0.0
1170	12	1.0e-13	9.5068	0.0e+0	0.0223	0.0081	22	0.51895	0.748	25.4 ± 0.1
1185	12	1.5e-13	9.3775	0.0e+0	0.0099	0.0083	50	0.57217	0.738	24.8 ± 0.0
1200	12	1.8e-13	9.3028	0.0e+0	0.0069	0.0082	71	0.63688	0.740	24.6 ± 0.0
1205	12	1.4e-13	9.3906	0.0e+0	0.0054	0.0086	91	0.68829	0.730	24.5 ± 0.0
1210	12	1.1e-13	9.4240	0.0e+0	0.0045	0.0087	109	0.72700	0.727	24.5 ± 0.1
1220	12	9.5e-14	9.4221	0.0e+0	0.0040	0.0086	122	0.76143	0.729	24.6 ± 0.1
1230	12	9.3e-14	9.3955	0.0e+0	0.0034	0.0084	144	0.79533	0.736	24.8 ± 0.1
1240	12	9.8e-14	9.3823	0.0e+0	0.0033	0.0083	146	0.83129	0.738	24.8 ± 0.1
1255	12	1.2e-13	9.3052	0.0e+0	0.0028	0.0080	173	0.87656	0.746	24.8 ± 0.0
1270	12	1.5e-13	9.3081	0.0e+0	0.0019	0.0079	260	0.93047	0.750	25.0 ± 0.0
1275	15	1.2e-13	9.5079	0.0e+0	0.0010	0.0082	471	0.97391	0.747	25.4 ± 0.0
1280	12	4.6e-14	9.7939	0.0e+0	0.0015	0.0087	321	0.99014	0.739	25.9 ± 0.1
1290	12	2.1e-14	9.9891	0.0e+0	0.0016	0.0086	306	0.99722	0.746	26.6 ± 0.1
1300	20	8.3e-15	10.2902	0.0e+0	0.0053	0.0098	92	1.00000	0.719	26.5 ± 0.3

Sample: SB37-59
J=0.0019965
t = dwell time in minutes.
40(mol) = moles corrected for blank and reactor-produced 40.
Ratios are corrected for blanks, decay, and interference.
× 39Ar is cumulative, 40Ar* = rad fraction.

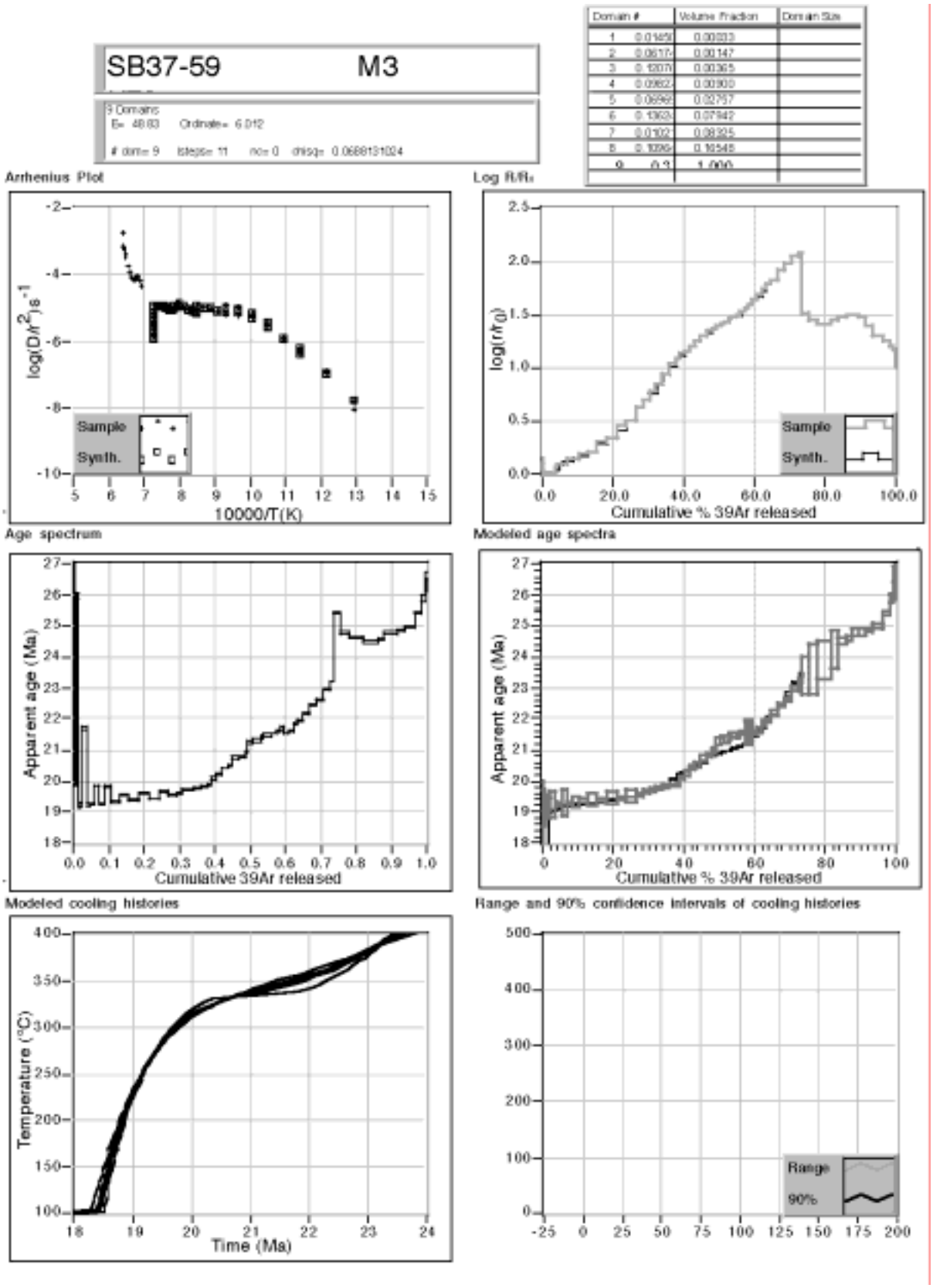

Figure DR4. Multi-domain diffusion modeling results for K-feldspar sample M3.

TABLE DR5. $^{40}Ar/^{39}Ar$ DATA FROM K-FELDSPAR SAMPLE M4

Temperature (°C)	Time (min)	^{40}Ar (mol)	$^{40}Ar/^{39}Ar$	$^{38}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	K/Ca	× ^{39}Ar	^{40}Ar *	Age (Ma)
500	15	4.1e-14	12.019	2.1e-2	0.0253	0.0281	19	0.00706	0.308	28.2 ± 0.4
500	25	1.4e-14	5.1950	1.5e-3	0.0074	0.0086	66	0.01268	0.511	20.3 ± 0.3
550	15	2.8e-14	4.0132	7.6e-5	0.0213	0.0039	23	0.02699	0.715	21.9 ± 0.1
550	25	1.9e-14	3.0558	0.0e+0	0.0231	0.0017	21	0.03964	0.832	19.4 ± 0.1
550	40	1.8e-14	2.9497	0.0e+0	0.0185	0.0014	26	0.05235	0.863	19.5 ± 0.1
600	15	3.2e-14	3.2085	0.0e+0	0.0231	0.0017	21	0.07312	0.842	20.6 ± 0.1
600	25	2.7e-14	2.7937	0.0e+0	0.0188	0.0007	26	0.09330	0.927	19.8 ± 0.1
600	40	2.8e-14	2.7643	0.0e+0	0.0216	0.0006	23	0.11403	0.935	19.7 ± 0.1
650	15	4.9e-14	3.0262	0.0e+0	0.0210	0.0012	23	0.14723	0.885	20.5 ± 0.1
680	15	7.3e-14	2.8472	0.0e+0	0.0246	0.0006	20	0.19995	0.933	20.3 ± 0.1
700	15	7.4e-14	2.7693	0.0e+0	0.0233	0.0004	21	0.25501	0.953	20.2 ± 0.0
700	25	6.8e-14	2.7234	0.0e+0	0.0209	0.0003	23	0.30628	0.964	20.1 ± 0.0
730	15	6.3e-14	2.7606	0.0e+0	0.0229	0.0004	21	0.35327	0.957	20.2 ± 0.0
760	15	8.3e-14	2.7461	0.0e+0	0.0233	0.0003	21	0.41537	0.965	20.3 ± 0.0
790	15	8.8e-14	2.7232	0.0e+0	0.0255	0.0003	19	0.48222	0.969	20.2 ± 0.0
820	15	8.4e-14	2.7203	0.0e+0	0.0284	0.0002	17	0.54631	0.974	20.2 ± 0.0
850	15	8.0e-14	2.7236	0.0e+0	0.0297	0.0002	17	0.60693	0.975	20.3 ± 0.0
880	15	7.7e-14	2.7291	0.0e+0	0.0313	0.0002	16	0.66528	0.975	20.3 ± 0.0
900	15	6.5e-14	2.7421	0.0e+0	0.0253	0.0002	19	0.71437	0.974	20.4 ± 0.0
900	25	6.2e-14	2.7346	0.0e+0	0.0198	0.0002	25	0.76096	0.975	20.4 ± 0.0
930	15	4.8e-14	2.7701	0.0e+0	0.0174	0.0002	28	0.79666	0.976	20.7 ± 0.1
960	15	6.1e-14	2.7994	0.0e+0	0.0145	0.0003	34	0.84142	0.968	20.7 ± 0.1
980	15	5.9e-14	2.8356	0.0e+0	0.0125	0.0004	39	0.88459	0.963	20.9 ± 0.1
1000	15	5.9e-14	2.8712	0.0e+0	0.0110	0.0004	44	0.92674	0.959	21.0 ± 0.1
1000	25	6.2e-14	2.8857	0.0e+0	0.0086	0.0004	57	0.97078	0.960	21.2 ± 0.1
1020	15	4.2e-14	2.9782	0.0e+0	0.0119	0.0006	41	1.00000	0.942	21.4 ± 0.1
1040	15	4.9e-14	3.0113	0.0e+0	0.0137	0.0006	36	0.03406	0.941	21.6 ± 0.1
1060	15	5.5e-14	3.0734	0.0e+0	0.0130	0.0007	38	0.07144	0.937	22.0 ± 0.1
1080	15	5.9e-14	3.0947	0.0e+0	0.0141	0.0006	35	0.11151	0.940	22.2 ± 0.1
1100	15	6.3e-14	3.1558	0.0e+0	0.0135	0.0007	36	0.15318	0.932	22.5 ± 0.1
1100	25	6.5e-14	3.1571	0.0e+0	0.0153	0.0006	32	0.19614	0.941	22.7 ± 0.1
1100	40	6.8e-14	3.2161	0.0e+0	0.0179	0.0007	27	0.24042	0.939	23.1 ± 0.1
1100	70	7.7e-14	3.2973	0.0e+0	0.0204	0.0007	24	0.28923	0.939	23.6 ± 0.1
1100	120	7.9e-14	3.3896	0.0e+0	0.0232	0.0007	21	0.33832	0.935	24.2 ± 0.1
1100	180	8.0e-14	3.4671	0.0e+0	0.0253	0.0008	19	0.38656	0.928	24.5 ± 0.1
1100	240	7.8e-14	3.5378	0.0e+0	0.0185	0.0010	26	0.43270	0.921	24.8 ± 0.1
1100	300	7.3e-14	3.6204	0.0e+0	0.0183	0.0011	27	0.47496	0.912	25.2 ± 0.1
1100	300	5.8e-14	3.6844	0.0e+0	0.0195	0.0012	25	0.50777	0.906	25.4 ± 0.1
1160	12	2.0e-14	4.0728	0.0e+0	0.0197	0.0024	25	0.51795	0.825	25.6 ± 0.2
1180	12	5.0e-14	4.2000	0.0e+0	0.0164	0.0029	30	0.54294	0.797	25.5 ± 0.1
1190	12	7.1e-14	4.3508	0.0e+0	0.0151	0.0033	33	0.57710	0.776	25.7 ± 0.1
1200	12	9.0e-14	4.4588	0.0e+0	0.0134	0.0036	37	0.61952	0.764	26.0 ± 0.1
1210	12	1.1e-13	4.5542	0.0e+0	0.0164	0.0038	30	0.67053	0.756	26.2 ± 0.1
1220	12	1.3e-13	4.6008	0.0e+0	0.0147	0.0039	33	0.73154	0.750	26.3 ± 0.1
1230	12	1.5e-13	4.6075	0.0e+0	0.0124	0.0038	39	0.79979	0.756	26.6 ± 0.1
1240	12	1.5e-13	4.5850	0.0e+0	0.0113	0.0038	43	0.87048	0.756	26.4 ± 0.1
1250	12	1.4e-13	4.5787	0.0e+0	0.0062	0.0037	79	0.93282	0.764	26.7 ± 0.1
1260	12	8.8e-14	4.6407	0.0e+0	0.0050	0.0039	98	0.97279	0.754	26.7 ± 0.1
1270	12	3.9e-14	4.6949	0.0e+0	0.0024	0.0039	206	0.99016	0.754	27.0 ± 0.1
1280	12	1.4e-14	4.8482	0.0e+0	0.0179	0.0041	27	0.99622	0.752	27.8 ± 0.3
1290	12	6.2e-15	5.1579	0.0e+0	0.0235	0.0049	21	0.99876	0.718	28.2 ± 0.7
1300	20	3.4e-15	5.7794	0.0e+0	0.0334	0.0061	15	1.00000	0.686	30.2 ± 1.3

Sample: SB43-110

J=0.0042580
Total fusion age, TFA= 20.47 ± 0.03 Ma (including J)
Weighted mean plateau age, WMPA= 20.41 ± 0.03 Ma (including J)
t = dwell time in minutes.
40(mol) = moles corrected for blank and reactor-produced 40.
Ratios are corrected for blanks, decay, and interference.
× 39Ar is cumulative, 40Ar* = rad fraction.

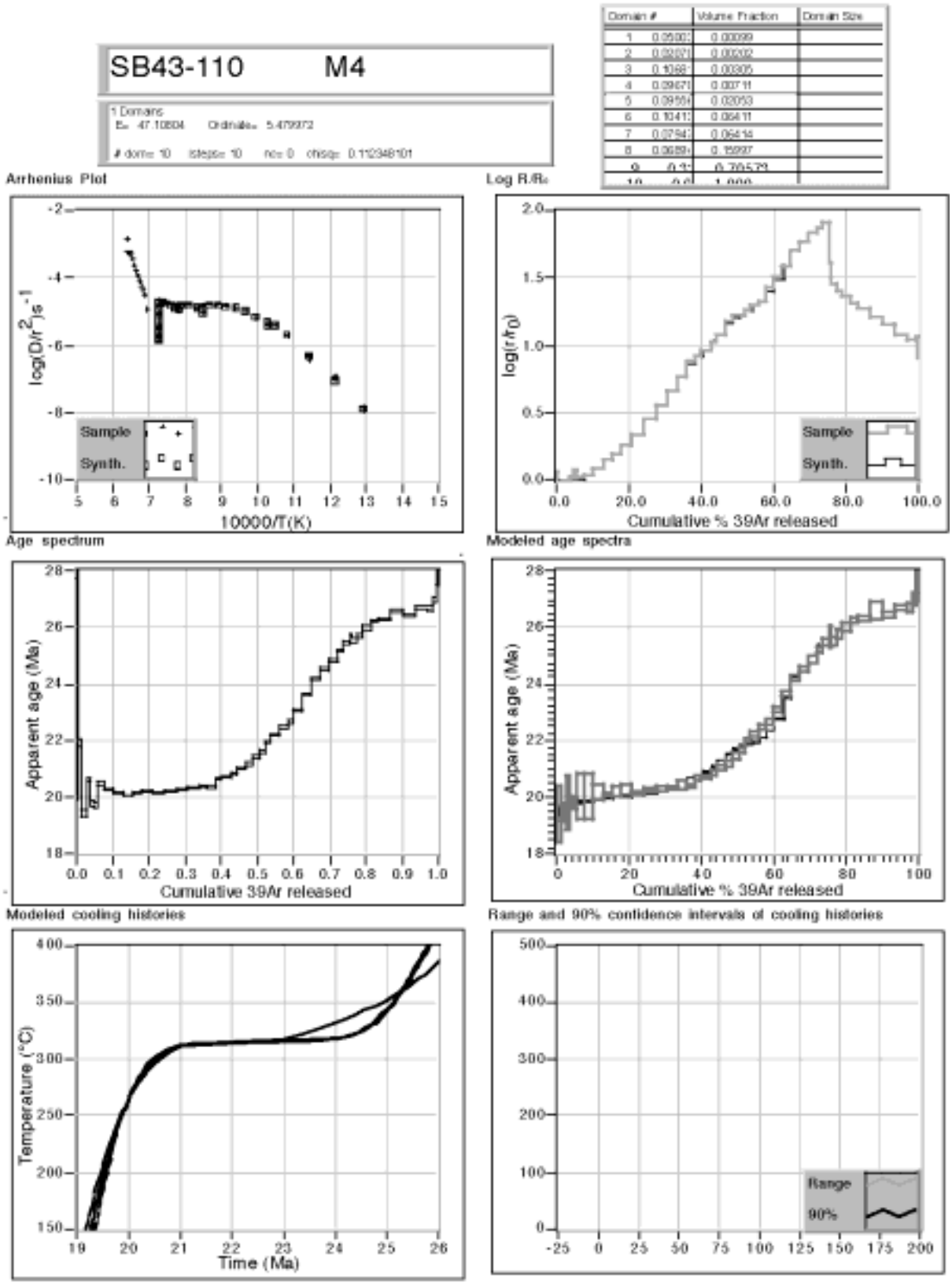

Figure DR5. Multi-domain diffusion modeling results for K-feldspar sample M4.