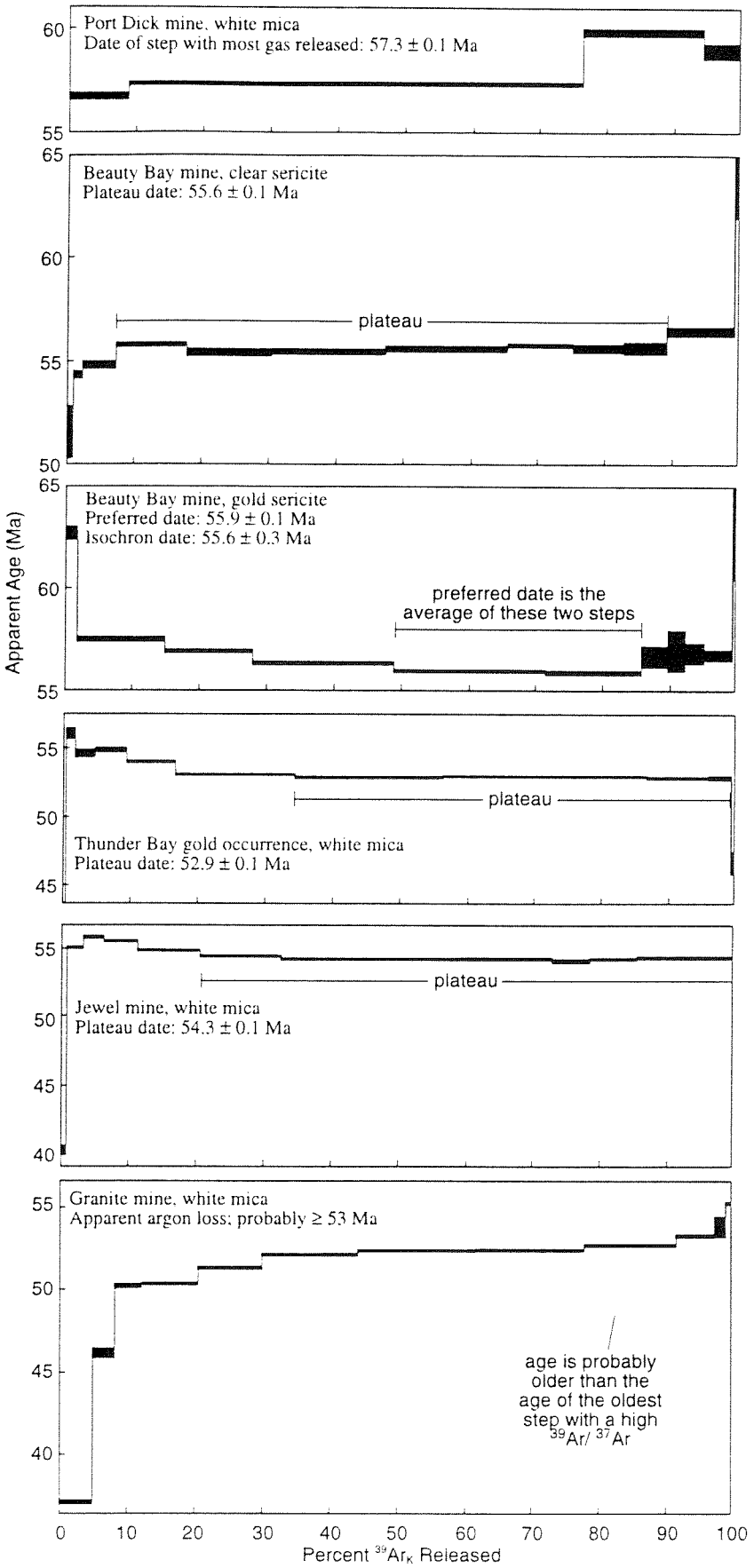
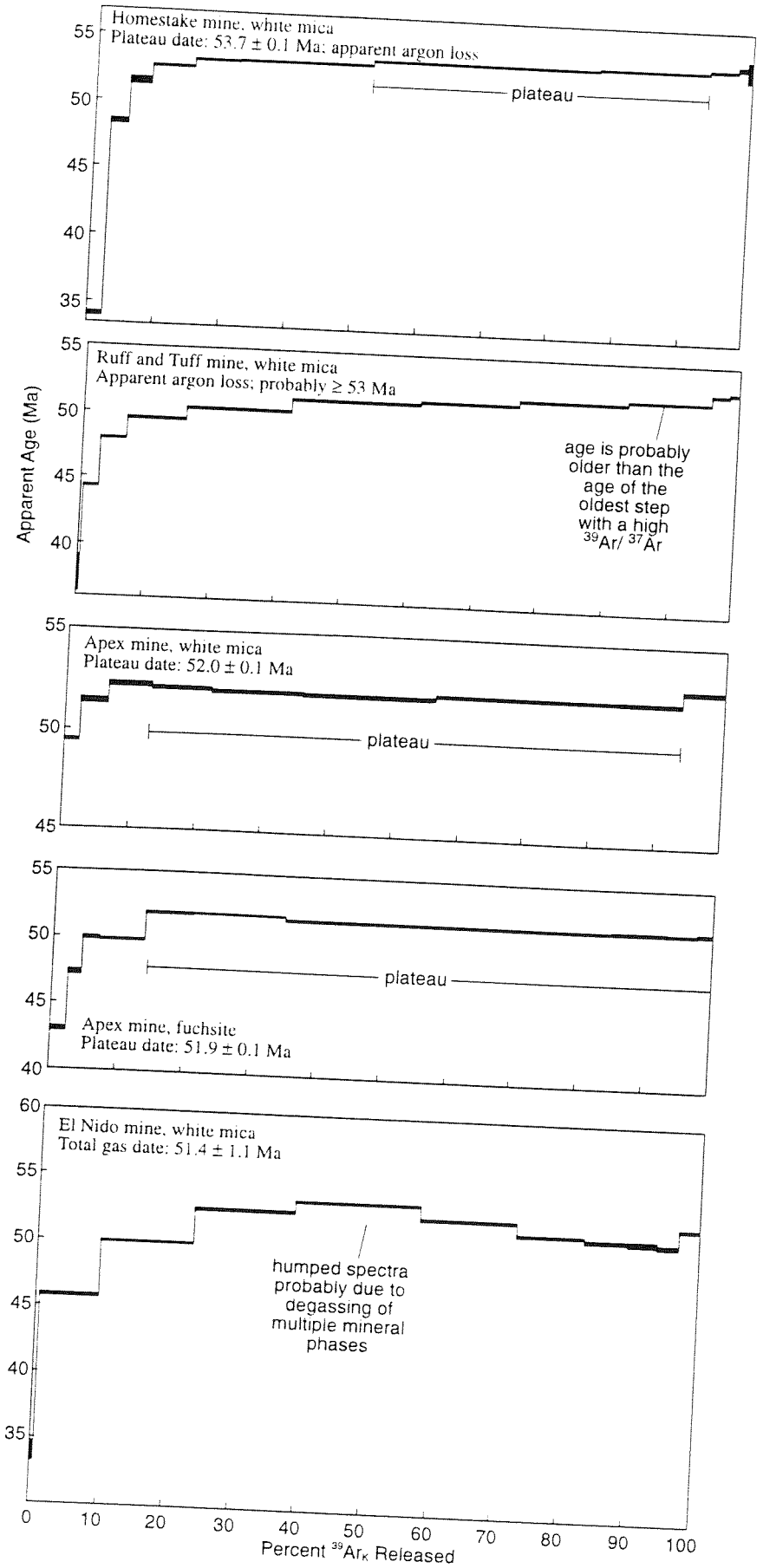
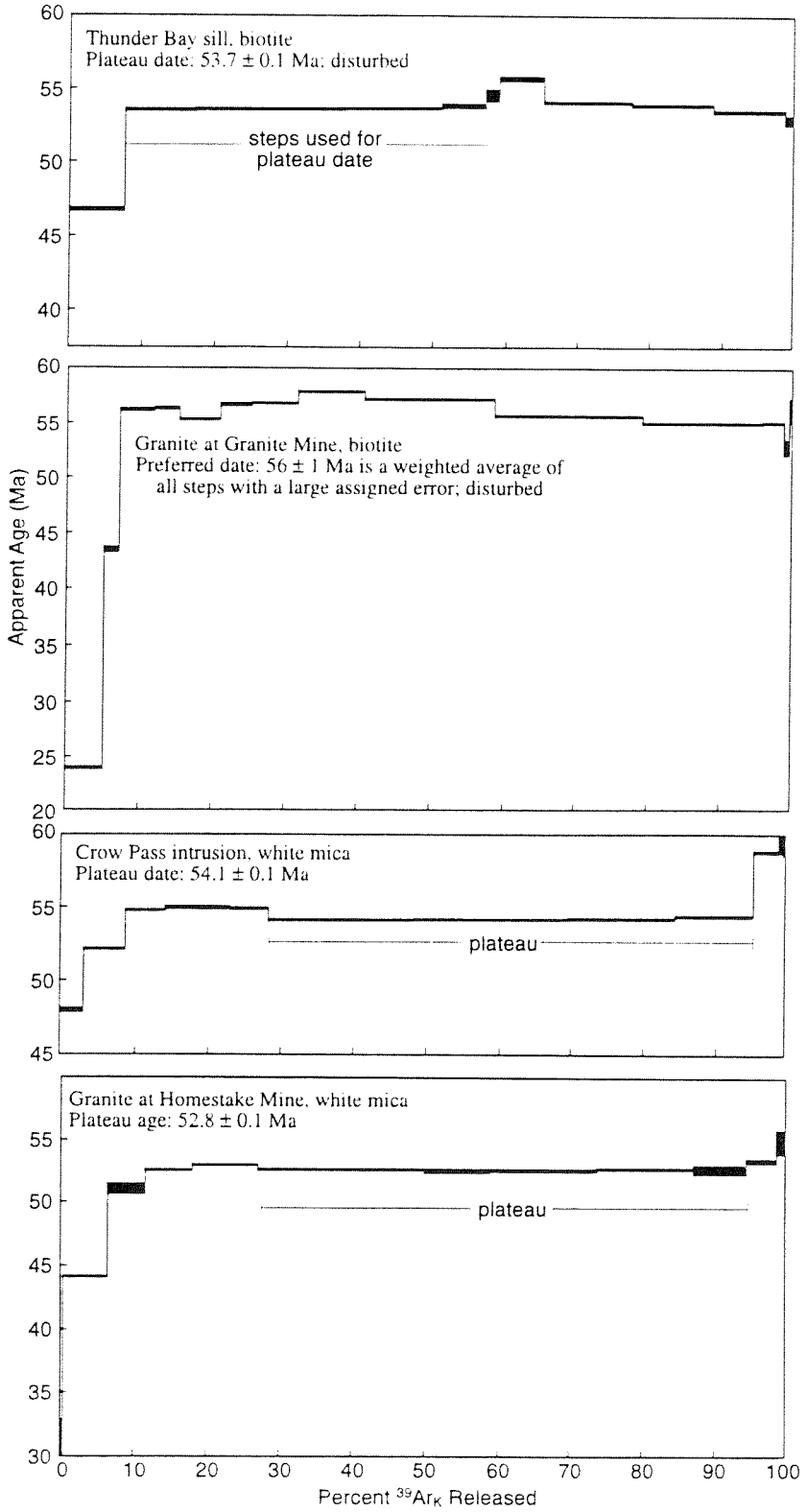


Argon release spectra diagrams for lode-gold mineral occurrences. All errors are 1σ



Argon release spectra diagrams for lode-gold mineral occurrences (continued)



Argon release spectra diagrams for intrusions that are cut by lode-gold mineral occurrences. All errors are 1σ

TABLE 2. PART I. $^{40}Ar/^{39}Ar$ DATA FOR MINERAL SAMPLES[1] FROM VEINS IN THE ACCRETIONARY PRISM OF SOUTHERN AND SOUTHEASTERN ALASKA

White Mica, Port Dick Prospect
59°19'10" N, 151°17'30" W
Total-gas date: 57.8 ± 0.1 Ma; preferred date: 57.3 ± 0.1 Ma — taken from step (1000 °C) with majority of gas released and highest $^{39}Ar/^{37}Ar$ ratio; J = 0.007733, ± 0.1%; sample weight: 10.6 mg

Temp (°C)	[2]Radiogenic ^{40}Ar (volts)	[2]K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.0153	0.00261	5.850	8.0	0.1	0.81	80 ± 2
800	0.63341	0.15325	4.133	58.2	8.6	102	56.8 ± 0.2
1000*	5.0602	1.2117	4.176	86.6	67.8	1016	57.3 ± 0.1
1150	1.4011	0.3215	4.358	93.7	18.0	49	59.8 ± 0.2
1300	0.4241	0.09887	4.289	90.7	5.5	16	58.9 ± 0.4

Clear Sericite, Beauty Bay Mine
59°32'21" N, 150°28'41" W
Total-gas date: 55.7 ± 0.2 Ma; plateau date: 55.6 ± 0.1 Ma; J = 0.007289, ± 0.1%; sample weight: 36.3 mg

Temp (°C)	[2]Radiogenic ^{40}Ar (volts)	[2]K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
500	0.11337	0.02851	3.98	55.7	0.7	176	51.5 ± 1.3
600	0.24035	0.05730	4.194	73.6	1.4	305	54.3 ± 0.2
700	0.84212	0.19907	4.230	89.6	4.9	365	54.8 ± 0.2
750*	1.8564	0.43103	4.307	87.7	10.6	330	55.8 ± 0.1
800*	1.8564	0.51761	4.277	95.4	12.7	429	55.4 ± 0.2
850*	2.9716	0.69385	4.283	96.9	17.0	474	55.4 ± 0.1
900*	3.1995	0.74469	4.296	96.2	18.2	392	55.6 ± 0.1
950*	1.7295	0.40107	4.312	97.3	9.8	154	55.8 ± 0.1
1000*	1.3508	0.31405	4.301	96.8	7.7	96	55.7 ± 0.2
1050*	1.1090	0.25775	4.303	96.7	6.3	96	55.7 ± 0.3
1150	1.7961	0.41146	4.365	97.1	10.1	28	56.5 ± 0.2
1300	0.14186	0.02785	5.094	58.3	0.7	0.24	66 ± 3

Gold-Colored Sericite, Beauty Bay Mine
59°32'21" N, 150°28'41" W
Total-gas date: 56.8 ± 0.2 Ma; preferred date: 55.9 ± 0.1 Ma, is the average of the two steps indicated; isochron date (all steps): 55.5 ± 0.3; ($^{40}Ar/^{36}Ar$) = 337 ± 8 (all steps); J = 0.007324, ± 0.1%; sample weight: 58.2 mg

Temp (°C)	[2]Radiogenic ^{40}Ar (volts)	[2]K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
500	0.2993	0.06204	4.824	31.9	1.7	†	62.6 ± 0.3
600	2.0390	0.46135	4.420	82.5	13.0	†	57.5 ± 0.1
650	2.0419	0.46680	4.374	93.3	13.1	†	56.9 ± 0.1
700	3.2375	0.74818	4.327	86.9	21.0	†	56.3 ± 0.1
750*	3.4619	0.80563	4.297	95.8	22.7	†	55.9 ± 0.1
800*	2.2058	0.51410	4.291	94.9	14.5	†	55.8 ± 0.1
850	0.61300	0.14083	4.352	86.9	4.0	†	56.6 ± 0.5
900	0.40023	0.09151	4.374	80.1	2.6	†	56.9 ± 1.0
950	0.43656	0.10008	4.362	82.3	2.8	†	56.7 ± 0.5
1050	0.65112	0.14947	4.356	81.5	4.2	†	56.7 ± 0.3
1300	0.14060	0.01680	8.350	30.5	0.5	†	107 ± 5

†^{37}Ar below detection limit for all $^{39}Ar/^{37}Ar$

White Mica, Thunder Bay
59°32'34" N, 150°10'50" W
Total-gas date: 53.1 ± 0.1 Ma; plateau date: 52.9 ± 0.1 Ma; J = 0.007672, ± 0.1%; sample weight: 50.5 mg

Temp (°C)	[2]Radiogenic ^{40}Ar (volts)	[2]K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.0814	0.02812	2.894	26.3	0.4	23	39.6 ± 0.5
700	0.44870	0.10903	4.115	88.7	1.5	36	56.1 ± 0.4
750	0.83899	0.20952	4.004	71.6	2.8	43	54.6 ± 0.3
800	1.4023	0.34836	4.025	93.6	4.7	20	54.9 ± 0.2
850	2.1494	0.54306	3.958	96.7	7.3	0.71	54.0 ± 0.1
900	5.1329	1.31189	3.892	97.8	17.7	2.1	53.1 ± 0.1
950*	6.3458	1.6380	3.874	98.3	22.0	14	52.8 ± 0.1
1000*	5.2574	1.3538	3.883	97.6	18.2	24	53.0 ± 0.1
1050*	3.4709	0.8938	3.883	96.5	12.0	118	53.0 ± 0.1
1100*	2.7501	0.70920	3.878	96.2	9.5	42	52.9 ± 0.1
1150*	0.81897	0.23701	3.877	94.5	3.2	7.3	52.9 ± 0.2
1300	0.15415	0.04511	3.417	70.7	0.6	0.10	46.7 ± 0.8

RG075, White Mica, Jewel Mine
61°02'35" N, 149°06'14" W
Total-gas date: 54.4 ± 0.1 Ma; plateau date: 54.3 ± 0.1 Ma; J = 0.006160, ± 0.1%;
sample weight: 48.5 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	^{39}Ar/^{37}Ar ratio	Apparent age and error (1σ)
600	0.15284	0.04169	3.666	37.1	0.7	46	40.3 ± 0.4
700	0.75140	0.14915	5.038	80.6	2.5	49	55.1 ± 0.1
750	0.93067	0.18220	5.108	65.5	3.1	111	55.9 ± 0.2
800	1.4982	0.29504	5.078	91.4	5.0	327	55.8 ± 0.1
850	2.7613	0.55075	5.014	90.4	9.3	947	54.8 ± 0.1
900*	3.5684	0.71714	4.976	93.9	12.1	1153	54.5 ± 0.1
950*	7.8735	1.5880	4.958	96.6	26.8	1902	54.3 ± 0.1
1000*	4.0053	0.80737	4.961	94.3	13.6	809	54.3 ± 0.1
1050*	1.6760	0.33873	4.948	93.1	5.7	392	54.2 ± 0.2
1100*	2.0874	0.42051	4.964	94.1	7.1	428	54.3 ± 0.1
1350*	4.1861	0.84153	4.974	96.1	14.2	149	54.4 ± 0.1

92PH216F, White Mica, Granite Mine
60°58'19" N, 148°12'40" W
Total-gas date: 51.2 ± 0.1 Ma; preferred date: ≥ 53 Ma—age is probably older than the age of the oldest step with a high ^{39}Ar/^{37}Ar; apparent ^{40}Ar loss possibly due to degassing of multiple mineral phases; J = 0.007512, ± 0.1%; sample weight: 48.6 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	^{39}Ar/^{37}Ar ratio	Apparent age and error (1σ)
650	0.69037	0.24945	2.768	66.0	4.9	2.0	37.1 ± 0.1
700	0.58080	0.16821	3.453	81.9	3.3	0.71	46.2 ± 0.3
750	0.78797	0.20955	3.760	73.8	4.1	0.73	50.2 ± 0.2
800	1.5836	0.41998	3.771	90.7	8.2	4.2	50.4 ± 0.1
850	1.8629	0.48454	3.845	95.5	9.5	17	51.4 ± 0.1
900	2.8222	0.72235	3.907	97.4	14.2	2512	52.2 ± 0.1
950	3.4945	0.89008	3.926	97.6	17.5	156	52.4 ± 0.1
1000	3.2624	0.83022	3.930	96.9	16.3	218	52.5 ± 0.1
1000	2.7572	0.69726	3.954	96.0	13.7	165	52.8 ± 0.1
1100	1.1747	0.29380	3.998	93.8	5.8	62	53.4 ± 0.1
1150	0.32632	0.08073	4.042	88.4	1.6	13	54.0 ± 0.6
1250	0.16094	0.03875	4.153	77.7	0.8	2.4	55.4 ± 0.1
1350	0.04161	0.00992	4.190	67.0	0.2	2.6	56 ± 6

92PH215D, White Mica; Homestake Mine
61°04'49" N, 148°16'30" W
Total-gas date: 53.0 ± 0.1 Ma; plateau date: 53.7 ± 0.1 Ma; J = 0.006038, ± 0.1%;
sample weight: 69.4 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	^{39}Ar/^{37}Ar ratio	Apparent age and error (1σ)
600	0.49775	0.15765	3.157	60.8	1.7	23	34.1 ± 0.1
700	1.2237	0.27140	4.509	90.3	2.9	6.4	48.5 ± 0.2
750	1.5096	0.31446	4.801	76.3	3.3	45	51.6 ± 0.3
800	2.9914	0.60905	4.911	95.9	6.5	143	52.7 ± 0.1
850	3.2954	0.66375	4.965	97.2	7.1	132	53.3 ± 0.1
900	9.3952	1.8911	4.968	97.7	20.1	231	53.3 ± 0.1
850*	3.8694	0.77381	5.000	97.2	8.2	437	53.7 ± 0.1
1000*	12.478	2.4971	4.997	97.8	26.6	604	53.6 ± 0.1
1050*	7.9974	1.5973	5.007	97.7	17.0	415	53.7 ± 0.1
1100	2.0671	0.41141	5.024	96.0	4.4	107	53.9 ± 0.1
1150	0.66182	0.13107	5.049	88.7	1.4	24	54.2 ± 0.2
1200	0.23928	0.04763	5.024	89.0	0.5	29	53.9 ± 0.8
1250	0.0901	0.01788	5.039	88.4	0.2	4.0	54.1 ± 3.7
1350	0.0264	0.00528	5.00	73.7	0.1	2.8	53.7 ± 1.6

White Mica, Ruff and Tuff Mine
61°12'30" N, 146°46'43" W

Total-gas date: 51.2 ± 0.1 Ma; preferred date: ≥ 53 Ma, age is probably older than the age of the oldest step with a high $^{39}Ar/^{37}Ar$; apparent ^{40}Ar loss possibly due to degassing of multiple mineral phases; J = 0.007800, ± 0.1%; sample weight: 72.7 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
500	0.0104	0.0012	8.9	13.8	0.0	1.4	121 ± 40
600	0.10647	0.03920	2.716	31.8	0.4	——	37.8 ± 1.3
700	0.64436	0.20224	3.186	83.0	2.3	16	44.3 ± 0.1
750	1.1962	0.34591	3.458	76.1	3.9	48	48.0 ± 0.1
800	1.7593	0.49241	3.573	96.3	5.6	190	49.6 ± 0.1
850	1.0175	0.28531	3.566	95.6	3.2	106	49.5 ± 0.1
900	5.1719	1.4211	3.639	97.2	16.2	217	50.5 ± 0.1
950	6.4081	1.7260	3.713	98.3	19.6	197	51.5 ± 0.1
1000	4.9741	1.3328	3.732	97.7	15.2	153	51.8 ± 0.1
1050	5.5099	1.4650	3.761	97.9	16.7	——	52.2 ± 0.1
1100	4.2228	1.1152	3.787	96.8	12.7	155	52.5 ± 0.1
1150	0.92240	0.24032	3.838	93.7	2.7	40	53.2 ± 0.1
1350	0.47665	0.12379	3.851	85.3	1.4	7.1	53.4 ± 0.1

92RG19, White Mica, El Nido Mine
57°56'55" N, 136°17'07" W

Total-gas date: 51.4 ± 1.1 Ma (assigned error to reflect large uncertainty in the analysis); humped spectra possibly due to degassing of multiple mineral phases; J = 0.008388, ± 0.1%; sample weight: 61.8 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.08013	0.02637	2.971	86.8	0.9	5.1	33.5 ± 0.7
650	1.0342	0.25703	4.024	85.6	8.7	6.5	45.8 ± 0.2
700	1.7998	0.40920	4.398	92.5	13.8	2.6	50.0 ± 0.1
750	2.0548	0.44292	4.639	87.9	15.0	0.4	52.7 ± 0.1
800	2.6149	0.55422	4.718	95.8	18.8	2.0	53.6 ± 0.1
850	2.0255	0.43741	4.631	96.6	14.8	7.5	52.6 ± 0.1
900	1.3670	0.30031	4.552	94.7	10.2	19	51.7 ± 0.1
950	0.88520	0.19550	4.528	92.0	6.6	28	51.4 ± 0.2
1000	0.59167	0.13061	4.630	90.0	4.4	28	51.5 ± 0.2
1050	0.45773	0.10140	4.514	86.4	3.4	27	51.3 ± 0.2
1300	0.43577	0.09416	4.628	60.3	3.2	3.6	52.6 ± 0.1

92RG20A, White Mica, Apex Mine
57°57'03" N, 136°17'45" W

Total-gas date: 52.0 ± 0.1 Ma; plateau date: 52.1 ± 0.1 Ma; J = 0.008388, ± 0.1%; sample weight: 61.5 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.0171	0.0087	1.978	16.4	0.2	16.263	28.1 ± 4.9
700	0.42448	0.12117	3.503	87.4	2.1	——	49.5 ± 0.1
750	0.86118	0.23627	3.645	73.0	4.2	206.56	51.4 ± 0.2
800	1.3873	0.37445	3.705	87.0	6.6	54.023	52.3 ± 0.1
850*	1.8486	0.80048	3.894	96.7	8.9	——	52.1 ± 0.1
900*	2.8720	0.77921	3.686	97.4	13.8	——	52.0 ± 0.1
950*	4.1655	1.1308	3.884	98.4	20.0	636.58	52.0 ± 0.1
1000*	3.3216	0.89863	3.686	98.4	15.9	——	52.2 ± 0.1
1050*	2.5260	0.68333	3.697	97.8	12.1	481.30	52.2 ± 0.1
1100*	2.0172	0.54672	3.696	98.2	9.7	298.0	52.2 ± 0.1
1300	1.3747	0.36728	3.743	97.9	8.6	121.7	52.8 ± 0.1

92RG18, Fuchsite, Apex Mine
57°57'03" N, 136°17'45" W
Total-gas date: 51.4 ± 0.1 Ma; plateau date: 51.9 ± 0.1 Ma; J = 0.006499, ± 0.1%; sample weight: 102.5 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.49775	0.21322	3.710	51.4	2.5	3.5	43.0 ± 0.2
650	0.79115	0.16146	4.086	76.1	1.9	3.8	47.3 ± 0.2
700	0.85980	0.21902	4.323	87.7	2.6	1.6	50.0 ± 0.1
750	0.94880	0.56054	4.313	80.7	6.7	0.2	50.0 ± 0.1
800*	2.4179	0.59429	4.500	93.5	7.1	0.5	52.0 ± 0.1
850*	2.6743	1.1718	4.503	97.1	13.9	6.0	52.0 ± 0.1
900*	6.2784	1.0383	4.483	97.7	12.3	16	51.8 ± 0.1
950*	4.6548	1.0227	4.496	97.6	12.2	28	51.8 ± 0.1
1000*	4.5875	1.1417	4.491	97.1	13.6	44	51.9 ± 0.1
1050*	5.1278	0.97656	4.491	96.3	11.5	34	51.9 ± 0.1
1100*	4.3857	0.71635	4.498	97.2	8.5	34	52.0 ± 0.1
1150*	1.7581	0.39051	4.499	96.7	4.6	34	52.0 ± 0.1
1350*	0.92282	0.20480	4.506	88.2	2.4	14	50.1 ± 0.1

92PH035, White Mica, Lucky Chance Mine
56°57'00" N, 135°03'04" W
Total-gas date: 49.6 ± 1.1 Ma; preferred date: 49.4 ± 0.5 Ma, based on single step with majority of ^{39}Ar released; J = 0.006305, ± 0.1%; sample weight: 5.5 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
700	0.01058	0.00361	2.93	24.1	3.9	2.7	33 ± 8
1250*	0.38976	0.08855	4.401	45.5	95.1	62	49.4 ± 0.5
1350	0.01109	0.00097	11.4	30.4	1.0	2.0	125 ± 34

PART II: $^{40}Ar/^{39}Ar$ ANALYTICAL DATA FOR MINERAL SAMPLES[1] FROM INTRUSIONS NEAR GOLD MINERAL OCCURRENCES

92PH454B, Biotite, Thunder Bay Sill
59°32'34" N, 150°10'50" W
Total-gas date: 53.3 ± 0.1 Ma; plateau date: 53.7 ± 0.1 Ma; isochron date: 54.1 ± 0.2 Ma; ($^{40}Ar/^{36}Ar$) = 289 ± 9; J = 0.007472, ± 0.1%; sample weight: 46.4 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.02209	0.01269	1.741	12.5	0.2	10	23.3 ± 1.8
700	1.6870	0.48012	3.514	63.1	7.4	23	46.8 ± 0.1
750‡*	2.5636	0.63545	4.034	76.0	9.8	124	53.6 ± 0.1
800‡*	5.3425	1.3236	4.036	93.4	20.4	244	53.6 ± 0.1
850‡*	3.5068	0.86717	4.044	96.0	13.4	153	53.7 ± 0.1
900‡*	1.5939	0.39289	4.057	94.7	6.1	82	53.9 ± 0.2
950‡	0.49335	0.12001	4.111	92.0	1.9	36	54.6 ± 0.4
1000‡	1.6872	0.40230	4.194	94.6	6.2	56	55.7 ± 0.2
1050‡	3.2212	0.79023	4.076	96.1	12.2	56	54.1 ± 0.1
1100‡	2.9792	0.73321	4.063	96.4	11.3	50	54.0 ± 0.1
1150‡	2.5644	0.63609	4.031	96.2	9.8	33	53.5 ± 0.1
1250‡	0.29925	0.07506	3.987	93.9	1.2	3.3	53.0 ± 0.3
1350	0.0202	0.0063	3.20	60.7	0.1	3.6	43 ± 7

92PH216E, Biotite, Granite at Granite Mine
60°58'19" N, 148°12'40" W
Total-gas date: 54.4 ± 0.1 Ma; preferred date: 56 ± 1 Ma, disturbed spectrum, possibly due to ^{39}Ar recoil, the date is a weighted average with a large assigned error to reflect low confidence in the analysis; J = 0.007479, ± 0.1%; sample weight: 65.6 mg

Temp (°C)	^{2}Radiogenic ^{40}Ar (volts)	^{2}K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.65121	0.36454	1.786	29.1	5.0	2.4	23.9 ± 0.1
700	0.54273	0.16645	3.261	54.4	2.3	4.5	43.5 ± 0.3
750*	1.4913	0.35232	4.233	79.7	4.8	22	56.2 ± 0.1
800*	1.0458	0.24643	4.244	82.4	3.4	53	56.4 ± 0.1
850*	1.7221	0.41324	4.167	79.5	5.7	50	55.4 ± 0.1
900*	1.3588	0.31821	4.270	88.0	4.4	48	56.7 ± 0.2
950*	1.9590	0.45767	4.280	90.5	6.3	34	56.8 ± 0.1
1000*	2.9090	0.66674	4.363	92.8	9.2	11	57.9 ± 0.1
1050*	5.6258	1.3054	4.310	95.8	17.9	12	57.2 ± 0.1
1100*	6.2693	1.4936	4.197	96.8	20.5	22	55.8 ± 0.1
1150*	5.0622	1.2192	4.152	97.3	16.7	24	55.2 ± 0.1
1200*	0.8565	0.20599	4.158	92.7	2.8	5.7	55.02 ± 0.1
1250	0.2006	0.05033	3.986	79.0	0.7	2.1	53.0 ± 0.7
1350	0.08405	0.02216	4.244	69.5	0.3	1.7	56.4 ± 1.1

91AKU137, White Mica, Crow Pass Intrusion
61°02'53" N, 149°06'28" W
Total-gas date: 54.3 ± 0.1 Ma; plateau age: 54.1 ± 0.1 Ma, raw ^{37}Ar data suggests sample was Ca-rich; J = 0.006486, ± 0.1%; sample weight: 84.1 mg

Temp (°C)	[2]Radiogenic ^{40}Ar (volts)	[2]K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.70461	0.16974	4.151	73.9	3.1	6.3	47.9 ± 0.2
700	1.3901	0.30750	4.521	91.4	5.7	1.6	52.1 ± 0.1
750	1.4027	0.29505	4.754	81.6	5.5	0.75	54.1 ± 0.1
800	2.3009	0.48203	4.773	92.8	8.9	3.1	55.0 ± 0.1
850	1.3711	0.28780	4.764	96.0	5.3	11	54.9 ± 0.1
900*	5.0471	1.0753	4.694	96.9	20.0	58	54.1 ± 0.1
950*	3.4095	0.72586	4.697	97.1	13.5	72	54.1 ± 0.1
1000*	1.9722	0.42024	4.693	94.7	7.8	89	54.1 ± 0.1
1050*	3.7702	0.80237	4.699	96.2	14.9	93	54.2 ± 0.1
1100*	2.7608	0.58550	4.715	91.8	10.9	48	54.3 ± 0.1
1150	0.97597	0.19104	5.109	76.8	3.5	7.1	58.8 ± 0.1
1200	0.19106	0.03010	6.347	47.2	0.6	0.85	72.8 ± 1.3
1350	0.09064	0.01635	5.542	51.3	0.3	0.62	63.7 ± 1.4

92PH215C, White Mica, Granite at Homestake Mine
61°04'49" N, 148°16'30" W
Total-gas date: 52.1 ± 0.2 Ma; plateau date: 52.8 ± 0.1 Ma, raw ^{37}Ar data suggests sample was Ca-rich; J = 0.007490, ± 0.1%; sample weight: 58.8 mg

Temp (°C)	[2]Radiogenic ^{40}Ar (volts)	[2]K-derived ^{39}Ar (volts)	$^{40}Ar_R/^{39}Ar_K$[3]	Radiogenic yield (%)	Percent ^{39}Ar	$^{39}Ar/^{37}Ar$ ratio	Apparent age and error (1σ)
600	0.02907	0.01596	1.820	15.3	0.5	6.5	24 ± 3
700	0.70771	0.21381	3.310	70.2	6.0	1.0	44.2 ± 0.1
750	0.69182	0.18028	3.837	66.1	5.1	1.2	51.1 ± 0.4
800	0.91105	0.23042	3.954	88.3	6.5	7.9	52.6 ± 0.1
850	1.2743	0.31980	3.985	93.0	9.0	20	53.0 ± 0.1
900*	3.2182	0.81260	3.960	95.7	22.9	35	52.7 ± 0.1
950*	1.2626	0.31923	3.955	94.5	9.0	40	52.7 ± 0.2
1000*	2.0831	0.52573	3.962	94.5	14.8	43	52.8 ± 0.1
1050*	1.8876	0.47497	3.974	93.1	13.4	35	52.9 ± 0.1
1100*	1.0193	0.25665	3.971	88.2	7.2	12	52.9 ± 0.4
1200	0.59139	0.14691	4.026	78.6	4.1	2.1	53.6 ± 0.2
1350	0.18952	0.04579	4.139	77.0	1.3	0.83	55.1 ± 1.0

[1] Sample numbers are listed if assigned when the sample was collected. All mineral separates were from samples crushed to 80-120 mesh size (225-125 μm) with the exception of the biotite from the Thunder Bay sill and the 60-80 mesh size (225-250 μm) fraction was used. White mica from the Port Dick prospect was from gold-quartz veins and from sericitized granitic rock adjacent to the quartz veins. The white and gold sericite from the Beauty Bay mine came from gold-quartz vein samples within the tailings pile of the mine. The white mica at the Thunder Bay polymetallic gold-sulfide-quartz vein came from large pockets of white mica within the vein. White mica from the Jewel mine came from a major gold-quartz vein from within the mine. The micas were on gold- and sulfide-mineralized surfaces of the sample. Approximately 85% of the final concentrate was a clear white mica and about 15% was slightly iron stained. White mica from the Granite mine, Homestake mine, and Ruff and Tuff mine came from hydrothermally altered granite with sulfides adjacent to gold-quartz veins from samples in the tailings piles at the mines. Approximately 65% of the final concentrate from the Granite mine was a clear white mica, approximately 5% was an iron-stained white mica, and approximately 30% of the mica was a very light shade of green. The sample from the Homestake mine had ~80% clear white mica in the final concentrate with a slightly greenish cast. The remainder was feldspar, presumably plagioclase. The sample from the El Nido mine came from an outcrop of hydrothermally altered granodiorite. The white mica at the Apex mine came from outcrop of gold-quartz veins and sericite within hornblendite at the 1850 ft. elevation portal. The fuchsite at Apex came from the tailings pile at the lowest level of the mine, and the samples consisted of hydrothermally altered and sericitized hornblendite and gold quartz veins. The white mica from the Lucky Chance mine came from sulfide-gold-quartz vein samples within the tailings pile of the mine. The micas occurred as clots ≤ 1 cm^2 within the quartz. The final concentrate was ≥95% white mica. The biotite from the Thunder Bay tonalite sill came from a sample more than 3 m from the closest polymetallic gold-sulfide quartz vein. The final mineral concentrate was ≥95% pure biotite with the remainder being a green and white mica. The biotite from the granite at the Granite mine is from a sample taken more than 2 m from the nearest gold-quartz vein. The final concentrate had approximately 90% biotite. There was some chlorite (identified by x-ray diffraction) that could not be separated out, and probably made up the remainder of the sample. The biotite generally had curled edges or a ball-like morphology suggesting some chloritic alteration. The white mica from the Crow Pass intrusion was taken at a locality more than 100 m from the nearest gold-quartz vein. All the samples were cleaned in reagent-grade ethanol and acetone and de-ionized water in an ultrasonic bath, air dried, wrapped in aluminum packages and sealed in silica vials along with monitor minerals prior to irradiation. Samples were irradiated in three packages in the TRIGA reactor at the U.S. Geological Survey in Denver, Colorado for 30 hours at 1 megawatt.

[2] A Mass Analyzer Products 215 Rare Gas mass spectrometer with a Faraday cup was used to measure argon isotope abundances. Abundances of "Radiogenic ^{40}Ar" and "K-derived ^{39}Ar" are reported in volts. Conversion to moles can be made using 1.838×10^{-12} moles argon per volt of signal. Detection limit at the time of this experiment was 2×10^{-17} moles argon. Analytical data for "Radiogenic ^{40}Ar" and "K-derived ^{39}Ar" are calculated to 5 decimal places; "$^{40}Ar_R/^{39}Ar_K$[3]" is calculated to 3 decimal places. "Radiogenic ^{40}Ar", "K-derived ^{39}Ar", and "$^{40}Ar_R/^{39}Ar_K$[3]" are rounded to significant figures using analytical precisions. Apparent ages and associated errors were calculated from unrounded analytical data and then each rounded using associated errors. All analyses were done in the Argon Laboratory, U.S. Geological Survey, Denver, Colorado. Decay constants are those of Steiger and Jager (1977), i.e., $\lambda_e = 0.581 \times 10^{-10}$/yr, $\lambda_{B-} = 4.962 \times 10^{-10}$/yr, and $\lambda = \lambda_e + \lambda_{B-} = 5.543 \times 10^{-10}$/yr. The irradiation monitor, hornblend MMhb-1 with percent K = 1.555, $^{40}Ar_R = 1.624 \times 10\text{-}9$ mole/gm, and K-Ar age = 520.4 Ma (Samson and Alexander, 1987), was used to calculate J values from this experiment.

[3] "$^{40}Ar_R/^{39}Ar_K$[3]" has been corrected for all interfering isotopes including atmospheric argon. Mass discrimination in our mass spectrometer was determined by determining the $^{40}Ar/^{36}Ar$ ratio of atmospheric argon; our measured value is 296.5. Abundances of interfering isotopes of argon from K and Ca were calculated from reactor production ratios determined by irradiating and analyzing pure CaF_2 and K_2SO_4 simultaneously with these samples. The measured production ratios for samples from Beauty Bay, both gold and clear sericite are: $(^{40}Ar/^{39}Ar)_K = 9.76 \times 10^{-3}$, $(^{38}Ar/^{39}Ar)_K = 1.31 \times 10^{-2}$, $(^{37}Ar/^{39}Ar)_K = 1.1 \times 10^{-4}$, $(^{36}Ar/^{37}Ar)_{Ca} = 2.70 \times 10^{-4}$, $(^{39}Ar/^{37}Ar)_{Ca} = 6.81 \times 10^{-4}$, and $(^{38}Ar/^{37}Ar)_{Ca} = 2.7 \times 10^{-5}$; production ratios for sample from Port Dick, Ruff and Tuff, and Thunder Bay are $(^{40}Ar/^{39}Ar)_K = 7.95 \times 10^{-3}$, $(^{38}Ar/^{39}Ar)_K = 1.31 \times 10^{-2}$, $(^{37}Ar/^{39}Ar)_K = 5.5 \times 10^{-5}$, $(^{36}Ar/^{37}Ar)_{Ca} = 2.80 \times 10^{-4}$, $(^{39}Ar/^{37}Ar)_{Ca} = 6.80 \times 10^{-4}$, and $(^{38}Ar/^{37}Ar)_{Ca} = 5.6 \times 10^{-5}$; and production ratios for all other samples are: $(^{40}Ar/^{39}Ar)_K = 7.95 \times 10^{-3}$, $(^{38}Ar/^{39}Ar)_K = 1.31 \times 10^{-2}$, $(^{37}Ar/^{39}Ar)_K = 1.5 \times 10^{-4}$, $(^{36}Ar/^{37}Ar)_{Ca} = 2.66 \times 10^{-4}$, $(^{39}Ar/^{37}Ar)_{Ca} = 6.35 \times 10^{-4}$, and $(^{38}Ar/^{37}Ar)_{Ca} = 4.5 \times 10^{-5}$. Corrections were also made for additional interfering isotopes of argon produced from irradiation of chlorine using the method of Roddick (1983). The reproducibility of split gas fractions from each monitor (0.05 - 0.25%, 1 σ) was used to calculate imprecisions in J. J values for each sample were interpolated from adjacent monitors and have similar uncertainties to the monitors. Uncertainties in calculations for the date of individual steps in a spectrum were calculated using modified equations of Dalrymple and others (1981).

* Step included in plateau or preferred date as indicated.
‡ Step included in isochron date.

— — ^{37}Ar below detection.

References Cited for Table 2:

Dalrymple, G. B., Alexander, E. C., Jr., Lanphere, M. A., and Kraker, G. P., 1981, Irradiation of samples for $^{40}Ar/^{39}Ar$ dating using the Geological Survey TRIGA reactor: U.S. Geological Survey Professional Paper 1176, 55 p.

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Steiger, R. H., and Jager, E., 1977, Subcommission on geochronology—Convention on the use of decay constants in geo- and cosmochronology: Earth and Planetary Science Letters, v. 36, p. 359-362.