

Table DR1. $^{40}\text{Ar}/^{39}\text{Ar}$ Incremental Heating Data From Basement Rocks, Southern Highland Mountains, Southwestern Montana.

Temp (°C)	$^{40}\text{Ar}_R$	$^{39}\text{Ar}_K$	$^{40}\text{Ar}_R/^{39}\text{Ar}_K$	$^{39}\text{Ar}/^{37}\text{Ar}$	% $^{40}\text{Ar}_R$	% ^{39}Ar	Apparent Age (Ma at 1 σ)
<i>HRI-C: Hornblende-biotite gneiss; hornblende: 50.9 mg; measured $^{40}\text{Ar}/^{36}\text{Ar}_a = 298.9$; J-value = 0.015370 ± 0.1% (1σ).</i>							
800	0.30360	0.00266	114.0	0.24	82.0	0.3	1827 ± 31
850	0.23587	0.00248	95.25	0.17	95.0	0.3	1627 ± 27
900	0.43733	0.00329	132.9	0.14	96.9	0.4	2008 ± 13
950	0.76122	0.00451	168.6	0.10	96.7	0.5	2307 ± 16
1000	2.9265	0.01878	155.8	0.13	99.1	2.1	2205 ± 14
1025	9.0599	0.07081	127.9	0.13	99.6	7.9	1962 ± 4
1050	41.114	0.36354	113.1	0.14	99.9	40.7	1817 ± 3
1075	17.318	0.15472	111.9	0.16	99.8	17.3	1806 ± 5
1100	2.4869	0.02220	112.0	0.15	99.6	2.5	1806 ± 9
1125	4.2912	0.03818	112.4	0.14	99.6	4.3	1810 ± 4
1150	7.3192	0.06496	112.7	0.15	99.9	7.3	1813 ± 3
1200	7.2463	0.06375	113.7	0.15	99.8	7.1	1823 ± 6
1250	2.0215	0.01796	112.6	0.15	99.6	2.0	1812 ± 8
1350	5.6671	0.04973	114.0	0.15	99.7	5.6	1826 ± 4
1450	1.6975	0.01508	112.6	0.15	98.4	1.7	1812 ± 6
Total Gas			116.1				1839 ± 5
<i>HRI-A: Biotite gneiss; biotite: 42.1 mg; measured $^{40}\text{Ar}/^{36}\text{Ar}_a = 299.5$; J-value = 0.007615 ± 0.25% (1σ).</i>							
500	1.6533	0.02648	62.43	15.8	51.1	0.4	702 ± 3
600	32.195	0.22065	145.9	25.2	95.5	3.6	1348 ± 4
650	73.803	0.35737	208.5	16.4	98.0	5.8	1705 ± 7
700	144.16	0.64350	224.0	27.7	98.8	10.4	1796 ± 7
750	185.99	0.81422	228.4	15.3	99.1	13.1	1818 ± 9
800	104.48	0.45515	229.6	23.3	98.7	7.3	1824 ± 7
825	63.898	0.28282	225.9	16.0	97.5	4.6	1806 ± 8
850	40.057	0.17644	227.0	21.2	97.0	2.8	1811 ± 7
900	141.08	0.62089	227.2	19.4	98.9	10.0	1812 ± 8
950	176.18	0.77510	227.3	22.1	99.4	12.5	1812 ± 9
1000	177.46	0.77248	229.7	21.2	99.7	12.5	1825 ± 8
1050	150.12	0.65914	227.8	14.5	99.7	10.6	1815 ± 9
1150	66.487	0.31241	212.8	15.2	99.1	5.0	1738 ± 7
1300	7.7014	0.08307	92.7	19.6	82.1	1.3	964 ± 33
Total Gas			220.2				1776 ± 8
<i>HR2-Ja: Metabasite dike; hornblende: 99.6 mg; measured $^{40}\text{Ar}/^{39}\text{Ar}_a = 298.9$; J-value = 0.015147 ± 0.25% (1σ).</i>							
550	0.28692	0.00210	136.9	0.14	82.6	0.1	2026 ± 26
600	0.16094	0.00120	134.1	0.26	92.5	0.1	2001 ± 28
650	0.15328	0.00132	116.2	0.14	94.5	0.1	1832 ± 32
700	0.24301	0.00173	140.1	0.10	53.2	0.1	2054 ± 53
750	0.21970	0.00218	100.8	0.10	82.1	0.1	1673 ± 22
800	0.17926	0.00331	54.21	0.08	88.4	0.2	1081 ± 18
850	0.17287	0.00337	51.33	0.07	94.3	0.2	1038 ± 6
875	0.12751	0.00262	48.75	0.06	86.8	0.2	998 ± 24
900	0.14449	0.00245	58.86	0.05	92.2	0.2	1150 ± 30
925	0.18886	0.00299	63.07	0.04	95.2	0.2	1210 ± 11
950	0.62889	0.00743	84.70	0.06	98.4	0.5	1489 ± 10
975	1.8693	0.01966	95.08	0.10	98.8	1.3	1609 ± 7
1000	11.097	0.10272	108.0	0.13	99.8	6.7	1749 ± 3
1025	15.724	0.14258	110.3	0.14	99.8	9.3	1772 ± 5
1050	36.035	0.32020	112.5	0.14	99.8	20.9	1795 ± 4
1075	20.400	0.18130	112.5	0.16	99.9	11.8	1795 ± 7
1100	6.6180	0.05955	111.1	0.14	99.9	3.9	1781 ± 4
1125	7.8964	0.07077	111.6	0.14	99.8	4.6	1785 ± 4
1150	33.997	0.30213	112.5	0.14	99.9	19.7	1795 ± 5
1175	12.385	0.11000	112.6	0.14	99.9	7.2	1795 ± 7
1200	3.4450	0.03055	112.8	0.14	99.0	2.0	1797 ± 8

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1250	9.0853	0.08078	112.5	0.14	99.8	5.3	1794 ± 7
1350	5.5079	0.04888	112.7	0.14	99.2	3.2	1796 ± 7
1450	3.5648	0.03163	112.7	0.14	98.7	2.1	1797 ± 4
Total Gas			111.1				1780 ± 5

$^{40}\text{Ar}/^{39}\text{Ar}_\text{a}$ is measured atmospheric argon used for mass-discrimination at time of analysis; $^{40}\text{Ar}_\text{R}$ is radiogenic ^{40}Ar in volts signal; $^{39}\text{Ar}_\text{K}$ is potassium-derived ^{39}Ar in volts signal; $^{40}\text{Ar}_\text{R}/^{39}\text{Ar}_\text{K}$ is the ratio of $^{40}\text{Ar}_\text{R}$ to $^{39}\text{Ar}_\text{K}$ after correction for mass-discrimination and interfering isotopes; $^{39}\text{Ar}/^{37}\text{Ar} = \text{ratio of } ^{39}\text{Ar}_\text{K} \text{ to } ^{37}\text{Ar}_\text{Ca}$ (this value can be converted to the approximate K/Ca by multiplying by 0.5); % $^{40}\text{Ar}_\text{K}$ and % ^{39}Ar are the percent of radiogenic ^{40}Ar and percent of total ^{39}Ar released in each temperature step. Temperature steps in boldface are those used in the calculation of the plateau or weighted-mean age. Conversion of volts signal to moles Ar can be made using a conversion factor of 2.078×10^{-12} moles argon per volt of signal.

The samples used in this study were irradiated for either 30 hours or 60 hours in the U.S. Geological Survey TRIGA reactor. The analyses were done in the U.S. Geological Survey Argon Laboratory, Denver, Colorado. Measurements of isotopic abundance were made using a Mass Analyzer Products 215 rare gas mass spectrometer with a Faraday cup. Apparent ages and associated errors were calculated from unrounded analytical data and then rounded using associated errors. Decay constants used in age calculations are $\lambda_e = 0.581 \times 10^{-10}/\text{yr}$, $\lambda_\beta = 4.962 \times 10^{-10}/\text{yr}$, and $\lambda = \lambda_e + \lambda_\beta = 5.543 \times 10^{-10}/\text{yr}$ (Steiger and Jäger, 1977). The irradiation monitor, hornblende MMhb-1, was used to measure the neutron fluence (J) in this study. MMhb-1 has $K = 1.555$, $^{40}\text{Ar}_\text{R} = 1.624 \times 10^{-9}$ mole/gm, and a K-Ar age of 520.4 Ma (Samson and Alexander, 1987). J values for each sample were interpolated from monitors adjacent to the samples.

Data in this table have been recalculated from data originally reported in Harlan (1992).