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PUBLIC-DATA FILE 98-33

$^{40}Ar/^{39}Ar$ LASER STEP-HEATING DATA AND SPECTRA FROM SANDSTONE AND VOLCANIC ROCKS IN THE NORTHERN BROOKS RANGE, ALASKA

by

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February 1998

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Division of Geological & Geophysical Surveys
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This paper contains age spectra and data for $^{40}Ar/^{39}Ar$ laser step-heating analyses of sandstone and volcanic rocks from the northern Brooks Range, Alaska. Sample locations are shown in figure 1. The abbreviations and column headings for the $^{40}Ar/^{39}Ar$ data are explained as follows:

J	Dimensionless irradiation parameter.
Power (mWatt)	The laser power, in milliWatts, for a given fraction.
Cum ^{39}Ar	Fraction of the total ^{39}Ar accumulated after each step.
$^{40}Ar/^{39}Ar$	Ratio of measured ^{40}Ar to ^{39}Ar for each fraction.
$^{37}Ar/^{39}Ar$	Ratio of measured ^{37}Ar to ^{39}Ar for each fraction.
$^{36}Ar/^{39}Ar$	Ratio of measured ^{36}Ar to ^{39}Ar for each fraction.
% Atm ^{40}Ar	Percent of non-radiogenic ^{40}Ar (atmospheric ^{40}Ar) in each fraction.
$^{37}Ar_{Ca}/^{39}Ar_{Ca}$	Ratio of decay corrected ^{37}Ar produced from ^{37}Ca to ^{39}Ar produced from ^{39}K.
$^{40}Ar^*/^{39}Ar_K$	Ratio of radiogenic ^{40}Ar ($^{40}Ar^*$) to ^{39}Ar produced from ^{39}K and decay corrected with its one σ error.
Age (Ma)	Age of fraction in millions of years.
+/-	One σ error for each calculated age in millions of years.

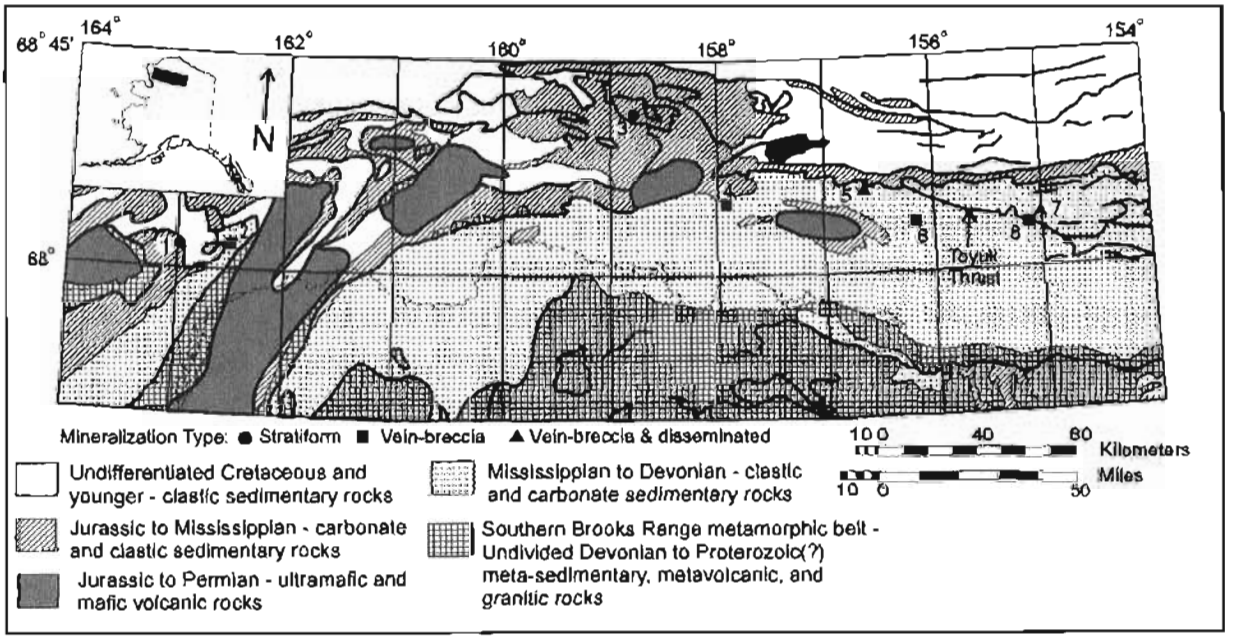


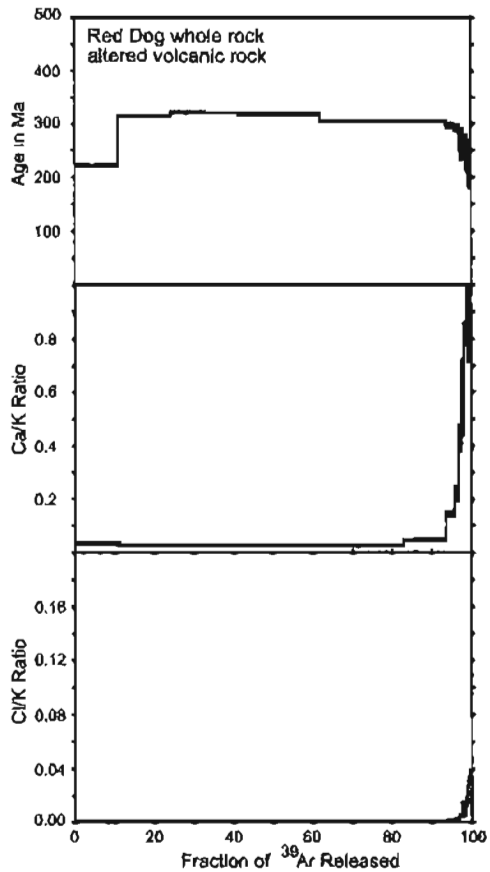
Figure 1. Geologic map of the northern Brooks Range showing $^{40}Ar/^{39}Ar$ sample locations: 1) Red Dog (MBWWR, MBWBIO, RFD, RFDb), 2) Husky (H123, H123b, H59.5'), 3) Drenchwater (DW10, DW12, DWKH), 4) Story Creek, 5) west Kivliktort Mountain, 6) Koiyaktot Mountain, 7) Kady (Kady47a, Kady47c), and 8) Vidlee. Geology modified from Beikman (1980).

Reference: Beikman, H. M., 1980, Geologic map of Alaska: U. S. Geological Survey, 2 sheets, 1:250,000 scale.

RED DOG **UAF063-41 mbw-WR96 WR 01-09-97**

Weighted average of J from standards = 0.007799 +/- 0.000020

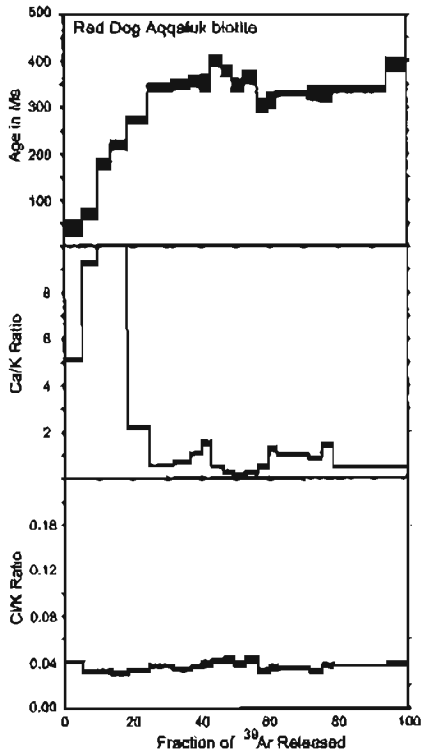
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.110	18.16	0.02	0.01	7.83	0.02	16.71	0.09	221.0	1.2
150	0.241	24.34	0.01	0.00	-0.43	0.01	24.41	0.10	314.4	1.2
200	0.414	25.00	0.02	0.00	-0.27	0.02	25.04	0.13	321.8	1.5
250	0.620	24.67	0.02	0.00	-0.28	0.02	24.71	0.09	317.9	1.1
300	0.829	23.68	0.01	0.00	0.15	0.01	23.61	0.08	304.9	0.9
350	0.936	23.87	0.02	0.00	1.06	0.02	23.59	0.11	304.7	1.3
400	0.957	23.70	0.08	0.00	2.97	0.08	22.97	0.32	297.3	3.8
450	0.969	22.76	0.12	0.00	0.59	0.12	22.59	0.46	292.8	5.5
500	0.974	20.08	0.24	0.00	0.25	0.24	20.01	0.79	261.6	9.6
550	0.977	18.66	0.35	0.00	-3.07	0.35	19.21	1.67	251.8	20.4
600	0.980	21.06	0.28	0.00	2.42	0.28	20.53	1.85	267.9	22.4
700	0.986	21.07	0.45	0.01	10.64	0.45	18.81	0.92	246.9	11.2
800	0.989	19.84	0.83	0.00	5.67	0.83	18.69	2.57	245.5	31.5
950	0.991	18.35	0.62	0.00	-2.34	0.62	18.76	1.71	246.3	21.0
1200	0.995	18.10	0.42	0.01	17.82	0.42	14.85	1.11	197.7	14.0
1500	0.998	17.03	0.47	0.01	10.86	0.47	15.16	1.77	201.6	22.2
9000	1.000	23.82	0.45	0.05	62.40	0.45	8.95	1.90	121.7	25.0
Integrated		23.47	0.03	0.00	0.97	0.03	23.22	0.04	300.3	0.9



RED DOG **UAF063-40 mbwBIO96 bt 01-09-97**

Weighted average of J from standards = 0.007799 +/- 0.000020

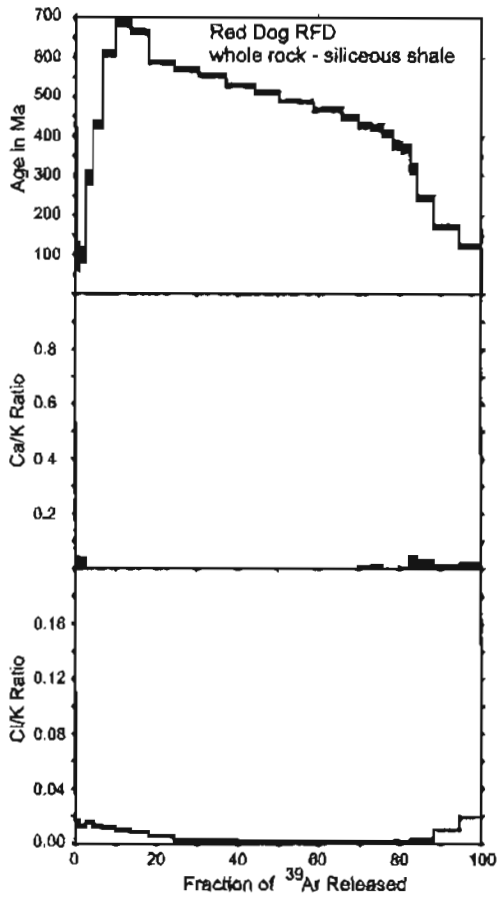
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.053	26.72	2.79	0.08	89.08	2.79	2.92	1.24	40.6	17.0
150	0.097	17.07	5.04	0.04	69.80	5.06	5.16	0.76	71.2	10.2
200	0.136	21.16	10.45	0.03	37.31	10.52	13.34	0.85	178.5	10.8
250	0.183	23.08	6.39	0.02	28.59	6.42	16.53	0.72	218.8	8.9
300	0.245	24.58	1.19	0.01	15.19	1.19	20.84	0.56	271.7	6.7
350	0.317	27.74	0.30	0.00	3.08	0.30	26.87	0.60	343.2	6.9
400	0.366	28.16	0.39	0.00	2.21	0.39	27.52	0.76	350.8	8.8
450	0.400	28.55	0.58	0.00	2.03	0.58	27.95	0.93	355.8	10.7
500	0.428	30.41	0.83	0.01	9.10	0.83	27.63	1.47	352.1	17.0
550	0.463	31.86	0.27	0.00	0.07	0.27	31.82	0.87	399.9	9.8
600	0.492	30.70	0.14	0.00	2.88	0.14	29.79	0.95	376.9	10.9
700	0.526	30.35	0.08	0.01	10.34	0.08	27.19	1.10	346.9	12.8
800	0.564	31.72	0.14	0.01	9.12	0.14	28.81	1.15	365.6	13.2
950	0.596	26.46	0.27	0.01	11.08	0.27	23.50	1.16	303.7	13.8
1200	0.620	28.50	0.69	0.01	14.12	0.69	24.46	1.43	315.0	16.9
1500	0.712	28.89	0.55	0.01	10.68	0.55	25.79	0.35	330.6	4.1
2000	0.750	35.21	0.46	0.03	26.66	0.46	25.81	1.24	330.9	14.6
2500	0.784	36.47	0.77	0.04	30.05	0.77	25.50	1.27	327.3	14.9
9000	0.941	36.13	0.26	0.03	26.56	0.26	26.52	0.47	339.2	5.4
9001	1.000	33.62	0.27	0.01	7.82	0.27	30.97	1.03	390.3	11.6
Integrated		29.45	1.44	0.02	20.11	1.44	23.53	0.19	304.0	2.4



RED DOG **UAF056-27 rfd #1 WR 4-19b96**

Weighted average of J from standards = 0.008171 +/- 0.000057

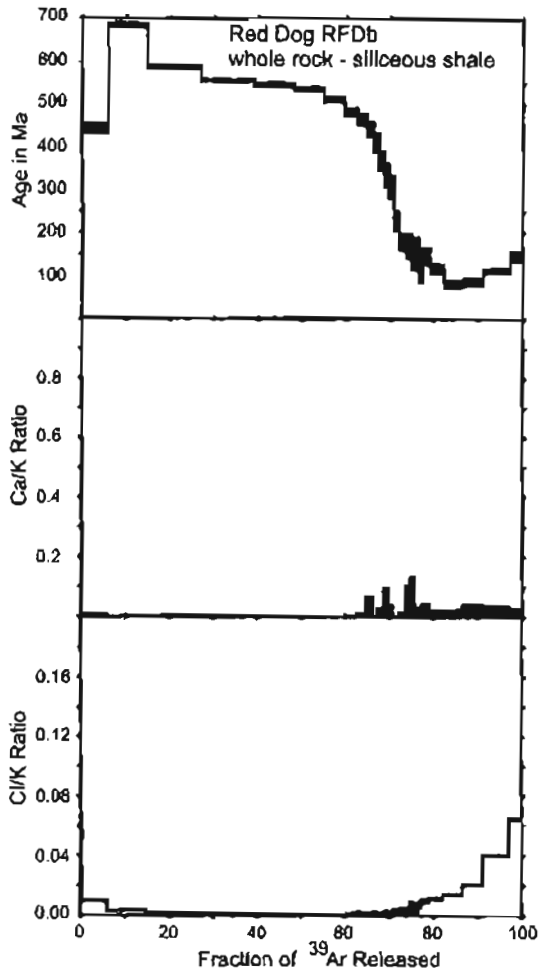
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.001	179.76	-0.20	0.58	94.96	-0.20	9.07	14.59	128.9	200.2
150	0.003	218.53	0.13	0.68	91.49	0.13	18.59	11.43	255.1	146.2
200	0.009	167.55	-0.02	0.55	96.07	-0.02	6.59	2.54	94.6	35.6
250	0.026	169.89	0.01	0.55	95.93	0.01	6.91	1.32	99.1	18.4
300	0.044	197.30	-0.02	0.60	89.07	-0.02	21.56	1.36	292.7	17.1
350	0.067	125.28	-0.02	0.31	73.86	-0.02	32.74	0.92	427.7	10.7
400	0.098	89.38	-0.01	0.14	44.93	-0.01	49.20	0.69	609.6	7.2
450	0.136	76.33	-0.01	0.07	25.90	-0.01	56.54	0.58	685.1	5.8
500	0.181	65.48	-0.01	0.04	16.73	-0.01	54.50	0.49	664.5	5.0
550	0.243	54.74	0.00	0.03	14.05	0.00	47.03	0.39	586.6	4.1
600	0.304	50.83	0.00	0.02	10.66	0.00	45.39	0.38	569.0	4.1
700	0.370	48.32	-0.01	0.01	8.87	-0.01	44.01	0.35	554.2	3.8
800	0.441	45.51	-0.01	0.01	8.20	-0.01	41.75	0.33	529.5	3.6
950	0.503	43.58	0.00	0.01	7.91	0.00	40.11	0.35	511.4	3.9
1200	0.585	41.55	-0.01	0.01	8.49	-0.01	38.00	0.29	487.8	3.3
1500	0.658	39.26	-0.01	0.01	7.82	-0.01	36.16	0.31	467.0	3.5
1700	0.698	37.25	-0.01	0.01	7.32	-0.01	34.50	0.46	448.0	5.2
1900	0.729	35.99	0.00	0.01	8.99	0.00	32.73	0.56	427.5	6.5
2200	0.757	34.90	0.00	0.01	7.65	0.00	32.20	0.62	421.4	7.2
2500	0.783	33.94	-0.01	0.01	8.74	-0.01	30.94	0.65	406.6	7.6
3000	0.804	32.42	-0.02	0.01	11.95	-0.02	28.52	0.79	378.0	9.5
3500	0.825	31.92	-0.02	0.01	12.94	-0.02	27.76	0.81	368.9	9.7
4000	0.842	30.89	0.01	0.03	23.60	0.01	23.58	0.99	317.8	12.3
5000	0.883	32.64	0.01	0.05	45.80	0.01	17.68	0.43	243.4	5.5
7000	0.946	47.29	0.00	0.12	74.31	0.00	12.14	0.35	170.6	4.6
9000	1.000	48.63	0.00	0.14	82.47	0.00	8.52	0.38	121.4	5.3
Integrated		54.68	-0.01	0.07	36.16	-0.01	34.89	0.10	452.5	3.0


Red Dog RFD
whole rock - siliceous shale
Age in Ma
700
600
500
400
300
200
100
Ca/K Ratio
0.8
0.6
0.4
0.2
Cl/K Ratio
0.16
0.12
0.08
0.04
0.00
0
20
40
60
80
100
Fraction of 39Ar Released

RED DOG **UAF056-27 RFDb #2 WR 04-21-96**

Weighted average of J from standards = 0.008171 +/- 0.000057

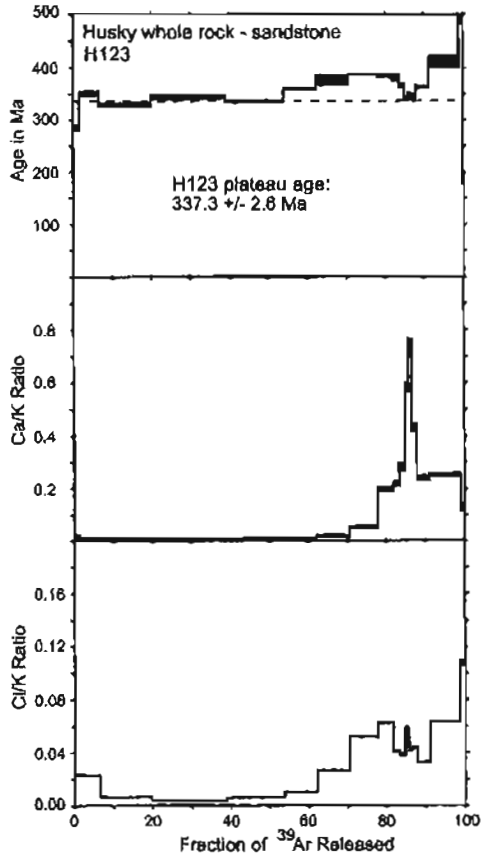
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.058	174.35	0.00	0.48	80.51	0.00	33.98	0.93	442.0	10.7
150	0.147	81.89	-0.01	0.09	31.14	-0.01	56.37	0.47	683.4	4.8
200	0.268	54.25	-0.01	0.02	13.29	-0.01	47.01	0.34	586.5	3.6
250	0.389	47.06	0.00	0.01	6.25	0.00	44.09	0.31	555.1	3.4
300	0.481	45.94	0.00	0.01	5.81	0.00	43.24	0.35	545.9	3.8
350	0.548	44.73	0.00	0.01	5.36	0.00	42.31	0.42	535.6	4.5
400	0.595	41.66	-0.01	0.01	3.43	-0.01	40.21	0.54	512.5	6.0
450	0.624	39.75	-0.02	0.01	5.44	-0.02	37.56	0.81	482.8	9.1
500	0.645	38.31	-0.01	0.01	5.77	-0.01	36.07	1.11	466.0	12.6
550	0.661	36.90	0.01	0.01	7.57	0.01	34.08	1.45	443.2	16.8
600	0.673	36.41	-0.05	0.02	14.22	-0.05	31.21	1.95	409.8	22.9
700	0.686	34.45	-0.02	0.02	19.44	-0.02	27.73	1.80	368.5	21.6
800	0.696	34.05	0.02	0.03	26.73	0.02	24.93	2.16	334.5	26.5
950	0.707	31.87	-0.02	0.03	28.80	-0.02	22.67	2.09	306.6	26.0
1200	0.721	29.80	-0.04	0.05	44.47	-0.04	16.53	1.70	228.6	22.1
1500	0.736	28.04	-0.02	0.05	54.32	-0.02	12.79	1.50	179.4	20.1
1700	0.747	29.78	0.02	0.06	59.31	0.02	12.11	2.14	170.2	28.7
1900	0.756	30.42	0.03	0.07	65.46	0.03	10.50	2.50	148.5	33.9
2200	0.765	30.16	-0.03	0.06	63.20	-0.03	11.09	2.52	156.5	34.1
2500	0.773	32.46	-0.03	0.08	72.87	-0.03	8.80	2.79	125.3	38.3
3000	0.790	32.04	0.00	0.07	67.85	0.00	10.29	1.32	145.7	18.0
3500	0.822	32.47	0.00	0.08	74.75	0.00	8.19	0.74	116.9	10.2
4000	0.866	25.62	0.00	0.07	77.75	0.00	5.69	0.53	82.0	7.4
5000	0.911	20.04	0.01	0.05	69.91	0.01	6.02	0.52	86.6	7.3
7000	0.972	17.78	0.01	0.03	55.72	0.01	7.86	0.38	112.3	5.2
9000	1.000	24.25	0.00	0.05	57.45	0.00	10.31	0.83	145.8	11.2
Integrated		50.32	0.00	0.06	34.60	0.00	32.89	0.14	429.4	3.1


Red Dog RFDb
whole rock - siliceous shale
Age in Ma
700
600
500
400
300
200
100
Ca/K Ratio
0.8
0.6
0.4
0.2
Cl/K Ratio
0.16
0.12
0.08
0.04
0.00
0
20
40
60
80
100
Fraction of ^{39}Ar Released

HUSKY **uaf056-30 H123 #1 wr 4-16-96**

Weighted average of J from standards = 0.008171 +/- 0.000057

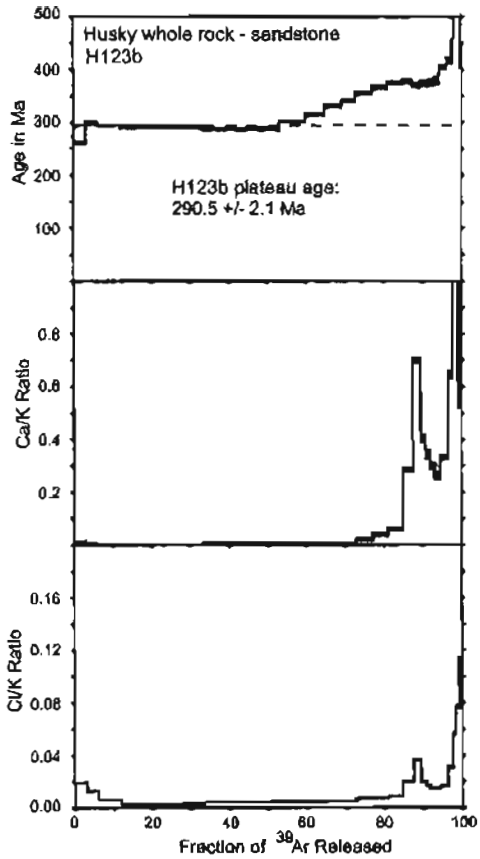
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.015	37.22	0.01	0.06	43.90	0.01	20.86	0.39	284.0	4.9
200	0.066	34.26	0.00	0.03	23.24	0.00	26.28	0.29	350.9	3.5
300	0.199	26.47	0.00	0.01	7.22	0.00	24.53	0.25	329.6	3.1
400	0.389	26.22	0.00	0.00	1.84	0.00	25.71	0.21	343.9	2.5
500	0.539	25.56	0.00	0.00	1.95	0.00	25.03	0.17	335.7	2.1
600	0.623	27.43	0.00	0.00	1.50	0.00	26.99	0.10	359.5	1.3
700	0.706	28.98	0.01	0.00	2.37	0.01	28.27	0.66	374.9	7.9
900	0.779	30.41	0.03	0.00	3.33	0.03	29.37	0.08	388.1	0.9
1100	0.819	31.03	0.11	0.01	6.34	0.11	29.04	0.14	384.1	1.7
1300	0.836	31.19	0.12	0.01	8.03	0.12	28.66	0.33	379.6	3.9
1500	0.849	30.93	0.15	0.01	11.12	0.15	27.47	0.29	365.3	3.5
1750	0.859	31.10	0.32	0.02	17.98	0.32	25.49	0.28	341.3	3.5
2000	0.866	31.49	0.40	0.02	17.57	0.40	25.94	0.44	346.8	5.4
2500	0.880	31.95	0.24	0.02	19.67	0.24	25.64	0.40	343.2	4.8
3500	0.912	32.37	0.13	0.02	15.76	0.13	27.25	0.15	362.6	1.8
7000	0.990	40.64	0.14	0.03	22.97	0.14	31.29	0.91	410.7	10.6
9000	1.000	55.41	0.07	0.06	30.98	0.07	38.23	0.37	490.4	4.1
Integrated		29.49	0.04	0.01	9.00	0.04	26.81	0.11	357.4	2.6



HUSKY **UAF056-30 h123b #1 WR 4-19-96**

Weighted average of J from standards = 0.008171 +/- 0.000057

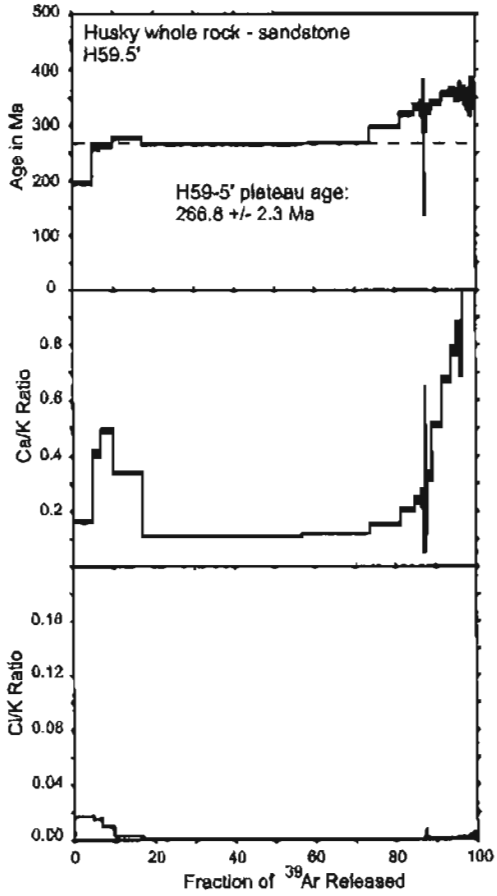
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.031	28.15	0.01	0.03	32.32	0.01	19.04	0.21	260.8	2.7
150	0.061	25.95	0.00	0.01	15.20	0.00	21.98	0.21	298.0	2.6
200	0.121	23.93	0.00	0.01	8.85	0.00	21.79	0.15	295.6	1.9
250	0.216	22.11	0.00	0.00	2.84	0.00	21.46	0.13	291.4	1.6
300	0.333	21.90	0.00	0.00	1.81	0.00	21.48	0.12	291.7	1.6
350	0.444	21.58	0.00	0.00	1.92	0.00	21.13	0.12	287.4	1.6
400	0.531	21.60	0.00	0.00	1.88	0.00	21.17	0.13	287.8	1.6
450	0.598	22.59	0.00	0.00	1.53	0.00	22.21	0.14	300.9	1.8
500	0.649	23.72	0.01	0.00	1.40	0.01	23.36	0.16	315.1	2.0
550	0.692	24.95	0.01	0.00	1.45	0.01	24.56	0.18	330.0	2.2
600	0.727	25.87	0.01	0.00	1.70	0.01	25.41	0.20	340.3	2.4
700	0.770	26.93	0.01	0.00	1.38	0.01	26.53	0.19	354.0	2.3
800	0.809	28.11	0.02	0.00	2.00	0.02	27.52	0.20	365.9	2.4
950	0.847	29.04	0.03	0.00	2.79	0.03	28.20	0.21	374.1	2.5
1200	0.874	30.53	0.16	0.01	6.76	0.16	28.44	0.25	377.0	2.9
1500	0.893	32.25	0.38	0.02	13.69	0.38	27.82	0.31	369.5	3.7
1700	0.906	32.24	0.22	0.01	12.81	0.22	28.09	0.42	372.8	5.1
1900	0.918	32.94	0.19	0.02	14.50	0.19	28.14	0.48	373.4	5.8
2200	0.931	33.16	0.16	0.02	14.58	0.16	28.31	0.43	375.4	5.1
2500	0.944	34.19	0.14	0.02	16.37	0.14	28.57	0.42	378.5	5.1
3000	0.963	36.82	0.18	0.02	16.52	0.18	30.71	0.33	403.9	3.8
3500	0.976	42.43	0.35	0.04	24.98	0.35	31.82	0.44	416.9	5.1
4000	0.983	51.59	0.58	0.06	33.11	0.58	34.50	0.77	448.1	8.9
5000	0.992	59.77	1.10	0.07	33.48	1.10	39.77	0.64	507.6	7.1
7000	0.999	100.28	0.30	0.11	32.21	0.30	67.97	0.91	796.9	8.6
9000	1.000	159.10	0.27	0.20	37.72	0.27	99.09	5.43	1070.1	44.2
Integrated		26.21	0.05	0.01	7.92	0.05	24.11	0.04	324.4	2.1


Husky whole rock - sandstone
H123b
H123b plateau age:
290.5 +/- 2.1 Ma
Age in Ma
Ca/K Ratio
Cl/K Ratio
Fraction of ^{39}Ar Released

HUSKY **UAF056-31 H59.5' #1 WR 04-18b96**

Weighted average of J from standards = 0.008171 +/- 0.000057

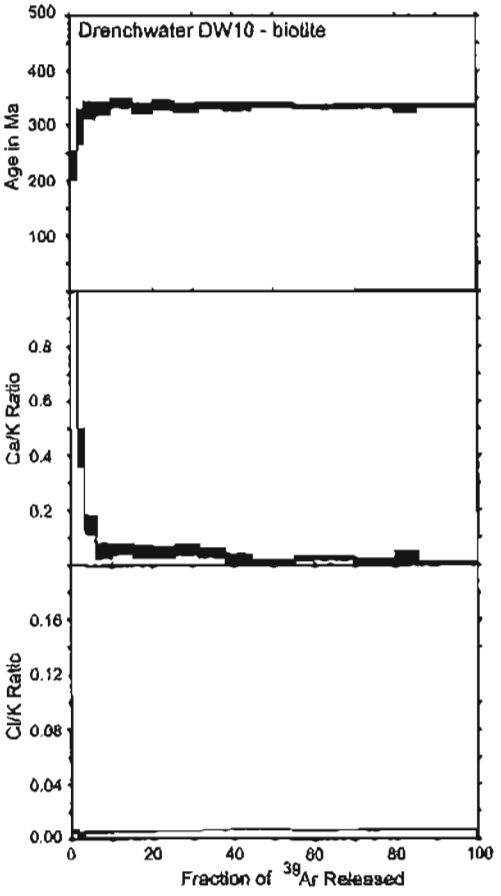
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.048	32.35	0.09	0.06	56.61	0.09	14.02	0.22	195.7	2.9
150	0.068	24.21	0.22	0.02	21.35	0.22	19.02	0.39	260.6	5.0
200	0.099	22.50	0.27	0.01	14.65	0.27	19.18	0.27	262.7	3.4
250	0.171	24.44	0.18	0.01	16.91	0.18	20.28	0.16	276.7	2.0
300	0.567	20.63	0.06	0.00	5.81	0.06	19.40	0.11	265.5	1.4
350	0.739	20.06	0.07	0.00	2.42	0.07	19.55	0.12	267.4	1.5
400	0.812	22.20	0.08	0.00	1.17	0.08	21.91	0.16	297.1	2.0
450	0.847	23.84	0.11	0.00	0.26	0.11	23.75	0.25	320.0	3.1
500	0.865	24.83	0.13	0.00	0.21	0.13	24.75	0.45	332.3	5.5
550	0.872	24.81	0.14	0.00	0.89	0.14	24.56	1.11	329.9	13.6
600	0.873	25.07	0.09	0.00	0.54	0.09	24.90	3.88	334.1	47.5
700	0.875	23.31	0.24	0.02	29.37	0.24	16.45	6.98	227.5	90.7
800	0.876	24.68	0.11	0.01	16.42	0.11	20.61	4.82	280.7	60.8
950	0.880	24.31	0.10	0.00	4.88	0.10	23.10	1.99	311.9	24.7
1200	0.891	24.93	0.18	0.00	1.71	0.18	24.47	0.67	328.9	8.2
1500	0.917	26.85	0.28	0.01	4.92	0.28	25.51	0.33	341.5	4.0
1700	0.937	27.74	0.37	0.00	3.42	0.37	26.77	0.39	356.8	4.7
1900	0.951	28.13	0.42	0.00	3.76	0.42	27.05	0.59	360.3	7.1
2200	0.960	27.86	0.47	0.00	4.59	0.47	26.56	0.81	354.4	9.8
2500	0.966	28.27	0.40	0.00	3.65	0.40	27.22	1.24	362.3	15.0
3000	0.974	28.39	0.62	0.01	5.23	0.62	26.89	0.99	358.4	12.0
3500	0.980	28.56	0.82	0.01	7.61	0.82	26.37	1.13	352.0	13.7
4000	0.985	29.17	0.80	0.01	10.98	0.80	25.96	1.47	347.0	17.9
4500	0.989	28.85	0.63	0.01	11.42	0.63	25.54	2.05	341.9	25.0
5000	0.993	29.30	0.75	0.01	7.51	0.75	27.09	2.12	360.8	25.6
7000	0.998	30.67	1.17	0.02	15.21	1.17	26.00	1.47	347.5	17.9
9000	1.000	31.12	0.73	0.01	12.41	0.73	27.24	3.20	362.6	38.5
Integrated		22.72	0.14	0.01	9.54	0.14	20.53	0.06	279.7	2.0


Husky whole rock - sandstone
H59.5'
H59-5' plateau age:
266.8 +/- 2.3 Ma
Age in Ma
Ca/K Ratio
Cl/K Ratio
Fraction of ^{39}Ar Released

DRENCHWATER **UAF056-33 DW10 #1 Bio 4-17c96**

Weighted average of J from standards = 0.008171 +/- 0.000057

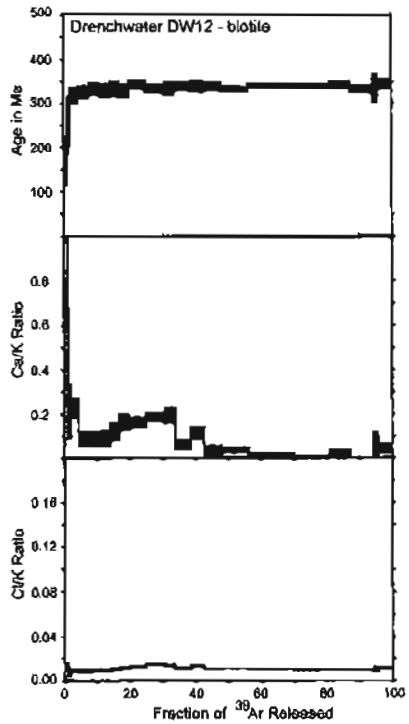
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.017	20.87	0.90	0.02	21.00	0.90	16.47	2.14	227.8	27.9
150	0.032	23.08	0.23	0.00	4.53	0.23	22.01	2.52	298.4	31.5
200	0.062	24.57	0.08	0.00	0.63	0.08	24.39	1.27	327.8	15.6
250	0.101	24.95	0.03	0.00	0.71	0.03	24.75	0.97	332.2	11.9
300	0.153	25.17	0.03	0.00	-1.42	0.03	25.49	0.73	341.4	8.9
350	0.202	24.88	0.03	0.00	0.44	0.03	24.74	0.77	332.2	9.4
400	0.256	25.03	0.03	0.00	-0.79	0.03	25.20	0.72	337.8	8.8
450	0.315	24.92	0.03	0.00	0.75	0.03	24.70	0.64	331.7	7.8
500	0.380	25.09	0.02	0.00	-0.76	0.02	25.25	0.60	338.4	7.3
550	0.446	25.04	0.01	0.00	0.38	0.01	24.92	0.58	334.3	7.1
600	0.551	25.25	0.00	0.00	0.06	0.00	25.21	0.38	337.8	4.7
700	0.695	25.30	0.01	0.00	1.44	0.01	24.91	0.29	334.2	3.6
800	0.797	25.19	0.01	0.00	0.10	0.01	25.13	0.39	336.9	4.8
950	0.853	24.85	0.02	0.00	0.29	0.02	24.75	0.68	332.3	8.3
1200	0.995	25.18	0.00	0.00	0.47	0.00	25.03	0.30	335.7	3.6
1500	1.000	25.06	0.18	0.01	13.76	0.18	21.59	7.08	293.1	88.7
Integrated		25.00	0.04	0.00	0.72	0.04	24.79	0.16	332.8	2.8



DRENCHWATER **UAF056-34 DW12 #1 Bio 4-17b96**

Weighted average of J from standards = 0.008171 +/- 0.000057

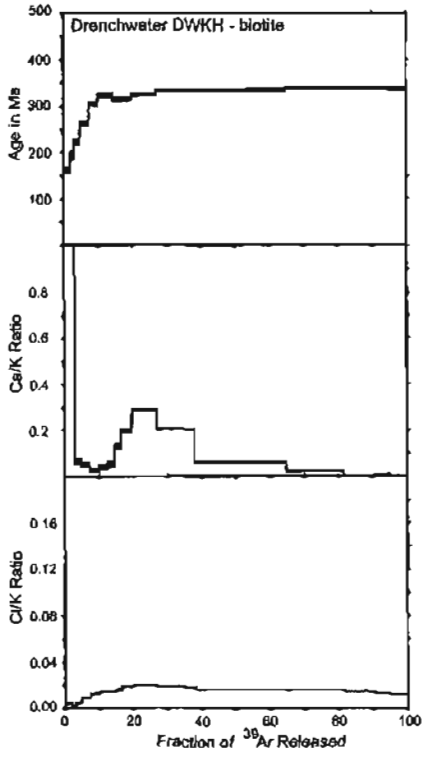
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.010	44.62	1.55	0.11	74.57	1.56	11.35	3.41	160.0	45.9
150	0.019	22.06	0.12	0.01	13.87	0.12	18.98	4.26	260.1	54.4
200	0.044	24.32	0.12	0.00	3.06	0.12	23.55	1.44	317.4	17.7
250	0.077	24.73	0.05	0.00	1.98	0.05	24.22	1.07	325.7	13.2
300	0.111	25.19	0.05	0.00	1.49	0.05	24.79	1.07	332.7	13.1
350	0.140	24.58	0.05	0.00	0.35	0.05	24.47	1.23	328.8	15.0
400	0.167	24.77	0.07	0.00	-0.39	0.07	24.83	1.32	333.3	16.1
450	0.198	24.71	0.09	0.00	1.22	0.09	24.38	1.16	327.7	14.3
500	0.248	25.13	0.09	0.00	-2.01	0.09	25.61	0.73	342.8	8.9
550	0.306	24.98	0.10	0.00	0.51	0.10	24.83	0.62	333.2	7.6
600	0.337	24.73	0.11	0.00	-0.19	0.11	24.75	1.17	332.2	14.3
700	0.385	25.91	0.03	0.00	2.31	0.03	25.29	0.75	338.8	9.2
800	0.425	25.22	0.06	0.00	-0.20	0.06	25.25	0.89	338.3	10.9
950	0.478	25.35	0.02	0.00	0.39	0.02	25.22	0.69	338.1	8.4
1200	0.562	25.27	0.02	0.00	2.03	0.02	24.73	0.45	332.0	5.5
1500	0.700	25.48	0.01	0.00	0.49	0.01	25.32	0.29	339.3	3.6
1700	0.809	25.13	0.00	0.00	-0.42	0.00	25.20	0.36	337.8	4.3
1900	0.874	25.39	0.01	0.00	-1.08	0.01	25.64	0.56	343.1	6.9
2200	0.942	24.94	-0.01	0.00	0.51	-0.01	24.78	0.54	332.6	6.6
2500	0.956	25.49	0.02	0.00	2.27	0.02	24.89	2.64	333.9	32.3
3500	1.000	25.47	0.02	0.00	-0.69	0.02	25.62	0.82	342.9	10.0
Integrated		25.35	0.05	0.00	1.90	0.05	24.84	0.17	333.4	2.9



DRENCHWATER **UAF056-32 DWkh #1 Bio 4-18-96**

Weighted average of J from standards = 0.008171 +/- 0.000057

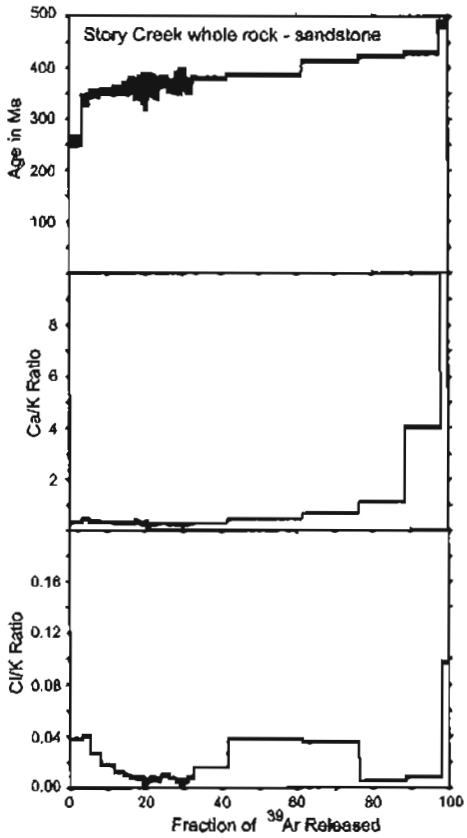
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.020	22.05	0.69	0.04	48.18	0.69	11.42	0.38	160.9	5.2
150	0.031	14.82	0.76	0.00	6.26	0.76	13.87	0.64	193.7	8.5
200	0.048	16.52	0.04	0.00	3.21	0.04	15.96	0.42	221.2	5.5
250	0.073	19.34	0.03	0.00	1.37	0.03	19.05	0.31	261.0	3.9
300	0.100	22.35	0.02	0.00	-0.50	0.02	22.43	0.30	303.6	3.7
350	0.125	23.79	0.02	0.00	-0.64	0.02	23.92	0.31	322.0	3.8
400	0.145	23.93	0.03	0.00	-0.38	0.03	23.99	0.39	322.9	4.8
450	0.165	23.26	0.07	0.00	0.08	0.07	23.22	0.38	313.4	4.8
500	0.197	23.23	0.11	0.00	-0.01	0.11	23.20	0.25	313.2	3.1
550	0.270	24.00	0.16	0.00	-0.17	0.16	24.02	0.16	323.3	2.0
600	0.381	24.80	0.11	0.00	-0.16	0.11	24.81	0.15	333.1	1.8
700	0.647	24.95	0.03	0.00	0.16	0.03	24.88	0.14	333.9	1.7
800	0.814	25.19	0.01	0.00	0.11	0.01	25.13	0.14	337.0	1.7
950	0.908	25.08	0.00	0.00	-0.43	0.00	25.16	0.16	337.3	1.9
1200	0.952	25.14	0.00	0.00	-0.57	0.00	25.26	0.21	338.5	2.6
1500	1.000	25.16	0.00	0.00	-0.14	0.00	25.17	0.20	337.4	2.5
Integrated		24.27	0.06	0.00	0.89	0.06	24.03	0.06	323.4	2.2



STORY CREEK **uaf056-29 ST #1 wr 4-16-96**

Weighted average of J from standards = 0.008171 +/- 0.000057

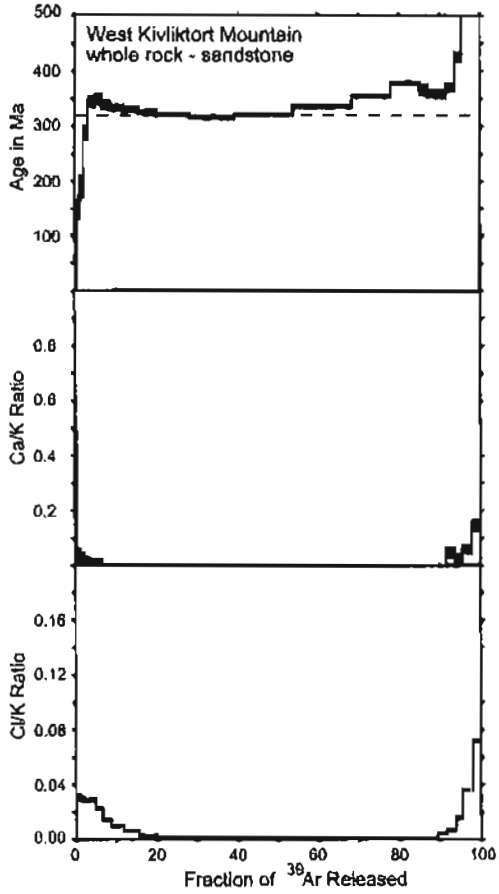
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.032	110.81	0.17	0.31	83.10	0.17	18.73	0.78	256.9	10.0
150	0.052	51.20	0.24	0.09	50.93	0.24	25.12	0.94	336.8	11.5
200	0.081	39.60	0.19	0.05	33.86	0.19	26.18	0.65	349.7	7.9
250	0.117	35.82	0.16	0.03	25.96	0.16	26.50	0.54	353.6	6.6
300	0.141	32.00	0.16	0.02	16.60	0.16	26.66	0.77	355.6	9.3
350	0.158	31.22	0.16	0.02	13.71	0.16	26.92	1.08	358.6	13.0
400	0.172	31.51	0.16	0.01	12.86	0.16	27.44	1.29	364.9	15.5
450	0.183	31.21	0.20	0.02	13.79	0.20	26.89	1.66	358.3	20.0
500	0.193	30.24	0.17	0.01	10.10	0.17	27.16	1.87	361.6	22.5
550	0.200	29.95	0.14	0.01	9.84	0.14	26.98	2.40	359.4	28.9
600	0.208	29.29	0.16	0.01	11.68	0.16	25.84	2.41	345.6	29.4
700	0.218	30.42	0.12	0.01	9.14	0.12	27.61	1.76	367.0	21.2
850	0.228	30.44	0.13	0.01	9.97	0.13	27.38	1.85	364.3	22.3
950	0.238	30.09	0.15	0.01	10.36	0.15	26.95	1.74	359.0	21.0
1200	0.260	31.45	0.16	0.01	10.57	0.16	28.10	0.84	372.9	10.1
1500	0.279	30.92	0.12	0.01	11.50	0.12	27.34	0.97	363.8	11.7
1700	0.290	30.42	0.13	0.01	8.25	0.13	27.88	1.74	370.3	20.8
1900	0.298	31.09	0.14	0.01	9.50	0.14	28.11	2.08	373.0	25.0
2200	0.309	30.21	0.12	0.01	5.29	0.12	28.59	1.72	378.7	20.6
2500	0.325	30.36	0.13	0.01	9.91	0.13	27.33	1.13	363.6	13.6
3000	0.415	32.42	0.16	0.01	11.74	0.16	28.59	0.26	378.7	3.1
3500	0.613	31.20	0.25	0.01	6.52	0.25	29.14	0.19	385.3	2.2
4000	0.763	32.84	0.36	0.01	4.32	0.36	31.41	0.21	412.1	2.5
5000	0.886	34.12	0.61	0.01	5.41	0.61	32.26	0.23	422.1	2.7
7000	0.980	38.79	2.20	0.02	15.46	2.20	32.81	0.28	428.5	3.2
9000	1.000	78.70	7.21	0.14	52.22	7.24	37.76	1.00	485.2	11.2
Integrated		36.89	0.59	0.03	20.39	0.59	29.36	0.11	387.9	2.7


Story Creek whole rock - sandstone
Age in Ma
500
400
300
200
100
Ca/K Ratio
8
6
4
2
Cl/K Ratio
0.16
0.12
0.08
0.04
0.00
0
20
40
60
80
100
Fraction of ^{39}Ar Released

WEST KIVLIKTORT MOUNTAIN **UAF056-28 wkiv #1 WR 04-20b96**

Weighted average of J from standards = 0.008171 +/- 0.000057

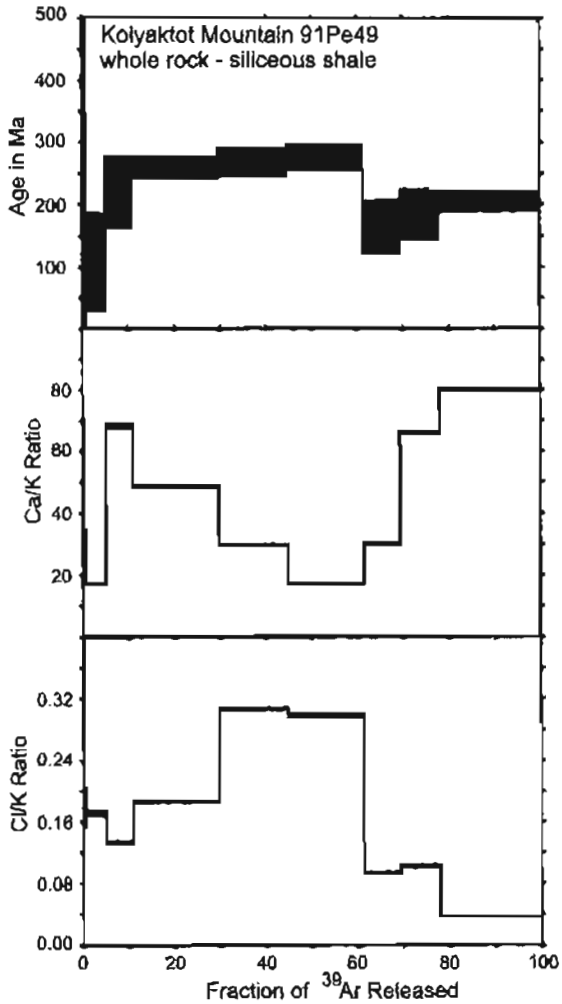
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.001	34.02	0.11	0.11	93.99	0.11	2.04	8.90	29.9	129.0
150	0.004	24.59	0.04	0.07	78.10	0.04	5.38	3.99	77.6	56.3
200	0.012	27.51	0.01	0.06	60.86	0.01	10.76	1.59	152.0	21.5
250	0.020	23.99	0.00	0.04	43.45	0.00	13.55	1.45	189.4	19.3
300	0.033	32.10	0.00	0.04	33.97	0.00	21.17	0.94	287.9	11.9
350	0.049	36.14	0.00	0.04	28.70	0.00	25.75	0.77	344.4	9.4
400	0.066	34.92	0.00	0.03	25.12	0.00	26.13	0.74	349.1	9.0
450	0.087	31.09	-0.01	0.02	18.59	-0.01	25.29	0.59	338.9	7.2
500	0.119	29.46	-0.01	0.02	15.64	-0.01	24.83	0.41	333.2	5.0
550	0.156	27.92	-0.01	0.01	11.48	-0.01	24.69	0.36	331.6	4.4
600	0.200	26.59	-0.01	0.01	8.66	-0.01	24.26	0.31	326.2	3.8
700	0.282	25.42	0.00	0.01	6.22	0.00	23.81	0.20	320.7	2.4
800	0.393	24.42	0.00	0.00	4.06	0.00	23.41	0.17	315.7	2.1
950	0.538	24.73	0.00	0.00	3.31	0.00	23.88	0.16	321.6	1.9
1200	0.684	25.91	0.00	0.00	2.96	0.00	25.12	0.16	336.7	2.0
1500	0.779	27.17	0.00	0.00	2.20	0.00	26.54	0.19	354.1	2.3
2200	0.851	29.27	0.00	0.00	2.51	0.00	28.51	0.23	377.7	2.7
2500	0.869	28.59	-0.02	0.00	3.46	-0.02	27.57	0.70	366.6	8.4
3000	0.893	28.55	-0.02	0.01	5.41	-0.02	26.98	0.53	359.4	6.4
3500	0.916	29.23	-0.02	0.01	8.20	-0.02	26.80	0.55	357.3	6.6
4000	0.938	33.78	0.03	0.02	17.24	0.03	27.93	0.57	370.8	6.9
5000	0.954	46.20	0.01	0.05	29.62	0.01	32.50	0.76	424.9	8.8
7000	0.979	63.63	0.03	0.07	33.21	0.03	42.48	0.58	537.6	6.3
9000	0.998	98.37	0.08	0.12	35.41	0.08	63.52	0.80	754.2	7.8
9000	1.000	140.32	0.03	0.18	38.48	0.03	86.31	6.37	962.8	55.1
Integrated		29.85	0.00	0.01	12.04	0.00	26.23	0.07	350.4	2.4


West Kivliktort Mountain
whole rock - sandstone
Age in Ma
500
400
300
200
100
Ca/K Ratio
0.8
0.6
0.4
0.2
Cl/K Ratio
0.16
0.12
0.08
0.04
0.00
0
20
40
60
80
100
Fraction of 39Ar Released

KOIYAKTOT MOUNTAIN **3-20-95 91PE49 47-24 WR 294.9**

Weighted average of J from standards = 0.008200 +/- 0.000034

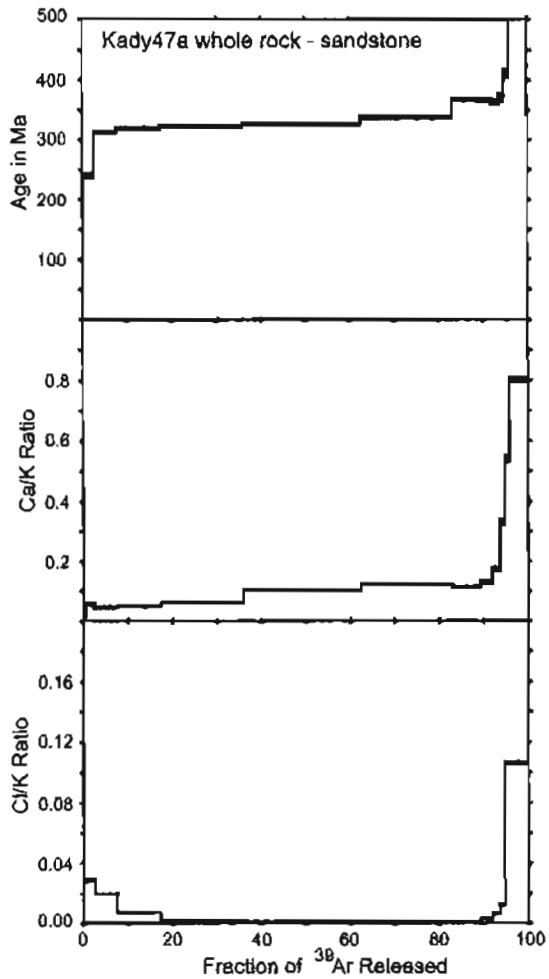
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
500	0.001	4542.34	20.73	15.79	102.71	21.01	-124.96	248.37	-4694.8	149285.6
600	0.006	1048.62	17.16	3.62	101.87	17.35	-19.78	54.61	-319.3	964.1
700	0.050	193.33	9.23	0.63	96.15	9.28	7.49	5.61	107.5	78.2
775	0.109	419.02	36.27	1.38	96.33	37.15	15.75	4.27	219.1	55.9
850	0.297	139.61	25.94	0.42	86.71	26.38	18.87	1.33	259.5	17.0
925	0.447	66.87	16.00	0.17	71.11	16.16	19.52	1.66	267.8	21.1
1000	0.613	32.66	9.17	0.05	38.59	9.22	20.16	1.50	276.0	19.0
1100	0.694	30.26	16.16	0.07	62.05	16.33	11.60	3.10	163.9	41.9
1200	0.779	33.96	35.05	0.08	62.15	35.87	13.14	2.92	184.6	39.0
1600	1.000	23.76	42.38	0.04	40.02	43.58	14.64	1.13	204.5	14.9
Integrated		94.90	25.20	0.27	83.25	25.62	16.16	0.79	224.5	10.3



KADY **UAF053-2 93KADY47a #1 WR 1/17/96**

Weighted average of J from standards = 0.006450 +/- 0.000028

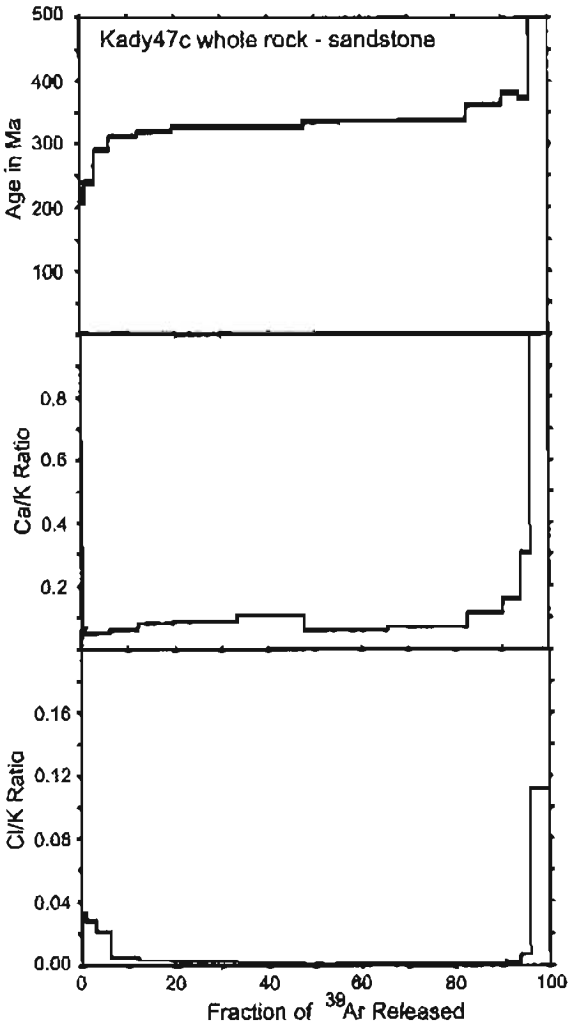
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.004	44.99	0.02	0.11	73.04	0.02	12.12	1.60	135.8	17.3
200	0.025	39.05	0.03	0.06	43.44	0.03	22.07	0.38	240.1	3.8
350	0.075	35.72	0.02	0.02	17.94	0.02	29.29	0.22	312.2	2.2
500	0.174	32.60	0.03	0.01	7.90	0.03	30.00	0.19	319.1	1.8
700	0.360	31.04	0.03	0.00	2.10	0.03	30.36	0.18	322.6	1.7
900	0.624	31.22	0.06	0.00	1.40	0.06	30.75	0.18	326.4	1.7
1100	0.831	32.62	0.07	0.00	2.08	0.07	31.91	0.19	337.7	1.8
1300	0.892	36.38	0.06	0.00	3.60	0.06	35.05	0.22	367.7	2.1
1500	0.920	37.37	0.07	0.01	6.59	0.07	34.88	0.32	366.1	3.0
1750	0.936	39.66	0.09	0.02	12.70	0.09	34.60	0.47	363.4	4.4
2000	0.947	43.22	0.18	0.03	18.01	0.18	35.42	0.67	371.2	6.3
2500	0.957	54.14	0.30	0.05	26.94	0.30	39.54	0.71	409.8	6.6
9000	1.000	98.34	0.44	0.11	33.34	0.44	65.55	0.52	636.2	4.2
Integrated		35.91	0.07	0.01	9.22	0.07	32.58	0.08	344.1	1.6



KADY **UAF053-2 93KADY47c #3 WR 1/18/96**

Weighted average of J from standards = 0.006450 +/- 0.000028

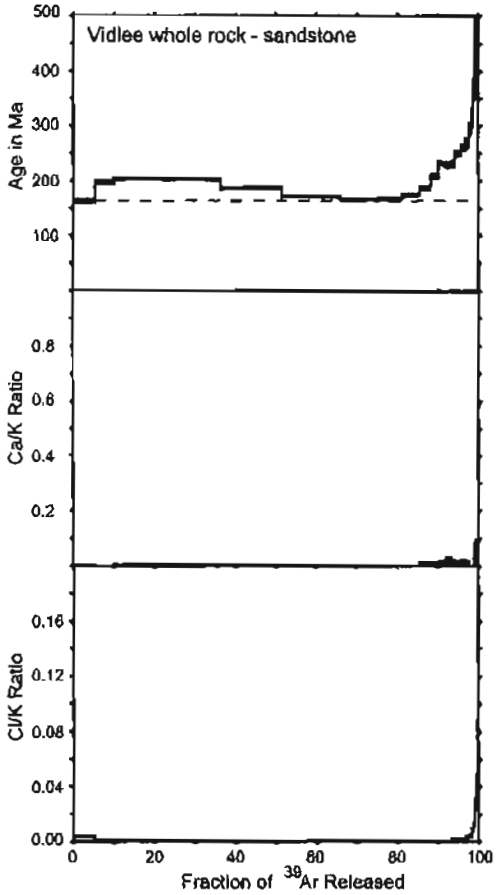
Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
200	0.010	52.45	0.03	0.11	63.36	0.03	19.21	0.52	210.7	5.4
300	0.030	35.45	0.03	0.05	38.12	0.03	21.92	0.27	238.5	2.8
400	0.060	32.60	0.03	0.02	16.87	0.03	27.08	0.22	290.4	2.2
600	0.121	30.66	0.03	0.01	4.53	0.03	29.24	0.18	311.7	1.7
700	0.195	31.03	0.04	0.00	3.22	0.04	30.00	0.18	319.1	1.7
900	0.332	31.59	0.05	0.00	2.84	0.05	30.67	0.17	325.6	1.7
1100	0.476	31.29	0.06	0.00	1.33	0.06	30.85	0.17	327.3	1.6
1300	0.656	32.04	0.03	0.00	1.13	0.03	31.65	0.17	335.2	1.7
1500	0.826	32.52	0.04	0.00	1.49	0.04	32.01	0.18	338.6	1.7
1750	0.901	35.30	0.06	0.00	2.27	0.06	34.47	0.20	362.2	1.9
2000	0.938	37.78	0.09	0.00	3.39	0.09	36.47	0.23	381.2	2.2
2500	0.960	38.76	0.17	0.01	8.06	0.17	35.62	0.29	373.1	2.7
9000	1.000	78.41	0.80	0.09	32.57	0.80	52.88	0.39	529.5	3.4
Integrated		34.56	0.08	0.01	7.08	0.08	32.09	0.06	339.3	1.5



VIDLEE **UAF056-26 VID #1 WR 04-20-96**

Weighted average of J from standards = 0.008171 +/- 0.000057

Power (mWatt)	Cum ^{39}Ar	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	% Atm ^{40}Ar	$^{37}Ar_{Ca}/^{39}Ar_K$	$^{40}Ar^*/^{39}Ar_K$	+/-	Age (Ma)	+/- (Ma)
100	0.053	51.86	0.00	0.14	77.71	0.00	11.55	0.26	162.8	3.5
150	0.101	37.17	0.00	0.08	62.03	0.00	14.10	0.20	196.7	2.6
200	0.225	23.30	0.00	0.03	37.06	0.00	14.65	0.12	203.9	1.5
250	0.363	18.86	0.00	0.02	22.90	0.00	14.52	0.10	202.2	1.3
300	0.515	15.79	0.00	0.01	15.40	0.00	13.33	0.09	186.5	1.1
350	0.659	14.29	0.00	0.01	13.97	0.00	12.26	0.08	172.3	1.1
400	0.752	13.21	0.00	0.01	10.83	0.00	11.75	0.08	165.4	1.1
450	0.813	13.17	0.00	0.00	9.63	0.00	11.88	0.10	167.1	1.4
500	0.856	13.92	0.00	0.01	10.57	0.00	12.42	0.13	174.4	1.7
550	0.882	14.86	0.00	0.01	9.99	0.00	13.35	0.19	186.8	2.5
600	0.902	16.41	0.00	0.01	8.52	0.00	14.99	0.25	208.4	3.3
700	0.920	18.79	0.01	0.01	10.65	0.01	16.77	0.28	231.6	3.6
800	0.932	19.57	0.01	0.01	15.12	0.01	16.59	0.39	229.3	5.1
950	0.943	20.32	0.00	0.01	17.86	0.00	16.67	0.46	230.4	6.0
1200	0.956	22.97	0.00	0.02	20.96	0.00	18.13	0.36	249.2	4.6
1500	0.968	27.03	0.01	0.03	29.78	0.01	18.96	0.42	259.8	5.3
1700	0.976	31.17	0.00	0.04	36.57	0.00	19.75	0.60	269.9	7.6
1900	0.983	35.42	-0.02	0.05	38.27	-0.02	21.85	0.69	296.3	8.6
2200	0.987	49.32	-0.02	0.09	52.10	-0.02	23.61	1.20	318.3	14.9
2500	0.990	59.20	-0.02	0.11	53.07	-0.02	27.77	1.50	368.9	18.0
3000	0.993	80.41	0.02	0.15	55.29	0.02	35.94	1.77	464.5	20.1
3500	0.996	98.10	0.01	0.17	52.22	0.01	46.86	1.96	584.8	20.9
4000	0.998	110.91	0.04	0.17	45.60	0.04	60.32	1.75	722.9	17.3
5000	0.999	164.33	0.01	0.22	39.28	0.01	99.76	8.33	1075.5	67.7
7000	1.000	163.60	0.03	0.19	34.15	0.03	107.71	5.23	1139.0	41.0
9000	1.000	156.69	0.04	0.27	51.27	0.04	76.34	47.28	874.5	429.2
Integrated		21.18	0.00	0.02	33.33	0.00	14.10	0.04	196.7	1.4


Vidlee whole rock - sandstone
Age in Ma
500
400
300
200
100
Ca/K Ratio
0.8
0.6
0.4
0.2
Cl/K Ratio
0.16
0.12
0.08
0.04
0.00
0
20
40
60
80
100
Fraction of ^{39}Ar Released