

Table A1 - Summary table of $^{40}\text{Ar}/^{39}\text{Ar}$ analyses from Costa Rica

Sample #	Material	Laboratory ID #	Plateau age $\pm 2\sigma$ (Ma) ^a	MSWD	P %	% ^{39}Ar	Inverse isochron age $\pm 95\%$ conf. (Ma) ^a	Initial $^{40}\text{Ar}/^{36}\text{Ar}$	MSWD	P %	SF %	Steps	% $^{40}\text{Ar}_{\text{atm}}$ range	Comments
CR01	Basaltic glass	CR1 g/s	131.0 \pm 3.2	0.41	93	61.0	130 \pm 11	297 \pm 12	0.48	87	25.1	6-15	26-99	Disturbed age spectrum, high CI in steps 1-4-20, steps 2-3 have >10 V ^{40}Ar .
CR03	Basaltic glass	CR3 g/s	130.0 \pm 4.5	0.41	96	67.8	136 \pm 11	288 \pm 13	0.33	98	41.0	6-18	35-99	Slightly disturbed age spectrum, high CI in steps 4-18, steps 1-3 have >10 V ^{40}Ar .

The bold values indicate the preferred ages, and italics indicate statistically invalid values (i.e., MSWD < 0.30, P < 5 %, or SF = < 40%).

^aThe plateau ages are quoted with 2 σ internal errors, and the inverse isochron ages of the plateau steps are quoted with 95% confidence errors (i.e., internal errors multiplied by $\sqrt{\text{MSWD}}$ and t Student's test with n-1 degrees of freedom).

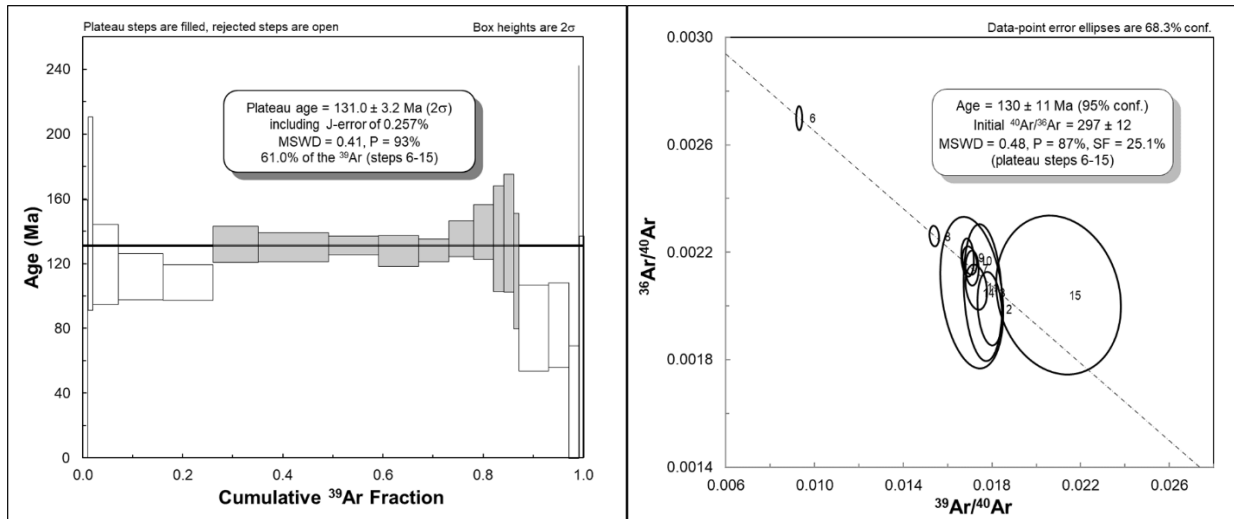
Abbreviations: MSWD = Mean Square Weighted Deviation, P = probability, SF = spreading factor, plateau age = > 50% total ^{39}Ar , and $^{40}\text{Ar}_{\text{atm}}$ = atmospheric ^{40}Ar .

Table A2 - $^{40}\text{Ar}/^{39}\text{Ar}$ data tables, age spectra and inverse isochrons for samples CR01 and CR03 from Costa Rica

Sample #: CR01 glass

Step #	Laser power (W)	Fraction					$^{40}\text{Ar}^*/^{39}\text{Ar}_K \pm 1\sigma$	Ca/K	% $^{40}\text{Ar}_{\text{atm}}$	$^{39}\text{Ar}_K$	Age (Ma) $\pm 2\sigma$ (Ma)	
		$^{40}\text{Ar}/^{39}\text{Ar}$	$^{37}\text{Ar}/^{39}\text{Ar}$	$^{36}\text{Ar}/^{39}\text{Ar}$	$^{39}\text{Ar}_K$ (moles)	Age (Ma)					$\pm 2\sigma$ (Ma)	
1	0.1	1250.0	1.55	4.190	6.34E-17	12.10	7.07	3.05	99.03	0.01	74.54	85.18
2	0.2	1170.0	10.60	3.890	1.45E-16	25.10	5.15	21.08	97.88	0.02	151.33	59.70
3	0.3	375.0	20.50	1.210	3.94E-16	19.70	2.10	40.97	94.85	0.07	119.82	24.73
4	0.4	134.0	22.90	0.403	7.90E-16	18.40	1.21	45.86	86.54	0.16	112.16	14.27
5	0.5	105.0	24.10	0.306	8.43E-16	17.80	0.92	48.35	83.41	0.26	108.61	10.93
6	0.6	105.0	28.50	0.295	7.75E-16	21.80	0.96	57.49	79.73	0.35	132.14	11.22
7	0.7	57.0	28.80	0.135	1.19E-15	21.50	0.77	58.11	63.24	0.49	130.39	9.00
8	0.8	63.3	28.90	0.156	8.52E-16	21.70	0.49	58.31	66.65	0.59	131.56	5.73
9	0.9	57.5	29.30	0.138	6.94E-16	21.10	0.81	59.16	64.36	0.67	128.04	9.54
10	1.0	57.2	29.90	0.137	5.57E-16	21.20	0.60	60.32	63.96	0.73	128.63	7.04
11	1.1	56.1	29.80	0.129	3.98E-16	22.40	0.95	60.02	61.20	0.78	135.64	11.09
12	1.2	54.3	29.90	0.121	3.34E-16	23.10	1.46	60.37	58.65	0.82	139.72	17.02
13	1.4	55.3	30.30	0.127	2.04E-16	22.40	2.80	61.1	60.70	0.84	135.64	32.72
14	1.5	56.8	31.00	0.130	1.20E-16	23.00	3.14	62.69	60.66	0.86	139.14	36.54
15	2.0	46.7	20.90	0.104	1.43E-16	19.00	3.01	41.69	60.16	0.87	115.70	35.57
16	3.0	25.0	11.20	0.046	5.00E-16	13.10	2.20	22.25	48.29	0.93	80.56	26.52
17	5.0	41.0	15.00	0.101	3.12E-16	13.40	2.17	29.78	67.73	0.97	82.36	26.05
18	10.0	20.7	5.72	0.058	1.41E-16	4.20	3.49	11.28	79.80	0.99	26.22	43.34
19	15.0	27.8	3.39	0.026	4.64E-17	20.50	10.10	6.66	26.41	0.99	124.53	118.18
20	20.0	24.7	0.64	0.052	7.78E-17	9.38	6.50	1.26	61.99	1.00	58.05	79.21

J value \pm % 2σ Mass (mg)
 0.003428 0.257 1.565
 Plateau steps are shown in bold.
 Wt. % K = 0.52



Sample #: CR03 glass

Step #	Laser power (W)	Laser					Fraction						
		$^{40}\text{Ar}/^{39}\text{Ar}$	$^{37}\text{Ar}/^{39}\text{Ar}$	$^{36}\text{Ar}/^{39}\text{Ar}$	$^{39}\text{Ar}_K$ (moles)	$^{40}\text{Ar}^*/^{39}\text{Ar}_K \pm 1\sigma$	Ca/K	% $^{40}\text{Ar}_{\text{atm}}$	$^{39}\text{Ar}_K$	Age (Ma) $\pm 2\sigma$ (Ma)			
1	0.1	489.4	1.38	1.616	4.09E-16	12.10	4.29	2.70	97.53	0.04	74.52	51.85	
2	0.2	781.0	3.36	2.606	4.03E-16	11.31	5.42	6.60	98.56	0.08	69.73	65.63	
3	0.3	471.2	12.33	1.541	6.08E-16	17.58	2.10	24.45	96.31	0.14	107.29	24.88	
4	0.4	137.9	22.50	0.413	8.48E-16	19.19	1.06	45.05	86.38	0.22	116.83	12.47	
5	0.5	111.4	24.38	0.326	1.03E-15	18.61	1.02	48.91	83.68	0.32	113.42	12.05	
6	0.6	98.2	27.39	0.277	1.11E-15	20.45	1.13	55.12	79.71	0.43	124.24	13.33	
7	0.7	72.3	28.59	0.186	9.48E-16	21.56	0.98	57.59	70.97	0.52	130.76	11.50	
8	0.8	62.2	28.72	0.153	9.47E-16	21.18	1.06	57.87	66.85	0.61	128.53	12.41	
9	0.9	53.5	28.96	0.122	9.14E-16	21.76	0.83	58.36	60.45	0.70	131.90	9.67	
10	1.0	47.7	29.60	0.105	8.09E-16	21.20	0.95	59.69	56.75	0.78	128.63	11.11	
11	1.1	54.5	29.37	0.125	4.63E-16	21.88	1.30	59.22	60.96	0.83	132.60	15.22	
12	1.2	56.9	32.48	0.134	2.69E-16	22.15	2.36	65.67	62.29	0.85	134.16	27.61	
13	1.4	44.3	31.08	0.087	3.25E-16	23.30	2.22	62.76	48.96	0.89	140.86	25.85	
14	1.5	61.2	30.96	0.156	2.13E-16	19.66	2.98	62.52	68.84	0.91	119.58	35.10	
15	2.0	46.6	23.45	0.109	2.59E-16	17.98	2.83	46.99	62.29	0.93	109.69	33.54	
16	3.0	34.8	21.72	0.051	2.99E-16	23.00	2.71	43.47	35.33	0.96	139.13	31.59	
17	5.0	37.8	24.68	0.066	2.95E-16	22.11	2.14	49.54	42.88	0.99	133.98	25.01	
18	10.0	43.2	22.59	0.070	1.07E-16	25.99	5.62	45.25	41.13	1.00	156.47	64.86	

J value \pm % 2σ Mass (mg)
 0.003428 0.257 1.903
 Plateau steps are shown in bold.
 Wt. % K = 0.51

