

Temporal variation in counterclockwise vertical-axis block rotations across a rift overlap zone, southwestern Ethiopia, East Africa

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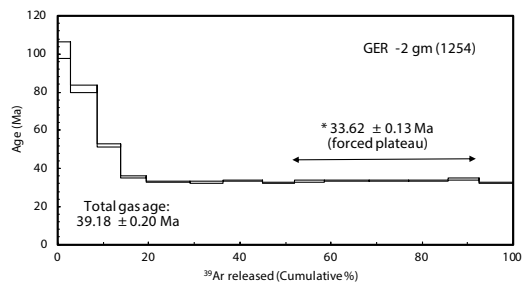
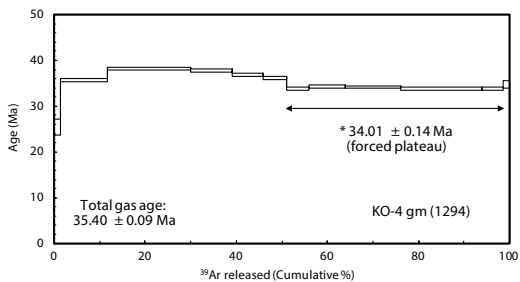
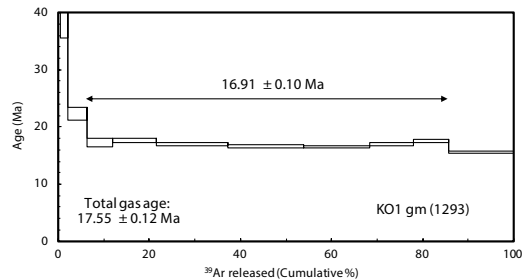
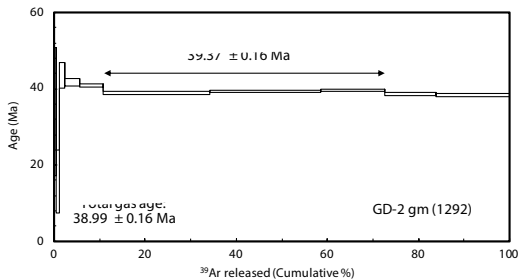
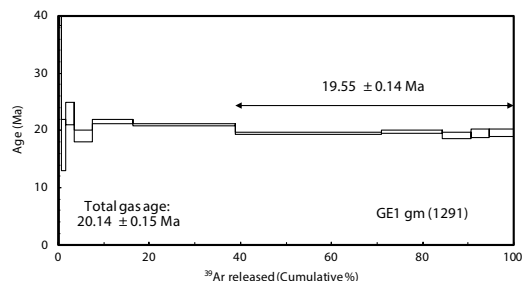
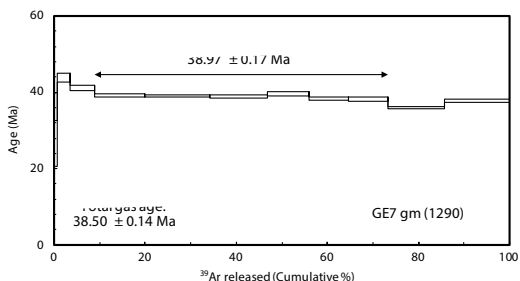
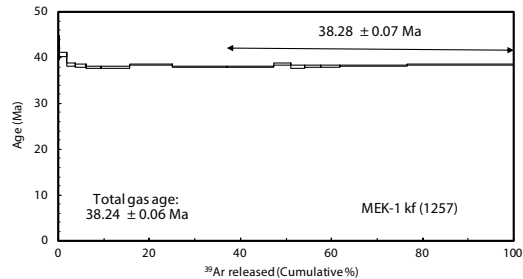
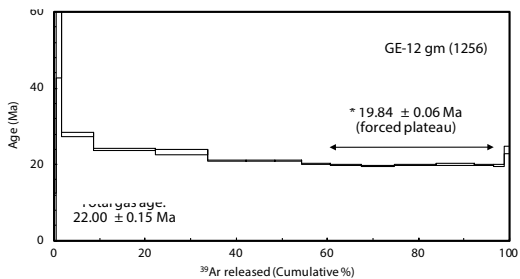
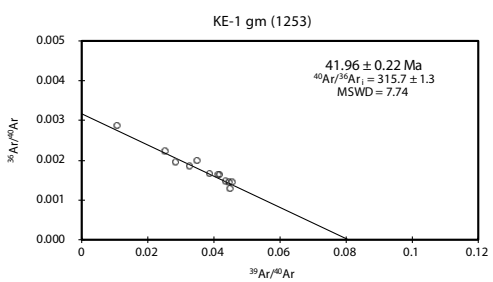
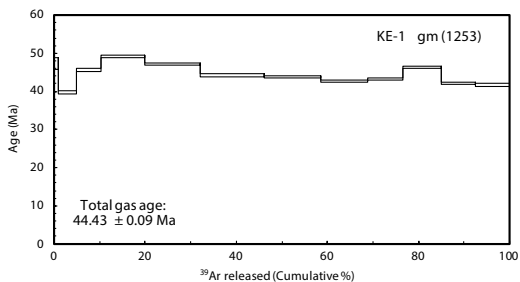
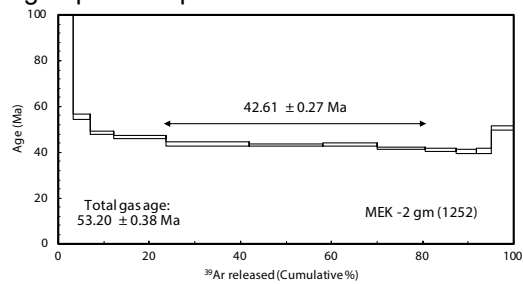
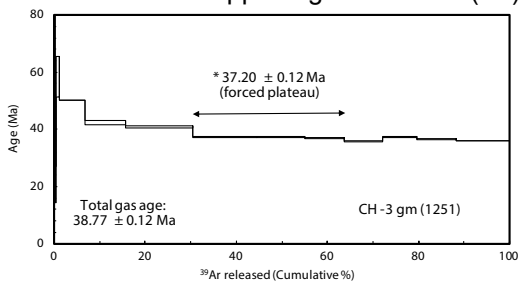
Introduction

Supporting information accompanying a paper entitled " Temporal variation in counterclockwise vertical-axis block rotations across a rift overlap zone, southwestern Ethiopia, East Africa" submitted to AGU publications, Geochemistry, Geophysics, Geosystems. The dataset contains $^{40}\text{Ar}/^{39}\text{Ar}$ dating results and age-spectrum figures for each analyzed samples.

Supplementary information (S1): Show age-spectrum plot for each of the analyzed samples.

Supplementary information (S2): Comprises detailed results from step-heating experiments for each of the analyzed samples

Supporting information (S1): age-spectrum plots



Supporting information (S2). ⁴⁰Ar/³⁹Ar dating results

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
Sample ID: CH-3 gm								
		Laboratory ID: 1251			Irradiation ID: PO-9			
J=	$1 \pm 0.0024) \times 10^{-3}$							
1.5%	671.86 ± 16.59	2.26 ± 0.94	2134.35 ± 56.93	0.23	5.18	0.16	34.87 ± 6.94	114.29 ± 22.04
1.8%	282.95 ± 5.19	1.72 ± 0.48	927.67 ± 17.46	0.31	2.17	0.34	6.14 ± 1.90	20.65 ± 6.36
2.1%	272.43 ± 2.60	2.34 ± 0.25	854.46 ± 10.27	0.22	6.43	0.77	17.53 ± 2.15	58.37 ± 7.04
2.4%	39.92 ± 0.01	1.49 ± 0.02	83.88 ± 0.06	0.35	37.57	5.59	15.02 ± 0.02	50.11 ± 0.09
2.7%	36.77 ± 0.20	1.37 ± 0.10	81.17 ± 0.74	0.38	34.39	8.87	12.66 ± 0.24	42.33 ± 0.80
3.0%	21.62 ± 0.11	1.21 ± 0.04	31.82 ± 0.31	0.44	56.51	14.79	12.23 ± 0.12	40.90 ± 0.40
3.2%	12.99 ± 0.03	0.94 ± 0.03	6.57 ± 0.08	0.56	85.49	14.07	11.11 ± 0.04	37.22 ± 0.13
3.4%	12.58 ± 0.05	1.27 ± 0.01	5.29 ± 0.07	0.41	88.27	10.54	11.11 ± 0.05	37.21 ± 0.17
3.6%	12.49 ± 0.05	1.45 ± 0.05	5.12 ± 0.09	0.36	88.69	8.48	11.09 ± 0.06	37.13 ± 0.19
3.8%	11.35 ± 0.04	2.12 ± 0.04	2.72 ± 0.04	0.25	94.36	8.50	10.73 ± 0.04	35.93 ± 0.15
4.0%	11.44 ± 0.05	3.20 ± 0.06	2.06 ± 0.08	0.16	96.88	7.49	11.11 ± 0.05	37.20 ± 0.19
4.2%	11.19 ± 0.04	2.39 ± 0.04	1.63 ± 0.06	0.22	97.37	8.73	10.92 ± 0.05	36.56 ± 0.16
4.4%	11.29 ± 0.03	5.73 ± 0.05	3.49 ± 0.07	0.09	94.85	11.66	10.75 ± 0.04	36.02 ± 0.14
Plateau age (forced) (Ma):			37.20 ± 0.12	Plateau steps:		7th to 9th	³⁹ Ar %: 33.1 %	
Normal isochron age (Ma) from plateau:			36.95 ± 0.67	Initial ⁴⁰ Ar/ ³⁶ Ar =		307.7 ± 35.8	MSWD: 0.30	
Inverse isochron age (Ma) from plateau:			36.93 ± 0.67	Initial ⁴⁰ Ar/ ³⁶ Ar =		308.9 ± 35.8	MSWD: 0.29	
Total gas age (Ma):			38.77 ± 0.12					

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
Sample ID: MEK-2 gm								
		Laboratory ID: 1252			Irradiation ID: PO-9			
J=	$1 \pm 0.0025) \times 10^{-3}$							
1.5%	4712.84 ± 57.85	2.63 ± 0.81	15018.17 ± 184.28	0.20	4.86	0.79	229.63 ± 8.79	656.23 ± 21.09
1.7%	578.11 ± 4.91	4.39 ± 0.24	1764.19 ± 16.41	0.12	8.95	2.41	51.90 ± 2.26	170.52 ± 7.08
1.9%	100.13 ± 0.70	5.21 ± 0.22	282.02 ± 2.21	0.10	16.33	3.89	16.41 ± 0.36	55.68 ± 1.21
2.2%	38.71 ± 0.25	5.71 ± 0.12	83.47 ± 0.79	0.09	36.82	5.18	14.31 ± 0.23	48.64 ± 0.79
2.5%	34.71 ± 0.14	2.66 ± 0.08	70.92 ± 0.71	0.20	39.62	11.35	13.77 ± 0.22	46.85 ± 0.74
2.8%	57.23 ± 0.25	1.66 ± 0.06	149.13 ± 0.96	0.32	22.44	18.36	12.85 ± 0.27	43.75 ± 0.90
3.0%	28.31 ± 0.20	1.66 ± 0.07	52.65 ± 0.53	0.32	44.95	15.98	12.74 ± 0.15	43.37 ± 0.50
3.2%	27.99 ± 0.08	1.58 ± 0.07	51.62 ± 0.63	0.33	45.39	12.05	12.72 ± 0.19	43.29 ± 0.65
3.5%	27.08 ± 0.08	1.79 ± 0.05	50.28 ± 0.36	0.29	45.09	10.58	12.22 ± 0.12	41.63 ± 0.40
3.8%	24.53 ± 0.20	4.48 ± 0.14	43.05 ± 0.45	0.12	49.09	6.66	12.08 ± 0.19	41.14 ± 0.66
4.2%	18.16 ± 0.17	8.61 ± 0.18	23.56 ± 0.72	0.06	65.09	4.58	11.89 ± 0.25	40.51 ± 0.83
4.4%	23.53 ± 0.27	12.54 ± 0.33	42.58 ± 1.15	0.04	50.28	3.23	11.93 ± 0.38	40.65 ± 1.26
4.9%	38.76 ± 0.30	13.19 ± 0.32	84.00 ± 0.89	0.04	38.04	4.93	14.88 ± 0.25	50.54 ± 0.85
Plateau age (Ma):			42.61 ± 0.27	Plateau steps:		6th to 9th	³⁹ Ar %: 57.0 %	
Normal isochron age (Ma) from plateau:			41.63 ± 0.64	Initial ⁴⁰ Ar/ ³⁶ Ar =		302.9 ± 2.9	MSWD: 2.11	
Inverse isochron age (Ma) from plateau:			41.68 ± 0.64	Initial ⁴⁰ Ar/ ³⁶ Ar =		302.8 ± 2.9	MSWD: 2.11	
Total gas age (Ma):			53.20 ± 0.38					

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
Sample ID: KE-1 gm								
		Laboratory ID: 1253			Irradiation ID: PO-9			
J=	$1 \pm 0.0024) \times 10^{-3}$							
1.5%	92.91 ± 0.76	1.34 ± 0.26	264.88 ± 2.52	0.39	15.00	0.97	13.95 ± 0.46	47.26 ± 1.53
1.8%	28.41 ± 0.12	1.80 ± 0.08	56.60 ± 0.4	0.29	41.02	3.92	11.67 ± 0.12	39.6 ± 0.4
2.0%	39.56 ± 0.12	2.18 ± 0.06	88.08 ± 0.4	0.24	33.98	5.39	13.46 ± 0.12	45.6 ± 0.4
2.4%	34.79 ± 0.09	2.06 ± 0.05	68.51 ± 0.3	0.26	41.68	9.60	14.52 ± 0.09	49.2 ± 0.3
2.6%	30.63 ± 0.07	1.72 ± 0.04	56.47 ± 0.2	0.30	45.42	12.29	13.93 ± 0.07	47.2 ± 0.2
2.8%	25.70 ± 0.07	1.65 ± 0.02	42.88 ± 0.3	0.32	50.71	13.88	13.05 ± 0.10	44.3 ± 0.3
3.0%	22.87 ± 0.08	1.60 ± 0.01	33.79 ± 0.12	0.33	56.44	12.47	12.92 ± 0.06	43.8 ± 0.2
3.2%	21.90 ± 0.07	1.70 ± 0.04	31.82 ± 0.2	0.31	57.25	10.22	12.55 ± 0.08	42.6 ± 0.3
3.4%	22.39 ± 0.08	1.64 ± 0.14	32.82 ± 0.3	0.32	56.83	7.79	12.74 ± 0.10	43.2 ± 0.3
3.7%	22.13 ± 0.08	2.26 ± 0.05	29.14 ± 0.2	0.23	61.51	8.51	13.63 ± 0.08	46.2 ± 0.3
4.1%	24.04 ± 0.10	3.22 ± 0.06	39.88 ± 0.3	0.16	51.56	7.58	12.42 ± 0.10	42.2 ± 0.3
4.4%	23.77 ± 0.08	5.30 ± 0.08	40.08 ± 0.3	0.10	51.46	7.38	12.28 ± 0.11	41.7 ± 0.4
Plateau age (Ma):			no plateau	Plateau steps:			³⁹ Ar %: %	
Normal isochron age (Ma) from all steps:			41.89 ± 0.22	Initial ⁴⁰ Ar/ ³⁶ Ar =		314.7 ± 1.3	MSWD: 7.83	

Inverse isochron age (Ma) from all steps: 41.96 ± 0.22 Initial ⁴⁰Ar/³⁶Ar = 315.7 ± 1.3 MSWD: 7.74
 Total gas age (Ma): 44.43 ± 0.09

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
Sample ID: GER-2 gm Laboratory ID: 1254 Irradiation ID: PO-9								
J=	± 0.0024) × 10 ⁻³							
1.5%	390.62 ± 2.41	1.05 ± 0.12	1205.73 ± 8.47	0.50	7.87	2.93	30.75 ± 1.36	101.98 ± 4.40
1.8%	156.67 ± 0.57	2.13 ± 0.07	443.50 ± 2.33	0.25	15.60	5.75	24.47 ± 0.57	81.62 ± 1.85
2.1%	39.86 ± 0.19	5.89 ± 0.13	83.52 ± 0.79	0.09	38.62	5.09	15.45 ± 0.24	51.98 ± 0.79
2.4%	24.61 ± 0.14	8.75 ± 0.10	49.49 ± 0.46	0.06	42.82	5.69	10.60 ± 0.17	35.81 ± 0.56
2.7%	20.40 ± 0.09	5.76 ± 0.10	37.04 ± 0.25	0.09	48.07	9.60	9.84 ± 0.08	33.28 ± 0.28
2.9%	29.64 ± 0.11	7.72 ± 0.12	69.05 ± 0.35	0.07	32.55	7.30	9.70 ± 0.09	32.79 ± 0.32
3.1%	21.97 ± 0.09	6.29 ± 0.11	42.32 ± 0.26	0.08	44.81	8.64	9.89 ± 0.09	33.43 ± 0.30
3.3%	18.34 ± 0.08	8.84 ± 0.25	32.00 ± 0.25	0.06	51.80	6.89	9.56 ± 0.09	32.32 ± 0.31
3.5%	17.22 ± 0.10	9.07 ± 0.14	27.43 ± 0.55	0.06	56.69	6.57	9.82 ± 0.18	33.21 ± 0.59
3.7%	15.35 ± 0.05	6.28 ± 0.12	20.09 ± 0.16	0.08	64.21	9.87	9.90 ± 0.06	33.46 ± 0.22
3.9%	18.42 ± 0.06	6.28 ± 0.07	30.16 ± 0.22	0.08	53.87	8.68	9.96 ± 0.08	33.68 ± 0.26
4.1%	18.42 ± 0.06	6.28 ± 0.07	30.16 ± 0.22	0.08	53.87	8.68	9.96 ± 0.08	33.68 ± 0.26
4.4%	21.58 ± 0.12	6.12 ± 0.12	39.93 ± 0.57	0.09	47.03	6.88	10.19 ± 0.17	34.44 ± 0.58
4.7%	11.53 ± 0.08	4.18 ± 0.08	7.42 ± 0.12	0.13	83.71	7.43	9.68 ± 0.08	32.72 ± 0.26
Plateau age (forced) (Ma):			33.62 ± 0.13	Plateau steps:		9th to 13th	³⁹ Ar %: 40.7 %	
Normal isochron age (Ma) from plateau:			32.69 ± 0.61	Initial ⁴⁰ Ar/ ³⁶ Ar =		308.7 ± 7.1	MSWD: 0.58	
Inverse isochron age (Ma) from plateau:			32.68 ± 0.61	Initial ⁴⁰ Ar/ ³⁶ Ar =		308.7 ± 7.1	MSWD: 0.58	
Total gas age (Ma):			39.18 ± 0.20					

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
Sample ID: GE-12 gm Laboratory ID: 1256 Irradiation ID: PO-9								
J=	± 0.0024) × 10 ⁻³							
1.5%	1369.44 ± 7.22	0.000 ± 0.139	4582.10 ± 25.10	7363.06	0.10	0.52	1.41 ± 2.24	4.79 ± 7.62
1.7%	558.22 ± 162.68	0.015 ± 0.043	1808.82 ± 527.15	36.09	3.26	1.14	18.18 ± 5.51	60.85 ± 18.13
1.9%	80.66 ± 0.32	0.005 ± 0.009	242.50 ± 1.05	111.64	10.24	7.12	8.26 ± 0.17	27.88 ± 0.56
2.1%	28.88 ± 0.07	0.002 ± 0.005	73.00 ± 0.41	212.04	24.53	13.47	7.08 ± 0.11	23.94 ± 0.38
2.3%	18.26 ± 0.05	0.001 ± 0.005	38.17 ± 0.68	525.67	37.58	11.39	6.86 ± 0.20	23.20 ± 0.68
2.5%	14.83 ± 0.05	0.000 ± 0.004	28.89 ± 0.19	119807.28	41.84	8.46	6.20 ± 0.06	20.99 ± 0.19
2.7%	13.08 ± 0.04	0.005 ± 0.007	23.07 ± 0.11	103.36	47.34	6.42	6.19 ± 0.03	20.95 ± 0.12
2.9%	11.19 ± 0.05	0.000 ± 0.007	16.70 ± 0.12	82556.30	55.44	5.84	6.20 ± 0.04	20.99 ± 0.14
3.1%	9.58 ± 0.03	0.006 ± 0.008	12.09 ± 0.13	90.84	62.34	6.24	5.97 ± 0.04	20.22 ± 0.15
3.3%	8.64 ± 0.03	0.000 ± 0.006	9.17 ± 0.13	1865.05	68.32	6.79	5.91 ± 0.04	19.99 ± 0.14
3.5%	8.17 ± 0.03	0.005 ± 0.006	8.04 ± 0.09	98.49	70.66	7.38	5.78 ± 0.03	19.55 ± 0.12
3.7%	7.91 ± 0.03	0.008 ± 0.006	6.82 ± 0.05	65.00	74.25	9.07	5.87 ± 0.03	19.87 ± 0.10
3.9%	8.20 ± 0.03	0.015 ± 0.006	7.73 ± 0.23	36.24	71.87	8.45	5.89 ± 0.07	19.94 ± 0.25
4.1%	9.60 ± 0.05	0.013 ± 0.009	12.38 ± 0.11	40.00	61.51	4.30	5.91 ± 0.04	19.99 ± 0.14
4.3%	12.97 ± 0.04	0.000 ± 0.016	23.83 ± 0.32	32240.59	45.14	2.31	5.85 ± 0.10	19.82 ± 0.33
4.5%	19.83 ± 0.08	0.080 ± 0.041	42.94 ± 1.01	6.54	35.38	1.10	7.01 ± 0.30	23.72 ± 1.02
Plateau age (forced) (Ma):			19.84 ± 0.06	Plateau steps:		10th to 14th	³⁹ Ar %: 36.0 %	
Normal isochron age (Ma) from plateau:			19.47 ± 0.26	Initial ⁴⁰ Ar/ ³⁶ Ar =		309.5 ± 8.9	MSWD: 1.53	
Inverse isochron age (Ma) from plateau:			19.48 ± 0.26	Initial ⁴⁰ Ar/ ³⁶ Ar =		309.3 ± 8.9	MSWD: 1.52	
Total gas age (Ma):			22.00 ± 0.15					

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
Sample ID: MEK-1 kf Laboratory ID: 1257 Irradiation ID: PO-9								
J=	± 0.0025) × 10 ⁻³							
1.6%	43.98 ± 1.20	0.001 ± 0.773	105.76 ± 3.69	754.9	28.20	0.25	12.40 ± 0.78	42.17 ± 2.62
2.0%	12.25 ± 0.09	0.00 ± 0.11	0.98 ± 0.23	5196.0	97.60	1.71	11.96 ± 0.11	40.68 ± 0.38
2.2%	11.61 ± 0.09	0.00 ± 0.11	1.07 ± 0.23	5351.9	97.26	1.76	11.29 ± 0.12	38.43 ± 0.39
2.4%	11.47 ± 0.08	0.00 ± 0.09	0.81 ± 0.16	7026.4	97.89	2.32	11.22 ± 0.09	38.21 ± 0.31
2.6%	11.38 ± 0.07	0.00 ± 0.06	0.79 ± 0.10	10192.0	97.92	3.37	11.14 ± 0.08	37.94 ± 0.26
2.8%	11.36 ± 0.06	0.02 ± 0.04	0.83 ± 0.07	30.8	97.83	6.25	11.11 ± 0.06	37.82 ± 0.20
2.9%	11.39 ± 0.04	0.00 ± 0.02	0.19 ± 0.04	231.9	99.52	9.34	11.33 ± 0.04	38.56 ± 0.14

3.0%	11.27	± 0.03	0.07	± 0.02	0.33	± 0.03	7.2	99.18	12.07	11.18	± 0.03	38.04	± 0.12
3.1%	11.21	± 0.03	0.00	± 0.02	0.03	± 0.04	301.3	99.92	10.21	11.20	± 0.03	38.12	± 0.12
3.2%	11.40	± 0.05	0.02	± 0.05	0.11	± 0.11	33.1	99.72	3.73	11.37	± 0.06	38.70	± 0.22
3.4%	11.30	± 0.08	0.04	± 0.06	0.41	± 0.14	13.9	98.96	3.06	11.19	± 0.09	38.08	± 0.30
3.7%	11.27	± 0.07	0.00	± 0.05	0.20	± 0.11	10918.0	99.46	3.62	11.21	± 0.08	38.15	± 0.26
4.0%	11.20	± 0.05	0.00	± 0.04	0.00	± 0.09	12495.2	100.00	4.15	11.20	± 0.06	38.11	± 0.19
4.3%	11.30	± 0.04	0.000	± 0.013	0.12	± 0.02	44741.3	99.67	14.86	11.26	± 0.04	38.32	± 0.16
4.6%	11.34	± 0.05	0.014	± 0.008	0.10	± 0.02	36.6	99.75	23.31	11.31	± 0.05	38.50	± 0.16

Plateau age (Ma):	38.28	± 0.07	Plateau steps:	9th to 15th	³⁹ Ar %:	62.9	%
Normal isochron age (Ma) from plateau:	38.20	± 0.15	Initial ⁴⁰ Ar/ ³⁶ Ar =	246.7	± 250.4	MSWD:	0.88
Inverse isochron age (Ma) from plateau:	38.01	± 0.15	Initial ⁴⁰ Ar/ ³⁶ Ar =	970.9	± 404.0	MSWD:	1.12
Total gas age (Ma):	38.24	± 0.06					

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar	K/Ca	⁴⁰ Ar*	³⁹ Ar _K	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s)					
			(x10 ⁻³)		(%)	fraction (%)		(Ma)					
Sample ID: GE7 gm													
Laboratory ID: 1290													
Irradiation ID: PO-10													
J = 1 ± 0.0073 x 10 ⁻³													
1.4%	242.93	± 4.05	1.78	± 0.70	787.60	± 13.94	0.30	3.26	0.63	7.93	± 1.79	26.70	± 6.00
1.7%	45.24	± 0.47	2.62	± 0.22	108.42	± 1.30	0.20	28.92	2.92	13.11	± 0.33	43.91	± 1.09
2.2%	17.78	± 0.19	2.22	± 0.13	19.14	± 0.37	0.24	68.88	5.32	12.26	± 0.17	41.11	± 0.60
2.4%	14.60	± 0.12	1.81	± 0.09	10.43	± 0.17	0.29	79.68	11.03	11.65	± 0.12	39.06	± 0.41
2.6%	14.42	± 0.08	1.37	± 0.07	9.69	± 0.13	0.38	80.71	14.34	11.65	± 0.09	39.08	± 0.32
2.8%	15.85	± 0.14	1.12	± 0.11	14.50	± 0.18	0.47	73.26	12.53	11.62	± 0.12	38.99	± 0.43
3.0%	16.99	± 0.13	1.41	± 0.10	17.77	± 0.25	0.37	69.44	9.27	11.81	± 0.13	39.60	± 0.45
3.2%	16.89	± 0.15	1.45	± 0.14	18.68	± 0.24	0.36	67.69	8.69	11.44	± 0.14	38.40	± 0.48
3.5%	18.86	± 0.20	2.22	± 0.12	25.70	± 0.34	0.24	60.29	8.49	11.39	± 0.17	38.21	± 0.59
3.8%	18.38	± 0.10	6.51	± 0.10	27.60	± 0.25	0.08	58.06	12.48	10.72	± 0.10	35.99	± 0.36
4.1%	18.29	± 0.12	11.86	± 0.20	27.07	± 0.26	0.04	61.11	14.28	11.27	± 0.12	37.82	± 0.43
Plateau age (Ma):	38.97	± 0.17	Plateau steps:	4th to 9th	³⁹ Ar %:	64.4	%						
Normal isochron age (Ma) from plateau:	39.41	± 0.50	Initial ⁴⁰ Ar/ ³⁶ Ar =	287.1	± 9.9	MSWD:	1.04						
Inverse isochron age (Ma) from plateau:	39.40	± 0.50	Initial ⁴⁰ Ar/ ³⁶ Ar =	287.5	± 9.9	MSWD:	1.06						
Total gas age (Ma):	38.50	± 0.14											

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar	K/Ca	⁴⁰ Ar*	³⁹ Ar _K	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s)					
			(x10 ⁻³)		(%)	fraction (%)		(Ma)					
Sample ID: GE1 gm													
Laboratory ID: 1291													
Irradiation ID: PO-10													
J = $(1.8715 \pm 0.0073) \times 10^{-3}$													
1.4%	1006.48	± 12.96	10.41	± 2.61	3360.56	± 54.48	0.05	0.40	0.16	4.03	± 11.68	13.59	± 39.22
1.7%	190.96	± 3.44	5.87	± 0.91	593.54	± 12.83	0.09	7.45	0.53	14.29	± 2.85	47.72	± 9.38
2.0%	70.99	± 1.24	3.75	± 0.53	221.50	± 5.59	0.14	7.27	0.97	5.18	± 1.34	17.43	± 4.48
2.2%	31.29	± 0.48	4.27	± 0.25	83.23	± 2.02	0.12	21.70	1.96	6.81	± 0.58	22.90	± 1.96
2.4%	20.56	± 0.19	2.81	± 0.15	50.81	± 1.03	0.19	27.33	3.85	5.63	± 0.30	18.95	± 1.02
2.6%	16.26	± 0.11	2.34	± 0.11	33.73	± 0.26	0.22	39.24	8.88	6.39	± 0.11	21.50	± 0.38
2.8%	11.06	± 0.09	1.67	± 0.06	16.66	± 0.15	0.31	56.27	22.63	6.23	± 0.07	20.97	± 0.24
3.0%	7.07	± 0.05	1.28	± 0.04	4.64	± 0.05	0.41	81.87	32.06	5.79	± 0.05	19.49	± 0.18
3.2%	7.45	± 0.05	1.22	± 0.06	5.63	± 0.20	0.43	78.77	13.29	5.87	± 0.07	19.77	± 0.26
3.5%	10.25	± 0.08	3.35	± 0.14	16.32	± 0.49	0.16	55.13	6.31	5.67	± 0.16	19.07	± 0.55
3.8%	11.73	± 0.14	9.17	± 0.25	22.54	± 0.66	0.06	49.00	3.87	5.79	± 0.23	19.47	± 0.78
4.3%	11.11	± 0.09	10.70	± 0.28	20.71	± 0.58	0.05	52.21	5.48	5.85	± 0.19	19.68	± 0.64
Plateau age (Ma):	19.55	± 0.14	Plateau steps:	8th to 12th	³⁹ Ar %:	61.0	%						
Normal isochron age (Ma) from plateau:	19.56	± 0.24	Initial ⁴⁰ Ar/ ³⁶ Ar =	295.4	± 8.9	MSWD:	0.74						
Inverse isochron age (Ma) from plateau:	19.56	± 0.24	Initial ⁴⁰ Ar/ ³⁶ Ar =	295.6	± 8.9	MSWD:	0.74						
Total gas age (Ma):	20.14	± 0.15											

Laser output#	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar	K/Ca	⁴⁰ Ar*	³⁹ Ar _K	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s)					
			(x10 ⁻³)		(%)	fraction (%)		(Ma)					
Sample ID: GD-2 gm													
Laboratory ID: 1292													
Irradiation ID: PO-10													
J = 1 ± 0.0073 x 10 ⁻³													
1.4%	1679.65	± 42.11	6.98	± 6.24	5593.75	± 149.11	0.08	0.60	0.09	10.20	± 19.75	34.07	± 65.36
1.7%	351.56	± 9.40	5.80	± 1.40	1145.13	± 32.76	0.09	2.88	0.37	10.18	± 5.11	34.01	± 16.91

2.0%	117.72 ± 2.31	4.22 ± 0.89	379.77 ± 9.49	0.12	3.98	0.65	4.70 ± 2.46	15.77 ± 8.23
2.2%	56.28 ± 0.90	3.57 ± 0.43	145.86 ± 3.58	0.15	23.14	1.28	13.05 ± 1.00	43.49 ± 3.30
2.4%	19.25 ± 0.21	1.74 ± 0.13	23.21 ± 0.84	0.30	64.74	3.18	12.48 ± 0.29	41.59 ± 0.98
2.6%	15.48 ± 0.12	1.23 ± 0.10	11.23 ± 0.20	0.43	78.99	5.20	12.24 ± 0.12	40.80 ± 0.43
2.8%	12.61 ± 0.09	1.22 ± 0.03	3.54 ± 0.06	0.43	92.41	23.52	11.66 ± 0.09	38.91 ± 0.32
3.0%	12.47 ± 0.06	1.29 ± 0.05	2.61 ± 0.10	0.41	94.59	24.25	11.81 ± 0.07	39.39 ± 0.27
3.2%	12.36 ± 0.06	1.30 ± 0.06	1.97 ± 0.07	0.40	96.09	14.01	11.89 ± 0.06	39.66 ± 0.26
3.5%	12.13 ± 0.08	2.55 ± 0.09	2.63 ± 0.08	0.21	95.23	11.33	11.57 ± 0.08	38.62 ± 0.31
3.9%	11.98 ± 0.10	3.74 ± 0.09	2.74 ± 0.06	0.14	95.71	16.12	11.49 ± 0.10	38.35 ± 0.36

Plateau age (Ma):	39.37 ± 0.16	Plateau steps:	7th to 9th	³⁹ Ar %:	61.8 %
Normal isochron age (Ma) from plateau:	39.79 ± 0.53	Initial ⁴⁰ Ar/ ³⁶ Ar =	227.4 ± 67.6	MSWD:	1.10
Inverse isochron age (Ma) from plateau:	40.34 ± 0.53	Initial ⁴⁰ Ar/ ³⁶ Ar =	156.1 ± 67.3	MSWD:	0.11
Total gas age (Ma):	38.99 ± 0.16				

Laser output [#]	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
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Sample ID: KO1 gm		Laboratory ID: 1293		Irradiation ID: PO-10				
$J = (1.8655 \pm 0.0073) \times 10^{-3}$								
1.4%	428.90 ± 4.18	0.00 ± 0.72	1379.34 ± 14.10	487.59	3.98	0.55	17.08 ± 2.62	56.73 ± 8.55
1.7%	100.07 ± 1.27	1.19 ± 0.33	297.50 ± 3.87	0.44	11.34	1.66	11.36 ± 0.71	37.92 ± 2.34
2.0%	66.16 ± 0.51	1.20 ± 0.16	199.69 ± 1.63	0.44	10.03	4.09	6.64 ± 0.34	22.27 ± 1.12
2.2%	27.67 ± 0.25	1.39 ± 0.13	75.88 ± 0.71	0.38	18.52	5.62	5.13 ± 0.22	17.21 ± 0.73
2.4%	18.77 ± 0.13	1.01 ± 0.08	45.54 ± 0.36	0.52	28.01	9.53	5.26 ± 0.12	17.66 ± 0.41
2.6%	13.26 ± 0.07	1.19 ± 0.08	27.82 ± 0.18	0.44	38.07	15.69	5.05 ± 0.08	16.96 ± 0.28
2.8%	9.75 ± 0.07	1.17 ± 0.06	16.36 ± 0.14	0.45	50.88	16.64	4.96 ± 0.07	16.67 ± 0.24
3.0%	8.31 ± 0.04	1.13 ± 0.07	11.61 ± 0.12	0.47	59.37	14.49	4.94 ± 0.05	16.57 ± 0.18
3.2%	7.26 ± 0.05	1.79 ± 0.13	7.90 ± 0.14	0.29	69.52	9.75	5.06 ± 0.06	16.98 ± 0.21
3.5%	10.37 ± 0.07	2.52 ± 0.14	17.97 ± 0.23	0.21	50.26	7.70	5.22 ± 0.09	17.53 ± 0.31
3.9%	6.97 ± 0.04	5.19 ± 0.16	9.19 ± 0.12	0.10	66.70	14.29	4.66 ± 0.05	15.67 ± 0.19

Plateau age (Ma):	16.91 ± 0.10	Plateau steps:	4th to 10th	³⁹ Ar %:	79.4 %
Normal isochron age (Ma) from plateau:	16.61 ± 0.18	Initial ⁴⁰ Ar/ ³⁶ Ar =	302.9 ± 2.4	MSWD:	1.37
Inverse isochron age (Ma) from plateau:	16.62 ± 0.18	Initial ⁴⁰ Ar/ ³⁶ Ar =	302.8 ± 2.4	MSWD:	1.39
Total gas age (Ma):	17.55 ± 0.12				

Laser output [#]	⁴⁰ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar (x10 ⁻³)	K/Ca	⁴⁰ Ar* (%)	³⁹ Ar _K fraction (%)	⁴⁰ Ar*/ ³⁹ Ar _K	Age(±1s) (Ma)
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Sample ID: KO-4 gm		Laboratory ID: 1294		Irradiation ID: PO-10				
$J = (1.8667 \pm 0.0073) \times 10^{-3}$								
1.4%	63.60 ± 0.69	0.66 ± 0.20	187.77 ± 2.02	0.80	11.94	1.34	7.60 ± 0.55	25.48 ± 1.82
1.7%	17.86 ± 0.09	0.38 ± 0.03	24.16 ± 0.19	1.39	59.79	10.41	10.68 ± 0.08	35.71 ± 0.30
2.0%	14.09 ± 0.09	0.68 ± 0.03	9.09 ± 0.09	0.77	81.13	18.12	11.43 ± 0.08	38.18 ± 0.31
2.2%	13.13 ± 0.08	1.10 ± 0.05	6.47 ± 0.09	0.48	85.97	9.13	11.30 ± 0.08	37.75 ± 0.30
2.4%	12.47 ± 0.08	1.15 ± 0.08	5.21 ± 0.11	0.46	88.27	6.84	11.02 ± 0.08	36.82 ± 0.30
2.6%	12.26 ± 0.10	1.22 ± 0.09	5.09 ± 0.13	0.43	88.41	5.19	10.85 ± 0.11	36.24 ± 0.38
2.9%	11.40 ± 0.08	1.63 ± 0.11	4.74 ± 0.14	0.32	88.74	4.90	10.12 ± 0.09	33.85 ± 0.32
3.2%	12.01 ± 0.10	1.37 ± 0.12	6.39 ± 0.11	0.38	85.06	7.91	10.23 ± 0.10	34.19 ± 0.34
3.5%	11.75 ± 0.06	2.12 ± 0.07	5.65 ± 0.08	0.25	87.12	12.23	10.25 ± 0.06	34.27 ± 0.25
3.8%	11.41 ± 0.08	4.10 ± 0.12	5.58 ± 0.07	0.13	88.32	17.95	10.11 ± 0.07	33.80 ± 0.28
4.1%	10.78 ± 0.09	9.62 ± 0.39	5.13 ± 0.14	0.05	93.06	4.64	10.10 ± 0.11	33.77 ± 0.38
4.4%	11.09 ± 0.18	13.38 ± 0.67	6.29 ± 0.42	0.04	92.89	1.34	10.39 ± 0.22	34.74 ± 0.75

Plateau age (forced) (Ma):	34.01 ± 0.14	Plateau steps:	7th to 11th	³⁹ Ar %:	47.6 %
Normal isochron age (Ma) from plateau:	33.47 ± 0.63	Initial ⁴⁰ Ar/ ³⁶ Ar =	329.7 ± 39.5	MSWD:	0.78
Inverse isochron age (Ma) from plateau:	33.13 ± 0.64	Initial ⁴⁰ Ar/ ³⁶ Ar =	350.9 ± 39.8	MSWD:	0.71
Total gas age (Ma):	35.40 ± 0.09				

[#]100% corresponds to 50W output of CO2 laser. All the errors indicate 1 sigma error. ⁴⁰Ar* means radiogenic ⁴⁰Ar. Gm and kf indicate ground mass and k-feldspar samples, respectively.