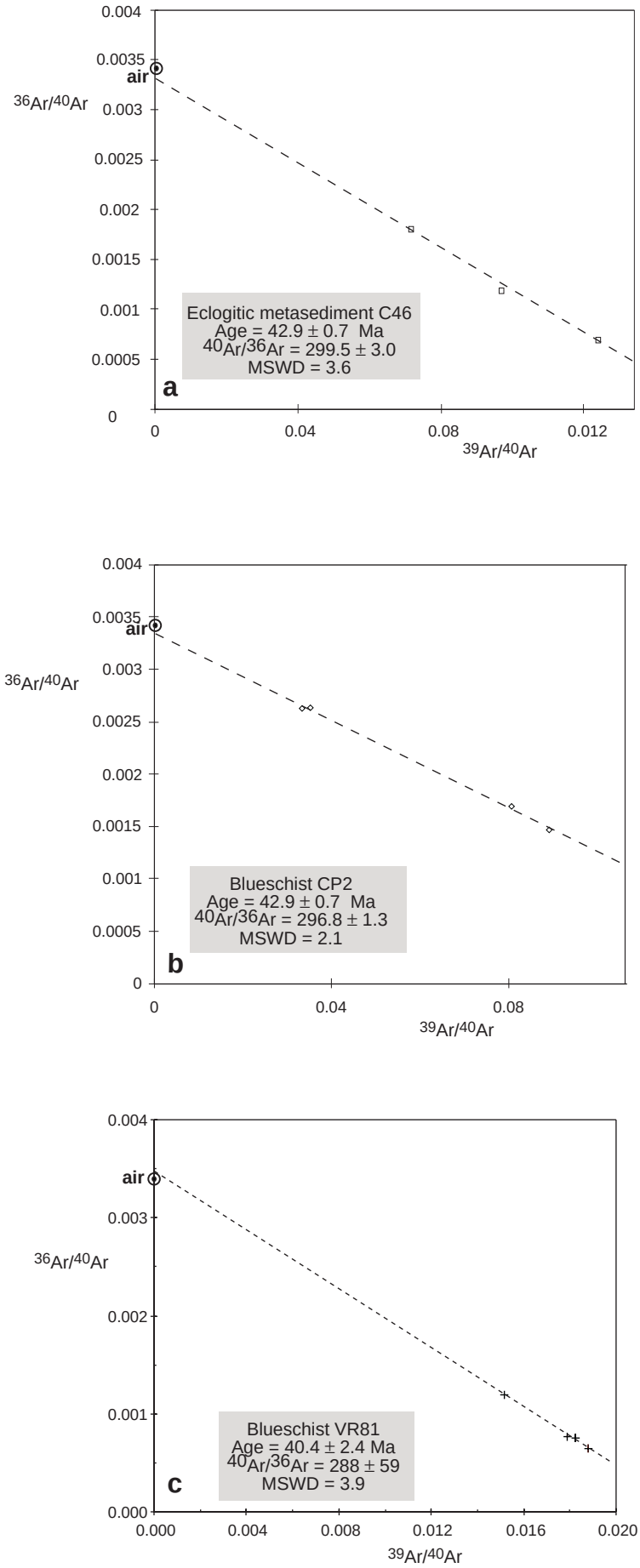

Fig. DR1: $^{36}Ar/^{40}Ar$ vs. $^{39}Ar/^{40}Ar$ isochron plots.

Table DR1: Argon step-heating analyses. Errors at 1σ level

Sample	LAT	LONG
VR81	44° 32' 19"N	8° 28' 51"E
CP2	44° 32' 18,9"N	8° 28' 52,4"E
C46	44° 32' 17,5"N	8° 28' 54,4"E

VR81 phengite							J=0.0005235		
T(°C)	$\Sigma^{39}Ar$ (%)	$^{40}Ar_{tot}$ (pl/g)	$^{40}Ar^*$ (pl/g)	^{39}Ar (pl/g)	^{38}Ar (pl/g)	^{37}Ar (pl/g)	^{36}Ar (pl/g)	$^{40}Ar^*/^{39}Ar$	Age (Ma)
447	2.3	16223.1± 800.0	13518.800	50.060 ±2.000	8.304 ±0.680	3.117 ±0.425	9.153 ±0.120	270.0503	238.48 ±14.00
605	5.2	6528.88± 22.00	2418.220	63.362 ±0.260	6.967 ±0.170	11.560 ±1.679	13.914 ±0.520	38.1653	35.69 ±2.30
682	15.2	14172.0± 5.6	9133.140	214.523 ±0.190	7.149 ±0.170	1.046 ±0.461	17.052 ±0.200	42.5741	39.77 ±0.26
737	41.6	3142.39± 0.48	24384.700	572.836 ±0.510	12.575 ±0.180	2.401 ±0.401	23.822 ±0.200	42.5683	39.76 ±0.10
796	69.8	32469.5± 7.8	26201.800	610.038 ±0.590	12.700 ±0.180	6.225 ±0.458	21.212 ±0.210	42.9510	40.11 ±0.10
859	80.3	12740.1± 4.1	9829.090	227.761 ±0.260	4.356 ±0.250	6.358 ±0.410	9.853 ±0.180	43.1552	40.30 ±0.22
923	85.3	7212.59± 1.50	4216.610	107.090 ±0.170	3.412 ±0.100	5.736 ±0.380	10.140 ±0.150	39.3744	36.81 ±0.40
1018	91.0	8396.95± 2.10	5282.340	124.190 ±0.110	2.564 ±0.160	4.917 ±0.348	10.541 ±0.160	42.5343	39.73 ±0.36
1112	97.4	8510.38± 0.06	5832.050	137.153 ±0.120	2.433 ±0.190	11.659 ±0.487	9.067 ±0.150	42.5222	39.72 ±0.31
1370	100.0	5774.12± 0.82	2671.530	56.921 ±0.290	2.589 ±0.250	27.195 ±0.654	10.506 ±0.160	46.9339	43.80 ±0.79

CP2 phengite						J=0.003851		
T(°C)	$\Sigma^{39}Ar$ (%)	^{40}Ar (ccSTP) [1]	$^{40}Ar/^{39}Ar$	$^{38}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	Ca/K	Age (Ma)
500	0.5	65.48*e-9	393.38	0.349	0.199	1.2883	0.716	86.0±31
600	1.8	20.84*e-9	49.39	0.069	0.201	0.1406	0.724	53.7±5.1
650	4.1	48.47*e-9	64.78	0.058	0.066	0.1924	0.239	54.3±2.9
700	7.2	29.28*e-9	28.21	0.031	0.035	0.0742	0.128	43.1±1.2
750	14.0	67.61*e-9	29.97	0.033	0.022	0.0789	0.078	45.7±0.9
800	42.8	106.1*e-9	11.20	0.020	0.008	0.0164	0.029	43.5±0.5
850	74.2	128.6*e-9	12.39	0.020	0.015	0.0210	0.055	42.5±0.5
900	83.8	78.00*e-9	24.54	0.029	0.089	0.0616	0.319	43.5±0.6
950	89.5	54.06*e-9	29.10	0.032	0.166	0.0763	0.596	45.0±1.4
1000	94.2	56.90*e-9	36.37	0.040	0.071	0.0986	0.256	49.6±1.7
1050	96.8	40.79*e-9	47.83	0.046	0.013	0.1370	0.046	50.3±2.4
1100	100.0	44.78*e-9	42.26	0.040	0.349	0.1165	1.257	53.6±1.8

C46 phengite							J=0.003708	
T(°C)	$\Sigma^{39}Ar$ (%)	^{40}Ar (ccSTP)	$^{40}Ar/^{39}Ar$	$^{38}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	Ca/K	Age (Ma)
500	0.7	20.26*e-9	103.65	0.167	0.296	0.3169	1.066	65.8±3.8
600	2.6	24.63*e-9	44.44	0.042	1.327	0.1134	4.779	71.7±3.6
700	8.7	38.21*e-9	21.48	0.028	0.299	0.0479	1.076	48.4±1.3
750	21.5	51.99*e-9	13.94	0.021	0.010	0.0252	0.035	43.0±0.5
800	66.3	105.2*e-9	8.06	0.017	0.003	0.0056	0.013	42.4±0.5
850	83.5	51.88*e-9	10.33	0.019	0.010	0.0122	0.036	44.3±0.5
900	90.9	27.99*e-9	12.93	0.021	0.114	0.0215	0.409	43.5±1.5
950	96.0	31.16*e-9	21.30	0.024	0.074	0.0419	0.265	58.7±1.0
1000	98.1	34.49*e-9	55.41	0.045	0.069	0.1549	0.250	63.4±3.6
1100	100.0	23.17*e-9	41.89	0.044	0.631	0.1116	2.272	58.7±2.1

[1] ccSTP = cubic centimeters at standard temperature and pressure