

APPENDIX 2

⁴⁰Ar-³⁹Ar step-heating data of biotite and hornblende from sample GJ25 (HBG variety) and of biotite and muscovite from sample GJ78b (BMG variety)

Sample: GJ 25		biotite						$\sum^{39}\text{Ar}$	Age (Ma)
T ^o C	⁴⁰ Ar(STP)	⁴⁰ Ar/ ³⁹ Ar	³⁸ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar	Ca/K	(%)	$\pm 1\sigma$	
550	9.16*e-9	14.38	0.102	0.220	0.0359	0.792	2	31.0±6.3	
600	12.08*e-9	36.52	0.085	0.170	0.0386	0.612	3	196.3±12.2	
650	30.82*e-9	51.62	0.090	0.105	0.0335	0.377	4.9	315.3±6.4	
675	36.47*e-9	45.87	0.050	0.045	0.0164	0.163	7.4	310.5±6.4	
700	42.11*e-9	45.76	0.037	0.085	0.0079	0.306	10.2	327.3±5.8	
725	69.39*e-9	46.97	0.032	0.073	0.0032	0.263	14.8	345.0±4.8	
750	75.83*e-9	47.83	0.028	0.045	0.0043	0.161	19.8	348.7±4.3	
775	82.87*e-9	48.30	0.028	0.033	0.0034	0.119	25.1	353.6±4.3	
800	82.64*e-9	48.34	0.029	0.050	0.0025	0.179	30.5	355.7±4.2	
825	75.19*e-9	48.72	0.031	0.036	0.0052	0.129	35.3	353.0±4.7	
850	73.26*e-9	49.28	0.034	0.045	0.0067	0.161	39.9	353.7±4.7	
875	73.34*e-9	50.05	0.028	0.057	0.0043	0.206	44.5	363.8±4.9	
900	58.35*e-9	49.92	0.034	0.044	0.0086	0.158	48.2	354.3±5.2	
925	69.29*e-9	49.84	0.031	0.044	0.0081	0.160	52.5	354.7±4.7	
950	78.14*e-9	49.09	0.029	0.051	0.0078	0.183	57.5	350.1±4.5	
975	85.40*e-9	48.72	0.029	0.059	0.0064	0.211	62.9	350.4±4.3	
1000	88.65*e-9	48.40	0.028	0.051	0.0045	0.184	68.6	352.2±4.3	
1025	105.8*e-9	47.89	0.027	0.061	0.0042	0.221	75.5	349.2±4.8	
1050	88.45*e-9	47.89	0.028	0.058	0.0079	0.207	81.3	341.9±4.4	
1075	67.22*e-9	47.89	0.029	0.082	0.0087	0.294	85.7	340.2±4.8	
1075	80.51*e-9	48.07	0.030	0.085	0.0092	0.307	90.9	340.5±3.8	
1100	67.47*e-9	48.07	0.030	0.085	0.0092	0.307	95.3	340.1±5.0	
1150	61.02*e-9	49.14	0.031	0.505	0.0127	1.816	99.2	340.6±5.1	
1200	16.43*e-9	61.34	0.063	0.942	0.0698	3.391	100	308.4±12.0	

Sample: GJ 25		hornblende						$\sum^{39}\text{Ar}$	Age (Ma)
T ^o C	⁴⁰ Ar(STP)	⁴⁰ Ar/ ³⁹ Ar	³⁸ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar	Ca/K	(%)	$\pm 1\sigma$	
500	9.86*e-9	65.75	0.364	0.962	0.1876	3.461	0.6	81.9±17.2	
600	28.25*e-9	47.75	0.189	0.433	0.0843	1.557	2.8	176.7±6.7	
650	28.06*e-9	58.21	0.153	0.394	0.0674	1.417	4.6	287.2±7.5	
700	49.89*e-9	50.09	0.090	0.252	0.0259	0.908	8.3	315.7±5.2	
750	54.29*e-9	50.25	0.058	0.213	0.0131	0.766	12.3	342.5±4.6	
800	63.55*e-9	51.00	0.050	0.198	0.0098	0.712	16.9	354.0±5.0	
850	61.86*e-9	50.83	0.054	0.414	0.0095	1.490	21.5	353.6±4.5	
900	83.58*e-9	52.11	0.079	1.168	0.0107	4.205	27.4	359.8±4.3	
950	134.1*e-9	50.21	0.104	2.068	0.0078	7.443	37.4	352.8±4.2	
1000	216.0*e-9	50.39	0.157	2.813	0.0085	10.127	53.3	352.6±3.9	
1050	357.5*e-9	51.26	0.245	3.376	0.0121	12.153	79.3	351.3±3.9	
1100	122.7*e-9	49.63	0.254	2.588	0.0096	9.318	88.5	345.3±4.0	
1150	157.9*e-9	51.08	0.280	3.242	0.0103	11.671	100	353.6±4.0	

Sample: **GJ 78b** **biotite**

T°C	⁴⁰ Ar(STP)	⁴⁰ Ar/ ³⁹ Ar	³⁸ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar	Ca/K	∑ ³⁹ Ar (%)	Age (Ma) ±1σ
450	8.95*e-9	93.14	0.163	0.483	0.2157	1.739	0.3	230.2±47.5
550	42.14*e-9	52.01	0.059	0.108	0.0469	0.387	2.7	293.1±5.7
600	77.39*e-9	48.60	0.038	0.018	0.0113	0.065	7.3	342.8±5.0
625	75.17*e-9	46.76	0.037	0.008	0.0053	0.030	12	342.4±4.3
650	67.73*e-9	47.31	0.037	0.015	0.0058	0.053	16.2	345.2±4.5
675	76.95*e-9	46.27	0.037	0.025	0.0045	0.09	21.1	340.7±4.4
700	123.4*e-9	45.90	0.037	0.027	0.0034	0.096	28.9	340.4±4.9
725	83.10*e-9	46.32	0.035	0.010	0.0027	0.035	34.2	344.8±4.5
750	86.41*e-9	46.37	0.036	0.004	0.0031	0.013	39.6	344.2±4.2
775	59.81*e-9	46.89	0.032	0.020	0.0038	0.073	43.4	346.4±4.6
800	63.58*e-9	46.81	0.033	0.026	0.0054	0.092	47.4	342.6±4.9
825	59.56*e-9	46.68	0.033	0.017	0.0053	0.060	51.1	341.8±5.2
850	44.17*e-9	47.13	0.037	0.029	0.0072	0.105	53.8	341.2±4.6
900	74.70*e-9	47.24	0.034	0.061	0.0062	0.220	58.5	343.8±4.7
950	110.8*e-9	46.98	0.036	0.055	0.0044	0.200	65.4	345.7±4.5
1000	165.1*e-9	46.46	0.034	0.051	0.0040	0.182	75.8	343.0±4.0
1050	179.9*e-9	46.73	0.033	0.046	0.0044	0.164	87	344.1±4.3
1100	107.8*e-9	46.99	0.033	0.092	0.0062	0.331	93.7	342.2±4.1
1150	75.03*e-9	48.04	0.034	0.059	0.0081	0.211	98.3	345.6±4.6
1200	30.88*e-9	53.66	0.039	0.067	0.0316	0.240	100	336.4±5.5

Sample: **GJ 78b** **muscovite**

T°C	⁴⁰ Ar(STP)	⁴⁰ Ar/ ³⁹ Ar	³⁸ Ar/ ³⁹ Ar	³⁷ Ar/ ³⁹ Ar	³⁶ Ar/ ³⁹ Ar	Ca/K	∑ ³⁹ Ar (%)	Age (Ma) ±1σ
500	6.06*e-9	55.82	0.125	0.380	0.1300	1.368	0.3	137.2±27.2
600	19.66*e-9	55.36	0.047	0.067	0.0376	0.241	1.3	330.3±8.2
650	25.40*e-9	52.68	0.030	0.017	0.0243	0.062	2.6	338.7±7.9
700	46.48*e-9	52.40	0.023	0.026	0.0217	0.095	5.1	342.2±4.8
750	218.6*e-9	49.15	0.018	0.015	0.0100	0.052	17.6	343.4±3.8
775	262.2*e-9	47.75	0.017	0.013	0.0050	0.046	32.9	344.0±4.0
800	224.1*e-9	47.67	0.017	0.007	0.0049	0.026	46	343.8±4.0
825	233.1*e-9	47.51	0.017	0.015	0.0043	0.055	59.8	343.7±3.8
850	67.49*e-9	48.07	0.017	0.028	0.0062	0.101	63.7	343.8±4.7
900	64.55*e-9	48.29	0.018	0.009	0.0062	0.031	67.4	345.2±4.3
950	72.06*e-9	48.26	0.019	0.033	0.0081	0.119	71.6	341.2±4.2
1000	83.14*e-9	48.28	0.017	0.005	0.0067	0.019	76.4	344.2±4.4
1050	208.8*e-9	47.76	0.017	0.011	0.0040	0.040	88.6	346.2±4.0
1100	147.0*e-9	47.99	0.017	0.025	0.0030	0.090	97.2	349.7±3.9
1150	50.41*e-9	50.30	0.017	0.027	0.0114	0.097	100	348.4±5.1