

Table S1c: Step-degassing Ne analyses of Pit 14 quartz samples.

Sample name	Aliquot	Aliquot weight (g)	Heating temperature (deg C)	Heating time (hr)	Total <sup>20</sup> Ne released <sup>1</sup> (10 <sup>8</sup> atoms)	Total <sup>21</sup> Ne released <sup>2</sup> (10 <sup>8</sup> atoms)	Total <sup>22</sup> Ne released <sup>3</sup> (10 <sup>8</sup> atoms)	<sup>21</sup> Ne / <sup>20</sup> Ne <sup>4</sup> (10 <sup>-3</sup> )	<sup>22</sup> Ne / <sup>20</sup> Ne <sup>4</sup> (10 <sup>-3</sup> )	Cosmogenic <sup>21</sup> Ne <sup>5</sup> This heating step (10 <sup>8</sup> atoms g <sup>-1</sup> )	Cosmogenic <sup>21</sup> Ne as % of <sup>21</sup> Ne released in this heating step	Percent of total cosmogenic <sup>21</sup> Ne released in this step	Total cosmogenic <sup>21</sup> Ne (10 <sup>8</sup> atoms g <sup>-1</sup> )		
MC-PIT14-0-0	a	0.1528	400	0.25	0.890 +/- 0.018	3.998 +/- 0.138	96.306 +/- 2.679	4.505 +/- 0.150	105.4 +/- 2.7	9.04 +/- 0.90	35	32	28.3 +/- 1.7		
			850	0.25	1.636 +/- 0.027	7.592 +/- 0.232	186.169 +/- 4.680	4.641 +/- 0.123	108.3 +/- 1.9	18.08 +/- 1.36	36	64			
			1100	0.2	0.139 +/- 0.013	0.594 +/- 0.068	17.345 +/- 1.882	4.221 +/- 0.623	117.8 +/- 16.6	1.15 +/- 0.58	30	4			
	b	0.1443	400	0.25	0.899 +/- 0.011	4.117 +/- 0.156	96.515 +/- 1.291	4.595 +/- 0.173	105.8 +/- 1.8	10.23 +/- 1.09	36	36			
			850	0.25	1.811 +/- 0.020	7.513 +/- 0.163	190.286 +/- 1.969	4.152 +/- 0.090	104.3 +/- 1.4	15.03 +/- 1.15	29	53			
			1100	0.2	0.191 +/- 0.009	0.978 +/- 0.065	21.358 +/- 0.845	5.130 +/- 0.421	110.9 +/- 6.9	2.88 +/- 0.58	42	10			
	MC-PIT14-3-7	a	0.1642	400	0.25	0.411 +/- 0.013	5.306 +/- 0.146	46.952 +/- 2.032	12.945 +/- 0.471	111.2 +/- 5.5	25.00 +/- 0.93	77		32	78.3 +/- 1.8
				850	0.25	1.616 +/- 0.022	13.135 +/- 0.319	181.510 +/- 4.640	8.128 +/- 0.134	106.8 +/- 1.7	51.07 +/- 1.50	64		65	
				1100	0.2	0.134 +/- 0.013	0.767 +/- 0.048	14.531 +/- 1.933	5.661 +/- 0.634	102.5 +/- 16.5	2.26 +/- 0.37	48		3	
b		0.1481	400	0.25	0.336 +/- 0.008	3.841 +/- 0.128	38.844 +/- 1.054	11.333 +/- 0.438	115.0 +/- 4.1	19.29 +/- 0.88	74	26			
			850	0.25	1.553 +/- 0.016	12.298 +/- 0.226	167.390 +/- 1.839	7.931 +/- 0.140	107.5 +/- 1.3	52.20 +/- 1.57	63	70			
			1100	0.2	0.112 +/- 0.007	0.805 +/- 0.048	13.471 +/- 0.796	7.243 +/- 0.633	119.2 +/- 10.4	3.21 +/- 0.36	59	4			
MC-PIT14-16-21		a	0.1536	400	0.25	1.288 +/- 0.013	8.108 +/- 0.231	140.002 +/- 2.061	6.359 +/- 0.161	108.3 +/- 1.4	28.61 +/- 1.38	54	28	102.9 +/- 2.2	
				850	0.25	3.778 +/- 0.026	20.818 +/- 0.363	394.165 +/- 5.142	5.550 +/- 0.053	104.4 +/- 0.7	63.96 +/- 1.39	47	62		
				1100	0.2	0.883 +/- 0.011	4.194 +/- 0.14	94.321 +/- 1.545	4.747 +/- 0.157	106.6 +/- 1.8	10.32 +/- 0.91	38	10		
	b	0.1495	400	0.25	1.134 +/- 0.014	7.329 +/- 0.188	119.549 +/- 1.610	6.413 +/- 0.160	105.0 +/- 1.7	26.30 +/- 1.26	54	25			
			850	0.25	3.929 +/- 0.028	21.995 +/- 0.34	405.636 +/- 3.124	5.606 +/- 0.071	103.1 +/- 0.7	69.81 +/- 1.94	47	67			
			1100	0.2	0.787 +/- 0.013	3.611 +/- 0.102	86.097 +/- 1.111	4.632 +/- 0.142	108.7 +/- 2.1	8.61 +/- 0.73	36	8			
	MC-PIT14-39-43	a	0.1768	400	0.25	2.039 +/- 0.028	9.484 +/- 0.236	210.228 +/- 2.951	4.698 +/- 0.108	102.7 +/- 1.5	20.13 +/- 1.28	38	23		89.0 +/- 2.3
				850	0.25	5.595 +/- 0.041	27.593 +/- 0.496	575.229 +/- 7.164	4.966 +/- 0.054	102.9 +/- 0.6	63.74 +/- 1.77	41	72		
				1100	0.2	0.816 +/- 0.016	3.324 +/- 0.12	87.836 +/- 1.727	4.071 +/- 0.156	107.5 +/- 2.6	5.15 +/- 0.73	27	6		
b		0.1474	400	0.25	1.973 +/- 0.026	8.338 +/- 0.176	205.574 +/- 2.022	4.195 +/- 0.089	103.7 +/- 1.5	16.60 +/- 1.21	29	22			
			850	0.25	4.871 +/- 0.034	23.021 +/- 0.378	498.191 +/- 3.447	4.730 +/- 0.065	102.1 +/- 0.5	58.74 +/- 2.18	38	76			
			1100	0.2	0.521 +/- 0.008	1.778 +/- 0.092	55.883 +/- 1.240	3.445 +/- 0.181	106.7 +/- 2.7	1.72 +/- 0.64	14	2			
c		0.1541	400	0.25	2.524 +/- 0.024	9.786 +/- 0.205	260.187 +/- 2.536	3.883 +/- 0.076	102.2 +/- 1.3	15.19 +/- 1.25	24	23			
			850	0.25	5.352 +/- 0.031	22.579 +/- 0.386	544.069 +/- 4.869	4.249 +/- 0.058	101.1 +/- 0.8	44.96 +/- 2.05	31	69			
			1100	0.2	0.734 +/- 0.010	2.913 +/- 0.08	78.595 +/- 1.652	3.990 +/- 0.113	106.0 +/- 2.5	4.93 +/- 0.54	26	8			

<sup>1</sup> Computed by comparison to <sup>20</sup>Ne signal in air pipettes. 1-sigma uncertainty includes measurement uncertainty of <sup>20</sup>Ne signal in this analysis and the reproducibility of the air pipette signal

<sup>2</sup> Computed by comparison to <sup>21</sup>Ne signal in air pipettes. 1-sigma uncertainty includes measurement uncertainty of <sup>21</sup>Ne signal in this analysis and the reproducibility of the air pipette signal

<sup>3</sup> Computed by comparison to <sup>22</sup>Ne signal in air pipettes. 1-sigma uncertainty includes measurement uncertainty of <sup>22</sup>Ne signal in this analysis and the reproducibility of the air pipette signal

<sup>4</sup> Isotope ratio measured internally during each analysis; does not involve normalization to the Ne isotope signals in the air pipettes.

<sup>5</sup> Computed by comparison of <sup>20</sup>Ne or <sup>21</sup>Ne signal to air pipettes, whichever is more precise. Assumes that Ne in sample is a binary mixture of atmospheric and cosmogenic Ne.