

Table C.1 Major element concentrations for glasses analysed by EPMA. Where there were two populations in a sample both are presented

sample number	C1 39-40		C1 39-40 (2)		1-40		C1 44-45		C1 44-45 (2)		C1 75-76	
sample correlative	49.5 cm		49.5 cm		49.5 cm		49.5 cm		49.5 cm		78 cm	
base	2600		2600		2600		2600		2600		2628	
mbsf	2.6		2.6		2.6		2.9		2.9		5.6	
age (ka)	28		2		10		26		6		25	
n	mean		2 sd									
EPMA SiO₂ (wt%)	73.07	4.55	50.45	1.82	71.88	4.39	72.56	7.71	53.50	8.91	73.23	5.58
Al₂O₃	13.32	7.43	15.29	0.53	13.04	9.48	13.09	10.13	14.18	6.43	13.18	7.82
TiO₂	0.66	34.14	0.94	7.78	0.60	34.31	0.64	60.86	1.19	19.46	0.59	34.19
FeOt	4.27	34.28	10.45	2.58	4.12	37.63	4.29	67.46	12.54	20.99	4.17	20.82
MnO	0.07	222.56	0.20	51.49	0.04	329.03	0.11	100.59	0.26	62.62	0.13	69.10
MgO	0.62	51.77	6.68	14.32	0.48	52.96	0.68	107.18	4.43	58.84	0.57	67.52
CaO	2.84	29.90	12.18	9.54	2.68	24.81	2.89	53.45	8.71	35.62	2.74	33.41
Na₂O	3.47	20.10	2.26	8.56	2.24	77.51	3.59	21.62	2.68	39.74	3.29	40.37
K₂O	1.65	55.46	0.90	31.46	1.54	24.48	1.53	33.33	0.78	88.95	1.60	40.82
Cl	0.31	48.82	0.09	18.55	0.35	54.82	0.30	41.06	0.20	118.28	0.30	56.85
Total	100.28	4.05	99.44	0.96	96.97	2.57	99.64	4.53	98.46	1.33	99.75	2.93

Table C.1 continued

sample number	C1 80-81		1-.87		1-.97		1-.97 (2)		C1 114-115		C1 158-159	
sample correlative			2-33, 5-47, 13-26									
base	81 cm		87 cm		100 cm		100 cm		116 cm		169 cm	
mbsf	2631		2637		2650		2650		2666		2719	
age	6.0		6.3		6.4		6.4		7.4		8.9	
n	17		26		29		3		14		20	
EPMA	mean	2 sd										
SiO ₂ (wt%)	74.18	4.72	73.15	6.37	74.56	6.84	58.53	11.14	75.63	4.67	73.01	5.58
Al ₂ O ₃	13.58	5.36	12.87	8.59	12.45	12.33	15.15	4.39	12.20	6.09	13.02	11.59
TiO ₂	0.71	30.85	0.60	44.93	0.47	64.09	0.96	18.21	0.40	46.24	0.54	49.86
FeOt	4.42	25.34	4.00	42.99	3.39	56.39	8.74	27.81	3.08	37.57	3.33	57.20
MnO			0.13	65.55	0.05	245.10	0.19	9.95	0.06	160.62	0.09	147.79
MgO	0.64	38.01	0.53	61.71	0.47	104.46	3.11	98.45	0.39	47.20	0.63	84.33
CaO	3.00	38.64	2.60	34.70	2.52	58.42	7.03	54.97	2.35	40.59	3.01	45.94
Na ₂ O	3.60	14.06	3.48	23.72	3.41	17.22	3.35	26.80	3.83	21.32	3.75	31.29
K ₂ O	1.70	13.05	1.58	64.04	1.26	139.44	0.84	30.01	1.20	135.79	0.98	32.04
Cl	0.38	19.40	0.30	61.88	0.22	56.16	0.14	68.97	0.18	69.68	0.19	66.83
Total	101.91	3.20	99.17	3.69	98.81	4.55	98.02	1.99	99.31	3.89	98.53	4.72

Table C.1 continued

sample number	C1 163-164		C1 177-178		C1 177-178 (2)		C1 261.5-262.52		C1 269-270		C1 287-288	
sample correlative									C1 287-289 to C1 296-297		C1 269-270 to C1 296-297	
base	169 cm		182.5 cm		182.5 cm		270 cm		270 cm		293.5 cm	
mbsf	2719		2373		2373		2820		2820		2844	
age	9.0		9.4		9.4		10.9		11.2		11.2	
n	22		8		7		23		17		16	
EPMA	mean	2 sd										
SiO ₂ (wt%)	73.42	5.54	73.69	11.46	60.40	7.19	75.24	5.36	77.25	5.90	75.01	6.78
Al ₂ O ₃	13.22	14.43	12.73	21.16	15.80	7.04	11.69	6.70	11.85	6.56	11.92	15.22
TiO ₂	0.52	61.95	0.40	99.69	0.91	18.58	0.30	48.69	0.32	24.27	0.38	81.75
FeOt	3.30	62.28	2.75	99.55	8.10	24.35	1.88	22.71	1.80	22.09	2.29	105.45
MnO	0.07	190.14	0.07	220.87	0.14	113.71	0.04	194.12	0.01	301.81	0.02	238.35
MgO	0.60	74.20	0.47	157.80	2.13	55.28	0.30	60.29	0.32	19.90	0.47	169.55
CaO	2.97	40.28	2.71	77.65	6.25	22.22	1.96	18.00	1.92	12.08	2.24	63.42
Na ₂ O	3.62	36.00	3.10	25.42	3.76	15.50	3.41	37.80	3.70	26.33	3.77	23.73
K ₂ O	1.12	43.40	1.14	72.44	0.90	34.28	1.30	29.98	1.25	13.90	1.15	27.41
Cl	0.21	68.39	0.21	68.47	0.14	49.45	0.21	45.47	0.23	63.40	0.20	70.82
Total	99.05	3.84	97.26	4.17	98.53	2.23	96.31	5.53	98.66	5.65	97.45	5.19

Table C.1 continued

sample number	C1 288.5-289.5		C1 291.5-292.5		C1 296-297		C1 296-297 (2)		C1 302-303		C2 10cm clast	
sample	C1 269-270 to C1 296-		C1 269-270 to C1 296-		C1 269-270 to C1 291.5-							
correlative	297		297		292.5							
base	293.5 cm		293.5 cm		308.5 cm		308.5 cm		308.5 cm		10cm	
mbsf	2844.0		2844.0		2858.5		2858.5		2858.5		2440	
age	11.2		11.2		11.2		11.2		11.5		2.1	
n	26		20		14		2		26		16	
EPMA	mean	2 sd										
SiO ₂												
(wt%)	76.25	6.58	75.69	5.98	75.60	1.73	51.49	5.07	76.46	7.55	74.80	2.97
Al ₂ O ₃	12.22	11.15	12.12	10.34	11.75	3.59	14.13	20.00	11.83	4.93	14.10	9.52
TiO ₂	0.38	68.86	0.36	72.69	0.30	19.22	1.28	50.89	0.34	114.76	0.66	8.73
FeOt	2.28	81.74	2.28	76.92	1.92	12.72	12.04	43.84	2.04	147.42	3.67	9.41
MnO	0.03	270.77	0.04	218.83	0.05	185.52	0.26	32.14	0.04	355.53		
MgO	0.42	119.51	0.40	98.45	0.32	19.77	5.50	16.14	0.33	106.18	0.77	14.68
CaO	2.28	59.04	2.23	55.06	1.98	6.55	10.26	5.04	2.10	46.33	3.39	15.47
Na ₂ O	3.47	32.63	3.44	41.34	3.45	45.56	2.34	55.73	2.65	79.20	3.49	11.28
K ₂ O	1.18	24.66	1.16	31.78	1.19	13.66	0.42	41.28	1.10	37.02	1.24	12.82
Cl	0.22	47.30	0.21	44.56	0.20	46.64	0.07	70.18	0.23	62.44	0.18	16.39
Total	98.72	3.35	97.92	4.11	96.77	2.58	97.79	1.89	97.11	3.36	102.31	3.26

Table C.1 continued

sample number	C2 19 cm clast		2-.33		C3 loose top		C3 loose top (2)		C3 8-9		C3 8-9 (2)	
sample correlative			1-87, 5-47, 13-26									
base	19 cm		34 cm		0 cm		0 cm		10 cm		10 cm	
mbsf	2449		2464		2144		2144		2154		2154	
age	4.0		6.3		<1		<1		1.8		1.8	
n	3		28		2		5		12		3	
EPMA	mean		2 sd									
SiO ₂ (wt%)	68.23	22.41	73.78	8.50	56.86	2.88	51.06	8.65	55.52	4.31	67.81	21.03
Al ₂ O ₃	14.23	23.92	13.21	7.68	15.04	0.25	15.24	7.31	14.39	7.83	13.19	15.78
TiO ₂	0.79	114.51	0.62	35.92	1.11	0.83	1.13	32.83	1.01	15.59	0.67	93.28
FeOt	6.86	108.01	4.23	27.26	10.17	2.37	10.67	28.42	11.45	9.91	6.57	117.87
MnO			0.04	281.60	0.19	29.93	0.17	50.90	0.21	70.97	0.16	164.37
MgO	1.19	215.51	0.54	53.36	2.42	67.66	5.18	66.47	3.60	15.15	1.16	134.60
CaO	5.23	78.60	2.84	25.94	7.01	15.10	10.18	48.49	8.11	8.30	4.40	91.28
Na ₂ O	2.93	21.37	2.90	68.12	3.14	11.03	2.38	44.60	2.68	13.75	3.06	12.14
K ₂ O	0.93	42.37	1.62	27.94	0.80	9.36	0.46	63.29	0.50	46.16	1.01	50.96
Cl	0.31	65.57	0.34	41.82	0.15	51.30	0.07	81.97	0.13	24.90	0.19	46.34
Total	100.70	1.15	100.13	5.24	96.89	1.23	96.55	1.69	97.61	1.99	98.21	2.28

Table C.1 continued

sample number	C3 10.5-11		C3 10.5-11 (2)		C3 12-12.5		C3 12-12.5 (2)		3-.15		3-.15 (2)	
sample correlative												
base	12 cm		12 cm		15.7 cm		15.7 cm		15.7 cm		15.7 cm	
mbsf	2156		2156		2159.7		2159.7		2159.7		2159.7	
age	2.0		2.0		2.4		2.4		2.8		2.8	
n	13		4		13		2		7		23	
EPMA	mean		2 sd									
SiO ₂ (wt%)	55.85	3.81	73.93	7.28	56.80	4.19	72.90	4.81	66.77	10.84	57.44	4.71
Al ₂ O ₃	14.32	6.85	12.34	11.55	14.63	8.27	13.22	10.73	14.16	4.10	14.88	9.55
TiO ₂	1.02	22.27	0.41	69.24	1.04	21.83	0.49	1.04	0.85	39.04	1.09	17.75
FeOt	11.71	10.37	2.66	56.86	11.54	9.17	2.82	70.85	7.13	52.09	11.15	14.66
MnO	0.16	104.19	0.11	119.92	0.20	69.30	0.09	174.07	0.02	523.35	0.04	363.91
MgO	3.60	16.11	0.43	59.58	3.65	18.25	0.65	84.34	1.62	49.90	3.55	21.77
CaO	8.03	5.98	2.51	47.41	8.10	8.92	3.14	72.30	5.24	34.38	8.29	13.88
Na ₂ O	2.73	7.01	3.22	28.59	2.79	12.25	3.67	24.71	3.40	16.26	2.70	18.38
K ₂ O	0.57	31.12	1.15	34.91	0.53	28.60	1.00	80.46	0.78	23.55	0.53	21.25
Cl	0.15	47.15	0.22	22.81	0.13	44.48	0.16	26.19	0.16	49.86	0.14	52.40
Total	98.16	1.74	96.98	1.78	99.41	1.89	98.14	1.13	100.13	3.07	99.81	2.31

Table C.1 continued

sample number	C3 24.5-25.5		C3 27.5-28		C3 27.5-28 (2)		C3 29-29.5		3-.31		3-.31 (2)	
sample correlative												
base	26 cm		31 cm		31 cm		31 cm		34 cm		34 cm	
mbsf	2170		2175		2175		2175		2178		2178	
age	4.3		4.5		4.5		4.8		5.0		5.0	
n	13		25		3		29		7		6	
EPMA	mean		2 sd									
SiO ₂ (wt%)	73.71	8.60	72.73	6.94	55.77	2.34	72.69	4.19	69.98	6.90	53.14	9.54
Al ₂ O ₃	13.16	12.76	13.23	7.34	14.66	8.80	13.27	5.29	13.12	6.61	14.20	7.13
TiO ₂	0.58	51.66	0.65	50.96	1.18	16.00	0.65	26.33	0.67	43.93	1.19	25.57
FeOt	3.73	62.03	4.29	48.02	11.23	19.32	4.22	20.02	4.64	87.11	12.18	24.22
MnO	0.07	232.57	0.06	258.95	0.24	64.16	0.16	63.86	0.13	98.12	0.12	84.50
MgO	0.54	72.27	0.66	71.91	3.46	31.03	0.61	31.33	0.78	89.19	4.71	49.73
CaO	3.07	45.30	2.93	42.82	7.61	12.60	2.89	16.03	3.01	80.42	9.27	32.93
Na ₂ O	3.37	23.59	3.52	20.22	2.93	18.88	3.43	21.10	3.78	44.20	2.51	42.78
K ₂ O	1.43	73.79	1.62	56.26	0.77	24.39	1.66	21.54	1.77	90.47	0.68	66.19
Cl	0.31	75.94	0.33	46.71	0.18	35.11	0.34	38.71	0.27	90.06	0.11	131.85
Total	99.99	3.99	100.01	4.92	98.01	3.38	99.86	3.40	98.16	6.91	98.12	1.02

Table C.1 continued

sample number	C4 24-25		C4 24-25 (2)		C4 40-41		C4 51.5 cm clast		C4 62-63		4-.84	
sample correlative												
base	26 cm		26 cm		42 cm		51.5 cm		65 cm		84 cm	
mbsf	2284		2284		2300		2309.5		2323		2342	
age	2.8		2.8		5.9		7.5		15.7		22.6	
n	3		6		6		15		19		22	
EPMA	mean		<i>2 sd</i>									
SiO ₂ (wt%)	54.78	<i>11.35</i>	71.59	<i>13.45</i>	68.57	<i>5.76</i>	74.21	<i>4.22</i>	54.17	<i>4.02</i>	55.97	<i>10.05</i>
Al ₂ O ₃	12.76	<i>29.08</i>	13.21	<i>24.83</i>	13.55	<i>17.91</i>	13.62	<i>4.72</i>	14.14	<i>6.36</i>	14.08	<i>7.66</i>
TiO ₂	1.15	<i>30.08</i>	0.53	<i>93.53</i>	0.84	<i>39.29</i>	0.64	<i>7.54</i>	1.16	<i>19.58</i>	1.34	<i>28.73</i>
FeOt	13.45	<i>41.18</i>	3.96	<i>106.66</i>	6.38	<i>31.62</i>	4.04	<i>7.20</i>	12.82	<i>11.92</i>	12.46	<i>14.02</i>
MnO	0.21	<i>65.58</i>	0.10	<i>144.68</i>	0.10	<i>195.10</i>			0.20	<i>81.18</i>	0.06	<i>288.19</i>
MgO	6.12	<i>79.08</i>	0.72	<i>137.12</i>	0.99	<i>55.00</i>	0.77	<i>10.09</i>	4.14	<i>36.77</i>	3.78	<i>50.98</i>
CaO	9.29	<i>61.23</i>	3.56	<i>89.13</i>	4.18	<i>32.33</i>	3.47	<i>5.23</i>	8.62	<i>19.62</i>	8.37	<i>25.84</i>
Na ₂ O	2.21	<i>18.41</i>	3.35	<i>44.47</i>	3.54	<i>66.36</i>	3.43	<i>9.06</i>	2.39	<i>27.51</i>	2.48	<i>22.95</i>
K ₂ O	0.53	<i>61.76</i>	1.04	<i>72.13</i>	1.18	<i>64.21</i>	0.90	<i>7.19</i>	0.46	<i>62.21</i>	0.56	<i>47.30</i>
Cl	0.16	<i>31.19</i>	0.25	<i>58.59</i>	0.26	<i>112.84</i>	0.18	<i>21.46</i>	0.12	<i>55.87</i>	0.12	<i>73.28</i>
Total	100.66	<i>0.66</i>	98.32	<i>5.46</i>	99.58	<i>1.86</i>	101.27	<i>3.96</i>	98.23	<i>1.96</i>	99.22	<i>4.24</i>

Table C.1 continued

sample number	4-120		4-120 (2)		C4 126-127		4-129		C4 144.5-145.5		C4 144.5-145.5 (2)	
sample correlative												
base	121 cm		121 cm		133 cm		133 cm		150 cm		150 cm	
mbsf	2379		2379		2391		2391		2408		2408	
age	35.4		35.4		38.0		38.0		44.0		44.0	
n	6		3		12		11		8		8	
EPMA	mean		<i>2 sd</i>									
SiO ₂ (wt%)	55.33	3.83	71.43	11.54	56.08	1.97	55.79	2.38	66.71	4.02	55.29	11.19
Al ₂ O ₃	14.38	4.37	13.46	2.39	14.76	2.33	14.42	5.25	14.42	5.75	14.51	12.63
TiO ₂	1.24	16.05	0.49	101.40	1.16	5.20	1.20	6.29	0.86	12.63	1.23	30.39
FeOt	11.67	9.53	2.39	53.71	11.17	7.77	11.41	11.30	5.17	32.72	11.43	20.32
MnO	0.18	39.97	0.12	118.52	0.15	71.01	0.16	53.21	0.19	60.37	0.20	64.18
MgO	3.35	23.60	0.64	73.04	3.37	6.87	3.28	15.16	1.25	40.29	3.72	75.45
CaO	7.71	13.94	2.42	55.84	7.53	3.18	7.42	8.02	4.02	20.35	7.91	40.87
Na ₂ O	2.87	24.46	4.07	19.01	3.24	9.03	3.02	9.69	3.64	43.94	3.02	26.44
K ₂ O	0.89	52.44	1.18	28.25	1.00	18.33	1.02	21.66	1.04	40.44	0.95	67.97
Cl	0.14	73.69	0.16	34.74	0.17	15.83	0.16	31.53	0.27	38.58	0.21	76.13
Total	97.77	0.63	96.35	6.11	98.63	1.10	97.86	0.88	97.58	2.33	98.46	1.66

Table C.1 continued

sample number	C4 151-152		C4 151-152 (2)		4-153		C4 158-159		4-161		C4 174.5-175.5	
sample correlative												
base	155 cm		155 cm		155 cm		162 cm		162 cm		177 cm	
mbsf	2413		2413		2413		2420		2420		2435	
age	43.4		43.4		44.4		46.9		48.8		55.0	
n	15		4		9		10		10		14	
EPMA	mean		<i>2 sd</i>									
SiO ₂ (wt%)	55.49	7.95	67.46	2.59	53.98	3.95	54.35	3.89	54.08	3.76	54.16	9.29
Al ₂ O ₃	14.83	5.83	13.68	2.78	14.27	14.54	14.58	3.92	14.68	3.07	14.35	6.96
TiO ₂	1.19	10.93	0.70	13.08	1.17	8.16	1.30	15.02	1.21	8.88	1.20	10.55
FeOt	11.61	14.81	6.33	5.33	11.40	11.79	12.45	8.26	11.55	7.71	12.15	21.74
MnO	0.24	60.29	0.24	41.36	0.15	103.58	0.14	92.77	0.17	69.77	0.19	81.40
MgO	3.61	41.00	0.83	14.37	3.91	74.07	3.88	23.65	3.80	9.38	4.04	44.22
CaO	7.74	23.38	3.53	8.61	7.71	12.68	8.37	13.38	8.14	7.43	8.22	24.51
Na ₂ O	3.22	22.04	3.46	34.55	3.03	22.15	2.71	35.17	3.01	7.47	2.88	30.49
K ₂ O	0.88	46.96	1.67	5.20	0.78	29.18	0.70	45.26	0.74	22.65	0.72	57.00
Cl	0.20	49.02	0.36	11.90	0.13	32.42	0.11	81.24	0.12	20.79	0.17	60.92
Total	99.00	2.20	98.26	3.74	96.54	0.91	98.58	1.37	97.21	1.80	98.08	1.95

Table C.1 continued

sample number	C4 174.5-175.5 (2)		C5 4 cm clast		5-.6		C5 30.5-31		C5 30.5-31 (2)		C5 41-42	
sample correlative base	177 cm		8 cm		8 cm		35.5 cm		35.5 cm		45 cm	
mbsf	2435		2432		2432		2459.5		2459.5		2469	
age	55		1		1		4		4		5.50	
n	3		21		20		19		2		19	
EPMA	mean		<i>2 sd</i>									
SiO ₂ (wt%)	63.88	<i>0.34</i>	70.62	7.05	68.11	<i>5.37</i>	71.94	<i>6.00</i>	52.10	<i>10.17</i>	73.37	<i>4.22</i>
Al ₂ O ₃	14.00	<i>1.29</i>	14.63	6.98	14.17	<i>5.15</i>	12.75	<i>7.90</i>	13.69	<i>8.17</i>	13.09	<i>5.75</i>
TiO ₂	0.88	<i>9.40</i>	0.94	16.62	0.88	<i>12.52</i>	0.55	<i>39.63</i>	1.25	<i>0.00</i>	0.63	<i>30.05</i>
FeOt	7.56	<i>3.24</i>	5.84	5.01	5.86	<i>5.10</i>	4.03	<i>36.99</i>	13.79	<i>18.24</i>	4.14	<i>29.96</i>
MnO	0.24	<i>45.18</i>			0.04	<i>316.03</i>	0.11	<i>80.46</i>	0.20	<i>184.10</i>	0.05	<i>225.63</i>
MgO	1.61	<i>1.34</i>	1.15	14.74	1.10	<i>8.63</i>	0.48	<i>65.06</i>	5.19	<i>32.14</i>	0.57	<i>42.57</i>
CaO	5.04	<i>2.59</i>	4.03	7.65	3.99	<i>2.00</i>	2.61	<i>28.20</i>	9.03	<i>35.02</i>	2.70	<i>22.33</i>
Na ₂ O	3.40	<i>7.06</i>	3.79	18.89	3.73	<i>8.90</i>	3.33	<i>30.53</i>	2.44	<i>51.98</i>	3.74	<i>19.12</i>
K ₂ O	1.29	<i>5.36</i>	1.37	4.41	1.32	<i>10.69</i>	1.72	<i>17.78</i>	0.61	<i>71.18</i>	1.64	<i>20.82</i>
Cl	0.25	<i>34.28</i>	0.49	24.97	0.40	<i>45.57</i>	0.34	<i>37.93</i>	0.13	<i>62.61</i>	0.36	<i>24.24</i>
Total	98.14	<i>0.39</i>	102.85	6.50	99.59	<i>4.64</i>	97.86	<i>2.64</i>	98.44	<i>1.25</i>	100.28	<i>3.19</i>

Table C.1 continued

sample number	5-.45		5-45 (2)		5-.47		5-47 (2)		C7 loose top		7-.6	
sample correlative base	45 cm		45 cm		48 cm		48 cm		0 cm			
mbsf	2469		2469		2472		2472		3350			
age	6.0		6.0		6.3		6.3					
n	7		6		6		3		8		2	
EPMA	mean	2 sd										
SiO ₂ (wt%)	54.47	9.32	72.04	10.33	51.96	15.14	70.71	3.18	57.72	11.69	56.14	3.86
Al ₂ O ₃	14.46	7.22	13.71	15.23	13.65	16.69	12.90	4.45	13.10	68.50	13.61	13.76
TiO ₂	1.22	37.76	0.74	28.63	1.07	43.01	0.56	32.05	1.03	58.08	1.28	17.21
FeOt	12.13	19.88	4.94	66.55	11.55	32.95	4.08	13.10	9.60	34.00	12.20	31.48
MnO					0.21	42.38	0.12	27.35	0.13	136.72	0.16	19.45
MgO	4.84	58.70	0.71	90.70	5.30	78.01	0.55	31.88	4.63	211.29	3.03	28.49
CaO	9.74	41.96	3.35	84.04	10.13	54.50	2.75	22.51	8.53	102.88	7.78	0.71
Na ₂ O	2.49	46.02	3.42	9.53	2.38	49.09	3.55	5.79	2.95	76.88	2.73	17.01
K ₂ O	0.63	88.07	1.55	46.37	0.75	102.32	1.62	15.17	0.74	92.52	0.43	25.83
Cl	0.21	87.77	0.31	53.58	0.14	190.25	0.28	46.22	0.11	87.29	0.09	28.28
Total	100.19	3.22	100.78	1.99	97.14	1.36	97.12	1.78	98.55	3.80	97.46	0.48

Table C.1 continued

sample number	C7 loose base		C8 1-2		C8 1-2 (2)		C8 7-7.5		C8 7-7.5 (2)		C8 9.5-10.5	
sample correlative base mbsf age n			6.4 cm 3356		6.4 cm 3356		8.4 cm 3358		8.4 cm 3358		11 cm 3361	
	7		2		3		13		4		13	
EPMA	mean		<i>2 sd</i>									
SiO ₂ (wt%)	54.72	6.46	75.42	3.96	56.47	0.71	59.97	8.37	65.91	2.84	58.92	7.26
Al ₂ O ₃	11.06	102.06	11.46	1.02	13.64	12.66	14.62	23.48	14.55	6.52	13.90	24.56
TiO ₂	1.29	28.42	0.48	23.95	1.37	25.84	1.22	30.26	1.09	2.27	1.20	42.07
FeOt	10.09	102.48	2.47	10.65	13.79	24.74	11.19	35.58	8.22	8.79	12.01	32.72
MnO	0.34	222.70	0.05	22.63	0.20	63.53					0.26	65.75
MgO	2.83	80.26	0.47	8.30	3.52	3.96	3.61	89.54	2.05	45.30	2.93	99.98
CaO	6.59	95.60	2.32	2.17	8.11	7.24	7.95	19.59	6.30	15.35	7.30	18.95
Na ₂ O	2.22	59.36	3.67	3.20	2.54	8.28	2.51	30.61	2.86	13.93	2.61	34.35
K ₂ O	0.54	91.60	0.93	3.24	0.48	11.89	0.49	29.74	0.71	64.37	0.52	39.75
Cl	0.23	245.36	0.19	59.16	0.13	58.29	0.13	86.37	0.17	77.29	0.13	41.46
Total	97.60	1.03	97.45	3.30	100.25	2.61	101.68	3.98	101.85	1.68	99.78	1.80

Table C.1 continued

sample number	C8 22 base		C8 22 base (2)		C9 loose		C9 loose (2)		C10 6-7		C10 7-8	
sample correlative												
base	22 cm		22 cm						8 cm		8 cm	
mbsf	3372		3372						2662		2662	
age												
n	9		4		4		2		19		11	
EPMA	mean		2 sd									
SiO ₂ (wt%)	56.94	13.24	68.47	13.70	65.73	8.14	53.99	1.79	72.97	4.26	70.86	4.46
Al ₂ O ₃	12.68	52.85	14.68	31.59	12.77	12.59	13.88	0.43	14.28	9.12	14.26	17.59
TiO ₂	1.16	36.03	0.75	52.06	0.86	71.15	0.85	115.77	0.56	35.65	0.55	74.76
FeOt	13.02	33.64	5.35	67.60	7.45	74.10	11.06	19.39	4.36	21.22	4.84	87.01
MnO	0.03	397.37	0.08	187.54	0.11	131.29	0.17	48.54			0.05	237.80
MgO	4.68	172.98	0.79	71.26	1.29	32.51	5.37	98.66	0.94	20.22	1.06	110.24
CaO	7.93	42.91	5.19	75.73	4.91	30.47	10.15	51.98	4.31	18.21	4.51	42.82
Na ₂ O	1.98	76.50	3.36	24.81	3.00	16.34	1.88	84.49	3.19	9.78	2.74	67.66
K ₂ O	0.45	88.09	0.65	70.26	0.72	22.68	0.29	160.20	0.71	45.39	0.70	50.00
Cl	0.13	117.49	0.19	108.24	0.13	45.32	0.07	131.00	0.18	79.91	0.22	95.64
Total	98.99	2.87	99.50	4.05	96.96	1.63	97.71	4.41	101.51	1.56	99.17	3.20

Table C.1 continued

sample number	13-9	13-9 (2)	C13 11-12	13-13 top	C13 13.5-14	C13 13.5-14 (2)						
sample correlative base	11 cm	11 cm	13 cm	17 cm	17 cm	17 cm						
mbsf	3299	3299	3301	3305	3305	3305						
age	<6.3	<6.3	<6.3	<6.3	<6.3	<6.3						
n	7	3	13	6	12	5						
EPMA	mean	2 sd										
SiO ₂ (wt%)	53.11	13.07	71.39	6.89	53.57	12.31	55.17	10.00	54.32	7.27	71.24	1.06
Al ₂ O ₃	14.83	6.94	12.23	6.86	14.43	7.44	14.47	8.09	14.67	6.11	13.37	1.52
TiO ₂	1.09	32.52	0.57	94.13	1.15	27.25	1.16	20.52	1.15	30.71	0.65	8.79
FeOt	10.68	22.87	3.92	63.94	12.26	15.59	11.30	19.62	11.70	14.75	4.45	22.38
MnO	0.15	85.54	0.12	102.98	0.25	64.49	0.13	73.08	0.19	83.98	0.16	71.09
MgO	4.35	93.85	0.58	103.63	4.97	66.42	3.46	58.46	4.32	65.94	0.64	18.99
CaO	8.64	48.62	2.88	38.45	9.52	39.12	7.70	33.79	8.65	40.24	3.02	11.77
Na ₂ O	2.82	46.10	3.52	11.65	2.68	52.92	2.88	13.86	2.81	38.85	3.16	26.62
K ₂ O	0.65	65.48	1.02	26.50	0.66	66.56	0.89	79.41	0.67	73.82	1.65	4.11
Cl	0.11	91.71	0.14	96.40	0.12	75.01	0.15	80.97	0.13	83.21	0.29	33.09
Total	96.44	1.22	96.37	1.65	99.61	1.46	97.30	1.56	98.60	1.77	98.64	1.73

Table C.1 continued

sample number	C13 15-16		C13 17-17.5		C13 17-17.5 (2)		C13 18.5-19		C13 18.5-19 (2)		C13 21-22	
sample	C13 15-16 to C13 23.5-		C13 15-16 to C13 23.5-		C13 15-16 to C13 23.5-		C13 15-16 to C13 23.5-		C13 15-16 to C13 23.5-		C13 15-16 to C13 23.5-	
correlative	24.5		24.5		24.5		24.5		24.5		24.5	
base	17 cm		27.3 cm		27.3 cm		27.3 cm		27.3 cm		27.3 cm	
mbsf	3305		3315		3315		3315		3315		3315	
age	<6.3		<6.3		<6.3		<6.3		<6.3		<6.3	
n	7		11		3		7		10		16	
EPMA	mean		2 sd									
SiO ₂ (wt%)	55.40	9.73	53.56	6.00	69.71	2.25	70.62	6.07	55.33	6.57	54.36	8.58
Al ₂ O ₃	14.57	7.32	14.75	5.81	13.32	5.09	13.20	8.33	14.89	7.32	14.59	11.78
TiO ₂	1.18	14.59	1.19	11.23	0.82	44.83	0.68	43.02	1.18	8.68	1.14	14.27
FeOt	11.81	26.42	12.15	8.22	4.63	60.32	5.17	61.20	11.42	10.52	11.68	18.22
MnO	0.15	58.61	0.19	64.62	0.14	58.03	0.18	93.68	0.19	50.52	0.21	56.89
MgO	3.81	55.06	4.37	39.41	0.89	30.17	0.80	50.43	3.72	25.50	4.12	62.83
CaO	8.02	33.19	8.77	24.80	3.41	16.12	3.27	32.09	8.05	16.00	8.18	27.89
Na ₂ O	3.05	34.54	2.75	23.76	3.38	20.17	3.20	13.80	2.99	18.11	2.91	24.13
K ₂ O	0.74	71.56	0.61	78.37	1.40	33.40	1.48	29.06	0.72	52.61	0.75	63.88
Cl	0.20	62.83	0.11	103.37	0.22	74.46	0.26	32.57	0.13	53.72	0.14	57.27
Total	98.93	1.71	98.45	1.42	97.93	3.97	98.85	2.85	98.62	1.02	98.08	1.24

Table C.1 continued

sample number	C13 23.5-24		C13 23.5-24 (2)		13-26		13-26 (2)		13-33		13-33 (2)	
sample	C13 15-16 to C13 23.5-		C13 15-16 to C13 23.5-									
correlative	24.5		24.5		1-87, 2-33, 5-47		1-87, 2-33, 5-47					
base	27.3 cm		27.3 cm		27.3 cm		27.3 cm		34.4 cm		34.4 cm	
mbsf	3315		3315		3315		3315		3322		3322	
age	<6.3		<6.3		6.3		6.3		14.3		14.3	
n	4		10		14		13		28		2	
EPMA	mean		2 sd									
SiO ₂ (wt%)	71.74	2.84	54.51	3.69	56.13	14.17	72.48	4.55	70.82	11.30	54.14	6.45
Al ₂ O ₃	13.37	3.09	15.00	4.34	14.14	13.16	13.62	5.12	13.62	21.08	14.96	4.41
TiO ₂	0.71	43.66	1.16	20.04	1.23	25.07	0.69	23.08	0.58	63.16	0.98	56.71
FeOt	5.12	39.26	12.02	8.05	11.55	24.28	4.30	19.11	4.17	63.47	10.82	11.02
MnO	0.15	60.76	0.25	53.73	0.12	167.60	0.01	721.11	0.07	238.81	0.10	282.84
MgO	0.65	47.82	4.39	38.26	3.49	68.40	0.66	73.01	0.88	87.00	5.38	102.51
CaO	2.72	32.84	8.48	14.72	7.94	37.26	3.06	41.93	3.77	64.28	10.40	72.22
Na ₂ O	3.24	8.41	2.63	20.94	2.82	24.92	3.48	15.45	3.45	16.95	2.29	87.72
K ₂ O	1.77	13.58	0.78	42.50	0.73	80.58	1.55	49.40	0.86	74.85	0.51	37.05
Cl	0.30	3.52	0.17	44.39	0.19	109.51	0.32	44.04	0.16	96.37	0.13	38.60
Total	99.73	0.55	99.40	1.99	98.35	3.49	100.16	2.36	98.39	4.43	99.72	5.92

Table C.1 continued

sample number	13-51	13-51 (2)	13-75	C13 clast		C15 0-1		C15 0-1 (2)				
sample correlative base	51.3 cm	51.3 cm	76 cm			2 cm		2 cm				
mbsf	3339.3	3339.3	3364			2576		2576				
age	18.1	18.1	27.8									
n	8	2	2	10		13		2				
EPMA	mean	2 sd										
SiO ₂ (wt%)	74.36	5.71	55.34	8.64	50.26	3.15	74.48	6.66	54.77	14.08	72.95	5.11
Al ₂ O ₃	12.32	11.96	14.69	9.22	12.10	24.44	14.29	22.12	14.97	7.61	12.96	9.73
TiO ₂	0.41	34.01	1.16	10.82	0.66	66.81	0.62	28.64	1.09	29.27	0.54	46.25
FeOt	3.02	59.93	11.35	2.17	10.96	62.16	3.38	28.12	11.17	27.72	4.03	26.95
MnO	0.03	356.59	0.11	282.84	0.24	45.62			0.21	73.38	0.19	20.20
MgO	0.48	64.22	3.10	34.19	9.78	46.03	0.65	46.26	4.51	75.93	0.55	78.80
CaO	2.74	35.31	7.37	11.93	13.89	55.56	3.42	63.32	8.86	47.47	2.68	28.47
Na ₂ O	2.31	83.20	2.68	27.10	1.39	121.28	3.30	46.25	2.85	40.83	3.14	11.02
K ₂ O	0.84	22.79	1.06	25.93	0.10	127.07	1.21	26.71	0.60	62.64	1.76	9.31
Cl	0.18	55.71	0.23	68.00	0.03	212.13	0.18	65.80	0.13	98.65	0.34	21.69
Total	96.69	2.42	97.09	3.56	99.41	1.57	101.53	2.98	99.15	2.12	99.16	0.48

Table C.1 continued

sample number	C15 3-4		C15 3-4 (2)		C15 6-7		C15 6-7 (2)		C15 12-13		C15 18-19 C13 13.5-14	
sample correlative base	23 cm		23 cm		23 cm		23 cm		23 cm		23 cm	
mbsf	2579		2579		2579		2579		2579		2579	
age	11		4		13		3		16		<6.3	
n	11		4		13		3		16		11	
EPMA	mean	2 sd										
SiO ₂ (wt%)	56.19	15.15	69.60	7.53	56.04	12.50	72.52	2.36	56.52	10.20	53.86	9.20
Al ₂ O ₃	14.91	5.80	13.99	16.13	15.20	5.97	13.40	4.06	15.09	9.06	15.13	6.71
TiO ₂	1.09	31.47	0.62	23.88	1.12	33.22	0.58	25.75	1.14	25.79	1.17	31.80
FeOt	10.83	30.85	5.30	43.22	11.09	21.55	4.44	20.04	11.15	27.23	11.87	14.49
MnO	0.18	124.94	0.16	117.14	0.18	80.53	0.13	43.68	0.19	62.96	0.19	86.23
MgO	4.11	82.06	0.72	55.07	3.99	67.63	0.56	38.18	3.51	40.62	4.39	69.09
CaO	8.30	52.61	3.43	48.64	8.27	42.20	2.83	17.67	7.83	25.01	8.85	38.13
Na ₂ O	3.07	41.38	3.36	23.16	3.04	37.12	3.34	15.53	3.15	23.52	2.82	39.94
K ₂ O	0.69	54.80	1.64	17.90	0.68	40.61	1.71	3.78	0.66	51.50	0.64	64.86
Cl	0.13	60.03	0.30	12.47	0.13	61.18	0.26	15.50	0.15	58.50	0.13	68.41
Total	99.50	1.56	99.13	1.71	99.73	0.97	99.76	0.76	99.40	1.28	99.05	1.28

Table C.1 continued

sample number	C15 18-19 (2)		C15 22-23		C15 22-23 (2)		15-32		C16 48.5-49		C16 48.5-49 (2)	
sample correlative	C13 13.5-14											
base	23 cm		23 cm		23 cm		32 cm		72 cm		72 cm	
mbsf	2579		2579		2579		2606		2425		2425	
age	<6.3											
n	4		12		2		15		5		5	
EPMA	mean		2 sd									
SiO ₂ (wt%)	72.12	1.53	56.63	12.24	71.95	0.37	55.32	4.29	72.29	9.29	51.97	11.45
Al ₂ O ₃	13.45	1.51	14.88	7.27	13.44	0.05	14.54	4.75	13.40	19.06	14.31	11.69
TiO ₂	0.64	9.57	1.17	26.10	0.66	4.93	1.17	15.31	0.44	54.17	1.24	57.60
FeOt	4.60	5.22	11.22	30.10	4.54	12.27	10.99	14.25	3.79	67.01	12.86	21.17
MnO	0.15	46.22	0.22	76.52	0.12	169.87	0.16	56.37	0.10	67.59	0.19	133.89
MgO	0.65	18.15	3.42	51.38	0.66	5.34	3.38	19.23	0.60	144.61	4.99	65.25
CaO	2.94	7.52	7.73	30.63	3.05	5.05	7.60	11.77	2.64	86.96	9.86	42.23
Na ₂ O	3.33	27.48	3.11	24.99	3.48	25.66	3.03	12.19	4.22	59.50	2.50	44.77
K ₂ O	1.69	4.70	0.78	47.44	1.71	0.03	0.70	26.17	1.51	114.75	0.69	83.02
Cl	0.27	49.56	0.17	69.12	0.26	45.70	0.14	28.53	0.21	84.16	0.12	93.52
Total	99.84	1.16	99.32	1.25	99.85	0.52	97.05	1.10	99.18	3.73	98.73	1.78

Table C.1 continued

sample number	C16 54-55		C16 152-153		C16 152-153 (2)		C16 158-159		16-187		C16 206-207	
sample correlative												
base	72 cm		161 cm		161 cm		161 cm		188 cm		208.6 cm	
mbsf	2425		2514		2514		2514		2541		2652	
age	32.8		110.4		110.4		110.4		132.0		146.3	
n	28		9		4		14		8		16	
EPMA	mean		2 sd									
SiO ₂ (wt%)	75.60	4.15	54.84	9.82	69.58	1.99	54.89	12.37	59.43	12.83	65.19	8.68
Al ₂ O ₃	12.07	7.33	14.65	7.56	13.35	10.95	14.82	8.00	14.63	8.12	14.56	5.98
TiO ₂	0.45	101.12	1.20	12.50	0.68	14.16	1.18	15.32	1.11	19.87	0.94	19.89
FeOt	2.79	15.57	12.33	20.55	4.55	41.01	11.83	28.40	9.11	41.17	6.73	36.22
MnO	0.04	292.46	0.23	101.36	0.16	21.99	0.19	72.59	0.14	133.61	0.22	65.58
MgO	0.46	34.01	3.73	34.10	0.74	46.69	3.79	65.06	2.71	75.09	1.47	82.47
CaO	2.61	17.22	7.98	20.43	3.40	35.52	8.20	33.38	6.66	49.26	4.78	40.43
Na ₂ O	3.27	28.42	3.15	19.28	3.50	9.93	2.86	34.90	3.40	19.24	3.73	22.18
K ₂ O	0.94	23.77	0.82	46.49	1.34	46.94	0.78	54.42	0.87	43.25	1.01	24.05
Cl	0.19	41.88	0.16	73.02	0.28	66.21	0.15	96.04	0.13	35.36	0.25	39.20
Total	98.41	4.00	99.09	1.03	97.58	3.28	98.68	2.87	98.19	3.06	98.87	1.77

Table C.1 continued

sample number	C16 214-215		C16 214-215 (2)		C16 238-239		C16 238-239 (2)	
sample correlative								
base	218.5 cm		218.5 cm		240 cm		240 cm	
mbsf	2571.5		2571.5		2593		2593	
age	154.1		154.1		166.4		166.4	
n	7		6		3		5	
EPMA	mean	2 sd						
SiO ₂ (wt%)	54.37	9.76	67.16	6.68	53.68	8.61	69.06	9.67
Al ₂ O ₃	14.95	8.86	14.23	6.51	15.02	8.91	13.71	17.21
TiO ₂	1.17	14.92	0.83	38.41	1.26	27.39	0.67	98.69
FeOt	11.33	19.85	6.05	23.97	12.57	6.61	5.17	92.27
MnO	0.19	73.29	0.12	75.43	0.22	13.37	0.15	112.70
MgO	4.25	69.51	1.09	77.55	3.92	45.60	0.78	108.99
CaO	8.71	45.93	4.10	30.94	8.69	19.03	3.58	86.59
Na ₂ O	3.04	21.03	3.67	22.47	2.71	8.58	3.72	38.18
K ₂ O	0.72	42.23	1.28	29.51	0.59	51.42	1.85	143.77
Cl	0.17	67.53	0.28	30.86	0.13	59.67	0.25	43.88
Total	98.90	1.71	98.81	1.15	98.80	1.31	98.96	3.86