

Appendix III

Opal diagenesis core data

Core ID	opal (wt%)	CaCO ₃ (wt%)	opal rain rate ($\mu\text{mol cm}^{-2} \text{ a}^{-1}$)	opal burial rate ($\mu\text{mol cm}^{-2} \text{ a}^{-1}$)	opal dissolution rate ($\mu\text{mol cm}^{-2} \text{ a}^{-1}$)	opal preservation (%)	[H ₄ SiO ₄] _{asym} ($\mu\text{mol kg}^{-1}$)	Reference
HAP	3	21	6	4.32 ¹	1.68 ¹	72		1
NAP	0	6	4	0.04 ¹	3.96 ¹	1		1
E	2	28	5					1
MFZ	3	2	11	1.21 ¹	9.79 ¹	11		1
ER	9	46	9					1
NS	10	9	44	8.80 ¹	35.20 ¹	20		1
MW	6	1	14	1.96 ¹	12.04 ¹	14		1
G	3	25	5	0.20 ¹	4.80 ¹	4		1
H	15	1	7	0.28 ¹	6.72 ¹	4		1
M	11	15	12	0.48 ¹	11.52 ¹	4		1
S	16	1	3	0.03 ¹	2.97 ¹	1		1
C	13	75	11	1.10 ¹	10.90 ¹	10		1
EP1	0	9	2					1
PB	7	22	31					1
T9	3.2	6.8						2
T12	6.3	8.4						2
T16	6.4	11.9						2
T31	9.1	16.4						2
T36	12.2	20.3						2
T42	9.6	20.3						2
T47	15.2	17.8						2
T62	13.7	10.7						2
T68	11.4	10.7						2
T69	20.7	12.9						2
T89	17.2	7.0						2
T92	17.9	14.7						2

References: 1, *Archer et al.* [1993]; 2, *Martin et al.* [1991]; 3, *McManus et al.* [1995].

¹ Calculated from published opal rain rates and percentage opal preservation.

² Estimated from similarly located cores.

Core ID	opal (wt%)	CaCO ₃ (wt%)	opal rain rate ($\mu\text{mol cm}^{-2} \text{ a}^{-1}$)	opal burial rate ($\mu\text{mol cm}^{-2} \text{ a}^{-1}$)	opal dissolution rate ($\mu\text{mol cm}^{-2} \text{ a}^{-1}$)	opal preservation (%)	[H ₄ SiO ₄] _{asym} ($\mu\text{mol kg}^{-1}$)	Reference
04-12S		~70 ²			1.8		266	3
10-12S		~70 ²			2.9		241	3
34-05S		~74 ²			8.4		407	3
39-05S		~74 ²			8.8		424	3
27-03S	3.3	~84 ²			12.8		492	3
19-02S		~84 ²			14.2		542	3
23-02S	7.0	~84 ²			11.3		521	3
48-00		~80 ²			14.6		537	3
58-00		~80 ²			17.5		564	3
77-02N		~80 ²			16.8		530	3
82-02N	9.7	~80 ²			19.0		543	3
113-04N	8.2	~80 ²			9.5		404	3
104-05N	5.5	~60 ²			9.5		398	3
108-05N		~60 ²			7.3		419	3
132-09N	11.0	~0 ²			3.3		282	3
135-09N		~0 ²			3.3		309	3
Z-9		~58 ²			18.3		508	3
X-5		~50 ²			17.2		474	3
W-3		~80 ²			24.5		546	3
PFC	7.8	~76 ²			11.3		461	3
PFSC	9.6	~65 ²			5.1		415	3
PFS	10.8	~0 ²			21.6		582	3