Supplementary Material (Table 1)
Depth, age, phosphorus concentrations, Mass Accumulation Rates (MAR), C/P org and C/P reactive molra ratios from the studied ODP sites.

Depth mbsf ***	Age kyr	MIS*	Fe-bound P ** µmolesP/g	Authigenic P µmolesP/g	Detrital P µmolesP/g	Organically-bound P µmolesP/g	Reac P MAR µmolesP/cm^2/kyr	C/P org molar	C/P reac**** molar
Site 108-658: Eastern Tropical Atlantic (mbsl: 2263, continental rise) [a]									
0.23	1.13	1	3.34	8.16	2.16	8.10	443.47	217.73	89.99
0.94	4.62	1	3.36	8.98	0.75	6.46	278.58	209.13	71.86
1.65	8.10	1	3.41	10.66	0.69	6.86	317.36	175.68	57.59
2.33	11.42	1	8.19	7.80	0.80	3.85	321.79	326.30	63.30
3.11	15.18	2	2.20	8.56	1.36	2.59	315.83	319.45	61.95
3.64	17.41	2	2.37	8.99	3.52	2.97	384.78	269.44	55.91
4.54	20.79	2	2.91	9.35	1.50	2.49	318.75	217.48	36.69
5.00	22.43	2	4.64	8.48	2.47	3.92	375.14	353.49	81.33
5.31	23.57	2	2.27	8.23	3.39	2.70	330.44	329.62	67.38
6.04	26.57	3	4.55	8.06	2.93	3.32	363.34	314.41	65.59
6.78	30.74	3	3.42	10.02	0.93	4.94	186.29	427.85	114.98
7.52	36.42	3	3.73	8.55	0.77	4.37	143.00	378.47	99.36
8.31	44.17	3	3.08	8.63	0.93	3.24	130.05	334.42	72.40
Hiatus									
9.03	74.21	5	3.74	8.58	1.45	2.70	214.67	289.14	52.00
9.67	79.10	5	4.34	8.39	0.76	3.59	186.36	300.43	66.09
10.35	84.60	5	7.76	8.11	0.83	3.29	156.94	360.38	61.88
11.21	91.49	5	4.18	8.53	0.98	3.07	244.63	368.71	71.78
11.79	95.02	5	9.99	8.91	0.97	3.38	334.08	346.13	52.57
12.49	98.62	5	3.93	8.54	0.67	3.72	243.18	305.29	70.19
13.27	102.31	5	3.58	8.25	0.80	2.97	258.07	301.19	60.54
13.99	105.90	5	6.58	9.91	0.90	2.88	305.17	308.78	45.95
14.77	110.59	5	5.15	11.52	0.96	3.39	218.96	303.46	51.35
15.49	116.42	5	4.04	10.48	0.98	3.48	187.42	351.27	67.93
16.27	123.01	5	3.32	10.55	0.71	3.59	169.89	268.06	55.12
16.99	127.88	5	3.30	12.51	0.83	3.49	254.35	438.35	79.34
17.85	133.22	6	2.19	9.22	1.58	1.57	208.09	92.43	11.17
Site 112-680: Peru Continental Margin (mbsl: 252.2, upwelling, Oxygen Minimum Zone) [b]									
0.95	3.82	1	44.78	22.91	1.27	13.38	2583.33	572.56	94.51
1.28	5.33	1	41.22	24.46	0.61	11.45	2150.88	645.15	95.80
1.75	7.69	1	29.20	47.36	1.10	11.82	2252.45	669.83	89.57
2.13	9.80	1	27.35	114.66	8.48	5.17	3396.13	747.06	26.26
2.51	12.11	1	74.85	13.45	3.18	5.09	1962.52	618.51	33.72
2.86	14.79	2	85.17	21.89	6.76	2.79	1842.42	1298.36	33.01
3.26	18.50	2	86.77	45.92	2.36	3.15	1872.69	167.94	3.90
3.61	22.08	2	55.05	45.80	1.89	2.45	1291.94	1272.46	30.12
4.02	27.38	3	65.41	10.93	1.78	2.09	777.29	2588.55	68.92
4.41	35.79	3	28.67	70.83	2.93	2.46	605.26	1158.20	27.93
4.69	42.49	3	29.97	95.94	3.02	2.87	688.27	1929.99	42.94
5.00	49.61	3	25.62	71.49	3.62	2.39	554.74	1690.91	40.62
5.27	55.07	3	19.56	51.06	0.98	2.29	461.02	1420.78	44.68
5.55	59.70	4	55.71	119.71	12.37	1.27	1368.36	2697.47	19.41
5.92	64.74	4	25.37	48.74	1.78	2.66	722.31	1407.60	48.70
6.31	69.88	4	13.88	65.62	1.21	2.81	798.26	1750.41	59.78
6.72	75.69	5	14.62	19.84	0.59	2.72	335.82	1883.61	137.72
7.12	82.35	5	17.57	62.85	2.00	3.86	648.04	1828.75	83.85
7.41	87.65	5	36.37	139.32	11.43	2.45	1248.84	1176.31	16.16
7.82	95.48	5	28.03	85.38	0.51	3.58	784.12	2215.68	67.81
8.20	102.84	5	13.86	52.91	0.57	2.33	456.53	2068.20	69.71
8.53	109.17	5	12.56	42.04	1.04	2.81	383.12	1716.38	84.06
8.96	117.17	5	13.46	37.36	1.28	2.79	368.88	1559.46	81.20
9.30	123.19	5	12.87	12.63	0.37	2.00	198.79	2260.72	164.55
9.66	129.20	5	12.64	19.49	0.56	2.64	266.55	1611.00	122.15
9.93	133.49	6	35.23	11.91	0.58	2.35	398.75	1521.99	72.38

Supplementary Material (continued)

Depth	Age		Fe-bound P	Authigenic P	Detrital P	Organically-bound P	Reac P MAR	C/P org	C/P reac
mbsf	kyr		μmolesP/g	μmolesP/g	μmolesP/g	μmolesP/g	μmolesP/cm^2/kyr	molar	molar
Site 117-724: Oman Margin (mbsl: 592.8, upwelling, Oxygen Minimum Zone) [c]									
0.11	5.17	1	5.90	115.66	6.13	4.84	2142.48	379.93	14.56
0.48	8.00	1	2.94	61.48	4.17	2.42	1133.03	515.74	18.68
0.88	10.66	1	1.89	23.28	5.46	1.07	444.63	562.62	22.85
1.27	13.20	1	1.77	9.27	7.04	0.52	195.77	402.92	18.02
1.68	16.00	2	1.82	19.02	6.23	0.74	365.82		
2.07	18.57	2	1.79	24.57	6.49	1.39	470.41	1127.42	56.40
2.48	21.33	2	1.57	28.67	6.88	1.71	541.67	437.89	23.45
2.92	24.24	3	1.73	24.41	6.39	0.71	306.42	597.79	15.82
3.30	27.89	3	1.58	32.55	8.33	0.84	399.03	813.28	19.53
3.70	31.86	3	1.61	29.61	7.36	0.77	365.13	655.42	15.88
4.10	35.84	3	2.09	34.97	8.04	1.45	439.49	1065.86	40.22
4.50	39.82	3	1.32	25.35	6.97	1.03	316.19	934.77	34.86
4.91	43.88	3	1.82	31.84	8.07	1.13	397.04	1053.58	34.23
5.29	47.68	3	1.34	27.38	7.88	0.71	335.90	609.51	14.71
5.69	51.66	3	1.68	32.06	6.33	1.03	396.93	419.04	12.45
6.10	55.73	3	1.67	19.70	5.97	0.58	250.52	730.63	19.35
6.50	59.70	4	1.64	22.89	7.49	0.61	284.20	773.61	18.87
6.90	63.01	4	1.62	11.11	5.91	0.68	151.46	466.62	23.61
7.18	66.41	4	1.72	30.26	5.59	0.84	370.82	813.28	20.81
7.58	70.41	4	1.95	60.83	6.13	0.84	718.90	1140.57	15.05
7.99	81.34	5	1.75	35.71	5.39	0.74	151.11	908.15	17.65
8.39	92.47	5	1.91	52.02	5.33	0.77	216.33	1353.81	19.18
8.70	101.10	5	2.11	44.33	4.49	0.71	186.50	1125.24	16.95
9.10	112.27	5	2.06	52.28	5.81	0.81	218.11	1196.51	17.51
9.50	122.47	5	1.54	30.29	6.62	0.52	127.93	1095.94	17.50
9.90	124.84	5	1.63	17.40	6.26	1.10	79.62	326.13	17.78
10.27	126.73	5	1.49	8.88	7.20	0.42	42.68	476.06	18.52
Site 128-798: Japan Sea (mbsl: 900.1, slope) [d]									
0.31	0.91	1	2.54	2.77	0.66	6.70	265.24	207.42	115.77
0.67	5.45	1	2.70	5.80	0.95	6.17	75.65	295.32	118.09
0.97	8.01	1	2.51	2.68	0.57	6.12	86.36	242.36	131.08
1.18	9.19	1	3.22	4.36	1.01	6.53	163.26	281.86	123.36
1.72	11.80	1	3.93	4.19	0.99	5.11	177.59	316.11	122.11
1.95	13.61	1	4.84	4.23	2.14	5.90	123.75	378.09	139.95
2.06	14.49	1	3.54	3.85	1.48	6.76	114.67	337.55	152.61
2.18	15.46	2	4.26	4.25	1.34	7.66	130.59	401.00	181.20
2.41	17.32	2	2.23	5.00	1.15	5.35	101.23	179.08	76.11
2.46	17.72	2	2.80	6.55	1.39	4.94	114.58	215.90	69.49
2.80	20.49	2	3.14	5.94	1.09	4.29	106.77	200.04	58.61
3.14	23.36	2	1.96	7.66	1.23	3.07	97.82	241.46	58.38
3.84	28.21	3	1.62	5.12	1.24	2.82	89.56	141.96	41.82
4.56	37.33	3	2.31	7.08	1.29	3.94	68.42	177.45	52.46
5.20	47.81	3	3.04	4.79	0.77	4.47	48.82	338.98	123.26
5.88	55.36	3	3.65	3.68	0.60	5.02	72.28	375.05	152.40
6.29	59.58	4	3.67	8.74	1.50	3.63	101.21	380.43	81.46
6.53	60.57	4	2.31	8.61	1.89	3.92	234.65	205.86	54.40
6.86	61.84	4	3.60	6.82	1.44	4.09	244.55	203.59	52.89
7.20	63.76	4	3.99	5.59	1.24	3.78	153.75	202.41	57.29
7.70	67.51	4	16.62	7.24	1.25	5.91	257.82	169.08	31.18
7.90	68.91	4	3.83	4.84	1.14	5.32	129.95	300.53	114.31
7.96	69.32	4	4.90	8.42	1.20	6.41	141.69	405.51	166.00
8.60	76.55	5	4.35	4.33	1.03	6.78	88.92	411.38	180.52
9.00	82.72	5	23.23	4.80	1.05	6.09	45.94	464.58	247.69
9.38	85.57	5	3.46	5.16	1.59	3.54	105.47	265.82	77.37
9.62	86.40	5	6.37	6.74	0.98	3.87	197.67	325.23	108.22
9.99	89.88	5	4.23	5.02	0.96	6.02	105.73	413.70	163.10
10.27	91.57	5	7.62	8.06	1.23	6.53	156.28	423.56	181.21
10.73	96.02	5	3.85	3.32	0.90	5.03	81.97	366.17	150.94
11.27	102.20	5	3.13	4.44	1.07	4.13	66.42	272.44	96.13
12.01	108.75	5	5.06	5.01	0.64	4.64	107.99	544.27	171.57
12.73	115.02	5	7.22	5.11	0.69	3.61	119.00	255.96	57.97
13.40	120.57	5	5.12	3.12	0.58	3.27	90.27	386.78	110.01
14.10	125.62	5	3.64	4.66	0.80	3.70	108.18	249.89	76.98

Supplementary Material (continued)

Depth mbsf	Age kyr		Fe-bound P µmolesP/g	Authigenic P µmolesP/g	Detrital P µmolesP/g	Organically-bound P µmolesP/g	Reac P MAR µmolesP/cm^2/kyr	C/P org molar	C/P reac molar
Site 128-798: Japan Sea (continued)									
14.73	132.00	6	3.19	4.46	1.08	3.94	74.38	241.03	81.91
15.25	140.80	6	2.44	5.71	1.43	3.12	43.31	104.11	28.80
Site 130-806: Ontong Java Plateau (mbsl: 2520.7, above present lysocline, basin) [e]									
0.06	2.21	1	8.13	5.56	0.42	1.06	60.11	125.15	9.03
0.26	9.71	1	13.35	4.70	0.35	1.07	76.48	124.70	6.97
0.36	13.54	1	3.30	5.10	0.46	1.12	37.31	185.56	21.85
0.46	17.42	2	3.23	5.66	0.43	1.04	38.36	184.25	19.28
0.56	21.39	2	3.07	6.01	0.43	0.91	37.74	220.00	20.00
0.66	25.42	2	3.03	8.43	0.62	0.77	45.59	215.63	13.62
0.75	29.09	3	2.82	5.65	0.43	0.96	34.71	164.00	16.76
0.85	33.24	3	3.10	6.31	0.46	0.78	36.84	191.45	14.70
0.95	37.52	3	4.29	6.85	0.44	0.82	41.92	162.76	11.15
1.05	41.99	3	10.88	6.62	0.42	0.79	61.31	190.06	8.19
1.15	46.82	3	7.25	6.27	0.51	1.64	47.11	106.69	11.54
1.25	52.39	3	3.11	7.73	0.49	1.26	32.58	151.88	15.82
1.35	59.80	4	3.00	8.52	0.45	1.41	26.15	106.07	11.59
1.45	66.76	4	4.68	6.91	0.42	0.73	26.57	148.90	8.78
1.55	72.05	4	2.69	7.14	0.44	0.86	30.32	173.55	14.01
1.65	76.82	5	5.70	6.97	0.45	0.76	42.27	230.44	13.02
1.75	81.31	5	2.55	7.30	0.44	0.68	35.17	206.64	13.44
1.85	85.39	5	2.48	6.69	0.43	0.77	36.56	205.74	15.90
1.95	89.13	5	6.76	7.14	1.42	0.63	58.27	211.54	9.17
2.06	93.19	5	2.53	6.84	0.58	0.65	40.75	255.12	16.61
2.15	96.78	5	2.91	5.98	0.72	0.77	36.38	129.22	10.34
2.25	101.44	5	2.34	7.09	0.50	0.54	32.10	305.98	16.69
2.36	107.40	5	1.75	6.00	0.45	0.56	23.01	222.94	15.03
2.45	112.93	5	1.72	6.03	0.93	0.72	20.69	174.02	14.74
2.55	119.79	5	2.68	4.90	0.44	0.75	18.20	300.91	27.02
2.66	128.96	5	9.62	5.73	0.42	0.67	28.84	309.03	12.99
2.75	136.49	6	1.96	5.38	0.42	0.65	14.32		
Site 151-907: North Atlantic Gateways (mbsl: 1800.8, low productivity, basin) [f]									
0.05	3.50	1	6.76	3.94	1.90	3.62	17.37	94.32	23.83
0.16	9.98	1	4.88	4.41	1.60	3.09	17.88	83.61	20.86
0.27	16.92	2	4.62	6.05	3.26	2.74	18.06	84.99	17.38
0.38	22.79	2	4.89	9.39	3.05	2.51	26.77	86.16	12.89
0.49	29.64	3	5.70	10.42	2.95	2.64	25.60	85.24	11.98
0.60	36.17	3	6.62	11.07	2.85	2.42	28.81	58.50	7.04
0.75	45.69	3	4.32	8.62	2.88	2.07	20.09	60.30	8.32
0.86	51.94	3	4.22	9.20	2.90	2.31	23.53	64.93	9.53
0.97	58.91	3	8.61	8.39	2.14	2.17	25.74	65.35	7.38
1.08	64.70	4	6.15	10.43	3.71	2.64	31.03	63.06	8.66
1.19	71.97	4	7.05	10.04	2.96	2.52	25.21	52.86	6.79
1.30	78.24	5	6.28	10.37	3.39	2.21	28.14	90.22	10.59
1.45	87.64	5	5.97	8.64	2.21	2.36	23.04	73.98	10.30
1.57	94.53	5	7.34	6.37	2.84	2.54	24.04	75.48	11.79
1.67	100.46	5	8.28	9.17	3.12	2.91	29.19	77.17	11.04
1.78	106.45	5	9.41	5.56	3.52	2.59	27.41	99.77	14.70
1.89	114.52	5	8.50	7.21	3.32	3.07	21.76	59.66	9.75
2.00	120.53	5	4.76	11.43	3.43	2.14	28.52	69.95	8.17
2.15	129.10	5	4.76	11.04	2.38	1.87	26.30	53.46	5.65
2.26	135.89	6	6.45	11.86	2.25	2.38	28.50	62.87	7.24
2.37	142.61	6	5.80	10.68	2.05	1.94	25.63	73.14	7.68

Supplementary Material (continued)

Depth mbsf	Age kyr		Fe-bound P µmolesP/g	Authigenic P µmolesP/g	Detrital P µmolesP/g	Organically-bound P µmolesP/g	Reac P MAR µmolesP/cm^2/kyr	C/P org molar	C/P reac molar
Site 184-1143: South China Sea (mbsl: 2772, carbonate platform, continental rise) [g]									
mcd***									
0.02	0.42	1	5.02	4.40	0.68	4.18	33.35	103.66	31.88
0.17	3.58	1	4.81	5.12	0.71	3.45	32.71	131.04	33.81
0.32	6.76	1	5.08	4.22	0.68	3.19	30.24	115.08	29.41
0.47	9.98	1	5.41	3.74	0.73	3.28	29.86	90.52	23.89
0.62	13.23	1	7.28	3.39	0.64	3.18	32.93	104.37	23.93
0.77	16.35	2	4.33	2.99	1.07	2.78	24.95	103.59	28.51
0.92	18.32	2	5.00	2.70	1.01	4.18	46.68	67.38	23.71
1.07	19.94	2	2.79	2.68	0.89	3.77	44.10	105.67	43.16
1.22	21.54	2	3.26	2.61	0.90	3.38	44.36	132.93	48.63
1.37	23.15	2	3.93	2.84	1.40	3.45	49.22	88.27	29.82
1.52	24.75	3	3.23	2.78	1.06	7.04	63.05	49.09	26.48
1.67	26.37	3	3.45	2.97	0.75	3.49	47.01	129.19	45.47
1.82	27.93	3	3.82	2.10	0.86	3.94	48.98	84.80	33.87
1.97	29.58	3	3.97	2.09	0.76	3.72	45.82	112.35	42.71
2.12	31.16	3	3.47	2.52	0.77	3.82	47.88	102.39	39.86
2.27	32.77	3	3.45	1.77	0.87	3.49	41.72	118.11	47.31
2.42	34.39	3	3.44	1.94	0.75	3.10	40.43	82.04	29.95
2.57	35.97	3	3.68	2.34	0.80	3.30	45.53	91.65	32.41
2.72	37.62	3	3.51	2.06	0.86	3.54	42.61	80.44	31.27
2.87	39.21	3	3.09	1.89	0.77	3.23	39.87	94.45	37.13
3.02	40.82	3	2.90	2.26	0.86	3.60	42.02	98.19	40.35
3.17	42.47	3	2.98	2.23	0.82	4.02	43.19	70.83	30.85
3.32	44.03	3	2.90	1.43	0.93	3.67	39.66	120.18	55.11
3.52	46.19	3	3.06	2.62	1.37	3.63	44.39	97.75	38.09
3.67	47.77	3	3.40	3.00	1.08	3.61	48.78	90.44	32.59
3.82	49.42	3	5.19	3.13	0.98	3.34	54.58	104.13	29.84
3.97	51.01	3	3.04	2.86	0.82	3.03	43.34	115.87	39.34
4.12	52.62	3	2.95	2.77	1.07	2.85	41.15	117.14	38.93
4.27	54.26	3	3.36	2.82	1.03	2.93	42.79	111.82	35.96
4.42	55.82	3	2.64	2.53	1.05	3.10	40.97	127.22	47.63
4.57	57.47	3	2.03	2.74	1.22	3.22	37.40	98.12	39.48
4.72	59.10	4	2.19	2.93	1.07	3.63	41.52	106.15	44.06
4.87	60.67	4	1.65	3.13	1.30	3.28	39.59	110.21	44.88
5.02	62.51	4	1.58	3.56	1.20	2.92	33.79	149.21	54.12
5.17	64.43	4	1.65	3.82	1.10	3.16	34.66		
5.32	66.28	4	2.08	4.02	1.25	2.97	41.18	130.41	42.70
5.47	68.15	4	1.36	3.10	1.13	2.00	28.85	137.62	42.54
5.62	70.03	4	2.38	5.60	1.78	3.03	48.98	111.12	30.56
5.77	71.90	4	2.85	5.08	1.84	2.87	48.47	98.68	26.20
5.92	73.76	4	3.15	5.57	1.62	2.82	52.06	106.10	25.89
6.07	75.69	5	3.56	5.53	1.29	2.73	51.25	89.40	20.64
6.22	77.54	5	2.64	4.75	0.93	2.73	45.75	113.31	30.60
6.37	79.41	5	3.12	4.91	0.90	2.80	48.36	125.54	32.47
6.52	82.34	5	3.28	5.30	1.01	2.77	32.52	144.22	35.22
6.67	89.23	5	3.11	4.99	1.74	2.80	13.23	109.49	28.12
6.82	96.46	5	3.24	6.13	1.15	2.51	13.77	155.32	32.87
6.97	103.73	5	3.29	5.97	2.08	2.63	13.70	87.74	19.39
7.12	109.84	5	2.85	6.57	0.86	2.58	16.44	75.13	16.17
7.27	112.04	5	3.29	9.35	1.17	2.68	58.35	97.71	17.11
7.42	113.84	5	3.63	5.33	0.99	2.91	55.20	75.33	18.45
7.57	115.64	5	3.31	6.14	0.88	2.45	55.39	152.30	31.40
7.72	117.44	5	3.66	7.66	0.80	2.51	64.36	75.90	13.78
7.87	119.24	5	4.30	13.88	0.72	2.15	94.61	139.87	14.82
8.02	121.04	5	4.44	16.68	0.86	1.95	107.31	414.88	35.09
8.17	124.46	5	4.60	7.60	0.83	2.18	35.22	136.14	20.66
8.32	129.70	5	3.87	4.32	0.68	2.23	16.64	164.58	35.20
8.47	134.83	6	3.42	3.73	0.63	2.31	15.45	159.62	38.98

Supplementary Material (continued)

Depth	Age		Fe-bound P	Authigenic P	Detrital P	Organically-bound P	Reac P MAR	C/P org	C/P reac
mbsf	kyr		µmolesP/g	µmolesP/g	µmolesP/g	µmolesP/g	µmolesP/cm^2/kyr	molar	molar
Site 184-1144: South China Sea (mbsl: 2037, sediment drift, continental rise) [h]									
0.94	1.13	1	11.48	8.74	3.87	3.86	562.23	123.33	19.76
2.39	3.09	1	6.69	7.57	2.11	2.70	446.87	205.45	32.70
3.84	5.42	1	10.84	6.92	1.99	2.57	648.52	191.80	24.28
5.30	8.19	1	3.95	5.23	1.91	2.93	496.38	229.04	55.35
6.77	11.47	1	4.80	6.78	2.05	2.80	784.95	279.46	54.41
9.21	13.54	1	6.33	6.58	2.12	2.80	1130.93	243.39	43.37
11.11	14.87	1	5.31	6.72	1.67	3.30	1340.97	249.62	53.69
12.09	15.53	2	2.68	6.53	1.45	2.97	1248.98	250.33	61.05
14.04	16.78	2	2.30	6.11	1.77	2.68	1194.62	283.13	68.48
15.51	17.68	2	2.53	6.16	1.76	2.88	1397.08	295.47	73.61
16.97	18.53	2	3.07	8.90	1.88	2.79	1802.47	297.64	56.24
18.93	19.63	2	4.51	7.01	2.93	2.71	1751.53	291.99	55.60
20.39	20.42	2	3.19	6.44	2.20	2.58	1672.77	315.26	66.59
22.08	21.31	2	4.45	6.26	3.54	2.78	1849.64	250.80	51.65
23.81	22.16	2	4.71	6.53	3.31	3.08	1970.21	244.42	52.57
25.54	22.98	2	4.75	6.09	3.59	2.65	1946.56	266.16	52.27
27.27	24.18	3	4.43	6.51	3.78	2.71	1861.57	247.11	48.99
29.00	26.33	3	4.58	6.39	3.77	2.48	1422.95	266.64	49.10
31.26	29.39	3	3.57	7.11	2.71	2.76	1243.98	266.36	54.72
33.03	31.18	3	4.86	6.45	3.95	2.50	1230.23	242.28	43.85
34.75	32.67	3	3.68	6.57	3.85	2.68	1289.97	252.39	52.32
36.48	34.04	3	3.78	6.13	3.66	2.49	1204.84	284.49	57.08
38.20	35.34	3	3.37	6.72	3.50	2.67	1030.03	260.96	54.54
39.92	36.61	3	3.57	6.32	3.61	3.38	1754.81	208.19	52.97
41.68	37.88	3	2.58	6.88	2.57	2.67	2023.16	215.63	47.48
43.49	39.16	3	3.10	5.96	2.20	4.15	804.19	171.74	53.93
45.30	40.34	3	2.86	7.02	3.39	2.62	1067.34	263.13	55.21
48.73	42.41	3	3.32	6.22	8.34	2.68	1173.44	246.56	54.06
50.32	43.36	3	3.45	6.15	3.31	2.86	1528.20	237.33	54.48
51.95	44.39	3	17.47	6.86	3.01	2.20	3780.63	306.42	25.43
53.10	45.18	3	2.88	7.54	3.77	2.43	1913.57	234.08	44.31
54.89	46.62	3	5.29	7.15	2.93	2.74	1469.28	202.18	36.45
56.68	48.27	3	5.32	6.56	2.61	2.25	1244.85	267.70	42.57
58.46	50.06	3	7.48	7.19	2.57	2.39	1564.18	253.65	35.59
61.00	52.68	3	4.82	7.24	2.71	2.38	1362.54	339.80	56.03
62.57	54.26	3	5.50	6.20	3.11	2.46	1329.33	245.13	42.57
65.71	57.22	3	5.51	6.46	2.63	2.79	1296.91	226.97	42.92
67.45	58.68	3	5.24	7.12	2.88	2.40	1296.87	221.99	36.08
68.77	59.72	4	5.99	8.52	3.37	2.15	1621.07	249.15	32.14
70.20	60.77	4	5.33	7.05	3.75	2.58	1529.84	342.08	58.88
71.66	61.78	4	5.28	6.78	3.72	2.57	1511.56	209.56	36.88
74.09	63.36	4	7.73	7.90	3.21	2.21	1890.60	205.62	25.47
75.76	64.42	4	10.24	8.86	3.08	2.50	2377.03	257.06	29.73
78.90	66.58	4	10.08	6.54	3.30	2.94	1869.03	178.21	26.79
80.60	68.12	4	4.15	6.73	3.18	2.75	1007.08	175.47	35.37
82.29	69.93	4	6.07	6.55	2.38	2.60	1074.36	176.83	30.23
84.51	72.65	4	5.95	6.65	2.64	2.85	975.17	165.47	30.52
86.40	75.36	5	6.27	6.41	2.52	2.58	925.95	181.62	30.68
88.25	78.54	5	5.28	6.52	2.62	2.81	1002.69	162.29	31.16
89.90	82.62	5	6.30	7.19	3.05	3.01	1622.95	222.55	40.59
92.88	90.98	5	4.81	7.09	2.74	2.62	1760.89	218.25	39.41
95.76	94.95	5	6.88	7.50	2.41	2.32	1833.18	302.16	41.95
97.86	96.80	5	10.69	7.04	2.27	2.74	1958.13	173.38	23.20
99.52	98.11	5	6.53	7.11	3.53	2.62	1411.09	175.52	28.29
101.18	99.63	5	15.39	5.25	3.46	2.19	1794.71	309.21	29.64
102.85	101.78	5	10.43	7.36	2.42	2.17	1336.64	209.96	22.79
105.18	106.66	5	5.65	6.65	3.01	2.43	662.81	263.35	43.51
107.04	111.09	5	4.73	7.11	2.54	2.28	496.52	191.56	30.92
109.13	113.28	5	4.46	7.50	2.37	2.16	498.16	190.45	29.17
111.34	122.45	5	4.66	7.53	2.09	2.01	240.16	166.04	23.51
113.62	130.47	6	6.95	6.57	1.83	2.19	794.87	216.84	30.21

*MIS: Marine Isotope Stage. Glacial stages 2,4 and 6 are shaded in grey, and interglacial stages 1,3 and 5 in white.
** Fe-bound P: as discussed in Material and Methods, phosphorus associated to this sedimentary phase represents both exchangeable and Fe-bound P, as they are defined in Ruttenberg (1992).
*** mbsf: meters below sea floor. mcd: meter composite depth.
**** C/P reactive: C/P reactive ratio is generally considered as a good indicator for the C/P ratio of the original organic matter (Anderson and Delaney, 2001). It can also be used to determine the presence of other forms of reactive P than organic-bound P. For ODP Sites 130-806 and 151-907, these data should be taken with caution, since due to the high content of carbonate (Site 806) and of detrital material (Site 907), C org data from Rock Eval analyses are probably biased and C org content most likely understimated (Espitalié et al., 1986). We anyway present the data and discuss their trend, since these two sites represent the basin environment.
a: Ages and sedimentation rates (SR) from Sarnthein and Tiedemann (1989). Dry bulk density (DBD) from ODP Initial Reports Vol. 108 (1988).
b: Ages and SR from Wefer et al. (1990). DBD from ODP Initial Reports Vol. 112 (1988).
c: Ages and SR from Zahn and Pedersen (1991). DBD from ODP Initial Reports Vol. 117 (1989).
d: Ages and SR calculated by graphic correlation of the grey scale provided in Föllmi et al. (1992) and of the age model provided in Tada et al. (1999). DBD from ODP Initial Reports Vol. 128 (1989).
e: Ages and SR from Bickert et al. (1993). DBD from ODP Initial Reports Vol. 130 (1991).
f: Ages and SR from McManus et al (1996). DBD from ODP Initial Reports Vol. 151 (1995).
g: Ages and SR from Tian et al. (2002). DBD from ODP Initial Reports Vol. 184 (2000).
h: Ages and SR from Bürhring et al. (2002). DBD from ODP Initial Reports Vol. 184 (2000).

Supplementary Material (Table 2)
Averages of P phases over interglacial (IG) and glacial (G) periods ± standard deviation.
Results of the statistical analysis of data (unpaired t-test; d.f.: degrees of freedom)
$p > 0.1$: ns, not significant; $0.05 < p < 0.1$: (*), not really significant; $0.01 < p < 0.05$: *, significant;
$0.01 < p < 0.001$: **, really significant; $p < 0.001$: *** highly significant.

	Fe-bound P μmolesP/g	**Authigenic P** μmolesP/g	**Detrital P** μmolesP/g	**Org.-bound P** μmolesP/g	**Reactive P** μmolesP/g	**C/P org** molar	**C/P reac** molar
Site 108-658: Eastern Tropical Atlantic (mbsl: 2263, continental rise)							
I	4.65±1.94	9.26±1.30	1.04±0.56	4.03±1.45	17.94±2.16	316±66	68±17
G	2.76±0.96	8.81±0.45	4.65±1.95	2.71±0.76	14.27±1.52	264±97	52±25
t (d.f.=24)	2.28		4.08	2.13	3.86		1.82
p	*	ns	***	*	***	ns	(*)
Site 112-680: Peru Continental Margin (mbsl: 252.2, upwelling, Oxygen Minimum Zone)							
I	28.87±17.62	52.36±36.67	2.39±2.89	4.43±3.59	85.67±38.32	1493±623	73±40
G	51.03±28.19	51.37±35.04	3.85±4.26	2.50±0.6	104.89±41.85	1445±747	38±24
t (d.f.=24)	2.41						2.18
p	*	ns	ns	ns	ns	ns	*
Site 117-724: Oman Margin (mbsl: 592.8, upwelling, Oxygen Minimum Zone)							
I	1.99±0.98	35.42±23.22	6.46±1.17	1.11±0.98	38.52±24.98	761±311	20±7
G	1.73±0.13	28.19±15.74	6.39±0.64	0.97±0.41	30.89±15.87	793±305	26±15
t (d.f.=25)							
p	ns	ns	ns	ns	ns	ns	ns
Site 128-798: Japan Sea (mbsl: 900.1, slope)							
I	4.83±4.28	4.71±1.31	1.01±0.37	5.08±1.29	14.62±4.96	325±95	126±48
G	4.21±3.67	6.42±1.55	1.31±0.21	4.67±1.33	15.30±4.69	246±92	79±45
t (d.f.=35)		3.59	2.77			2.46	2.92
p	ns	**	**	ns	ns	*	**
Site 130-806: Ontong Java Plateau (mbsl: 2520.7, above present lysocline, basin)							
I	4.86±3.37	6.27±0.83	0.54±0.24	0.85±0.27	11.99±3.31	198±60	14±4
G	3.09±0.82	6.86±1.27	0.46±0.07	0.91±0.25	10.87±1.74	175±43	14±4
t (d.f.=25)							
p	ns	ns	ns	ns	ns	ns	ns
Site 151-907: North Atlantic Gateways (mbsl: 1800.8, low productivity, basin)							
I	6.42±1.70	8.39±2.42	2.76±0.59	2.53±0.47	17.35±2.25	74±14	11±5
G	5.83±0.93	9.74±1.98	2.88±0.63	2.45±0.28	18.02±2.61	71±13	10±4
t (d.f.=19)							
p	ns	ns	ns	ns	ns	ns	ns
Site 184-1143: South China Sea (mbsl: 2772, carbonate platform, continental rise)							
I	3.65±0.94	4.45±3.09	0.95±0.28	3.18±0.81	11.28±3.07	114±54	32±9
G	2.77±1.08	3.62±1.03	1.21±0.33	3.10±0.55	9.50±1.46	115±25	37±10
t (d.f.=55)	2.98		2.28		2.15		1.89
p	*	ns	*	ns	*	ns	(*)
Site 184-1144: South China Sea (mbsl: 2037, sediment drift, continental rise)							
I	5.91±3.22	6.80±0.63	2.99±1.05	2.66±0.42	15.39±3.34	232±45	41±11
G	5.26±2.28	6.96±0.90	2.78±0.76	2.66±0.26	14.84±2.58	246±52	46±16
t (d.f.=59)							
p	ns	ns	ns	ns	ns	ns	ns