

21. CARBON AND CARBONATE ANALYSES, LEG 27

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Leg 27 sediments were analyzed for total carbon and acid-insoluble (organic) carbon using a LECO acid-base Analyzer. The 3-cc sediment samples were first dried at 105°-110°C and then ground to a homogeneous powder. The ground sediment was redried and two samples, a 0.1-g and a 0.5-g sample, were then weighed into LECO clay crucibles. The 0.5-g sample was acidified with diluted hydrochloric acid and washed with distilled water. The sample was then dried and analyzed for acid-insoluble carbon, listed in the table as "organic" carbon. The 0.1-g sample was analyzed for total carbon without further treatment. If the result showed less than 10% CaCO₃, an additional 0.5-g sample was analyzed for greater accuracy. The calcium carbon percentages were calculated as follows: (% total C-% organic C) × 8.33 = % CaCO₃. Although other carbonates may be present, all acid-soluble carbon was calculated as calcium carbonate. All results are given in weight percent.

Detailed descriptions of the technique and theory may be found in Bader, Gerard, et al. (1970) and Boyce and Bode (1972).

For control purposes a standard sediment as made up from Deep Sea Drilling material and analyzed for total carbon at predetermined intervals with the regular samples. Listed below is the statistical data for this standard.

DSDP Std.	No. of Samples	Total Carbon as %CaCO ₃	Standard Deviation	Maximum Range
2	67	80.0	0.8%	2.1%

These data indicate the precision of the mechanical aspect of the LECO analysis and do not necessarily reflect the precision of the total analytical procedure, which may be affected by factors such as sampling techniques and contamination during sampling and sample preparation.

REFERENCES

- Bader, R. G., Gerard, R. D., et al., 1970. Initial Reports of the Deep Sea Drilling Project, Volume 4: Washington (U.S. Government Printing Office).
- Boyce, R. E. and Bode, G. W., 1972. Carbon and carbonate analyses, Leg 9, Deep Sea Drilling Project. In Hays, J. D., et al. Initial Reports of the Deep Sea Drilling Project, Volume 9: Washington (U.S. Government Printing Office), p. 747.

TABLE 1
Carbon and Carbonate Analysis

Core, Section, Top of Interval (cm)	Subbottom Depth (m)	Total Carbon (%)	Organic Carbon	CaCO ₃
Site 259				
1-3, 24	3.2	9.5	0.2	77
1-5, 24	6.2	9.0	0.1	74
3-1, 24	17.7	0.1	0.1	0
4-1, 24	27.2	0.2	0.1	1
4-3, 24	30.2	3.2	0.1	26
4-5, 24	33.2	5.1	0.1	41
5-2, 24	38.2	4.7	0.0	39
5-3, 24	39.7	4.6	0.1	37
5-5, 24	42.7	7.3	0.1	60
6-1, 24	46.2	7.2	0.1	59
6-3, 24	49.2	8.9	1.8	59
6-5, 24	52.2	8.9	1.1	64
7-1, 24	55.7	7.4	0.1	61
7-3, 24	58.7	7.1	0.8	52
7-5, 24	61.7	0.2	0.1	1
8-1, 24	65.2	0.2	0.1	1
8-3, 24	68.2	0.2	0.1	0
8-5, 24	71.2	0.1	0.1	1
9-1, 24	74.7	0.1	0.2	0
9-3, 24	77.7	0.1	0.1	0
9-5, 24	80.7	0.1	0.1	0
10-1, 74	84.7	0.1	0.1	0
10-3, 24	87.2	0.1	0.1	0
10-5, 24	90.2	0.1	0.1	0
11-1, 104	94.5	0.1	0.1	0
11-3, 24	96.7	0.2	0.1	0
11-5, 24	99.7	0.9	0.1	7
12-1, 24	103.2	1.1	0.1	8
12-3, 24	106.2	1.0	0.1	7
12-5, 24	109.2	0.9	0.1	7
12-6, 115	111.7	1.4	0.1	11
13-1, 24	112.7	2.2	0.1	18
13-3, 24	115.7	2.0	0.1	16
13-5, 24	118.7	2.0	0.1	16
14-1, 24	122.2	2.6	0.1	21
14-3, 24	125.2	2.8	0.1	22
14-5, 24	128.2	2.8	0.1	22
15-1, 24	131.7	3.5	0.2	27
15-3, 24	134.7	3.3	0.2	26
15-5, 24	137.7	3.9	0.1	31
16-1, 88	141.9	3.9	0.1	32
16-3, 24	144.2	4.8	0.1	39
17-1, 85	151.4	3.5	0.1	28
17-3, 24	153.7	4.1	0.1	33
18-1, 114	161.1	0.2	0.1	0
18-3, 24	163.2	0.9	0.8	1
19-1, 24	169.7	0.3	0.3	0
19-3, 24	172.7	0.4	0.3	0
19-5, 24	175.7	0.4	0.4	0
20-1, 24	179.2	0.4	0.4	0
20-3, 24	182.2	0.6	0.5	1
20-5, 24	185.2	0.6	0.6	0
21-1, 24	188.7	0.7	0.6	1

TABLE 1 - Continued

Core, Section, Top of Interval (cm)	Subbottom Depth (m)	Total Carbon (%)	Organic Carbon	CaCO ₃
21-3, 24	191.7	0.5	0.2	2
21-5, 84	195.3	0.5	0.0	5
22-1, 24	198.2	0.5	0.4	0
23-1, 24	207.7	0.4	0.4	0
23-3, 24	210.7	0.7	0.6	1
23-5, 24	213.7	0.5	0.4	1
24-1, 24	217.2	0.4	0.2	1
24-3, 24	220.2	1.3	0.4	7
25-1, 24	226.7	0.3	0.2	0
25-3, 24	229.7	0.5	0.3	2
25-5, 24	232.7	0.6	0.4	1
26-1, 24	236.2	0.5	0.4	1
26-3, 24	239.2	0.4	0.3	0
26-5, 25	242.3	0.3	0.2	1
27-1, 24	245.7	0.4	0.3	1
27-3, 24	248.7	0.3	0.3	1
27-5, 39	251.9	0.3	0.3	0
28-1, 24	255.2	0.4	0.3	0
28-3, 24	258.2	0.4	0.4	0
28-5, 24	261.2	0.4	0.3	1
29-1, 24	264.7	0.6	0.5	1
29-3, 34	267.8	0.5	0.5	0
30-1, 24	274.2	0.4	0.4	0
30-3, 10	277.1	0.3	0.3	0
30-5, 24	280.2	0.4	0.4	0
31-1, 24	283.7	0.3	0.3	0
31-3, 24	286.7	0.7	0.6	1
32-1, 24	293.2	0.5	0.5	0
33-1, 24	302.7	4.3	0.4	32
Site 260				
1-1, 24	0.2	7.9	0.1	65
1-3, 29	3.3	0.8	0.2	5
2-3, 32	47.3	10.8	0.1	89
3-1, 140	92.9	0.2	0.2	0
3-3, 24	94.7	0.2	0.2	0
3-5, 24	97.7	10.4	0.1	86
4-1, 24	129.7	1.9	0.5	11
4-5, 24	135.7	4.5	0.5	33
5-1, 24	158.2	0.2	0.1	1
6-1, 47	177.5	5.3	0.1	43
7-1, 24	196.2	0.1	0.1	0
7-3, 24	199.2	0.1	0.1	0
7-5, 24	202.2	0.1	0.1	0
8-5, 76	221.8	0.1	0.1	0
10-1, 76	244.3	7.0	0.1	58
11-1, 24	253.2	6.6	0.1	54
12-1, 38	262.9	4.6	0.1	38
13-1, 60	272.6	1.3	0.1	10
14-1, 94	282.4	0.1	0.1	0
15-3, 24	294.2	0.4	0.2	2
16-1, 75	301.3	0.4	0.1	2
17-1, 130	311.3	3.2	0.1	26
18-1, 103	320.5	2.9	0.1	23
Site 261				
3-1, 102	48.5	7.7	0.1	64
3-3, 24	50.7	6.1	0.3	48
4-1, 92	95.9	8.9	0.2	73
5-1, 69	162.2	0.1	0.1	0
6-1, 24	171.2	0.1	0.1	0
6-3, 24	174.2	0.1	0.1	0
6-5, 24	177.2	0.1	0.1	0
7-1, 24	180.7	0.1	0.1	0
7-3, 24	183.7	0.1	0.1	0
8-3, 24	193.2	0.1	0.0	0
8-5, 24	196.2	0.1	0.1	0
9-2, 24	201.2	0.1	0.1	0
9-3, 24	202.7	0.1	0.1	0

TABLE 1 - Continued

Core, Section Top of Interval (cm)	Subbottom Depth (m)	Total Carbon (%)	Organic Carbon	CaCO ₃
12-2, 50	230.0	0.5	0.4	1
14-1, 24	247.2	0.1	0.1	0
15-1, 10	256.6	1.3	1.4	0
16-1, 93	266.9	0.4	0.3	0
19-1, 121	305.2	0.2	0.2	0
19-2, 24	305.7	0.3	0.3	0
19-3, 27	307.3	0.2	0.2	0
19-4, 24	308.7	0.2	0.1	0
19-5, 24	310.2	0.2	0.1	0
20-2, 24	315.2	0.2	0.2	0
21-1, 54	333.0	0.1	0.1	0
21-3, 143	336.9	0.2	0.1	1
22-1, 24	342.2	0.1	0.1	0
22-3, 24	345.2	0.2	0.1	0
22-5, 24	348.2	0.2	0.2	0
23-1, 24	361.2	0.2	0.2	0
23-3, 24	364.2	0.3	0.3	0
24-1, 69	380.7	0.3	0.2	0
25-3, 24	402.2	0.2	0.2	0
26-1, 29	418.3	0.3	0.2	1
27-1, 25	437.3	0.1	0.1	0
28-1, 83	447.3	3.5	0.1	28
28-3, 24	449.7	0.1	0.0	1
29-2, 24	467.2	0.1	0.0	1
29-3, 24	468.7	0.4	0.1	3
30-2, 24	486.2	2.7	0.2	21
30-3, 24	487.7	4.1	0.1	34
31-2, 24	505.2	0.4	0.1	3
31-3, 24	506.7	1.6	0.1	13
31-4, 24	508.2	0.3	0.1	2
31-5, 24	509.7	0.1	0.1	0
32-2, 24	524.2	0.7	0.1	6
32-3, 24	525.7	1.3	0.1	10
Site 262				
1-3, 24	3.2	6.3	0.6	47
2-3, 24	8.2	6.2	1.1	43
3-3, 24	17.7	5.2	1.2	33
3-5, 10	20.6	5.4	1.3	34
4-3, 24	27.2	5.1	1.3	32
5-1, 49	34.0	4.1	1.2	24
5-3, 24	36.7	5.4	1.4	33
5-5, 24	39.7	5.0	1.1	33
6-1, 24	43.2	5.4	1.3	33
6-3, 24	46.2	5.7	1.3	37
6-5, 24	49.2	5.7	1.3	37
7-3, 81	56.3	5.6	1.3	36
7-5, 24	58.7	5.4	1.3	34
8-1, 24	62.2	4.8	1.1	31
8-3, 24	65.2	5.1	1.2	33
8-5, 24	68.2	5.2	1.1	34
9-1, 75	72.3	5.0	1.0	34
9-3, 24	74.7	5.2	1.1	34
9-5, 24	77.7	4.9	1.1	31
10-1, 24	81.2	4.7	1.0	31
10-3, 24	84.2	4.5	1.0	30
10-5, 24	87.2	9.3	0.3	74
11-1, 24	90.7	4.1	0.7	28
11-3, 24	93.7	4.4	0.9	29
11-5, 34	96.8	4.9	0.8	34
12-1, 24	100.2	4.4	0.9	30
12-3, 24	103.2	9.1	0.3	74
12-5, 19	106.2	4.2	0.8	28
13-1, 22	109.7	4.7	1.0	31
13-3, 24	112.7	4.5	1.0	29
13-5, 24	115.7	3.9	0.8	26
14-1, 23	119.2	4.6	0.9	30
14-3, 24	122.2	4.4	0.9	29
14-5, 24	125.2	4.7	0.9	32

CARBON AND CARBONATE ANALYSES

TABLE 1 - Continued

Core, Section, Top of Interval (cm)	Subbottom Depth (m)	Total Carbon (%)	Organic Carbon	CaCO ₃
15-1, 24	128.7	4.6	0.8	32
15-3, 24	131.7	4.4	0.7	30
15-5, 24	134.7	4.7	0.8	32
16-1, 24	138.2	4.4	0.8	30
16-3, 24	141.2	4.3	0.8	30
16-5, 24	144.2	4.1	0.7	29
17-1, 24	147.7	5.4	0.9	37
17-3, 24	150.7	5.3	1.3	34
17-5, 24	153.7	5.3	0.4	40
18-1, 24	157.2	4.5	1.0	29
18-3, 24	160.2	4.7	1.0	32
18-5, 24	163.2	4.5	1.0	30
19-1, 24	166.7	4.5	0.8	31
19-3, 24	169.7	4.5	0.8	31
19-5, 24	172.7	4.5	0.9	30
20-1, 24	176.2	4.5	0.6	32
20-3, 24	179.2	4.3	0.6	31
20-5, 24	182.2	5.1	0.6	37
21-1, 24	185.7	4.7	0.8	33
21-3, 24	188.7	5.6	1.0	38
21-5, 24	191.7	5.0	0.9	34
22-3, 24	198.2	4.3	0.7	30
22-5, 24	201.2	4.6	0.7	32
23-3, 24	207.7	5.6	0.5	42
23-5, 24	210.7	5.6	0.9	39
24-3, 24	217.2	5.1	0.8	36
24-5, 24	220.2	5.1	0.7	36
24-1, 24	214.2	5.1	0.8	36
25-3, 24	226.7	5.4	1.0	37
25-5, 24	229.7	5.7	0.9	40
26-1, 24	233.2	6.1	0.7	45
26-3, 24	236.2	5.6	0.7	41
26-5, 24	239.2	6.5	0.7	48
27-1, 24	242.7	5.8	0.9	41
27-3, 24	245.7	5.9	0.7	43
27-5, 24	248.7	6.4	0.7	47
29-1, 24	261.7	8.2	0.8	62
29-3, 24	264.7	8.2	0.4	65
29-5, 24	267.7	7.8	0.7	59
30-1, 24	271.2	7.6	0.7	58
30-3, 24	274.2	8.7	0.6	67
30-5, 24	277.2	8.5	0.8	64
31-1, 109	281.6	8.6	0.5	67
31-3, 24	283.7	7.9	0.5	61
31-5, 24	286.7	8.4	0.6	65
32-1, 24	290.2	9.3	0.9	70
32-3, 24	293.2	8.2	0.8	62
32-5, 24	296.2	8.7	0.6	68
33-1, 44	299.9	8.9	0.9	67
33-3, 24	302.7	8.4	0.9	63
33-5, 24	305.7	8.4	1.0	62
34-1, 24	309.2	8.7	0.9	65
34-3, 24	312.2	8.6	0.9	64
35-1, 53	319.0	9.3	0.7	72
35-3, 24	321.7	8.8	0.9	66
35-5, 24	324.7	8.2	0.7	62
36-1, 24	328.2	6.8	1.0	48
36-3, 24	331.2	8.1	1.1	59
36-5, 24	334.2	7.8	0.9	58
37-1, 24	337.7	8.5	0.8	64
37-3, 18	340.7	8.7	0.7	67
37-5, 13	343.6	8.9	0.6	69
38-1, 1	347.0	8.2	0.7	62
38-3, 18	350.2	10.0	0.5	79
38-5, 20	353.2	10.2	0.3	82
39-3, 21	359.7	9.7	0.4	77
39-5, 24	362.7	9.9	0.3	80
40-1, 15	366.2	7.4	0.5	57

TABLE 1 - Continued

Core, Section Top of Interval (cm)	Subbottom Depth (m)	Total Carbon (%)	Organic Carbon	CaCO ₃
40-3, 24	369.2	7.3	0.5	57
40-5, 31	372.3	10.0	0.4	80
41-3, 20	378.7	10.9	0.2	89
41-5, 23	381.7	9.8	0.4	78
42-1, 24	385.2	8.1	0.5	64
42-3, 24	388.2	7.1	0.4	56
42-5, 50	391.5	9.7	0.3	78
44-1, 0	404.0	9.9	0.3	80
44-2, 24	405.7	9.5	0.3	77
44-3, 24	407.2	9.9	0.3	80
45-1, 124	414.7	12.0	0.2	99
45-1, 10	413.6	12.0	0.1	99
45-5, 18	419.7	11.9	0.2	98
Site 263				
1-1, 115	1.2	6.8	0.4	53
2-1, 103	53.5	4.6	0.4	35
2-3, 24	55.7	9.5	0.1	78
3-1, 24	90.7	9.9	0.1	82
3-3, 24	93.7	10.3	0.2	85
3-5, 24	96.7	10.4	0.1	86
4-1, 24	109.7	2.0	0.5	12
4-3, 24	112.7	1.8	0.6	10
4-5, 29	115.8	1.6	0.5	9
5-1, 130	129.8	1.5	0.6	7
6-1, 110	148.6	1.5	0.6	7
6-3, 24	150.7	1.0	0.8	1
6-5, 25	153.8	1.1	0.9	2
7-1, 24	176.2	2.2	0.7	12
7-3, 39	179.4	1.0	0.7	2
8-1, 63	205.1	0.8	0.7	1
9-1, 70	224.2	0.7	0.7	0
9-3, 22	226.7	0.8	0.7	1
10-1, 60	243.1	0.6	0.5	1
10-3, 9	245.6	0.7	0.7	0
11-1, 24	261.7	1.5	0.4	9
11-3, 27	264.8	1.8	0.4	12
12-1, 15	280.7	0.6	0.6	1
13-1, 56	300.1	1.0	0.8	2
13-3, 49	303.0	0.2	0.5	0
13-3, 23	302.7	0.7	0.7	0
13-5, 93	306.4	0.7	0.7	0
14-1, 12	318.6	0.6	0.6	0
14-3, 105	322.6	0.5	0.6	0
14-5, 49	325.0	0.5	0.5	0
15-1, 32	337.8	0.4	0.4	0
15-3, 26	340.8	0.3	0.2	0
16-1, 23	356.7	0.4	0.3	0
17-1, 63	385.6	0.8	0.8	0
17-3, 10	388.1	0.8	0.8	0
17-5, 88	391.9	1.3	1.2	0
18-1, 65	414.2	0.9	0.9	0
18-3, 20	416.7	1.9	1.8	1
18-5, 10	419.6	1.5	1.4	1
19-1, 143	452.9	0.9	0.9	0
19-3, 60	455.1	0.9	0.9	0
19-5, 8	457.6	1.1	1.0	1
20-1, 50	480.5	1.0	1.0	0
20-3, 70	483.7	0.8	0.8	0
20-5, 28	486.3	1.1	1.0	0
21-1, 0	518.0	0.8	0.8	0
21-3, 103	522.0	1.9	1.6	2
21-5, 12	524.1	1.5	1.2	2
22-1, 19	556.2	1.6	1.2	3
22-2, 18	557.7	8.2	0.6	63
23-1, 52	594.5	9.7	0.3	78
23-3, 23	597.2	2.2	1.6	5

TABLE 1 - *Continued*

Core, Section Top of Interval (cm)	Subbottom Depth (m)	Total Carbon (%)	Organic Carbon	CaCO ₃
23-5, 118	601.2	1.7	1.6	1
24-1, 139	633.4	2.2	2.1	1
24-3, 0	635.0	1.8	1.7	1
24-5, 36	638.4	0.8	0.8	0
25-3, 26	673.3	1.4	1.4	1
26-3, 25	701.8	2.0	1.3	6

TABLE 1 - *Continued*

Core, Section Top of Interval (cm)	Subbottom Depth (m)	Total Carbon (%)	Organic Carbon	CaCO ₃
26-5, 115	705.7	9.7	0.5	77
28-1, 0	727.0	7.7	0.7	59
28-1, 35	727.4	2.0	1.8	1
28-3, 136	731.4	0.7	0.7	0
29-1, 135	737.9	2.1	1.8	3
29-3, 8	739.6	2.1	1.9	2