

APPENDIX I. GRAIN-SIZE ANALYSES¹

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The distribution of sand, silt, and clay was determined on 10-cm³ sediment samples collected at the time the cores were split and described. The results are listed in Table 1.

The sediment classification used here is that of Shepard (1954), with the sand, silt, and clay boundaries based on the Westbrook (1922) scale (Fig. 1). Thus, the sand, silt, and clay fractions are composed of particles whose diameters range, respectively, from 2000 to 62.5 μm , 62.5 to 3.91 μm , and less than 3.91 μm . This classification is applied regardless of sediment type and origin; therefore, the sediment names used in this table may differ from those used elsewhere in this volume, e.g., a slit composed of nannofossils in this table may be called a nannofossil ooze in a site summary chapter.

Standard sieve and pipette methods were used to determine the grain-size distribution. The sediment sample was dried and dispersed in a Calgon solution. If a sediment sample failed to disaggregate, it was treated with a sonic probe and, if necessary, hydrogen peroxide. Sediment samples which resisted this treatment were not analyzed.

The sand fraction was removed by wet sieving, using a 63- μm sieve, and the silt and clay fractions were analyzed by standard pipette analysis. Sampling depths and times were calculated using equations derived from Stokes' settling-velocity equation (Krumbein and Pettijohn, 1938, pp. 95-96), as follows:

$$\frac{D}{t} = V = \frac{2gr^2(d_1 - d_2)}{9\eta}$$

$$t = \frac{9D\eta}{2gr^2(d_1 - d_2)}$$

¹ Hay, W. W., Sibuet, J.-C., et al., *Init. Repts. DSDP*, 75: Washington (U.S. Govt. Printing Office).

where

V = velocity, in cm/s;

t = time, in s;

D = depth pipette is inserted, in cm;

g = gravity, in cm/s²;

r = radius of individual particles, in cm;

d_1 = density of solid particles arbitrarily set at 2.675 g/cm³;

d_2 = absolute density of distilled water at different temperatures (Hodgman et al., 1960, p. 2129); and

η = viscosity of distilled water in poises at different temperatures (Hodgman et al., 1960, p. 2181)

The reproducibility of the grain-size analysis has been previously tested (Boyce, 1972), and it was found that over a period of time with several operations the reproducibility for the sand-silt-clay fractions is $\pm 2.5\%$ (absolute). For detailed, step-by-step procedures, see Volume 4 of the *Initial Reports of the Deep Sea Drilling Project*.

REFERENCES

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APPENDIX I

Table 1. Grain size analyses, DSDP Leg 75, Holes 530A to 532B.

Sample (level in cm)	Depth (m)	Sand (%)	Silt (%)	Clay (%)	Classification
Hole 530A					
1-3, 135	129.35	1.0	22.1	76.9	Clay
4-4, 138	159.38	0.4	17.9	81.7	Clay
6-3, 13	175.63	0.1	36.2	63.7	Silty clay
7-6, 53	190.03	1.1	39.7	59.1	Silty clay
8-5, 15	197.65	0.1	30.3	69.7	Silty clay
10-3, 26	213.76	0.0	29.9	70.1	Silty clay
12-5, 12	235.62	0.3	31.4	68.3	Silty clay
13-3, 24	242.24	2.8	32.3	64.9	Silty clay
13-3, 79	242.79	0.3	16.2	83.5	Clay
13-3, 88	242.88	0.2	32.3	67.5	Silty clay
13-3, 97	242.97	0.6	55.6	43.8	Clayey silt
14-1, 117	249.67	0.1	13.6	86.3	Clay
14-1, 126	249.76	0.4	41.6	58.0	Silty clay
14-1, 133	249.83	0.5	59.9	39.6	Clayey silt
15-4, 40	262.90	0.6	54.5	44.9	Clayey silt
18-1, 88	287.38	0.0	18.6	81.3	Clay
18-3, 45	289.95	0.0	27.1	72.8	Silty clay
19-4, 32	300.82	0.1	20.7	79.2	Clay
20-4, 27	310.27	0.0	12.6	87.4	Clay
21-4, 27	319.77	0.0	7.6	92.4	Clay
22-4, 78	329.78	0.1	11.4	88.6	Clay
24-1, 70	344.20	0.0	13.1	86.8	Clay
25-3, 89	356.89	0.1	10.4	89.6	Clay
26-3, 53	366.03	0.0	12.9	87.0	Clay
27-2, 40	373.90	0.1	10.9	89.0	Clay
28-5, 42	387.92	0.0	13.8	86.2	Clay
29-5, 36	397.36	0.0	20.8	79.1	Clay
30-2, 13	402.13	0.0	10.0	89.9	Clay
32-3, 12	422.62	0.1	32.3	67.6	Silty clay
33-3, 5	432.05	0.0	11.0	89.0	Clay
34-1, 115	439.65	0.0	10.3	89.6	Clay
34-6, 90	446.90	0.0	13.2	86.8	Clay
35-3, 35	451.35	0.1	15.0	84.9	Clay
39-2, 53	488.03	42.4	30.0	27.6	Sand-silt-clay
39-2, 60	488.10	72.1	13.0	14.8	Clayey sand
40-3, 10	498.60	0.1	26.6	73.3	Silty clay
Hole 530B					
2-3, 5	5.45	0.1	32.5	67.4	Silty clay
2-3, 42	5.82	0.8	35.9	63.3	Silty clay
3-2, 104	9.34	0.1	31.0	68.9	Silty clay
3-3, 124	11.04	0.7	30.7	68.6	Silty clay
4-1, 112	12.32	0.6	46.0	53.4	Silty clay
6-3, 72	23.72	0.2	34.1	65.8	Silty clay
6-3, 102	24.02	0.5	46.3	53.2	Silty clay
6-3, 117	24.17	1.0	37.8	61.2	Silty clay
7-2, 84	25.74	0.5	49.1	50.5	Silty clay
7-3, 4	26.44	2.4	38.7	59.0	Silty clay
8-2, 75	30.05	0.1	24.0	76.0	Clay
9-2, 9	33.79	0.3	17.6	82.1	Clay
9-3, 9	35.29	0.1	31.5	68.3	Silty clay
10-3, 114	40.74	1.3	36.0	62.8	Silty clay
11-2, 49	42.99	0.1	45.9	54.0	Silty clay
12-2, 85	47.75	0.0	81.3	18.7	Silt
12-3, 33	48.73	0.0	20.1	79.9	Clay
14-2, 15	55.85	0.8	19.8	79.3	Clay
14-2, 78	56.48	0.2	45.3	54.5	Silty clay
16-1, 121	64.21	0.3	24.7	75.0	Clay
16-3, 70	66.70	0.0	93.0	7.0	Silt
17-1, 94	68.34	0.1	26.3	73.6	Silty clay
17-1, 142	68.82	0.1	21.6	78.3	Clay
17-2, 13	69.03	0.1	20.6	79.2	Clay
18-1, 104	72.84	0.0	94.8	5.2	Silt
20-2, 5	82.15	0.1	26.1	73.8	Silty clay
22-3, 77	91.77	0.3	19.6	80.1	Clay
23-1, 107	93.47	0.2	29.2	70.6	Silty clay
23-2, 108	94.98	0.1	51.0	48.8	Clayey silt
25-1, 101	100.81	0.1	29.2	70.6	Silty clay
25-2, 101	102.31	0.3	22.2	77.5	Clay
26-1, 126	104.06	0.1	20.5	79.3	Clay
33-2, 116	129.66	1.0	28.3	70.7	Silty clay
34-2, 48	133.38	0.6	20.9	78.4	Clay

Table 1. (Continued.)

Sample (level in cm)	Depth (m)	Sand (%)	Silt (%)	Clay (%)	Classification
Hole 532					
3-1, 46	8.86	1.1	28.7	70.2	Silty clay
3-3, 95	12.35	0.7	28.9	70.4	Silty clay
4-3, 109	16.89	0.8	33.9	65.4	Silty clay
5-2, 92	19.62	2.8	37.8	59.4	Silty clay
6-2, 57	23.67	0.9	36.7	62.4	Silty clay
7-1, 86	26.86	3.1	24.2	72.7	Silty clay
8-2, 73	32.63	3.1	34.1	62.8	Silty clay
8-2, 102	32.92	3.6	47.7	48.7	Silty clay
8-2, 147	33.37	3.8	34.0	62.2	Silty clay
9-2, 111	37.41	4.5	41.2	54.3	Silty clay
10-2, 43	41.13	2.8	36.1	61.2	Silty clay
10-3, 49	42.69	2.1	53.8	44.0	Clayey silt
10 CC, 1	43.17	0.9	44.6	54.6	Silty clay
11-2, 67	45.77	1.2	35.5	63.3	Silty clay
11-3, 27	46.87	1.8	41.5	56.6	Silty clay
12-2, 75	50.25	3.8	58.8	37.4	Clayey silt
13-1, 106	53.46	2.2	56.2	41.7	Clayey silt
13-3, 106	56.46	0.7	21.7	77.6	Clay
14-2, 35	58.65	0.6	34.4	65.0	Silty clay
15-2, 36	63.06	0.3	20.6	79.2	Clay
15-3, 36	64.56	0.6	24.9	74.5	Silty clay
17-1, 85	70.85	0.9	29.5	69.5	Silty clay
17-2, 85	72.35	2.0	22.8	75.2	Clay
18-2, 63	76.53	0.8	87.0	12.2	Silt
19-2, 85	81.15	0.7	35.2	64.1	Silty clay
20-3, 74	86.94	1.0	35.7	63.3	Silty clay
21-2, 26	89.36	0.3	38.1	61.6	Silty clay
21-3, 86	91.46	0.9	29.3	69.8	Silty clay
22-2, 78	94.28	1.6	35.1	63.3	Silty clay
22-3, 50	95.50	0.4	37.0	62.6	Silty clay
23-1, 63	97.03	0.7	41.8	57.5	Silty clay
24-1, 113	101.93	1.3	31.6	67.0	Silty clay
25-1, 49	105.69	0.2	54.3	45.5	Clayey silt
25-2, 49	107.19	0.7	41.8	57.5	Silty clay
26-1, 52	110.12	0.5	39.6	59.9	Silty clay
27-2, 102	116.52	1.1	33.1	65.8	Silty clay
29-2, 8	122.38	0.9	41.7	57.4	Silty clay
29-3, 8	123.88	0.4	44.6	55.0	Silty clay
31-1, 129	128.69	0.3	46.0	53.7	Silty clay
31-1, 143	128.83	0.4	5.0	94.7	Clay
32-2, 43	133.73	0.0	87.8	12.2	Silt
35-1, 134	143.94	0.3	44.3	55.4	Silty clay
35-2, 104	145.14	0.1	87.3	12.6	Silt
36-1, 66	147.26	0.7	38.0	61.3	Silty clay
37-1, 110	151.70	0.4	52.3	47.2	Clayey silt
37-2, 40	152.50	1.2	32.8	66.0	Silty clay
40-1, 78	161.58	0.5	45.4	54.1	Silty clay
42-2, 42	171.52	0.5	36.1	63.3	Silty clay
42-2, 82	171.92	1.1	34.7	64.3	Silty clay
45-1, 103	183.83	0.3	44.5	55.2	Silty clay
45-2, 31	184.61	1.4	38.6	60.0	Silty clay
48-1, 68	196.28	0.5	30.8	68.8	Silty clay
48-2, 135	198.45	0.5	38.5	61.0	Silty clay
49-2, 70	201.80	1.0	26.8	72.2	Silty clay
50-1, 17	203.77	0.6	26.2	73.2	Silty clay
50-1, 79	204.39	0.1	47.7	52.1	Silty clay
52-1, 56	212.16	0.5	32.0	67.5	Silty clay
52-2, 135	214.45	0.2	49.2	50.6	Silty clay
54-2, 124	222.74	0.5	30.9	68.7	Silty clay
57-1, 117	232.57	0.3	34.0	65.7	Silty clay
57-2, 77	233.67	0.7	22.7	76.6	Clay
60-2, 52	244.82	1.0	27.5	71.5	Silty clay
Hole 532B					
58,CC (0)	239.56	0.5	29.1	70.4	Silty clay
65-2, 111	252.31	1.1	24.8	74.0	Silty clay
66-2, 50	265.70	2.5	25.2	72.2	Silty clay
66,CC (0)	267.10	0.4	32.9	66.8	Silty clay
67-2, 53	269.13	0.5	32.8	66.7	Silty clay
71-2, 86	284.66	1.1	26.4	72.5	Silty clay
73-2, 10	289.90	0.9	29.1	70.0	Silty clay

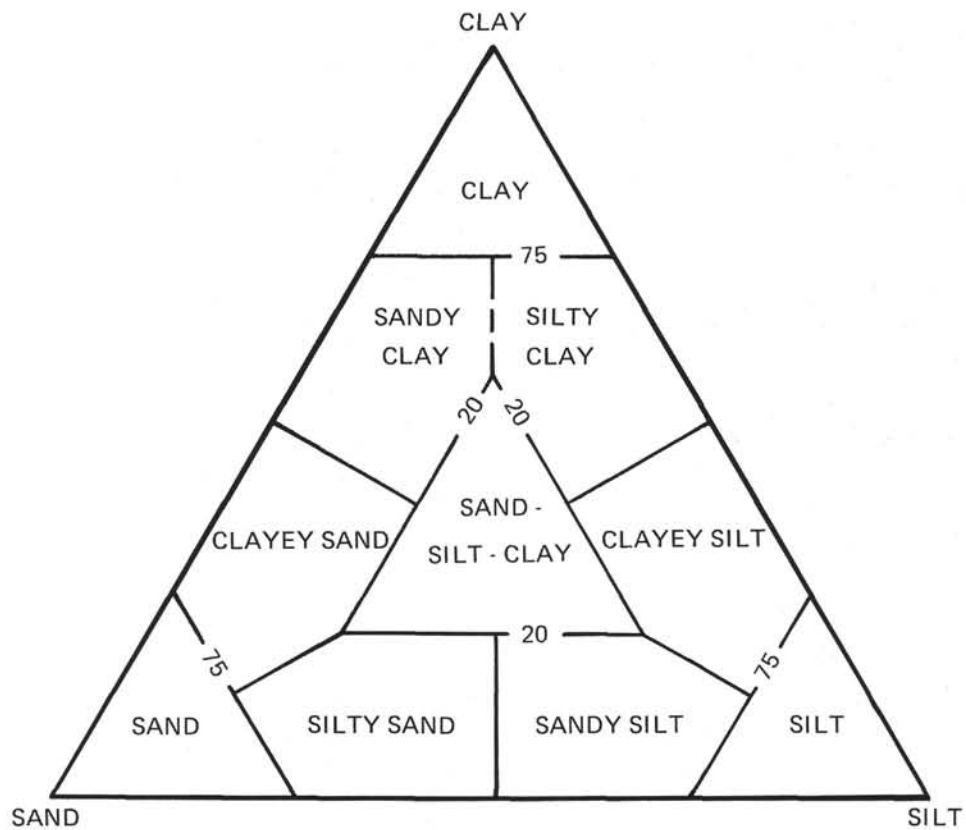


Figure 1. Sediment classification after Shepard (1954) with the sand, silt, and clay size fractions based on the Wentworth (1922) Grade Scale: Sand, silt, and clay size particles having respective diameters of 2,000 to 62.5 microns, 62.5 to 3.91 microns, and less than 3.91 microns. Shepard's (1954) sediment classification is a function of sand, silt, and clay size percentages and not composition.