

35. MAJOR-ELEMENT GEOCHEMISTRY AND CLAY MINERALOGY AND THEIR RELATIONSHIP TO FACIES DISCRIMINATION IN DISTAL BENGAL FAN SEDIMENTS: LEG 116

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INTRODUCTION

The purpose of this report is to present in one place the data sets gained from (1) an investigation into the geochemistry of distal Bengal Fan sediments from Leg 116, and (2) two separate studies of the clay mineralogy at these same sites. The data are referred to in papers by Bouquillon et al. and Stow et al. (both, this volume). For completeness, the table of clay mineral results from Brass and Raman (this volume) is reproduced here by permission of the authors.

We also briefly outline the relationship between geochemistry and facies within these mud-dominated fan sediments.

ANALYTICAL METHODS FOR MAJOR-ELEMENT GEOCHEMISTRY

The geochemical data presented in this report were obtained from the analysis of 189 samples (186—Site 717; 3—Site 718) covering the entire range of facies (see Table 1 for summary) described by Cochran, Stow, et al. (1989). Major-element concentrations were determined on fused glass disks using an automated Philips PW1400 XRF wavelength dispersive spectrometer (University of Nottingham, U.K.) following the methods of Harvey et al. (1973). Loss on ignition (LOI) values were determined prior to fusion by heating powdered samples at a temperature of 1050°C. Estimates of analytical precision and accuracy, based on analyses of standard materials, were found to be better than 3.0% (relative) for all major elements (Harvey et al., 1973). It is important to note that samples analyzed in this study were not treated prior to preparation of glass disks, with the consequence that Na₂O data include Na present as NaCl as well as that present in sodic aluminosilicate phases.

ANALYTICAL METHODS FOR CLAY MINERALOGY

The X-ray diffraction study of the fraction <2 µm, performed at the Université des Sciences et Techniques de Lille, France, involved the analysis of 150 samples. The method of sample preparation and semiquantitative estimation is explained in Capet et al. (1990). Each sample was decarbonated in 0.2N HCl; the excess acid was removed by repeated centrifuging followed by homogenization. The fraction <2 µm was collected by decantation after settling, and oriented aggregates were made on glass slides. The X-ray diffracto-

grams were made using an untreated sample, a glycolated sample, and a sample heated for 2 hr at 490°C. A Philips 1730 diffractometer (copper K α -radiation focused by a curved quartz-crystal monochromator) was used at a scan speed of 1°2θ/min, with all instrument settings kept constant for all analyses. Semiquantitative evaluation was based on the peak heights and areas of selected clay mineral peaks, assuming that these weighted amounts added up to 100%. The height of the illite and chlorite (001) peaks were taken as references. The relative proportion of smectites and mixed-layer clay minerals were determined by multiplying their peak height by a factor of 1.5 to 2 depending on their crystallinity; by contrast, well-crystallized kaolinite was corrected by a factor of 0.5. The relative proportions of chlorite and kaolinite were determined from a ratio of peak heights (respectively 3.54 Å and 3.58 Å); when this ratio is 1, the amount of chlorite is assumed to be twice that of kaolinite. Final data are given in percent, the relative error being about ± 5%. The values of illite crystallinity correspond to the 1/00 breadth of the 10-Å peak at half-height. This measurement is made on the X-ray diffractogram obtained on the glycolated sample.

The X-ray methods used for the diffraction study carried out at the University of Miami, U.S.A., are reported fully in the paper by Brass and Raman (this volume).

RESULTS AND DISCUSSION

All major-element and LOI data are reported in Table 2 and summarized in a series of cross plots (Figs. 1, 2). They are intended to document variations in the lithology and geochemistry of individual sedimentary facies (Table 1) identified on the basis of visual shipboard logging techniques.

Lithological classification (scheme of Herron, 1988) of fan sediments shows that the majority of samples fall within the Fe-shale-shale-wacke portion of the diagram (Fig. 1). Variations in CaO content are used to differentiate non-calcareous (<5.6% CaO) from calcareous (5.6% < CaO < 21%) sands and shales, and clastic from carbonate (>21% CaO) sediments

Table 1. Lithologic classification of distal Bengal Fan facies, Leg 116.

Facies	Lithology
Silt, silt-mud turbidites (F1)	Shale - wacke - litharenite
Organic-poor mud turbidites (F2)	Shale - calcareous shale
Organic-rich mud turbidites (F3)	Fe-shale/shale - calcareous Fe-shale
Biogenic mud (F4)	Calcareous Fe-shale (F4 _{green}) - lmst (F4 _{white})
Pelagic clays (F5)	Fe-shale (F5 _{red}) - shale (F5 _{gray})
Pelagic calcareous clays (F6)	Calcareous Fe-shale
Structureless muds (F7)	Fe-shale/shale (F7 _{dark gray}) - shale (F7 _{light gray})

¹ Cochran, J. R., Stow, D.A.V., et al., 1990. *Proc. ODP, Sci. Results, 116: College Station, TX (Ocean Drilling Program).*

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Table 2. Major-element geochemistry, Hole 717C and Hole 718C, Leg 116.

Hole 717C								
Core	001H	002H	002H	002H	004X	005X	005X	005X
Sect.	01	01	01	02	02	01	01	02
Int.	053-055	053-055	070-075	035-040	018-020	055-057	073-077	018-023
Depth	0.53	14.03	14.20	15.35	27.18	37.05	37.23	38.18
Facies	3	3	1	1	1	1	1	1
SiO ₂	42.57	45.34	68.26	70.60	68.52	59.25	61.76	68.21
Al ₂ O ₃	14.16	15.64	11.71	11.24	12.02	15.33	14.24	12.37
TiO ₂	0.80	0.78	0.58	0.54	0.59	0.70	0.68	0.58
Fe ₂ O ₃	8.21	7.95	4.43	4.20	4.54	6.47	5.92	4.51
MgO	3.28	3.19	2.23	2.09	2.31	3.17	2.86	2.25
CuO	8.23	5.78	2.93	2.73	2.95	2.91	3.03	3.09
Na ₂ O	2.66	2.69	2.20	2.13	2.14	2.13	2.21	2.18
K ₂ O	2.29	2.82	2.60	2.63	2.78	3.59	3.29	2.79
MnO	0.14	0.15	0.05	0.06	0.08	0.08	0.08	0.06
P ₂ O ₅	0.17	0.15	0.10	0.10	0.12	0.10	0.12	0.13
LOI	17.54	15.51	4.73	3.83	4.10	6.41	5.68	4.06
Total	100.05	100.00	99.82	100.15	100.15	100.14	99.87	100.23
Core	006X	006X	007X	007X	007X	007X	008X	008X
Sect.	01	02	01	01	01	02	01	01
Int.	053-055	021-023	050-055	080-085	109-115	010-015	053-055	080-085
Depth	46.53	47.71	56.00	56.30	56.59	57.10	65.53	65.80
Facies	2	1	2	2	2	1	1	1
SiO ₂	57.48	65.28	50.87	50.40	52.50	71.33	69.53	69.67
Al ₂ O ₃	15.99	12.92	18.26	16.45	18.06	11.19	11.70	11.75
TiO ₂	0.76	0.61	0.84	0.79	0.81	0.52	0.56	0.53
Fe ₂ O ₃	5.92	4.73	8.23	7.61	7.86	3.67	4.13	4.11
MgO	3.30	2.56	3.55	3.34	3.45	1.93	2.14	2.11
CaO	3.40	3.22	2.78	5.08	2.73	3.01	2.95	2.89
Na ₂ O	2.25	2.19	2.29	2.24	2.12	2.27	2.08	2.26
K ₂ O	3.79	3.14	4.08	3.47	4.05	2.57	2.66	2.76
MnO	0.09	0.08	0.16	0.10	0.12	0.06	0.06	0.06
P ₂ O ₅	0.14	0.10	0.16	0.16	0.14	0.12	0.10	0.11
LOI	6.91	5.19	8.82	10.36	8.13	3.40	3.94	3.94
Total	100.03	100.02	100.04	100.00	99.97	100.07	99.85	100.19
Core	008X	010X	010X	015X	015X	016X	016X	018X
Sect.	02	01	01	01	02	01	01	CC
Int.	085-090	083-086	110-112	053-055	021-026	053-055	099-104	008-012
Depth	67.35	75.33	75.60	113.03	114.21	122.53	122.99	131.58
Facies	2	3	2	2	1	1	1	1
SiO ₂	54.23	50.41	54.08	56.38	62.35	64.53	62.84	78.17
Al ₂ O ₃	17.45	16.48	18.37	17.68	14.38	14.02	14.05	9.83
TiO ₂	0.79	0.90	0.86	0.80	0.72	0.67	0.70	0.24
Fe ₂ O ₃	7.52	10.11	8.60	7.09	5.74	5.15	6.37	2.98
MgO	3.32	3.24	3.15	3.17	2.92	2.61	2.92	0.90
CaO	2.83	3.67	1.08	2.15	2.83	2.57	2.42	1.55
Na ₂ O	2.01	2.09	2.17	1.86	2.02	2.21	2.11	2.11
K ₂ O	3.88	3.01	3.63	3.77	3.17	3.25	3.21	2.49
MnO	0.11	0.10	0.09	0.11	0.08	0.08	0.08	0.05
P ₂ O ₅	0.15	0.19	0.13	0.13	0.13	0.11	0.12	0.06
LOI	7.63	9.78	7.89	6.88	5.78	4.80	5.42	1.68
Total	99.92	99.98	100.05	100.02	100.12	100.00	100.24	100.06
Core	019X	019X	020X	020X	020X	020X	021X	021X
Sect.	01	01	01	01	02	04	01	02
Int.	053-055	065-069	053-055	080-085	080-085	036-041	053-055	041-046
Depth	141.53	141.65	151.03	151.30	152.30	155.36	160.53	162.91
Facies	1	1	1	1	2	4gr	2	3
SiO ₂	58.40	61.54	64.83	64.52	54.04	35.03	50.94	50.20
Al ₂ O ₃	15.53	14.48	13.28	13.31	17.49	12.28	18.79	17.87
TiO ₂	0.73	0.71	0.66	0.65	0.81	0.71	0.86	0.94
Fe ₂ O ₃	6.87	6.12	5.27	5.53	7.71	6.56	8.63	8.73
MgO	3.26	3.04	2.65	2.75	3.43	2.54	2.96	2.84
CaO	2.60	2.66	2.97	2.99	2.65	17.03	2.29	2.48
Na ₂ O	2.11	1.97	2.13	2.03	1.83	1.47	1.78	2.01
K ₂ O	3.62	3.43	3.03	3.04	3.90	1.57	3.37	2.57
MnO	0.09	0.09	0.08	0.08	0.14	0.11	0.26	0.08
P ₂ O ₅	0.16	0.11	0.12	0.12	0.13	0.22	0.10	0.13
LOI	6.69	5.90	5.03	5.37	7.79	22.44	10.05	12.30
Total	100.06	100.05	100.05	100.39	99.92	99.96	100.03	100.15

Table 2 (continued).

Hole 717C								
Core	022X	022X	022X	023X	023X	023X	024X	023X
Sect.	01	04	CC	01	02	05	01	02
Int.	053-055	075-080	028-030	053-055	080-085	140-145	054-056	125-131
Depth	170.03	174.75	178.98	179.53	181.30	186.40	189.04	191.25
Facies	3	4gr	3	3	4gr	3	4gr	2
SiO ₂	52.52	28.42	53.16	48.19	27.29	50.72	25.29	52.82
Al ₂ O ₃	17.63	9.91	17.09	17.40	9.08	17.25	8.51	18.29
TiO ₂	0.80	0.50	1.07	0.91	0.47	1.20	0.45	0.87
Fe ₂ O ₃	10.12	4.86	11.27	8.78	4.89	10.41	4.45	7.98
MgO	3.43	2.21	3.53	2.87	2.10	3.03	1.92	2.95
CaO	1.36	23.45	0.60	4.09	26.14	2.10	28.34	2.39
Na ₂ O	2.08	1.24	1.75	1.27	1.93	1.36	1.88	1.38
K ₂ O	2.66	0.88	3.05	2.62	0.68	2.47	0.64	3.40
MnO	0.05	0.13	0.11	0.12	0.22	0.12	0.19	0.15
P ₂ O ₅	0.16	0.20	0.16	0.13	0.19	0.13	0.21	0.11
LOI	9.23	28.26	8.26	13.00	27.85	10.95	28.66	9.21
Total	100.04	100.06	100.05	99.97	100.18	100.31	100.02	100.05
Core	024X	024X	025X	025X	025X	026X	026X	026X
Sect.	03	04	02	03	05	01	04	04
Int.	113-118	094-099	080-088	053-055	078-083	053-055	020-025	080-085
Depth	192.63	193.94	200.30	201.53	204.78	208.03	212.20	212.80
Facies	6	4wh	2	3	4gr	2	3	1
SiO ₂	37.37	16.35	53.19	50.50	33.37	51.43	49.53	58.59
Al ₂ O ₃	11.72	4.73	18.92	16.94	12.75	17.97	16.12	13.96
TiO ₂	0.57	0.21	0.82	1.26	0.62	0.87	1.25	1.67
Fe ₂ O ₃	7.33	3.09	7.67	10.39	6.16	7.62	11.73	7.94
MgO	2.57	1.60	2.87	2.90	2.33	2.88	2.84	2.07
CaO	16.99	38.28	1.66	1.95	18.34	2.74	1.89	4.14
Na ₂ O	1.38	0.74	1.90	1.84	1.27	2.00	2.11	2.40
K ₂ O	1.70	0.27	3.61	2.50	1.13	3.28	2.40	2.33
MnO	0.43	0.51	0.13	0.11	0.28	0.20	0.11	0.08
P ₂ O ₅	0.12	0.29	0.11	0.12	0.19	0.13	0.13	0.12
LOI	19.73	33.85	9.19	11.68	23.82	10.83	11.96	6.87
Total	99.91	99.92	100.07	100.19	100.26	99.95	100.07	100.17
Core	027X	027X	027X	028X	029X	029X	029X	030X
Sect.	01	02	05	05	01	02	05	01
Int.	054-056	081-087	085-089	102-106	053-055	080-086	080-085	111-116
Depth	217.54	219.31	223.85	233.52	236.53	238.30	242.80	246.61
Facies	2	4gr	4gr	4gr	3	3	3	7dg
SiO ₂	52.46	35.75	25.98	13.98	50.68	50.75	50.10	45.55
Al ₂ O ₃	18.58	11.87	9.02	4.00	16.89	16.33	16.90	16.08
TiO ₂	0.83	0.59	0.46	0.19	1.32	1.69	1.36	1.37
Fe ₂ O ₃	7.50	5.96	5.67	2.72	9.44	11.01	9.53	16.40
MgO	2.94	2.21	2.04	1.38	2.50	2.66	2.82	2.46
CaO	2.07	17.84	24.23	39.88	2.86	1.97	2.60	0.74
Na ₂ O	1.89	1.63	1.13	0.51	1.99	2.34	2.17	2.02
K ₂ O	3.32	1.34	0.64	0.04	2.46	2.01	2.32	1.79
MnO	0.10	0.20	0.24	0.93	0.14	0.12	0.20	0.12
P ₂ O ₅	0.09	0.16	0.26	0.64	0.12	0.13	0.12	0.11
LOI	10.42	22.60	30.36	35.37	11.69	11.12	11.87	13.50
Total	100.20	100.15	100.03	99.64	100.09	100.13	99.99	100.14
Core	031X	031X	032X	032X	033X	033X	033X	033X
Sect.	01	02	01	02	05	02	05	05
Int.	055-057	104-109	064-069	138-143	068-073	080-086	080-085	120-122
Depth	255.55	257.54	265.14	267.38	271.18	276.30	280.80	281.20
Facies	4gr	3	71g	2	7dg	2	3	3
SiO ₂	20.24	48.34	56.53	54.94	47.91	55.23	48.65	51.01
Al ₂ O ₃	7.71	15.64	18.07	18.91	19.32	17.32	18.25	18.50
TiO ₂	0.38	1.44	0.82	0.82	1.46	0.93	1.25	1.33
Fe ₂ O ₃	5.65	9.87	6.94	7.24	10.87	7.74	10.06	9.71
MgO	1.94	2.16	3.23	2.87	2.48	2.59	2.64	2.62
CaO	29.59	5.25	1.18	0.82	1.10	1.88	2.37	1.86
Na ₂ O	1.05	2.09	1.92	1.82	1.90	1.65	1.96	1.98
K ₂ O	0.33	1.99	4.21	3.78	1.85	3.38	2.27	2.60
MnO	0.42	0.13	0.19	0.26	0.21	0.12	0.14	0.12
P ₂ O ₅	0.93	0.12	0.09	0.09	0.11	0.09	0.10	0.12
LOI	31.06	13.12	6.86	8.35	12.65	9.20	12.35	10.40
Total	99.30	100.15	100.04	99.90	99.86	100.13	100.04	100.25

Table 2 (continued).

Hole 717C								
Core	033X 05	033X 06						
Sect.	123-125	125-127	128-130	130-132	136-138	141-143	148-150	009-011
Int.	281.23	281.25	281.28	281.30	281.36	281.41	281.48	281.59
Depth								
Facies	3	7dg	3	71g	1	1	2	1
SiO ₂	53.32	53.14	53.15	55.01	62.52	59.04	55.45	60.88
Al ₂ O ₃	18.99	18.86	19.07	19.26	16.56	17.40	19.01	16.79
TiO ₂	1.02	1.05	1.05	0.83	0.78	0.80	0.85	0.80
Fe ₂ O ₃	9.78	10.15	9.57	8.23	5.59	6.55	7.89	6.17
MgO	3.01	3.00	2.90	3.12	2.48	2.59	3.34	2.96
CaO	0.57	0.56	0.60	0.62	1.01	1.04	0.75	1.16
Na ₂ O	1.91	1.94	1.96	1.92	2.13	1.93	1.84	1.97
K ₂ O	3.02	2.95	2.94	3.88	3.68	3.73	4.03	3.78
MnO	0.05	0.06	0.05	0.08	0.07	0.12	0.11	0.10
P ₂ O ₅	0.12	0.11	0.11	0.11	0.11	0.08	0.12	0.09
LOI	8.21	8.17	8.75	7.21	5.37	6.82	6.65	5.34
Total	100.00	99.99	100.15	100.27	100.30	100.10	100.04	100.04
Core	033X 06							
Sect.	017-019	023-025	027-029	029-031	031-033	033-035	040-042	046-048
Int.	281.67	281.73	281.77	281.79	281.81	281.83	281.90	281.96
Depth								
Facies	1	2	2	3	3	3	3	3
SiO ₂	60.21	54.64	53.86	52.56	52.47	52.03	50.12	51.36
Al ₂ O ₃	16.25	16.73	17.73	18.05	17.64	17.71	19.39	19.19
TiO ₂	0.74	0.80	0.91	1.22	1.26	1.22	1.45	1.22
Fe ₂ O ₃	6.03	7.81	8.09	11.33	12.27	11.85	10.32	10.03
MgO	2.62	2.95	2.96	2.92	2.79	2.70	2.43	2.81
CaO	1.92	2.73	2.26	0.66	0.47	0.61	0.48	0.64
Na ₂ O	2.07	1.90	1.96	2.11	2.12	2.05	1.96	1.99
K ₂ O	3.68	3.47	3.27	2.16	2.01	2.07	1.95	2.70
MnO	0.23	0.38	0.20	0.09	0.06	0.03	0.03	0.08
P ₂ O ₅	0.12	0.11	0.11	0.12	0.09	0.09	0.08	0.10
LOI	6.12	8.55	8.71	8.81	8.84	9.58	11.58	9.89
Total	99.99	100.07	100.06	100.03	100.02	99.94	99.79	100.01
Core	033X 06	033X 06	033X 06	034X 01	034X 02	034X 03	035X 01	035X 03
Sect.	053-055	064-066	074-076	053-055	080-086	069-074	053-055	046-051
Int.	282.03	282.14	282.24	284.03	285.80	287.19	293.53	296.46
Depth								
Facies	2	2	1	2	4gr	7dg	3	4gr
SiO ₂	53.92	56.15	59.71	53.77	30.77	50.03	50.92	33.85
Al ₂ O ₃	19.75	18.20	16.42	17.21	10.91	16.78	19.54	13.43
TiO ₂	0.88	0.84	0.75	0.84	0.53	1.16	1.06	0.68
Fe ₂ O ₃	8.34	7.46	6.44	7.59	6.01	10.36	9.59	10.36
MgO	3.41	3.41	3.18	3.28	2.00	2.31	2.82	2.80
CaO	0.69	1.29	1.70	2.85	21.68	2.64	0.81	13.33
Na ₂ O	1.71	1.67	1.77	1.93	1.26	1.82	1.88	1.25
K ₂ O	4.39	4.28	3.94	3.93	1.17	2.64	2.90	1.25
MnO	0.10	0.14	0.13	0.13	0.40	0.14	0.10	0.21
P ₂ O ₅	0.10	0.09	0.10	0.10	2.08	0.12	0.11	0.41
LOI	6.79	6.75	5.88	8.29	23.42	12.09	10.41	22.52
Total	100.08	100.28	100.02	99.92	100.23	100.09	100.14	100.09
Core	036X 05	037X 01	037X 02	037X 02	038X 04	039X 01	039X 01	040X 01
Sect.	080-085	082-084	071-076	083-089	080-085	082-087	090-095	053-055
Int.	309.30	312.82	314.21	314.33	326.80	331.82	332.90	341.53
Depth								
Facies	3	1	1	1	1	1	1	5g
SiO ₂	46.59	63.26	67.16	67.98	61.13	58.31	60.28	56.43
Al ₂ O ₃	20.28	13.36	12.19	11.87	14.74	14.33	13.14	18.90
TiO ₂	1.52	0.67	0.63	0.64	0.72	0.88	0.82	0.87
Fe ₂ O ₃	10.68	5.79	4.66	4.41	5.49	6.47	5.97	8.28
MgO	2.37	2.98	2.57	2.50	2.99	2.70	2.57	3.11
CaO	1.70	2.74	2.79	2.85	3.08	3.98	4.34	0.71
Na ₂ O	1.73	2.02	2.21	2.07	1.91	2.07	2.05	1.81
K ₂ O	1.98	3.28	2.91	2.95	3.54	3.13	3.07	3.98
MnO	0.13	0.07	0.05	0.06	0.09	0.09	0.10	0.07
P ₂ O ₅	0.12	0.12	0.11	0.14	0.10	0.12	0.13	0.09
LOI	12.89	5.73	5.08	4.56	6.23	7.99	7.38	5.91
Total	99.99	100.02	100.36	100.03	100.02	100.07	99.85	100.16

Table 2 (continued).

Hole 717C								
Core	040X	040X	041X	043X	044X	045X	045X	046X
Sect.	01	03	01	01	01	04	06	01
Int.	103-108	117-123	020-022	053-055	056-058	025-030	072-078	053-055
Depth	341.53	344.67	350.20	369.53	379.06	392.75	396.22	398.03
Facies	2	3	3	3	1	1	2	2
SiO ₂	56.07	43.33	51.14	50.89	65.40	63.78	54.38	57.03
Al ₂ O ₃	17.06	16.30	17.48	19.07	11.87	14.50	17.36	17.51
TiO ₂	0.79	1.00	1.27	1.42	0.59	0.72	1.00	0.79
Fe ₂ O ₃	8.23	9.27	12.42	10.19	4.65	5.34	7.46	7.38
MgO	2.94	2.25	2.65	2.45	2.41	2.52	2.48	2.88
CaO	1.59	8.23	0.61	0.68	4.24	2.50	2.56	1.51
Na ₂ O	1.90	1.76	2.33	1.90	1.82	1.91	1.69	1.97
K ₂ O	3.70	1.96	1.93	1.99	2.60	3.49	3.36	3.89
MnO	0.21	0.06	0.05	0.03	0.08	0.12	0.11	0.15
P ₂ O ₅	0.11	0.24	0.10	0.11	0.11	0.09	0.12	0.09
LOI	7.41	15.32	10.00	11.45	6.38	5.29	9.51	6.79
Total	100.01	99.72	99.98	100.18	100.15	100.26	100.03	99.99
Core	047X	047X	048X	050X	050X	051X	051X	053X
Sect.	03	CC	02	01	06	02	02	01
Int.	080-085	033-038	080-086	011-016	130-135	033-038	076-081	053-055
Depth	410.80	416.10	418.80	435.61	444.30	446.83	447.26	464.53
Facies	71g	7dg	3	2	3	1	1	1
SiO ₂	54.98	48.91	50.86	56.59	44.53	55.77	62.88	61.10
Al ₂ O ₃	17.68	18.91	17.75	16.22	19.03	14.00	10.78	12.57
TiO ₂	0.78	1.61	1.47	0.76	0.83	1.06	0.57	0.63
Fe ₂ O ₃	7.84	10.82	12.59	6.76	10.31	6.44	5.96	5.75
MgO	2.87	2.24	2.46	2.90	2.03	2.39	2.33	2.56
CaO	1.93	1.78	0.55	2.99	4.01	6.00	4.68	4.69
Na ₂ O	1.77	1.84	2.00	1.89	1.64	1.89	1.91	1.77
K ₂ O	3.79	1.81	1.93	3.97	1.69	2.83	2.40	3.00
MnO	0.13	0.09	0.05	0.15	0.14	0.13	0.17	0.13
P ₂ O ₅	0.11	0.10	0.11	0.11	0.09	0.12	0.14	0.12
LOI	8.15	11.90	10.40	7.63	15.79	9.58	8.08	7.68
Total	100.03	100.01	100.17	99.97	100.09	100.21	99.90	100.00
Core	053X	054X	054X	054X	055X	057X	057X	057X
Sect.	01	01	02	05	CC	02	03	04
Int.	104-108	050-052	080-086	126-131	023-028	080-086	075-080	085-090
Depth	465.04	474.00	475.80	480.76	482.83	504.30	505.75	507.85
Facies	1	3	2	3	4gr	71g	3	1
SiO ₂	70.06	47.80	53.43	49.12	44.19	55.56	50.72	63.96
Al ₂ O ₃	10.37	18.13	16.95	19.26	15.41	18.34	17.79	12.31
TiO ₂	0.54	1.64	0.73	1.50	0.84	0.80	1.16	0.78
Fe ₂ O ₃	4.04	11.66	8.68	11.3	9.41	7.39	9.47	4.81
MgO	1.97	2.26	3.15	2.44	2.57	2.97	2.52	2.21
CaO	3.56	2.29	2.67	0.74	9.46	1.19	2.24	4.20
Na ₂ O	1.82	1.96	1.59	1.97	1.62	1.84	1.72	1.92
K ₂ O	2.54	1.61	3.94	1.56	1.98	3.93	2.52	2.86
MnO	0.07	0.10	0.17	0.07	0.18	0.11	0.11	0.08
P ₂ O ₅	0.10	0.10	0.10	0.09	0.18	0.09	0.10	0.12
LOI	5.30	12.59	8.87	12.46	14.40	7.89	11.80	6.77
Total	100.37	100.14	100.28	100.24	100.24	100.11	100.15	100.02
Core	058X	059X	059X	059X	060X	060X	060X	060X
Sect.	01	01	01	03	01	01	03	CC
Int.	053-055	027-032	053-055	121-126	052-054	140-145	055-060	031-033
Depth	512.03	521.27	521.53	525.21	531.02	531.90	534.05	539.98
Facies	3	1	2	71g	7dg	2	1	1
SiO ₂	51.67	60.67	55.87	54.73	51.25	54.82	66.62	71.09
Al ₂ O ₃	17.96	15.88	18.17	16.95	15.93	18.02	13.28	9.64
TiO ₂	1.45	0.78	0.80	0.85	1.11	0.76	0.63	0.62
Fe ₂ O ₃	11.20	6.59	7.42	7.28	8.82	7.30	5.25	3.54
MgO	2.57	2.65	2.95	2.84	2.35	2.99	2.64	1.79
CaO	0.54	1.57	1.91	3.23	4.53	2.87	1.33	4.18
Na ₂ O	2.31	1.91	1.65	1.77	2.08	1.75	1.99	1.61
K ₂ O	1.55	3.54	4.00	3.53	2.26	3.65	3.57	2.56
MnO	0.09	0.13	0.18	0.20	0.07	0.14	0.05	0.08
P ₂ O ₅	0.07	0.12	0.09	0.11	0.11	0.12	0.08	0.11
LOI	10.65	6.06	7.11	8.39	11.36	7.74	4.24	5.34
Total	100.06	99.90	100.15	99.88	99.87	100.16	99.68	100.18

Table 2 (continued).

Hole 717C								
Core	061X	062X	062X	063X	063X	064X	064X	065X
Sect.	01	01	CC	01	02	01	02	02
Int.	053-055	053-055	011-015	053-055	042-047	053-055	080-085	060-066
Depth	540.53	550.03	559.46	559.53	560.92	569.03	570.80	580.10
Facies	1	1	1	1	2	7dg	7dg	3
SiO ₂	61.20	53.58	74.75	58.00	53.34	48.37	54.04	49.65
Al ₂ O ₃	13.05	15.71	8.99	15.03	18.54	15.81	18.07	18.31
TiO ₂	0.64	1.25	0.53	0.75	0.83	0.94	1.03	1.43
Fe ₂ O ₃	5.02	10.79	3.14	6.35	10.39	10.02	9.69	10.61
MgO	2.68	2.22	1.45	2.81	3.19	2.58	2.84	2.52
CaO	4.43	2.17	3.20	3.91	0.70	6.76	2.03	2.11
Na ₂ O	2.11	1.86	1.75	1.54	1.29	1.49	1.57	1.94
K ₂ O	2.99	2.16	2.10	3.59	4.53	2.56	2.87	2.08
MnO	0.06	0.16	0.06	0.09	0.10	0.09	0.05	0.11
P ₂ O ₅	0.10	0.12	0.10	0.12	0.10	0.11	0.11	0.09
LOI	7.88	9.94	4.10	7.65	6.72	11.36	7.84	11.20
Total	100.16	99.96	100.17	99.84	99.73	100.09	100.14	100.05
Core	065X	067X	067X	067X	068X	068X	068X	069X
Sect.	03	01	02	Cc	01	01	02	01
Int.	052-057	049-051	138-144	007-012	052-054	119-124	090-096	053-055
Depth	581.52	597.49	599.88	600.07	607.02	607.69	608.90	616.53
Facies	2	1	1	1	1	1	2	2
SiO ₂	55.30	67.55	65.30	63.60	66.66	60.93	50.98	53.07
Al ₂ O ₃	17.09	11.02	11.62	12.03	11.02	13.26	18.41	15.95
TiO ₂	0.79	0.54	0.60	0.62	0.61	0.63	0.84	0.70
Fe ₂ O ₃	7.71	3.81	4.59	4.55	4.18	5.28	8.01	7.06
MgO	2.71	1.97	2.35	2.28	2.02	2.53	3.12	2.98
CaO	2.88	4.52	4.56	4.95	4.55	4.71	3.54	5.44
Na ₂ O	1.76	1.90	1.80	1.81	1.70	1.74	1.47	1.44
K ₂ O	3.42	2.56	2.86	2.97	2.71	3.28	4.17	3.86
MnO	0.07	0.06	0.06	0.06	0.08	0.08	0.13	0.12
P ₂ O ₅	0.13	0.09	0.08	0.10	0.09	0.10	0.13	0.19
LOI	8.29	6.11	6.21	7.02	6.36	7.48	9.26	9.41
Total	100.15	100.13	100.03	99.99	99.98	100.02	100.06	100.22
Core	069X	070X	070X	070X	071X	071X	071X	072X
Sect.	03	05	05	06	02	04	05	02
Int.	114-119	063-069	095-100	013-019	094-099	108-113	080-085	076-081
Depth	619.14	632.13	632.45	633.13	637.44	640.58	641.80	646.76
Facies	1	4gr	3	71g	2	1	1	2
SiO ₂	57.87	41.95	46.73	56.68	52.95	65.37	60.95	53.33
Al ₂ O ₃	14.62	12.99	17.12	18.23	17.22	11.13	12.53	16.28
TiO ₂	0.63	0.93	1.57	0.81	0.75	0.57	0.64	0.75
Fe ₂ O ₃	5.42	8.82	13.84	7.75	6.79	4.14	4.98	6.91
MgO	2.58	2.35	2.28	3.10	3.25	2.31	2.65	3.09
CaO	5.44	13.73	2.69	1.20	4.55	5.10	5.66	4.87
Na ₂ O	1.71	1.46	1.87	1.69	1.48	1.78	1.69	1.65
K ₂ O	3.53	1.45	1.39	3.92	3.91	2.50	2.94	3.66
MnO	0.09	0.09	0.13	0.08	0.11	0.05	0.08	0.11
P ₂ O ₅	0.09	0.11	0.11	0.11	0.12	0.15		
LOI	8.12	16.32	12.49	6.40	8.91	6.75	7.82	9.26
Total	100.10	100.20	100.20	99.97	100.03	99.81	100.06	100.06
Core	073X	073X	074X	074X	074X	075X	075X	076X
Sect.	01	01	01	01	01	01	02	01
Int.	053-055	110-114	016-021	053-055	080-084	144-149	107-113	053-055
Depth	654.53	655.10	663.76	664.03	664.30	674.44	675.57	683.03
Facies	1	1	1	1	1	2	2	1
SiO ₂	57.52	59.78	54.97	63.76	69.17	58.83	55.83	64.12
Al ₂ O ₃	14.37	13.11	14.81	11.45	10.32	18.01	17.68	12.64
TiO ₂	0.67	0.64	0.73	0.60	0.56	0.81	0.79	0.65
Fe ₂ O ₃	5.52	5.39	6.50	4.53	3.80	8.19	9.99	5.41
MgO	2.86	2.73	2.99	2.49	1.98	2.82	3.00	2.33
CaO	5.41	5.26	5.36	4.88	4.38	0.64	0.94	3.68
Na ₂ O	1.78	1.98	1.80	2.21	1.92	1.61	1.37	1.83
K ₂ O	3.19	2.84	3.47	2.47	2.24	3.92	4.15	2.95
MnO	0.11	0.03	0.09	0.08	0.06	0.07	0.12	0.07
P ₂ O ₅	0.11	0.12	0.14	0.11	0.12	0.12	0.18	0.11
LOI	8.51	8.10	9.28	7.63	5.54	5.18	5.84	6.14
Total	100.05	99.98	100.14	100.21	100.09	100.20	100.17	99.93

Table 2 (continued).

Hole 717C								
Core	076X	076X	077X	077X	078X	079X	080X	081X
Sect.	02	CC	01	02	02	06	01	01
Int.	000-006	024-026	046-048	080-086	080-085	091-096	048-050	045-047
Depth	684.00	688.39	692.46	694.30	703.80	719.41	720.48	730.45
Facies	1	1	1	1	2	2	2	1
SiO ₂	63.43	67.01	61.33	63.33	54.23	54.90	56.40	63.30
Al ₂ O ₃	13.44	11.20	14.19	15.26	17.31	17.87	17.74	11.71
TiO ₂	0.63	0.58	0.67	0.76	0.82	0.79	0.77	0.59
Fe ₂ O ₃	5.23	4.79	5.54	6.47	7.05	7.12	7.29	4.70
MgO	2.44	2.18	2.70	2.77	3.20	3.12	3.45	2.39
CaO	3.81	3.70	3.52	1.23	3.56	2.57	1.76	4.96
Na ₂ O	1.83	1.97	1.82	1.93	1.71	1.73	1.63	2.11
K ₂ O	2.97	2.52	3.23	3.30	3.43	3.56	4.22	2.73
MnO	0.08	0.11	0.11	0.10	0.16	0.18	0.09	0.07
P ₂ O ₅	0.11	0.11	0.09	0.10	0.09	0.13	0.10	0.12
LOI	6.09	5.82	6.68	4.73	8.35	8.16	6.67	7.38
Total	100.06	99.99	99.88	99.98	99.91	100.13	100.12	100.06
Core	081X	082X	082X	083X	083X	083X	084X	084X
Sect.	CC	01	CC	01	01	01	01	03
Int.	018-023	048-050	008-010	022-028	053-055	080-086	053-055	078-083
Depth	731.03	739.98	740.53	749.22	749.53	749.80	759.03	762.28
Facies	1	2	1	1	1	2	2	1
SiO ₂	66.24	56.22	66.74	67.43	68.54	55.87	55.97	64.64
Al ₂ O ₃	11.42	16.14	11.77	11.59	11.11	16.38	16.59	12.26
TiO ₂	0.58	7.71	0.57	0.56	0.54	0.69	0.74	0.63
Fe ₂ O ₃	4.27	6.85	4.50	4.08	3.87	7.07	6.76	4.96
MgO	2.13	3.04	2.18	2.11	1.99	3.12	3.04	2.53
CaO	4.54	3.69	3.94	3.92	3.83	3.63	2.99	4.07
Na ₂ O	1.80	1.45	1.87	2.00	2.05	1.59	1.69	1.82
K ₂ O	2.66	3.70	2.79	2.61	2.63	3.73	3.61	2.79
MnO	0.07	0.11	0.08	0.05	0.07	0.12	0.14	0.09
P ₂ O ₅	0.12	0.11	0.11	0.11	0.10	0.11	0.10	0.10
LOI	6.20	7.85	5.66	5.73	5.47	7.75	8.12	6.45
Total	100.03	99.87	100.21	100.19	100.20	100.06	99.75	100.34
Core	085X	085X	085X	087X	087X	088X	089X	090X
Sect.	01	03	05	02	CC	01	01	01
Int.	055-057	100-105	097-101	122-128	032-036	053-055	022-024	053-055
Depth	768.55	772.00	774.97	789.72	796.46	797.03	806.22	809.73
Facies	2	2	1	7dg	1	1	1	2
SiO ₂	51.69	50.41	64.56	53.21	47.20	71.73	55.62	52.83
Al ₂ O ₃	17.57	17.21	10.75	16.22	5.71	8.84	14.57	17.84
TiO ₂	0.75	0.72	0.57	1.19	0.30	0.56	0.69	0.80
Fe ₂ O ₃	6.97	7.61	4.28	11.04	2.75	3.37	5.93	7.30
MgO	3.39	3.29	2.42	2.72	1.30	1.79	2.91	3.36
CaO	4.48	5.14	5.52	2.84	21.24	4.67	5.96	3.44
Na ₂ O	1.54	1.38	1.76	2.01	1.05	1.78	1.57	1.52
K ₂ O	4.16	4.22	2.41	2.24	1.39	1.83	3.29	4.03
MnO	0.13	0.13	0.08	0.16	0.51	0.06	0.13	0.22
P ₂ O ₅	0.11	0.09	0.11	1.59	0.10	0.12	0.12	0.10
LOI	9.27	9.80	7.56	6.85	18.54	5.43	9.26	8.73
Total	100.06	100.00	100.02	100.07	100.09	100.18	100.05	100.17
Core	091X	091X						
Sect.	01	02						
Int.	052-054	080-086						
Depth	819.22	821.00						
Facies	1	3						
SiO ₂	63.18	57.66						
Al ₂ O ₃	15.59	15.60						
TiO ₂	0.82	1.18						
Fe ₂ O ₃	6.44	11.12						
MgO	2.73	3.15						
CaO	1.00	0.77						
Na ₂ O	2.08	2.25						
K ₂ O	3.11	2.04						
MnO	0.09	0.09						
P ₂ O ₅	0.14	0.14						
LOI	4.98	6.06						
Total	100.16	100.06						

Table 2 (continued).

	Hole 718C		
Core	072X	079X	094X
Sect.	04	01	06
Int.	150-152	053-055	120-124
Depth	689.30	750.83	896.20
Facies	4wh	5r	4wh
SiO ₂	20.11	50.99	8.71
Al ₂ O ₃	6.35	22.44	2.40
TiO ₂	0.32	1.02	0.13
Fe ₂ O ₃	2.74	10.57	1.02
MgO	1.30	2.90	1.38
CaO	35.13	2.19	45.53
Na ₂ O	0.61	1.84	0.30
K ₂ O	0.43	2.50	0.13
MnO	0.56	0.11	0.67
P ₂ O ₅	0.15	0.12	0.12
LOI	31.88	11.68	38.64
Total	99.58	100.19	99.02

Key: gr- green, g- gray, dg- dark gray, lg- light gray, r- red, wh- white.

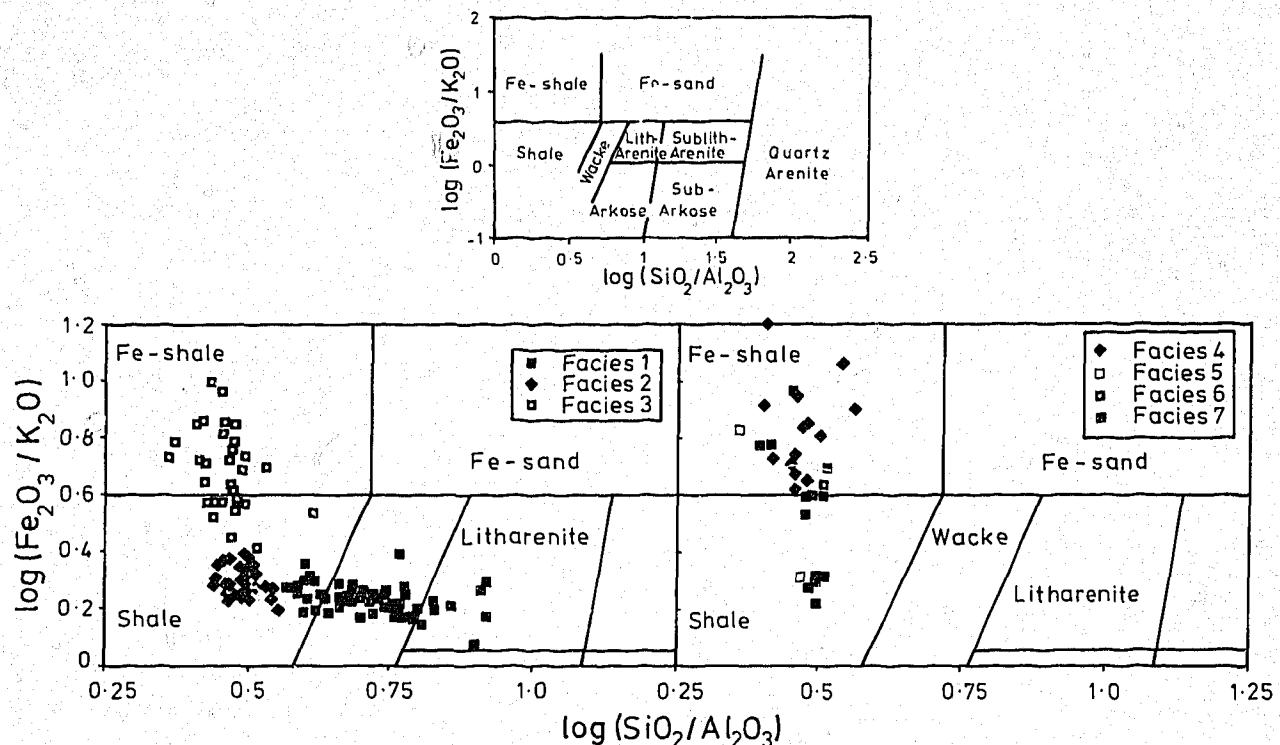


Figure 1. Lithological classification of distal Bengal Fan sediments (scheme of Herron, 1988).

(Herron, 1988). Full lithological terms for each facies are summarized in Table 1. Examination of available major-element data (Figs. 1, 2) show that differences in the geochemistry of depositional facies are controlled predominantly by variations in the concentration of SiO₂-Fe₂O₃-CaO-K₂O. Effective separation of the most common facies (F1, F2, F3, F4) is achieved by plotting the data on a triangular SiO₂-Fe₂O₃-CaO plot (Fig. 3) where the distribution of individual samples is dependent on variations in free-silica, abundance of detrital and diagenetic Fe-rich phases, and calcite content. Overlap between F2/F3 and F7 is attributed to the fact that F7

essentially represents the massive, structureless (and chemical) equivalent of F2 and F3.

The clay mineral data are given in Table 3A (Lille data, from Bouquillon et al., this volume) and Table 3B (Miami data, from Brass and Raman, this volume). Differences between these two data sets are due simply to differences in methodology and semiquantitative estimation.

The data are shown on triangular plots in Figure 4 to indicate the marked distinction between some facies and overlap between others. In general, these results are compatible with those derived from the major-element geochemistry.

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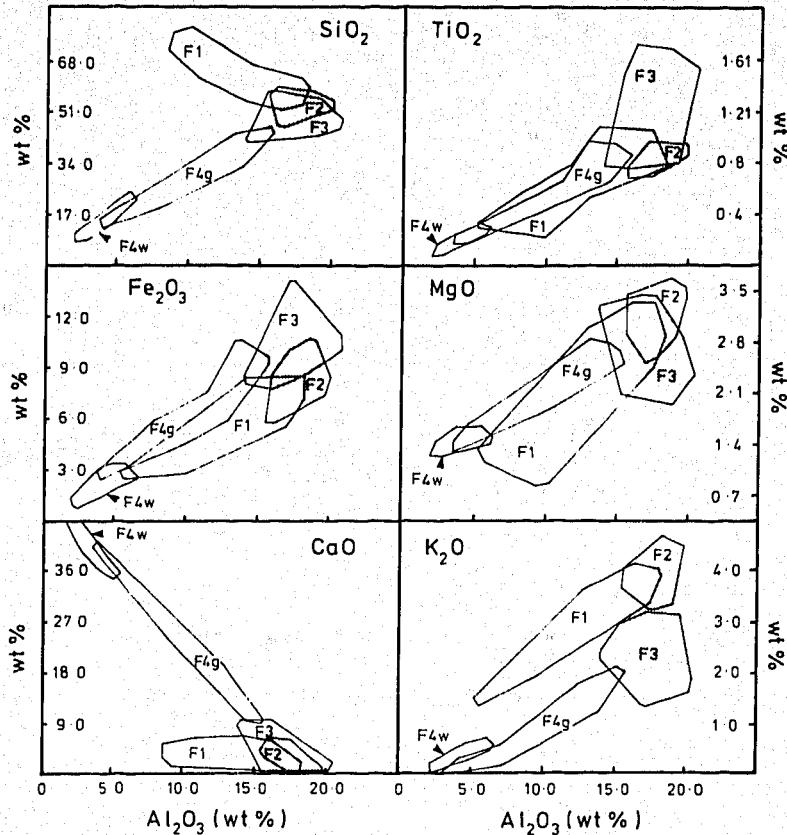


Figure 2. Covariant plots of major elements vs. Al_2O_3 for common distal fan facies (see Table 1 for shipboard facies classification). Shaded area shows the location of Facies 7 samples.

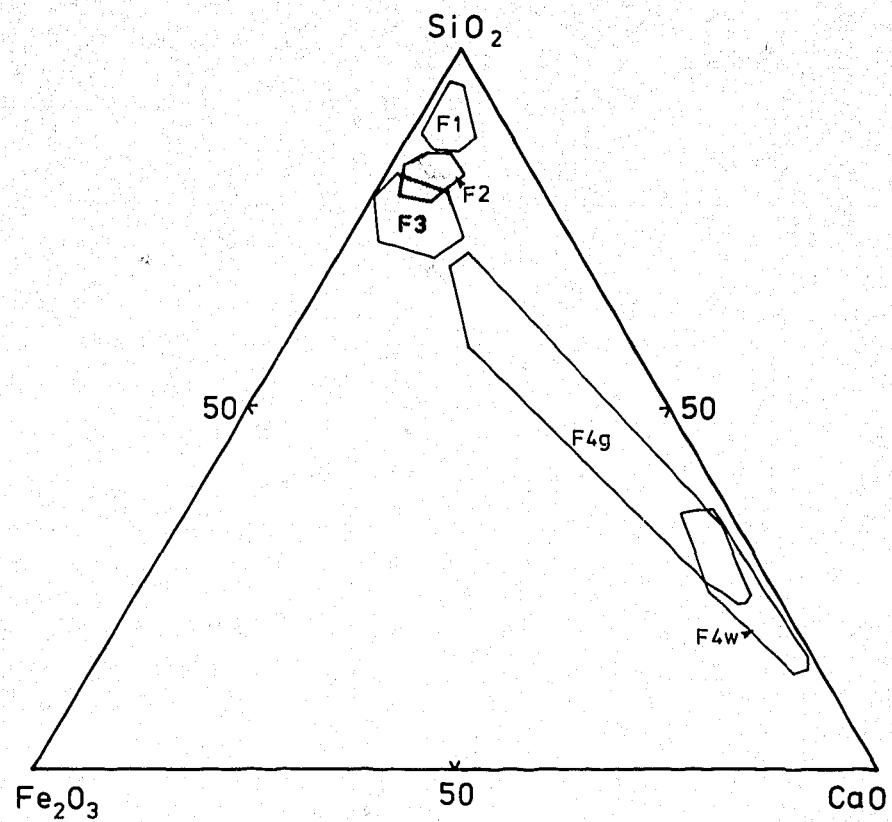


Figure 3. Discriminant triangular plot (SiO_2 - Fe_2O_3 - CaO) showing the distribution of common sedimentary facies, Leg 116. Shaded area shows the location of Facies 7 samples.

Table 3A. Clay mineral data, distal Bengal Fan, Hole 717C. Table 3A data are from Lille (Bouquillon et al., this volume).

Sample	Facies	Chlorite	Illite	Mixed-layers (10-14)	Mixed-layers (14-14)	Smectite	Kaolinite
4.1.21	2	20	45	5	10	15	5
7.1.85	1/2	15	40	5	5	25	10
7.cc.10	1	20	55	5	10	5	5
8.2.71	4	10	20	5	5	50	10
10.1.66	6	15	35	10	5	25	10
15.2.49	2	20	40	5	5	20	10
16.1.105	1	15+	45	5	10	15	5+
19.1.26	1	20-	40	5+	10	20-	10-
20.3.60	1	15	45	5	10	20	5
21.2.59	4	10	25	5	5	40	15
21.4.34	3	tr	15-	5	10-	60+	10
22.4.100	4	tr	10	5	10-	65-	15-
23.1.77	3	tr	10	5	5	65-	15
24.2.70	7	15-	45-	5+	5	25	10-
24.4.66	3	tr	5+	5	5	70	10
25.1.75	1	15	40	5	10	25	5
25.3.70	3	tr	10-	5+	10	60-	15
25.4.116	4	5	15	5	5	60	10
26.1.80	3	10	20	5	5	45	15
26.3.75	3/7	5	15	5	5	60	10
26.cc.20	4	tr	10	5	5	55+	20
28.5.130	4w	5	10	5	5	65	10
28.cc.8	3	tr	10	5	5	60+	15
29.1.75	3	5	10	5	5	60	15
30.1.116	3/7	tr	5	10	5+	60	15
30.3.20	3	5	10-	10	5	60+	15
30.5.95	2	15	30	5+	10	30	5+
31.1.10	4	tr	5	10-	10	60	15
33.4.80	1	10+	25	5	10	40	5+
34.2.76	3	tr	10	5	5+	55	20
35.6.28	3	tr	10	5	5	60	15+
36.3.136	3	tr	5	5	10	60	20-
37.2.119	1	25	40+	10+	5	10	5
37.cc.20	1	20	45	10	5	10	10
38.1.69	1	20	45	15+	5	5+	5
40.2.90	3	5	5	5	10	55	20
40.6.30	3	5	5	5	10	60	15
42.1.35	1/2	20	30	10	10	25	5
43.1.80	3	tr	5+	5	5	65	15
43.5.100	3	tr	5-	5	5	70	15
44.2.80	.4	54	10	5	5	55+	20
44.4.80	3	tr	5	5	10+	60	15
44.6.80	2	10	30	10	10	30	10
45.3.80	2/7	15-	30	5	10	35	10-
45.7.4	3	tr	10-	5	5	65	15
46.3.39	3	tr	5	5	10	65	15-
48.1.49	2	10+	30	5+	5	35	10
49.2.40	4	tr	5	10	10	60	15-
50.1.141	3	tr	10	5+	10	55	15
51.1.93	2	15	25	5	10	40-	10-
51.4.120	3	tr	10	5	5	55	20+
52.1.91	3	tr	10	5+	10	50	20
52.3.111	2	15	20	5	5	50	5
53.2.90	2	15	30	5	5	50	5
53.4.135	3	10-	15	5-	5	55	15
54.1.59	3	tr	5	5	10-	65	15
54.cc.25	3	tr	10-	5	5	65	15
55.cc.45	4	5-	10-	5	5	60	20
56.3.116	3	-	5	5	5	75	10
56.6.40	3	tr	10-	5	5	65	15
57.2.45	3	5	15	5	5	55	15
57.4.101	2	10	20	5	5	50	10
58.1.129	2	15	30-	5	5	40	10-
58.4.53	3	5	10	5	5	65-	15-
59.2.80	3	-	tr	5	10-	70	15
59.6.57	3	tr	5	5	5	75-	10
60.2.39	3	10	20	5	5	50	10
61.1.115	1	20+	50	15	5+	-	5
61.cc.10	1	25	50	5	5	10	5
62.cc.19	1	30	55-	10	5	-	tr
63.3.8	1	25	45	5	10-	15	5-
64.3.57	2	20+	40	10	5	15+	5
65.3.29	4	tr	5	5	5	70-	15
65.6.12	2	30	45	10+	5	5	tr
66.2.137	3	5	10	5	5	50	25
67.cc.18	2	20	55	10	5	5	5
68.4.53	1	20	45	10	5	15	5

Table 3A (continued).

Sample	Facies	Chlorite	Illite	Mixed-layers (10-14)	Mixed-layers (14-14)	Smectite	Kaolinite
69.1.71	1	20+	45	5	5	15	5+
69.cc.12	1	20	45	10	5	15	5
70.4.97	2	10+	30	5	5	30+	15
70.6.140	2	15	30	5	5	35	10
71.4.125	1	25	45	10	15	tr	tr
71.6.19	2	25	45+	5	5	10+	5
72.2.54	2	20+	45+	5	5	15	5
73.2.52	2	20	40	5+	5+	15+	5+
74.cc.28	1	20	45	10	5	35	5
75.2.90	2	15+	35	10+	5	25-	5+
76.2.145	2	15+	40	5+	5+	20	10
77.1.68	1	30	45-	10+	5-	10+	tr
77.5.132	3	tr	5	5	5	70+	10
78.3.92	2	15	35	5	5	35	5
78.6.30	1	20	40	5	5	25	5
79.4.41	2	20	40	10	5	20	5
80.1.56	2	15	35	5	5	35	5
81.cc.19	2	25	50	5	15	tr	tr
82.1.24	1	20	35	5	5+	25	5+
84.2.101	1	15+	30+	5+	5	35-	5
85.2.83	1	15+	30+	5+	5	35-	5
85.4.81	2	20	40	5	5	25	5
85.cc.26	2	25	45	5	5	15	5
87.2.72	2	30-	50	10-	5	5+	tr
88.1.44	1	30	45+	10	5	5	tr
90.2.8	2	15+	30	5	5	35	5+
91.4.110	1	25+	40	5	5	20	5+
91.cc.33	2	15	35	5	5+	35-	5

Table 3B. Clay mineral data, distal Bengal Fan, Hole 718C. Table 3B data are from Lille (Bouquillon et al., this volume).

Sample	Facies	Chlorite	Illite	Mixed Layers (10-14)	Mixed Layers (14-14)	Smectite	Kaolinite
42.1.34	2	10	25	5	5	50	5
44.1.65	2	20	35+	5	5	25	5+
47.2.7	2	20+	40	5-	5	25-	10-
49.1.66	1	20+	40	5+	5+	15+	5
50.1.53	2	20	35+	5	5+	20	10
52.2.72	1/5	30	40	5	5	15	5
55.2.81	2	20	45	5+	5+	15	5
56.4.60	1	25	40	5	5	20	5
57.4.76	1	20+	45	5	5	15+	5
59.3.58	2	15-	25+	5	5+	40	5+
61.2.52	1	20	45	5	10	15	5
62.cc.25	2	20	40+	5+	5	20-	5+
63.1.127	2	20	35+	5+	5+	20	5+
63.cc.19	2	20	40	5	5	20	10
64.5.11	2/5	15	30	5	5+	35	5+
65.2.43	2/5	15	30	5	5	40	5
66.2.52	1	20+	45+	5	5	10	10
68.2.62	1	25	50	5+	5+	5	5
70.cc.22	1	20	50	5	5	10+	5+
71.5.20	2	20	45	10	5	10	10
72.3.17	1	25	45	5	5	10	10
72.6.93	3	tr	10-	5	5	55	25
74.1.91	1	20	40+	5+	5+	15	10-
78.4.14	5(red)	5	10	5	5	45	30
79.cc.27	1/2	20	55	5	5	10	5
81.1.64	2	20-	45	5+	5	15+	5+
82.cc.10	1	20	50	5+	5+	10-	5
84.cc.29	2	25+	45	10	5	5+	5
86.2.102	1	15	40	5	10	20	10
88.1.87	1	15+	45	5+	5	15	10
89.1.40	1	10	40	5	5	30	10
91.1.60	2	20+	50	5	5	10	5+
94.4.112	2	20	45	5	5	20	5
96.1.31	1	20+	50	5	5	10	5+
98.cc.29	2	20+	45+	5+	5	10	5+

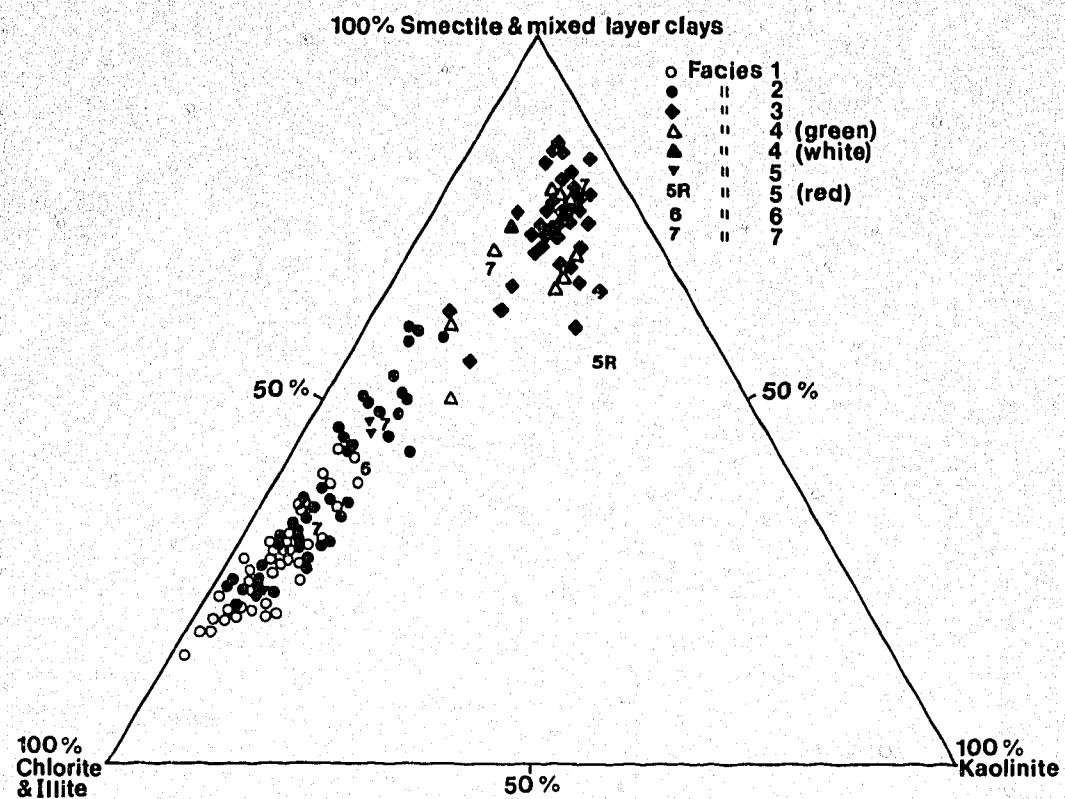


Figure 4. Triangular plot (Smectite + Mixed Layers – Chlorite + Illite – Kaolinite) of clay mineral data from Bouquillon et al. (this volume), showing distinction between the different facies.