35. *DATA REPORT:* INORGANIC MAJOR, TRACE, AND RARE EARTH ELEMENT ANALYSES OF THE MUDS AND MUDSTONES FROM SITE 808[1]

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OBJECTIVES

The principal aims of undertaking a shore-based bulk inorganic geochemical analysis of muds and mudstones from Site 808 were as follows:

1. Characterize the geochemical signature of the muds and mudstones at regular intervals downhole to sample and identify any changes in sediment type and provenance.
2. Integrate the inorganic geochemistry with the shipboard and more detailed land-based laboratory studies of the clay minerals.
3. Investigate any possible inorganic geochemical anomalies associated with the décollement.

ANALYTICAL TECHNIQUES

Major- and trace-element analysis of the samples was carried out at the University of Leicester Department of Geology by X-ray fluorescence (XRF) spectrometry using an ARL8420+ XRF spectrometer and a Philips PW1400 XRF spectrometer. Inductively coupled plasma/optical emission (ICP/OE) spectrometry was used to determine a more complete range of rare earth elements (REE). These analyses were carried out on the University of Leicester Department of Geology Philips PV8060 simultaneous ICP/OE spectrometer. Due to the small amounts of material available for many of the samples, the techniques developed and routinely used at Leicester for geochemical analysis of igneous samples from DSDP and ODP Legs had to be modified (see, for example, Marsh et al., 1980, Marsh et al., 1983, Saunders et al., 1991, Tarney and Marsh, 1991). Hence, a more detailed description of the methodology is presented.

SAMPLE PREPARATION

All samples were checked against the original sample lists and then given an abbreviated laboratory number that also introduced a degree of randomization to the sample processing order. All samples were then dried overnight at 105°C after removal from their plastic sampling tubes where necessary. The samples were then crushed to an average particle size of between 1 and 2 mm by crushing between the hardened steel faces of a "fly-press." Previous work with igneous and metamorphic rocks has shown contamination to be minimal by this technique. Due to the small amounts of material available, the routine crushing technique of using an agate swing mill was not viable. Hence the "fly-pressed" samples were crushed for 35–40 min in a Fritsch Pulverisette agate vibratory ball pestle and mortar to reduce the samples to fine powders (average grain size <200 µm mesh). The resultant fine powders were then dried again overnight at 105°C. Prior to use for XRF sample preparation or ICP/OES REE analysis sample digestion, the samples were ignited in platinum crucibles in a vented muffle furnace at 950°C for 90 min. Losses on ignition were determined and are included in the data tables. The data for other elements have been recalculated to include the loss on ignition values.

XRF ANALYSIS

Major elements were determined on fusion disks prepared as follows. 1 g of ignited (volatile-free, fully oxidized) sample was fused with 5 g of Englehard Standard XRF grade Flux, an 80:20 mix of lithium metaborate and lithium tetraborate (equivalent to Johnson Matthey Spectroflux JM100B) for 20 min at 1100°C with intermittent swirling to ensure thorough mixing. The resultant melt was cast and pressed between the polished aluminum faces of a press, similar to the technique described by Harvey et al. (1973). The resultant fusion disks were then annealed at 250°C for a minimum of 3 hr. Analysis was performed on the University of Leicester Department of Geology ARL8420+ XRF spectrometer running a 3-kW rhodium anode X-ray tube at 50 kV 50 mA. Full analytical details are given in Table 1. Note that with the improved resolution of this spectrometer's design, it is possible to analyze for P using the P Kα peak and pentaerythritol 002 (PET) as the analyzing crystal with no detectable overlap from the second order Ca Kβ peak or its escape peak without having to resort to using Ge_{111}.

The count data were collected on a dedicated IBM Series 2/70 computer and processed using ARL386 Phase 1 software. Calibrations have previously been produced from data collected on some 65 international reference materials and computing Traille-Lachance-based correction coefficients using the ARL386 software regression package. Values for the concentrations of the reference materials were taken from Govindaraju (1989).

Table 2 lists results for selected reference materials run at the same time as the samples to allow the estimation of precision and accuracy of the results. Our laboratory generally applies a quality control filter on major element analyses, only taking analyses with totals between 99.00% and 100.50% as acceptable. If analyses fall outside this range repeat fusion disks are prepared and analyzed. If the repeat analyses are within the acceptance range they are then used, or if triplicate beads reproduce analysis results within the expected precision range for each component, then the mean analysis for the triplicates is accepted in the event of totals falling below the acceptable range. Unfortunately the lack of sample in most cases precluded our usual quality checking, and in virtually all cases, the first-attempt analysis has had to stand. Certain samples did not have sufficient material to provide 1 g of ignited material for the fusion disk preparation described above. In these cases 0.5 g of ignited powder and 0.5 g of Koch Chemicals 99.999% SiO_2 were used to make fusion disks. The resulting analysis then had the error of the total from 100% split 50:50 between 50.00% of the SiO_2 content and the remainder of the component concentrations. The error-corrected 50% SiO_2 was then subtracted from the total SiO_2 content and the remaining SiO_2 content and other component concentrations were then doubled to generate the "sample" analysis. Blanks with just the Koch Chemicals 99.999% SiO_2 were also made to ensure that no detectable contamination from other elements was being introduced.

[1] Hill, I.A., Taira, A., Firth, J.V., et al., 1993. *Proc. ODP, Sci. Results,* 131: College Station, TX (Ocean Drilling Program).
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Table 1. Analytical conditions for major-element analysis of fusion disks on the University of Leicester Department of Geology ARL8420+ XRF spectrometer.

Element	Line	Crystal	Peak angle	Count time (s)	Background 1 angle	Count time (s)	Background 2 angle	Count time (s)	Collimator	Detector
Goniometer 1										
P	Kal,2	PET	89.54	50	91.97	25	86.7	25	Fine	FPC
Si	Kal,2	PET	109.21	20	112.44	5	105.57	5	Std. Coarse	FPC
Al	Kal,2	PET	145.12	30	148.85	15	140.44	15	Std. Coarse	FPC
Mg	Kal,2	AX06	20.2	50	22.25	20	18.98	20	Std. Coarse	FPC
Na	Kal,2	AX06	24.37	50	26.99	20	22.25	20	Std. Coarse	FPC
Goniometer 2										
Fe	Kal,2	LiF200	57.52	25	60.42	10	55.25	10	Fine	FPC
Ti	Kal,2	LiF200	86.14	40	88.8	20	84.25	20	Fine	FPC
Ca	Kal,2	LiF200	113.09	25	115.1	10	110.1	10	Fine	FPC
K	Kal,2	LiF200	136.69	50	139.36	20	131.67	20	Fine	FPC
Mn	Kal,2	LiF220	95.2	50	98	25	92.85	25	Fine	FPC

Trace elements are routinely determined on pressed powder briquettes in our laboratory. Yet again the small amounts of material available precluded this approach. As a result, trace-element determinations were made on the fusion disks. Nb, Zr, Y, Sr, Rb, Ga, Zn, Ni, and Th were analyzed on the Philips PW1400 using a 3-kW Cr anode X-ray tube operated at 80 kV 30 mA. Sc, V, Cr, Co, Cu, Ba, La, Ce, and Nd were analyzed on the ARL8420+ using a 3 kW Rh anode X-ray tube operated at 60 kV 45 mA. The following overlaps were corrected for Sr Kβ on Zr Kα, Rb Kβ on Y Kα, Ti Kβ on V Kα, followed by corrected V Kβ on Cr Kα, Fe Kβ on Co Kα, and the mutual overlap of Ce Lb_1 and Nd La_1 on each other. Although Ba is determined on the La_1 line, use of LiF_{220} on the ARL8420+ gives a line free from interference from both Ti Kα and Sc Kβ at the concentration levels found in most geological samples. Similarly, the Sc Kα peak is free from overlap of Ca Kβ at the concentrations of Ca found in most geological materials except limestones, some high Ca dolostones, and high Ca marbles.

Details of analytical conditions for each element are given in Table 3. Mass absorption correction was performed using mass attenuation coefficients calculated at each analyte wavelength from the major-element analyses and the values tabulated by Thinh and Leroux (1979). Calibrations were prepared from the fully corrected count data collected on 51 International Reference materials using the values given by Govindaraju (1989) except that for values of Zr and Nb the values given by Jochum et al. (1990) were used in preference. Table 4 gives details of precision and allows a comparison of accuracy for trace element determinations performed on a selection of reference materials analyzed with the samples. Table 5 gives the XRF analyses for the Site 808 samples.

While most of the samples analyzed fell well within the range of materials and concentration ranges covered by our selection of International Reference materials, this is not the case for Samples 131-808C-83R-2, 57–58 cm, 131-808C-85R-1, 59–61 cm, and 131-808C-86R-2, 110–112 cm. Accordingly, the results quoted for these samples should be treated with a greater degree of caution.

ICP ANALYSIS

Simultaneous analysis of the REE was carried out using the University of Leicester Department of Geology Philips PV8060 ICP optical emission spectrometer. The technique is essentially the same as that described by Walsh et al. (1981); 0.5 g of ignited powder for each of the selected samples was digested in open PTFE beakers by 15 mL HF plus 4 mL $HClO_4$, followed by an additional 4 mL aliquot of $HClO_4$ on reaching incipient dryness, to ensure complete removal of excess HF and Si complexes. On drying to incipient dryness again, the samples are taken up in 20 mL of 25% HCl and then diluted to 50 mL with reverse osmosis/deionized H_2O prior to the REE's being separated by ion exchange chromatography in batches of 10, each batch accompanied by two out of three reference materials (JB-1a, SO-1, and SO-2) and a reagent blank. The columns used for the reference sample and reagent blank were selected at random for each batch. All the samples from each batch including the reagent blanks and the reference materials were analyzed in one group on the ICP spectrometer. The reagent blanks in each case showed no detectable contamination for REE's in all cases. Results for the reference materials are listed in Table 6, and the analyses are given in Table 7.

RESULTS AND CONCLUSIONS

Figure 1 presents the major and trace elements as abundance normalized to Al_2O_3 vs. depth, because all the analyzed samples were muds or mudrocks. The late stage at which the analyses presented in this report became available for integration into the other Leg 131 geochemical and mineralogical data sets, both from the aqueous phase geochemistry and clay mineralogical studies, preclude a rigorous interpretation of the significance of the data. Some preliminary interpretations are made elsewhere in this volume (Underwood et al., a,b, this volume).

In summary, the initial principal conclusions are as follows:

1. Throughout Site 808, from the deepest Shikoku Basin hemipelagites to the youngest trench and slope muds, the bulk geochemical signature remains essentially uniform, apart from the interval at about 1060–1110 m below seafloor (mbsf) (Fig. 2). The inference from this is that the main sediment source for the muds remained constant over the past 14 m.y., i.e., from the Izu Collision Zone and the mainland Japan or Honshu arc.
2. The décollement is not marked by a significant change in the major- or trace-element inorganic geochemistry of the muds.
3. The décollement is associated with an anomaly in the heavy REE relative to the lighter REE (the subject of further current research). The enhanced heavy REE are associated with otherwise typical muds. A potential candidate for supplying the enriched REE abundances associated with the décollement could be the umber-like metalliferous sediments between about 1060 and 1110 mbsf (see below), i.e., their subcreted equivalents. Subcretion of this material, associated with the complete smectite-illite transformation to release low-chloride fluids and the changing Eh-pH/P-T conditions, may have combined to mobilize the rare earth elements from the umbers. As these postulated fluids moved along the overpressured, dynamically sealed, décollement toward the toe of the accretionary prism, the changing physicochemical conditions may well have induced substantially decreased solubilities for the heavy REE in particular, and therefore led to their preferential adsorption within the hemipelagic muds in the décollement.
4. At about 1060–1110 mbsf, there is an interval of brown muds enriched in Ca, Fe, Mg, Mn, and P oxides, plus several trace elements, particularly Y, Sr, Th, Sc, Cu, Ba, and the REE (Figs. 1–3). We interpret

this interval as an umber, probably created by hydrothermal circulation above the Shikoku Basin spreading center at about 12–10 Ma during the last phase of north-south extension in the Shikoku Basin (Chamot-Rooke et al., 1987). These sediments appear similar to ophiolitic umbers (cf. Robertson and Hudson, 1974) with concentrations of carbonate minerals. At ocean ridge spreading centers, ferromanganoan oxyhydroxides, occurring as deep-sea nodules or crusts, readily accommodate the REE (Fleet, 1984).

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* Abbreviations for names of organizations and publication titles in ODP reference lists follow the style given in *Chemical Abstracts Service Source Index* (published by American Chemical Society).

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Table 2. Mean values and 1-sigma standard deviations for the major elements determined on the ARL8420+ from a selection of reference materials analyzed with the Site 808 samples.

	Sample				BOB-1				NIM-G			
Reference	Mean	Std. dev.	%Std. dev.	Number of runs	Mean	Std. dev.	%Std. dev.	Number of runs	Mean	Std. dev.	%Std. dev.	Number of runs
SiO_2	50.59	0.1	0.2	10	77.75	0.49	0.63	5	66.06	0.27	0.41	5
TiO_2	1.29	0.05	0.35	10	0.1	0	0.2	5	0.88	0	0.57	5
Al_2O_3	16.4	0.04	0.24	10	11.52	0.07	0.63	5	14.35	0.05	0.32	5
Fe_2O_3	8.55	0.01	0.16	10	2.02	0.02	1.04	5	7.05	0.02	0.23	5
MnO	0.14	0	0.96	10	0.01	0	15.38	5	0.14	0	0.71	5
MgO	7.66	0.03	0.34	10	0.09	0.01	13.33	5	1.61	0.02	0.99	5
CaO	11.13	0.02	0.21	10	0.75	0	0.4	5	5.68	0.03	0.48	5
Na_2O	3.12	0.01	0.4	10	2.91	0.01	0.34	5	3.3	0.03	0.88	5
K_2O	0.37	0	0.32	10	4.94	0.01	0.24	5	0.75	0	0.4	5
P_2O_5	0.16	0	0.92	10	0.01	0	6	5	0.17	0	1.21	5
LOI 1	0.73			1	0.63			1	0.38			1
LOI 2					0.59			1	0.34			1

Note: Analyses for BOB-1 were repeated on the same fusion disks and therefore reflect instrumental precision. Analyses for NIM-G, JA-1, SO-1, and SO-2 were performed on three separate fusion disks and reflect the precision of the sample preparation procedures and the instrumental precision. The analyses are reported on a fully oxidized, volatile-free basis.

Table 3. Analytical conditions for trace-element determinations on the University of Leicester Department of Geology Philips PW1400 and ARL8420+.

Element	Line	Crystal	Peak angle (s)	Count time angle	Background 1 (s)	Count time angle	Background 2 (s)	Count time	Collimator	Detector
Nb	Ka1,2	LiF220	30.43	100	33.025	50	29.83	50	Fine Scint.	
Zr	Ka1,2	LiF220	32.115	80	33.025	50	29.83	50	Fine Scint.	
Y	Ka1,2	LiF220	33.925	80	33.025	50	29.83	50	Fine Scint.	
Sr	Ka1,2	LiF220	35.88	80	36.58	50	33.025	50	Fine Scint.	
Rb	Ka1,2	LiF220	38.045	80	38.7	50	36.58	50	Fine Scint.	
Th	La1	LiF220	39.3	100	41.015	50	38.7	50	Fine Scint.	
Ga	Ka1,2	LiF200	38.965	40	39.565	20	38.265	20	Fine	FPC + Scint.
Zn	Ka1,2	LiF200	41.805	40	42.605	20	39.565	20	Fine	FPC + Scint.
Ni	Ka1,2	LiF200	48.625	40	49.885	20	47.125	20	Fine	FPC + Scint.
Ce	Lb1	LiF220	111.64	160	114.07	160	110.14	160	Std. Coarse	FPC
Nd	La1	LiF220	112.67	160	114.07	160	110.14	160	Std. Coarse	FPC
La	La1	LiF220	138.78	160	141.78	80	136.78	80	Std. Coarse	FPC
Ba	La1	LiF220	154.17	100			153.17	100	Std. Coarse	FPC
Fe	Ka1,2	LiF200	57.52	25	60.42	10	55.25	10	Fine	FPC
Ti	Ka1,2	LiF200	86.14	40	88.8	15	84.25	15	Fine	FPC
Co	Ka1,2	LiF200	77.83	100	81.03	40	74.03	40	Fine	FPC
Cr	Ka1,2	LiF200	107.02	100	109.81	40	104.61	40	Fine	FPC
V	Ka1,2	LiF200	123.17	100	126.37	40	121.17	40	Fine	FPC
Sc	Ka1,2	LiF200	97.7	100			95.9	100	Fine	FPC
Ca	Ka1,2	LiF200	113.09	25	115.1	15	110.1	15	Fine	FPC
Cu	Ka1,2	LiF200	45.03	60	45.63	30	44.43	30	Fine	FPC

Table 2 (continued).

JA-1				SO-1SO-2			
Mean	Std. dev.	%Std. dev.	Number of runs	Mean	Std. dev.	%Std. dev.	Number of runs
59.09	0.53	0.9	5	61.47	0.39	0.64	5
0.91	0.01	0.66	5	1.61	0.01	0.37	5
18.13	0.1	0.56	5	16.15	0.1	0.62	5
9.04	0.01	0.14	5	8.96	0.03	0.37	5
0.12	0	1.67	5	0.01	0	10	5
4.1	0.03	0.76	5	1.05	0.02	1.81	5
2.62	0.01	0.57	5	3.01	0.01	0.02	5
2.34	0.02	0.9	5	2.36	0.02	0.97	5
3.28	0.02	0.64	5	3.23	0.01	0.28	5
0.16	0	1.25	5	0.79	0.01	0.76	5
3.9			1	11.07			1
4.02			1	11.42			1

Table 4. Mean values and I-sigma standard deviations for the trace elements determined on the PW1400 and the ARL8420+ from a selection of reference materials analyzed with the Site 808 Samples.

	Reference Sample				NIM-G				JA-1				SO-1 SO-2			
Element	Mean	Std. dev.	%Std. dev.	Number of runs	Mean	Std. dev.	%Std. Dev.	Number of runs	Mean	Std. dev.	%Std. dev.	Number of runs	Mean	Std. dev.	%Std. dev.	Number of runs
Nb	51.51	3.45	6.7	8	7.14	2.42	33.88	5	16.6	2.86	17.22	10	30.34	2.63	8.67	8
Zr	271.57	9.46	3.48	8	85.1	2.52	2.96	5	98.18	3.7	3.77	10	953.28	63.62	6.67	8
Y	152.4	5.56	3.65	8	32.2	2.82	8.8	5	26.55	3.86	14.54	10	54.09	4.75	8.79	8
Sr	11.32	1.27	11.25	8	249.68	1.92	0.77	5	330.92	9.85	2.98	10	356.99	19.35	5.42	8
Rb	324.69	8.6	2.65	8	6.3	1.25	19.9	5	142.97	7.12	4.98	10	78.59	8.49	10.81	8
Th	50.47	3.31	6.57	8	3.5	2.73	78.08	5	19.43	3.53	18.16	10	6.2	4.44	71.53	8
Ga	22.96	2.81	12.25	8	19.86	1.21	6.11	5	19.96	1.7	8.51	10	24.25	1.68	6.92	8
Zn	62.3	1.34	2.15	8	108.8	2.03	1.86	5	181.11	21.16	11.69	10	141.25	4.56	3.23	8
Ni	0.19	0.23	120.55	8	0.72	0.9	125.28	5	97.39	9.62	9.88	10	4.49	2.96	65.89	8
Sc	3.27	2.25	68.79	7	26.3	1.99	7.56	4	18.04	2.43	13.48	7	12.34	2.82	22.87	7
V	1.21	1.67	137.69	7	99.45	2.85	2.87	4	133.21	7.57	5.68	7	64.26	6.61	10.28	7
Cr	14.16	4.49	31.7	7	10.2	3.99	39.16	4	173.83	4.65	2.67	7	13.8	2.37	17.14	7
Co		not detectable		7	17.28	1.54	8.89	4	34.16	1.9	5.56	7	18	1.95	10.81	7
Cu	5.99	1.25	20.86	7	40.45	2.55	6.3	4	62.39	2.94	4.72	7	8.2	2.64	32.22	7
Ba	107.04	3.34	3.12	7	303.42	4.57	1.51	4	949.51	12.04	1.27	7	1153.07	30.47	2.64	7
La	104.84	1.34	1.28	7	4.17	2.29	54.84	4	53.53	2.11	3.94	7	44.71	2.72	6.09	7
Ce	192.79	7.25	3.76	7	11.93	7.24	60.7	4	100.13	5.5	5.5	7	114.71	7.04	6.14	7
Nd	68.91	3.35	4.86	7	9.53	1.64	17.24	4	42.61	4.16	9.77	7	55.37	3.99	7.21	7

Note: Analyses were repeated on the same fusion disks as the major-element determinations and therefore reflect sample preparation and instrumental precision. Note the relatively high standard deviation on the Zr determinations for SO-2. This may reflect a degree of sample inhomogeneity with respect to Zr distribution, perhaps a result of accessory phase control of the Zr content. This problem is not so apparent with the large samples analyzed by conventional powder pellet techniques. The analyses are reported on a fully oxidized, volatile-free basis.

Table 5. XRF analyses of samples from Site 808. Analyses recalculated to include loss on ignition (LOI).

Sample	Hole, core, section, interval (cm)	Depth (mbsf)	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	LOI	Total
19	808A-1H-3, 42–44	3.40	61.00	0.629	15.65	5.81	0.084	2.50	1.51	2.36	3.03	0.094	6.13	99.670
31	808A-1H-3-A, 65–67	3.65	60.50	0.592	14.60	5.22	0.074	2.35	3.09	1.58	2.84	0.111	7.52	100.190
43	808A-1H-3-B, 65–67	3.65	60.30	0.594	14.19	5.18	0.074	2.40	3.13	1.92	2.84	0.111	7.21	99.390
76	808A-2H-1, 24–26	6.57	60.71	0.654	15.59	5.56	0.075	2.41	2.02	2.42	2.89	0.112	6.56	99.760
145	808A-2H-1, 40–42	6.71	60.90	0.722	15.34	5.92	0.083	2.57	2.11	2.05	2.99	0.113	6.22	100.220
146	808A-2H-1, 49–51	6.80	66.64	0.634	13.76	4.82	0.067	2.11	2.24	2.11	2.59	0.104	3.87	100.110
166	808A-2H-1, 54–56	6.84	59.74	0.713	15.00	5.69	0.068	2.50	2.18	2.13	2.90	0.113	6.13	98.190
8	808A-2H-3, 55–57	9.85	58.34	0.647	15.21	5.47	0.083	2.59	2.95	2.34	2.82	0.129	7.51	98.990
214	808A-3H-1, 80–82	16.60	60.95	0.696	14.88	5.59	0.072	2.35	2.51	1.92	2.75	0.115	5.85	98.920
7	808A-3H-3, 79–81	19.49	60.40	0.683	15.58	5.49	0.075	2.41	2.37	2.51	2.85	0.112	6.40	100.070
6	808A-3H-3, 142–144	20.12	61.43	0.653	15.46	5.61	0.085	2.38	2.67	2.29	2.60	0.104	5.32	99.370
212	808A-4H-1, 38–40	25.68	56.57	0.658	14.68	5.82	0.070	2.43	4.88	1.87	2.47	0.7.15		98.220
118	808A-4H-3, 39–41	28.22	59.39	0.714	15.75	6.00	0.074	2.58	2.96	2.25	2.65	0.129	5.96	99.460
80	808A-5H-1, 45–47	35.25	60.32	0.659	16.01	6.20	0.074	2.61	2.00	2.54	2.94	0.121	7.28	101.480
38	808A-6H-1, 89–91	45.19	59.10	0.707	16.56	6.55	0.104	2.69	2.83	2.31	2.83	0.132	5.70	100.300
149	808A-7H-2, 20–22	55.50	59.66	0.716	16.02	6.49	0.088	2.66	2.99	2.15	2.79	0.135	5.80	100.480
144	808A-7H-4, 85–87	59.10	61.62	0.703	15.41	5.77	0.067	2.42	2.62	2.25	2.65	0.123	4.98	99.370
34	808A-8H-1-A, 90–92	64.20	65.29	0.615	14.84	5.80	0.098	2.69	3.88	2.08	1.98	0.117	2.35	100.610
41	808A-8H-1-B, 90–92	64.20	65.72	0.616	14.73	5.85	0.098	2.72	3.92	2.21	1.99	0.107	2.32	101.030
20	808A-8H-1-A, 117–119	64.48	62.83	0.721	15.67	5.45	0.104	2.34	1.68	2.02	2.94	0.114	5.18	99.810
37	808A-8H-1-B, 117–119	64.48	63.42	0.691	14.80	5.22	0.091	2.26	1.66	2.13	2.82	0.111	5.25	99.120
114	808A-9H-1, 33–35	68.65	59.40	0.671	15.59	6.43	0.095	2.63	2.49	2.18	2.81	0.137	5.99	99.200
147	808A-9H-4, 106–108	73.86	60.54	0.754	16.37	6.30	0.092	2.71	2.08	1.96	3.06	0.124	5.77	100.700
119	808A-10H-1, 1–3	77.81	60.61	0.748	16.11	6.10	0.061	2.67	1.68	2.21	2.96	0.145	5.22	99.260
74	808A-10H-1, 31–33	78.11	63.22	0.649	15.34	5.59	0.076	2.37	3.09	2.39	2.35	0.143	4.66	100.650
93	808B-2X-1, 62–64	121.22	62.74	0.685	15.19	5.21	0.068	2.18	1.56	2.42	2.88	0.108	4.77	98.680
35	808B-2X-1, 68–70	121.28	67.54	0.536	13.98	3.56	0.086	1.28	1.96	2.92	3.06	0.096	4.26	100.700
83	808B-4X-1, 50–52	140.40	66.81	0.612	13.58	4.92	0.057	2.31	2.68	2.51	2.12	0.102	4.33	100.730
171	808B-4X-1, 69–71	140.59	63.37	0.686	14.68	5.78	0.071	2.46	3.23	2.46	2.26	0.109	3.39	99.080
117	808B-5X-1, 46–48	149.96	61.23	0.712	15.53	6.44	0.064	2.52	1.50	2.24	2.74	0.160	5.00	99.000
21	808B-5X-2-A, 14–16	150.67	59.20	0.727	16.23	6.81	0.113	2.77	2.83	2.40	2.55	0.142	5.59	100.150
32	808B-5X-2-B, 14–16	150.67	59.10	0.705	16.01	6.64	0.113	2.73	2.84	2.52	2.52	0.150	6.04	99.990
86	808B-9X-1, 67–69	188.87	60.61	0.677	14.85	5.69	0.089	2.43	2.80	2.44	2.48	0.118	5.91	98.760
75	808B-10X-1, 74–76	198.14	64.76	0.606	14.33	5.15	0.075	1.85	1.89	2.40	2.81	0.112	6.90	101.580
170	808B-10X-3, 39–41	200.79	67.09	0.631	13.80	4.25	0.061	1.89	2.51	2.47	2.61	0.148	2.95	99.390
16	808B-11X-1-A, 91–93	207.71	62.61	0.661	15.34	5.32	0.094	2.29	2.46	1.93	2.88	0.113	5.58	100.360
36	808B-11X-1-B, 91–93	207.71	63.02	0.680	15.24	5.23	0.094	2.30	2.51	2.24	2.89	0.104	5.59	100.760
84	808B-11X-1, 112–114	207.93	62.58	0.633	13.87	5.08	0.079	2.10	3.06	1.97	2.67	0.110	5.53	98.690
148	808B-13X-1, 45–47	226.25	66.22	0.671	13.69	4.76	0.066	2.10	2.57	2.01	2.60	0.116	4.12	100.090
78	808B-13X-1, 80–82	226.60	62.77	0.689	15.53	5.37	0.093	2.30	2.12	2.24	2.89	0.084	6.95	101.490
85	808B-14X-1, 9–11	235.19	60.77	0.694	14.54	5.92	0.087	2.36	2.47	2.25	2.77	0.120	6.17	98.720
91	808B-15X-1, 1–3	244.51	60.00	0.657	14.67	6.06	0.073	2.48	2.42	3.05	2.75	0.132	6.00	98.360
22	808B-16X-1-A, 33–35	254.53	62.74	0.666	15.00	5.36	0.086	2.19	2.22	2.17	2.66	0.105	4.86	98.810
29	808B-16X-1-B, 33–35	254.53	63.87	0.675	15.22	5.50	0.086	2.20	2.21	2.16	2.78	0.105	4.99	100.570
108	808B-16X-1, 72–74	254.92	59.49	0.722	15.31	6.54	0.087	2.50	2.36	1.98	2.93	0.117	6.17	98.780
213	808B-17X-1, 134–136	264.74	60.04	0.695	15.00	6.49	0.165	2.64	3.74	2.41	1.97	0.122	4.73	98.740
112	808B-17X-2, 95–97	265.85	56.40	0.728	16.02	7.28	0.093	3.09	3.45	2.08	2.34	0.147	6.61	99.060
128	808B-19X-2, 144–146	285.46	61.47	0.667	15.19	6.59	0.107	2.53	2.02	1.88	2.93	0.5.72		99.970
143	808B-19X-3, 16–18	285.66	64.49	0.670	14.46	5.14	0.069	2.18	2.15	2.26	2.60	0.107	4.19	99.000
115	808B-20X-CC, 3–5	297.24	66.96	0.626	14.28	4.62	0.055	2.01	2.36	2.06	2.54	0.096	3.67	100.280
162	808B-20X-CC, 6–8	297.27	60.24	0.724	14.80	6.23	0.089	2.38	2.31	2.10	2.75	0.113	5.89	98.170
123	808C-1R-2, 0–2	300.01	60.38	0.712	14.74	5.87	0.100	2.39	2.81	2.03	2.68	0.126	6.25	98.790
172	808C-1R-2, 17–19	300.18	57.97	0.553	11.50	6.48	0.172	1.75	6.73	2.55	1.41	0.617	9.31	99.860
168	808C-1R-2, 47–50	300.48	59.64	0.680	15.74	7.13	0.192	2.40	1.67	1.42	3.29	0.066	5.38	98.030
184	808B-21X-CC, 37–39	307.06	61.08	0.772	15.61	6.41	0.097	2.55	1.75	1.93	2.96	0.107	5.80	99.610
13	808B-22X-1-A, 65–67	307.77	60.05	0.694	16.04	6.29	0.112	2.62	2.75	2.00	2.84	0.122	6.31	100.680
24	808B-22X-1-B, 65–67	307.77	60.33	0.680	15.53	6.20	0.106	2.59	2.77	2.03	2.79	0.121	6.67	100.630
165	808B-22X-2, 6–8	308.68	65.92	0.654	14.17	4.77	0.067	2.05	2.53	2.28	2.60	0.105	3.80	99.730
124	808B-23X-1, 43–45	317.24	63.12	0.743	16.50	5.75	0.064	2.35	1.51	2.06	3.09	0.125	4.80	100.790
132	808C-3R-1, 20–22	317.81	61.09	0.715	15.85	6.45	0.095	2.71	2.33	1.90	2.96	0.127	6.00	100.980
204	808C-3R-1, 40–42	318.01	61.13	0.703	15.08	5.84	0.080	2.44	2.59	2.41	2.54	0.118	4.98	98.420
101	808C-4R-1, 41–42	327.61	61.01	0.708	15.22	6.10	0.077	2.45	1.82	2.01	2.82	0.132	5.55	98.490
59	808C-4R-1, 99–102	328.20	61.69	0.708	16.62	6.27	0.075	2.60	1.45	1.97	3.09	0.245	5.70	100.990
120	808B-24X-2, 59–61	328.51	61.02	0.720	15.76	6.03	0.084	2.51	1.81	1.95	3.00	0.111	5.24	98.900
137	808B-24X-2, 70–85	328.63	61.93	0.708	15.06	6.47	0.082	2.46	2.32	2.26	2.84	0.126	5.65	100.610
99	808C-4R-2, 47–49	329.18	59.03	0.676	14.93	5.54	0.097	2.39	2.93	1.69	3.15	0.081	7.28	98.260
125	808B-24X-CC, 5–7	335.71	62.19	0.692	14.96	6.05	0.098	2.40	2.53	2.20	2.71	0.119	5.16	99.690
142	808B-25X-1, 99–100	336.99	60.46	0.707	15.53	6.36	0.089	2.70	1.91	1.92	2.98	0.134	5.61	99.000
113	808B-25X-2, 23–24	337.73	66.13	0.673	12.40	5.12	0.192	2.04	0.910	1.06	4.53	0.100	5.13	98.530
116	808B-25X-2, 59–60	338.09	60.74	0.714	15.09	6.13	0.090	2.55	2.33	2.10	2.84	0.119	5.99	99.140
18	808B-25X-2-A, 135–150	338.92	59.51	0.676	16.15	6.66	0.113	2.69	2.80	2.16	2.91	0.207	6.17	100.620
28	808B-25X-2-B, 135–150	338.92	59.66	0.683	16.03	6.61	0.112	2.72	2.81	2.13	2.90	0.206	6.50	100.950
90	808B-25X-3, 44–49	339.45	59.64	0.696	15.07	6.40	0.096	2.59	2.79	2.00	2.74	0.195	5.80	98.510
87	808B-25X-3, 80–81	339.81	60.34	0.701	15.24	6.35	0.089	2.59	2.78	2.16	2.66	0.169	5.23	98.760
17	808B-25X-4-A, 20–21	340.71	60.01	0.687	16.10	6.55	0.113	2.65	2.77	2.08	2.87	0.188	5.98	100.540
27	808B-25X-4-B, 20–21	340.71	60.17	0.685	16.11	6.59	0.113	2.65	2.74	1.98	2.88	0.178	6.25	100.920
26	808B-25X-4-B, 89–90	341.40	60.29	0.685	16.15	6.33	0.094	2.66	2.81	2.00	2.87	0.178	6.22	100.930
136	808B-25X-4-A, 89–90	341.40	60.83	0.674	15.13	6.20	0.087	2.62	2.78	1.90	2.81	0.179	5.81	99.800
121	808C-6R-2, 98–99	348.56	61.90	0.735	16.11	6.17	0.064	2.62	1.39	2.20	2.85	0.152	4.54	99.280
174	808C-6R-3, 54–55	350.14	62.85	0.726	15.91	6.26	0.080	2.47	1.82	2.15	2.74	0.166	4.56	100.520
14	808C-6R-3-A, 76–77	350.36	61.88	0.698	16.72	6.10	0.124	2.42	2.05	2.35	2.77	0.163	4.33	100.230
42	808C-6R-3-B, 76–77	350.36	62.11	0.707	16.40	6.15	0.124	2.47	2.06	2.51	2.78	0.162	4.48	100.450
152	808C-7R-1, 33–34	356.03	61.87	0.738	15.33	6.18	0.070	2.46	1.60	2.17	2.80	0.123	4.02	98.060
88	808C-8R-1, 51–53	366.42	60.77	0.689	15.23	5.94	0.086	2.41	2.38	2.11	2.78	0.196	5.59	98.730
159	808C-8R-1, 131–133	367.22	59.47	0.715	14.96	6.50	0.078	2.63	2.91	2.00	2.69	0.121	5.88	98.450
100	808C-10R-2, 105–106	387.75	59.83	0.705	15.08	6.37	0.082	2.67	2.42	1.88	2.84	0.5.86		98.490
134	808C-11R-1, 108–109	395.88	62.91	0.710	15.12	6.02	0.075	2.56	2.56	1.93	2.77	0.133	5.44	101.030
153	808C-12R-3, 24–26	407.85	60.87	0.770	15.39	6.14	0.107	2.57	2.41	1.86	3.04	0.099	6.07	99.960
179	808C-12R-3, 140–142	407.51	59.98	0.682	15.38	6.52	0.103	2.62	2.68	1.98	2.66	0.123	5.88	99.360

Table 5 (continued).

Sample	Hole, core, section, interval (cm)	Nb	Zr	Y	Sr	Rb	Ga	Zn	Ni	Th	Sc	V	Cr	Co	Cu	Ba	La	Ce	Nd
19	808A-1H-3, 42–44	9.5	142.0	27.9	136.0	107.0	18.2	66.4	34.8	12.9	12.1	99.1	70.3	17.1	43.4	584.4	21.5	61.7	20.7
31	808A-1H-3-A, 65–67	13.5	164.4	37.2	175.4	91.4	16.8	32.4	31.5	11.2	16.6	95.8	70.0	12.9	44.2	770.2	24.5	53.4	24.2
43	808A-1H-3-B, 65–67	4.9	170.7	31.9	190.1	100.8	17.3	40.3	29.5	11.0	16.9	99.4	75.7	13.4	34.6	777.8	28.5	61.6	32.7
76	808A-2H-1, 24–26	10.8	149.9	23.2	142.0	97.6	20.0	83.4	29.1	0.4	15.4	110.6	72.4	14.0	37.0	456.0	28.2	61.8	26.2
145	808A-2H-1, 40–42	17.4	187.8	36.8	165.5	139.4	22.5	61.0	40.1	15.2	16.9	116.3	79.4	16.1	44.2	492.2	22.8	59.4	23.2
146	808A-2H-1, 49–51	10.4	238.1	34.0	183.5	99.9	21.0	58.6	26.1	0.0	10.2	83.2	69.4	12.3	33.1	481.2	16.9	49.8	16.7
166	808A-2H-1, 54–56	17.3	186.4	44.7	169.5	131.3	20.2	61.7	44.1	2.4	10.7	116.0	73.9	16.0	42.2	476.8	21.4	51.1	17.9
8	808A-2H-3, 55–57	12.1	155.5	24.6	184.5	104.8	15.2	54.2	38.5	11.6	12.3	114.8	71.8	15.8	38.0	486.3	23.4	62.7	22.0
214	808A-3H-1, 80–82	11.0	189.9	33.8	165.0	105.8	25.0	63.5	33.6	8.9	13.3	108.7	76.3	15.1	42.9	448.2	21.0	57.1	19.1
7	808A-3H-3, 79–81	20.8	180.8	33.2	161.2	118.3	19.8	61.6	37.6	12.3	8.9	114.1	73.9	13.1	37.3	467.6	29.6	60.2	26.7
6	808A-3H-3, 142–144	9.2	173.1	25.3	177.6	98.4	18.3	71.8	31.1	11.5	11.0	119.3	59.2	13.3	45.1	469.7	32.7	44.3	19.5
212	808A-4H-1, 38–40	10.2	135.0	35.3	242.3	95.3	20.7	46.5	30.1	11.5	15.1	122.9	52.9	15.6	38.7	401.4	15.7	46.9	14.2
118	808A-4H-3, 39–41	10.9	145.5	32.5	191.9	94.6	16.5	53.6	27.2	7.5	14.7	127.9	63.5	17.0	59.7	431.4	18.6	48.7	15.6
80	808A-5H-1, 45–47	15.0	164.4	32.1	167.8	119.7	21.6	97.1	26.5	6.6	12.7	119.6	74.5	18.2	48.5	441.9	25.0	67.8	24.1
38	808A-6H-1, 89–91	6.6	150.0	30.8	184.7	111.0	16.9	65.7	33.6	11.1	27.4	136.2	67.0	18.8	58.4	453.9	42.1	52.6	25.7
149	808A-7H-2, 20–22	11.2	170.1	36.5	213.8	124.5	22.2	71.1	32.6	14.0	19.6	123.4	61.5	19.0	53.9	444.0	23.9	51.4	13.6
144	808A-7H-4, 85–87	14.7	159.4	22.3	181.1	110.7	16.9	66.9	32.3	16.0	17.4	115.0	63.3	16.7	44.5	447.8	22.4	52.4	14.2
34	808A-8H-1-A, 90–92	8.8	118.3	20.3	229.0	62.9	17.4	58.5	25.1	8.0	20.7	126.0	55.6	18.5	36.9	393.7	15.2	30.9	17.5
41	808A-8H-1-B, 90–92	4.6	110.1	16.8	225.3	60.6	14.7	57.9	175.5	6.3	18.1	133.5	61.1	17.2	34.2	391.7	18.3	33.8	14.7
20	808A-8H-1-A, 117–119	11.9	217.0	40.6	142.2	117.4	22.3	82.2	50.9	1.9	13.2	114.2	87.5	15.6	43.1	458.8	28.5	66.3	23.9
37	808A-8H-1-B, 117–119	8.3	195.8	32.9	131.4	106.4	15.7	69.1	43.2	11.6	16.8	104.8	88.3	14.8	37.5	453.1	24.3	75.4	20.9
114	808A-9H-1, 33–35	14.0	154.8	34.4	170.9	110.7	18.1	71.8	37.4	12.8	13.4	126.3	74.4	17.7	68.7	465.9	18.5	60.5	14.3
147	808A-9H-4, 106–108	7.7	166.6	32.6	167.7	137.9	23.9	73.5	53.3	5.3	14.7	128.2	90.6	20.1	50.7	494.1	24.0	65.6	19.6
119	808A-10H-1, 1–3	14.0	152.6	29.6	147.1	117.8	20.8	81.3	37.5	15.5	16.3	139.5	83.5	7.9	63.8	476.6	15.6	58.9	18.5
74	808A-10H-1, 31–33	6.3	159.2	22.8	210.8	84.7	19.5	79.6	35.2	7.9	14.1	107.3	65.1	15.2	36.7	429.5	23.2	51.4	23.7
93	808B-2X-1, 62–64	12.3	159.9	28.4	140.7	103.1	21.6	81.4	22.6	9.2	16.1	103.4	57.7	12.8	40.5	454.4	20.4	50.7	15.1
35	808B-2X-1, 68–70	8.7	186.7	40.1	131.3	91.1	16.4	50.2	15.2	13.0	16.8	59.1	26.8	4.1	26.2	426.2	25.9	56.7	27.3
83	808B-4X-1, 50–52	11.6	161.8	30.1	181.0	127.0	20.9	95.5	33.6	17.6	17.4	119.6	68.8	13.4	58.0	465.8	28.9	67.6	30.3
171	808B-4X-1, 69–71	6.0	151.2	26.2	194.8	80.9	13.7	70.9	26.3	12.8	15.7	124.7	60.3	14.9	42.8	402.7	11.2	37.7	8.0
117	808B-5X-1, 46–48	10.3	143.8	28.9	140.6	106.4	19.7	71.3	32.3	16.5	14.5	129.4	72.3	15.9	59.9	451.5	15.7	50.4	15.8
21	808B-5X-2-A, 14–16	10.2	125.9	27.0	173.4	85.5	20.1	80.7	27.6	4.3	16.0	143.9	59.7	18.0	71.9	429.4	20.4	52.0	19.5
32	808B-5X-2-B, 14–16	6.1	128.0	30.7	178.1	89.2	14.7	74.4	31.9	16.2	17.7	138.4	59.3	16.6	67.2	420.9	20.8	39.9	21.0
86	808B-9X-1, 67–69	7.1	120.5	28.1	165.5	81.0	19.2	88.8	22.7	4.3	15.5	112.4	59.5	18.2	52.8	447.0	19.3	53.2	14.9
75	808B-10X-1, 74–76	8.1	171.7	31.4	152.3	99.0	16.3	73.4	24.6	13.7	12.1	100.4	57.6	11.8	32.6	476.3	25.9	46.0	24.9
170	808B-10X-3, 39–41	11.7	226.1	30.8	199.1	80.5	16.5	58.1	61.0	0.0	16.7	80.6	55.0	9.5	20.8	486.9	16.2	48.8	16.9
16	808B-11X-1-A, 91–93	14.9	172.8	31.4	176.9	110.7	24.4	67.9	35.1	5.9	16.4	107.3	82.3	15.6	45.0	475.2	29.0	67.4	27.2
36	808B-11X-1-B, 91–93	11.9	164.4	29.8	173.8	122.9	17.0	60.9	35.0	14.6	15.5	112.0	79.5	12.7	46.4	481.4	29.5	58.5	27.6
84	808B-11X-1, 112–114	15.1	166.9	28.7	180.1	110.1	19.4	58.7	35.4	11.3	14.2	89.3	73.3	14.2	32.7	458.4	21.0	60.6	18.4
148	808B-13X-1, 45–47	14.9	218.2	31.8	203.4	106.4	20.6	56.0	36.8	10.9	12.9	79.5	82.7	12.1	32.4	466.4	40.3	58.9	18.3
78	808B-13X-1, 80–82	10.2	167.3	29.0	145.5	118.1	15.6	90.3	43.8	14.3	11.6	102.3	83.4	13.4	39.4	422.6	26.7	67.3	28.0
85	808B-14X-1, 9–11	13.6	169.0	29.9	166.7	118.0	18.7	91.0	39.4	10.5	13.7	100.2	79.6	16.8	36.6	600.1	20.5	55.7	17.1
91	808B-15X-1, 1–3	9.3	148.7	32.1	184.3	101.0	21.4	1040.3	31.7	3.1	11.0	111.7	70.8	17.0	43.6	1531.5	17.6	44.7	10.2
22	808B-16X-1-A, 33–35	15.1	204.0	26.2	165.4	108.3	21.7	85.7	33.8	21.5	10.1	105.4	82.2	13.1	43.9	464.9	24.7	61.6	24.6
29	808B-16X-1-B, 33–35	15.7	185.9	28.7	151.1	98.5	17.7	66.9	31.0	4.2	18.4	117.8	92.3	16.0	48.8	455.2	53.4	61.7	25.6
108	808B-16X-1, 72–74	11.5	150.0	26.5	155.4	120.9	19.2	85.7	40.2	18.8	13.2	105.7	82.0	19.4	40.9	489.0	15.7	67.5	15.0
213	808B-17X-1, 134–136	6.5	126.5	24.8	206.3	62.2	16.3	69.5	25.0	15.6	16.5	147.1	49.6	15.0	43.8	442.4	8.7	33.5	10.9
112	808B-17X-2, 95–97	6.2	125.6	29.6	202.9	91.4	21.7	76.9	30.3	7.4	14.8	153.4	56.4	23.3	68.2	473.1	12.6	38.5	12.6
128	808B-19X-2, 144–146	13.7	160.5	31.3	152.3	127.3	22.3	82.2	37.1	12.4	12.6	108.0	67.5	17.9	44.7	468.8	25.8	65.7	18.1
143	808B-19X-3, 16–18	12.1	164.6	26.7	160.4	89.0	16.1	70.5	26.8	7.2	11.9	110.3	67.8	10.7	35.3	464.1	14.7	52.2	14.7
115	808B-20X-CC, 3–5	5.5	180.8	23.6	195.8	100.9	23.9	73.5	16.7	0.0	9.8	96.7	61.3	11.8	28.3	488.2	15.7	45.3	8.7
162	808B-20X-CC, 6–8	10.8	167.0	32.7	152.8	108.1	15.4	74.4	30.3	9.6	16.7	111.8	77.4	12.7	43.7	449.8	21.4	59.6	19.5
123	808C-1R-2, 0–2	12.6	154.2	35.2	171.3	104.2	18.8	73.3	32.1	16.2	15.9	100.8	70.6	16.6	46.0	450.9	20.1	61.1	15.6
172	808C-1R-2, 17–19	7.0	115.5	45.2	279.8	38.8	15.9	65.3	13.0	0.3	22.9	58.7	23.0	13.3	30.4	295.8	6.7	26.5	6.4
168	808C-1R-2, 47–50	14.7	161.6	30.1	136.0	140.4	21.0	90.3	80.5	13.6	13.2	103.1	71.4	25.5	63.7	544.7	21.8	50.4	14.5
184	808B-21X-CC, 37–39	12.1	181.7	35.8	128.8	129.6	18.4	85.5	49.7	12.2	16.4	113.4	97.8	17.1	39.7	459.8	23.8	68.3	22.1
13	808B-22X-1-A, 65–67	16.0	154.9	32.4	156.9	103.2	20.1	66.8	36.9	8.8	12.6	100.9	75.6	18.9	45.6	438.4	26.1	55.0	31.2
24	808B-22X-1-B, 65–67	14.2	167.1	44.3	169.3	117.3	20.5	74.7	42.5	11.1	13.5	123.4	86.3	16.8	47.7	449.8	19.0	60.4	19.3
165	808B-22X-2, 6–8	13.0	177.8	30.7	193.9	99.9	16.8	65.8	33.1	10.0	11.7	90.9	65.1	11.8	34.0	496.2	20.4	52.3	11.6
124	808B-23X-1, 43–45	9.6	176.6	30.1	169.8	133.2	20.5	83.0	26.4	5.1	13.4	136.2	64.3	11.3	65.1	473.9	19.8	63.1	16.2
132	808C-3R-1, 20–22	15.5	168.3	32.7	177.9	135.3	23.7	84.7	33.2	0.3	15.0	132.5	78.1	14.9	49.9	478.7	25.1	65.8	16.6
204	808C-3R-1, 40–42	10.7	162.8	33.1	185.1	100.3	18.3	105.4	32.3	7.5	14.1	121.4	60.5	15.0	46.0	451.1	17.7	50.6	15.3
101	808C-4R-1, 41–42	8.2	159.5	31.8	140.6	112.6	18.0	78.8	39.4	15.8	16.7	117.3	69.5	18.9	45.3	462.9	21.9	59.5	18.1
59	808C-4R-1, 99–102	12.0	158.0	32.9	135.1	125.2	19.5	88.8	32.6	17.9	14.1	136.0	77.5	15.1	57.7	476.8	34.0	65.3	25.4
120	808B-24X-2, 59–61	9.2	153.4	33.2	143.2	115.0	22.8	89.2	33.2	3.5	12.4	127.5	69.1	15.2	51.2	482.5	24.1	61.6	21.2
137	808B-24X-2, 70–85	10.4	172.4	32.9	174.3	114.1	19.4	81.5	39.5	0.0	19.0	104.2	77.6	17.8	43.0	480.6	22.1	67.3	16.8
99	808C-4R-2, 47–49	11.2	136.7	22.5	153.9	116.7	22.8	104.4	38.5	0.0	12.4	124.6	81.6	15.9	56.9	449.6	25.8	64.6	18.4
125	808B-24X-CC, 5–7	18.4	186.3	35.3	168.4	108.0	15.6	79.1	33.0	23.0	10.8	120.8	76.0	15.9	42.9	463.9	19.2	65.4	19.8
142	808B-25X-1, 99–100	10.1	160.9	32.2	148.7	128.7	21.6	91.3	31.5	8.5	10.8	128.8	76.3	17.9	62.5	469.1	23.8	59.5	19.2
113	808B-25X-2, 23–24	12.3	152.7	27.5	163.8	106.8	15.3	79.8	32.1	9.3	13.8	115.6	76.5	21.2	47.4	460.5	17.6	58.6	17.1
116	808B-25X-2, 59–60	12.9	152.7	29.3	154.7	109.9	15.6	87.4	31.8	10.6	18.5	120.4	71.8	18.7	55.2	464.6	23.9	62.4	18.7
18	808B-25X-2-A, 135–150	11.5	140.0	29.5	164.9	112.9	18.3	85.8	31.9	22.3	15.1	109.0	62.5	14.4	60.7	446.3	46.5	59.0	22.6
28	808B-25X-2-B, 135–150	11.3	158.2	29.4	176.9	124.2	20.4	93.4	32.8	17.2	17.0	117.0	67.3	13.1	56.7	455.4	28.3	66.1	29.7
90	808B-25X-3, 44–49	15.0	148.9	26.5	170.0	108.6	20.3	101.3	30.1	8.3	15.3	121.7	65.0	18.3	68.7	440.7	15.3	59.8	18.0
87	808B-25X-3, 80–81	8.6	129.1	26.8	168.5	97.4	18.4	105.5	36.7	6.6	21.3	127.6	64.9	13.7	70.6	447.1	13.5	48.8	16.5
17	808B-25X-4-A, 20–21	13.1	164.0	42.0	183.5	119.5	20.3	95.8	37.2	14.4	9.2	122.1	65.5	19.9	63.1	466.6	27.7	52.2	27.7
27	808B-25X-4-B, 20–21	9.8	147.4	35.3	173.1	111.5	23.2	102.2	35.2	21.1	13.0	119.7	69.9	16.9	62.8	446.6	27.3	57.6	26.1
26	808B-25X-4-B, 89–90	12.3	141.2	33.8	171.3	104.5	21.5	87.6	34.9	7.4	17.3	126.6	68.1	19.7	55.6	454.6	25.2	61.2	24.7
136	808B-25X-4-A, 89–90	14.7	144.3	30.7	167.4	104.2	21.8	77.3	28.0	19.5	11.2	118.1	67.2	15.1	49.4	460.7	19.0	56.5	19.5
121	808C-6R-2, 98–99	14.4	153.4	24.6	145.2	126.1	19.3	98.7	31.6	21.9	13.7	123.3	61.9	19.0	69.7	517.0	18.1	55.0	15.6
174	808C-6R-3, 54–55	9.1	166.8	34.3	169.7	104.8	23.8	90.3	27.0	1.7	12.5	124.2	61.8	15.2	61.7	474.4	23.1	51.9	14.6
14	808C-6R-3-A, 76–77	14.0	157.8	28.9	180.7	106.1	19.7	95.6	29.3	3.7	14.7	124.2	49.4	19.4	72.2	480.6	21.7	47.6	23.3
42	808C-6R-3-B, 76–77	8.8	151.2	24.4	183.7	107.8	14.9	92.9	32.9	13.4	18.2	124.8	61.5	19.7	67.0	493.2	24.6	64.5	23.5
152	808C-7R-1, 33–34	10.0	156.3	30.1	148.5	107.4	20.5	85.4	31.0	12.5	14.9	119.8	69.4	17.5	47.3	495.2	21.7	67.3	19.4
88	808C-8R-1, 51–53	12.5	140.0	32.5	165.3	96.8	18.9	91.3	30.7	0.0	15.8	117.9	64.3	15.5	58.8	459.2	22.1	58.4	19.8
159	808C-8R-1, 131–133	11.1	153.9	24.4	172.5	108.2	17.3	87.7	30.7	22.1	14.5	109.2	69.9	15.8	47.7	435.3	19.5	52.9	16.6
100	808C-10R-2, 105–106	11.0	151.2	25.7	159.6	109.5	20.5	82.1	33.2	8.1	14.4	126.4	70.1	18.4	49.8	441.8	23.9	52.6	13.4
134	808C-11R-1, 108–109	6.5	148.1	26.3	161.6	95.9	22.2	75.9	31.6	0.0	12.8	116.4	68.5	16.5	40.2	445.6	20.2	53.6	13.7
153	808C-12R-3, 24–26	12.9	196.9	40.2	164.2	147.1	22.4	89.2	53.4	10.1	13.8	111.9	93.0	17.8	47.4	450.0	27.0	64.9	19.9
179	808C-12R-3, 140–142	12.2	143.8	32.6	174.5	99.4	22.0	83.6	32.0	6.8	12.9	132.6	61.9	18.0	50.1	427.4	16.6	56.6	18.1

Table 5 (continued).

Sample	Hole, core, section, interval (cm)	Depth (mbsf)	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	LOI	Total
161	808C-12R-4, 34–36	409.45	61.86	0.700	14.97	6.07	0.082	2.64	4.00	2.27	1.91	0.120	4.13	99.560
157	808C-13R-2, 47–48	416.27	59.67	0.713	15.21	6.54	0.097	2.58	2.26	1.90	3.02	0.136	6.18	98.910
102	808C-15R-1, 73–74	434.43	62.48	0.700	15.18	5.98	0.067	2.43	1.51	2.00	2.98	0.113	5.42	99.350
97	808C-15R-3, 20–21	436.90	60.63	0.723	15.37	6.17	0.083	2.57	2.11	2.18	3.01	0.122	6.05	99.490
64	808C-16R-2, 53–55	445.04	60.39	0.712	15.79	6.69	0.122	2.70	2.35	2.00	2.90	0.122	6.42	100.740
60	808C-16R-4, 29–31	447.80	61.07	0.677	16.07	6.33	0.104	2.54	2.09	2.11	2.99	0.132	5.94	100.620
73	808C-16R-CC, 12–14	452.53	60.35	0.684	15.89	6.71	0.129	2.60	2.00	1.83	3.00	0.120	7.76	101.700
55	808C-18R-3, 65–67	466.06	62.94	0.557	14.22	4.62	0.049	2.01	2.96	2.07	2.86	0.143	5.52	98.520
202	808C-18R-3, 109–111	466.50	60.63	0.718	14.91	5.95	0.081	2.47	2.71	2.15	2.68	0.141	5.59	100.990
195	808C-20R-4, 81–83	487.02	62.92	0.724	15.56	5.97	0.126	2.42	1.32	2.06	3.00	0.139	4.66	99.500
68	808C-21R-1, 7–9	491.38	61.04	0.705	17.05	6.60	0.124	2.55	2.05	2.27	2.81	0.257	4.75	100.840
180	808C-21R-3, 0–2	494.31	61.99	0.724	15.98	5.90	0.082	2.43	1.75	2.14	2.91	0.109	4.66	99.310
122	808C-21R-3, 13–15	494.44	64.04	0.697	14.64	6.92	0.059	2.10	2.25	2.22	2.47	0.108	4.62	100.830
67	808C-22R-2, 44–46	502.95	62.86	0.687	16.33	6.23	0.076	2.45	1.57	2.41	2.82	0.172	4.61	100.740
58	808C-22R-4, 39–41	505.90	59.58	0.702	13.50	6.18	0.076	2.50	1.68	2.06	2.91	0.129	4.95	95.050
104	808C-23R-2, 85–86	513.05	60.13	0.730	15.21	6.13	0.165	2.48	1.51	1.86	2.89	0.141	6.34	98.190
47	808C-25R-1, 83–84	530.83	61.96	0.640	15.89	5.78	0.104	2.38	2.25	1.99	2.97	0.104	5.92	100.530
96	808C-25R-3, 74–75	533.74	60.92	0.679	15.26	6.02	0.104	2.41	1.67	1.83	3.07	0.093	5.62	98.280
140	808C-26R-4, 53–55	544.74	62.10	0.703	14.94	5.55	0.091	2.38	2.29	2.14	2.72	0.109	4.96	98.590
107	808C-27R-1, 33–34	549.63	59.62	0.702	14.70	6.38	0.297	2.50	2.88	1.87	3.00	0.171	6.41	99.200
89	808C-27R-1, 134–136	550.65	62.61	0.668	14.79	6.21	0.109	2.42	2.03	1.94	2.96	0.132	5.00	99.470
131	808C-27R-6, 9–10	556.89	64.23	0.718	15.59	4.32	0.068	1.63	2.36	2.41	2.52	0.161	5.63	101.070
169	808C-27R-6, 59–60	557.39	61.46	0.738	14.96	5.86	0.121	2.28	2.03	1.85	3.00	0.099	5.23	98.230
192	808C-29R-4, 42–44	573.53	60.80	0.707	14.98	5.54	0.126	2.27	2.58	1.81	3.00	0.094	5.64	98.110
160	808C-30R-3, 115–116	582.45	60.46	0.686	14.77	5.80	0.102	2.41	3.22	1.95	2.79	0.139	5.91	98.860
185	808C-31R-1, 96–98	588.57	61.17	0.668	14.93	5.78	0.125	2.29	2.89	1.90	3.02	0.161	5.54	98.970
57	808C-31R-2-A, 113–114	590.23	61.31	0.708	16.53	5.94	0.094	2.50	2.30	2.07	3.21	0.113	5.59	100.760
69	808C-31R-2-B, 117–118	590.27	61.44	0.666	15.01	7.52	0.113	2.08	2.32	2.07	2.79	0.103	6.19	100.780
208	808C-32R-2, 65–67	599.46	62.61	0.715	15.28	6.37	0.063	2.46	1.24	2.17	2.79	0.100	4.61	98.950
61	808C-34R-4, 139–141	622.16	61.54	0.661	15.90	6.40	0.415	2.47	2.27	2.23	2.72	0.123	5.63	100.830
207	808C-35R-3, 26–29	629.47	59.47	0.685	15.23	5.61	0.159	2.32	2.87	1.88	3.04	0.097	6.06	97.880
167	808C-35R-5, 133–135	632.55	62.46	0.707	15.10	5.98	0.120	2.42	1.77	2.17	2.90	0.175	4.37	98.720
53	808C-36R-4, 82–83	641.22	61.78	0.691	16.65	6.25	0.133	2.51	1.80	1.89	3.42	0.095	5.40	101.000
62	808C-38R-3, 146–148	659.37	55.16	0.637	15.29	5.50	0.255	2.31	6.62	1.69	2.97	0.218	8.97	100.020
126	808C-39R-1, 98–100	665.49	63.88	0.617	15.80	5.17	0.084	2.66	1.52	1.90	2.96	0.087	5.10	100.480
81	808C-40R-1, 75–77	674.96	62.17	0.682	16.11	5.58	0.103	2.47	1.94	1.86	3.25	0.084	6.71	101.440
71	808C-42R-1, 135–137	694.86	54.97	0.614	14.80	5.29	0.244	2.29	7.33	1.61	2.90	0.145	9.72	100.460
11	808C-42R-3, 1–3	696.52	56.21	0.610	14.77	5.56	0.209	2.30	6.06	2.11	3.02	0.137	9.05	100.730
66	808C-43R-3, 20–22	696.71	62.95	0.694	16.81	5.89	0.076	2.59	1.11	2.02	3.26	0.086	4.92	100.820
188	808C-44R-2, 46–47	714.36	58.46	0.627	15.43	5.84	0.161	2.25	4.38	1.78	3.00	0.128	6.63	99.220
163	808C-45R-3, 52–54	725.53	60.72	0.434	16.31	7.37	0.040	3.47	1.35	1.94	0.547	0.069	5.64	99.080
130	808C-45R-3, 73–75	725.74	61.62	0.671	15.19	5.60	0.104	2.35	2.49	1.93	2.96	0.098	5.43	98.930
156	808C-45R-4, 50–52	727.01	60.21	0.669	14.89	6.07	0.109	2.38	2.88	1.89	2.95	0.113	5.63	98.240
54	808C-46R-1, 40–42	732.11	61.57	0.670	16.75	5.98	0.075	2.40	2.61	2.08	2.90	0.085	5.72	101.300
103	808C-47R-4, 26–28	746.17	61.03	0.482	15.27	6.15	0.045	2.32	3.10	2.10	1.98	0.072	5.42	98.670
203	808C-47R-4, 49–51	746.40	62.22	0.654	15.16	5.42	0.051	2.24	2.26	2.06	2.95	0.085	5.18	98.730
189	808C-48R-5, 88–89	757.98	58.47	0.569	13.04	4.65	0.123	2.01	6.37	1.73	2.72	0.176	8.13	98.410
56	808C-49R-3, 75–77	764.46	61.21	0.648	15.82	5.79	0.066	2.27	2.99	1.98	3.08	0.084	6.16	100.460
110	808C-50R-3, 58–60	773.99	59.16	0.649	15.30	6.47	0.037	2.57	3.00	1.90	2.43	0.086	5.89	98.090
5	808C-51R-2, 12–14	781.73	50.87	0.558	13.45	5.32	0.381	2.03	11.0	1.72	2.54	0.133	11.34	99.690
25	808C-52R-2, 7–9	791.38	58.27	0.603	15.36	6.60	0.056	2.37	4.62	1.95	2.75	0.083	7.25	100.270
77	808C-53R-5, 127–129	803.68	57.77	0.591	14.44	5.14	0.118	1.98	6.07	1.98	2.67	0.118	9.12	100.450
72	808C-54R-2, 87–91	811.48	65.29	0.616	15.26	4.57	0.057	1.97	2.85	2.00	2.79	0.085	5.22	101.090
12	808C-54R-2, 100–102	811.61	61.59	0.594	16.11	5.35	0.057	2.34	3.82	2.65	2.59	0.094	5.83	101.730
176	808C-55R-3, 70–72	820.96	61.33	0.710	15.52	6.17	0.046	2.54	2.43	1.74	2.75	0.091	5.36	99.300
201	808C-56R-3, 37–39	831.81	62.31	0.705	15.73	6.08	0.045	2.44	1.60	1.85	3.01	0.089	4.67	98.970
63	808C-57R-1, 50–52	838.61	62.42	0.715	17.25	6.32	0.067	2.51	1.11	1.87	3.38	0.095	4.77	100.880
194	808C-58R-2, 116–118	859.77	60.53	0.676	15.36	5.52	0.070	2.32	3.55	1.69	2.92	0.087	6.08	99.340
98	808C-59R-4, 29–30	861.89	60.12	0.621	16.51	5.73	0.058	2.43	2.32	1.84	2.59	0.067	5.79	98.530
151	808C-60R-3, 69–70	870.49	61.89	0.682	15.56	5.73	0.085	2.39	2.68	1.78	3.02	0.104	5.26	99.640
46	808C-61R-3, 94–95	880.44	62.29	0.693	16.53	6.12	0.085	2.47	1.67	1.75	3.18	0.085	5.04	100.300
210	808C-61R-4, 72–73	881.64	59.77	0.878	17.05	7.61	0.054	2.78	0.973	2.00	1.93	0.075	5.52	99.050
70	808C-62R-1, 114–116	887.55	62.91	0.734	17.49	5.93	0.086	2.35	1.35	1.90	3.04	0.086	4.70	100.940
65	808C-63R-3, 16–18	898.95	62.73	0.645	17.06	5.74	0.095	2.54	1.39	1.76	3.07	0.095	5.13	100.640
48	808C-64R-4, 58–60	910.59	63.53	0.759	18.66	6.43	0.136	2.54	0.584	1.49	3.79	0.088	2.66	101.070
196	808C-65R-1, 98–100	916.09	61.50	0.702	15.95	6.03	0.072	2.33	1.70	1.38	3.36	0.084	5.13	98.790
49	808C-66R-2, 94–95	927.24	62.57	0.727	18.37	6.55	0.107	2.48	0.562	1.58	3.65	0.097	3.14	100.240
177	808C-67R-1, 52–54	935.03	42.23	0.447	11.04	4.12	1.416	1.79	17.3	1.27	2.00	0.107	17.01	99.000
191	808C-68R-2, 14–16	945.85	60.55	0.697	15.57	5.80	0.151	2.43	2.97	1.58	3.15	0.091	5.83	99.220
3	808C-69R-3, 26–28	957.07	62.34	0.725	17.51	6.26	0.124	2.66	0.782	1.62	3.65	0.086	4.67	100.920
2	808C-69R-3, 120–122	958.01	62.51	0.706	17.28	6.26	0.086	2.59	0.944	1.68	3.58	0.086	4.67	100.800
94	808C-69R-5, 36–38	960.17	60.74	0.701	16.01	6.06	0.081	2.55	1.43	1.57	3.32	0.080	5.17	97.980
4	808C-71R-2, 106–107	964.48	57.68	0.590	17.26	5.68	0.138	2.53	4.00	1.77	3.07	0.065	7.88	101.090
186	808C-71R-4, 87–88	978.47	60.68	0.681	15.85	7.09	0.196	2.43	1.67	1.55	3.33	0.072	5.36	99.220
10	808C-72R-2, 12–14	984.43	59.73	0.665	16.31	6.30	0.084	2.33	1.81	1.54	3.18	0.066	6.29	98.640
138	808C-73R-2, 74–76	994.35	65.18	0.717	16.12	6.29	0.081	2.53	0.478	1.49	3.39	0.078	4.43	101.290
158	808C-74R-2, 35–36	1003.65	63.46	0.706	16.18	6.19	0.084	2.40	0.487	1.58	3.39	0.073	4.53	99.470
193	808C-75R-1, 60–61	1011.90	62.50	0.667	16.74	6.30	0.119	2.53	0.467	1.52	3.05	0.076	4.72	99.140
206	808C-76R-1, 0–2	1020.46	62.58	0.656	16.19	6.40	0.078	2.32	0.335	1.47	3.47	0.073	4.32	98.400
45	808C-77R-1, 38–40	1030.33	63.22	0.698	17.51	6.49	0.096	2.47	0.383	1.47	3.63	0.077	4.40	100.850
30	808C-79R-1-A, 37–39	1048.68	62.40	0.687	17.72	6.63	0.115	2.44	0.391	1.55	3.67	0.076	4.58	100.650
40	808C-79R-1-B, 37–39	1048.68	63.01	0.697	17.52	6.64	0.115	2.44	0.401	1.53	3.65	0.076	4.51	101.200
183	808C-80R-1, 60–62	1058.41	60.24	0.677	15.72	5.84	0.339	2.44	2.62	1.54	3.18	0.087	5.84	98.840
127	808C-81R-1, 115–117	1068.26	63.73	0.706	16.31	6.22	0.111	2.63	0.744	1.41	3.40	0.074	4.59	100.390
199	808C-82R-1, 34–35	1076.84	63.59	0.708	16.15	6.21	0.079	2.54	0.364	1.45	3.31	0.072	4.26	99.150
95	808C-82R-2, 56–57	1078.52	57.30	0.655	14.93	6.33	3.349	2.42	1.50	1.27	3.08	0.171	7.67	99.110
181	808C-83R-1, 35–37	1086.16	63.14	0.706	16.21	6.29	0.185	2.47	0.601	1.52	3.39	0.074	4.51	99.440
205	808C-83R-2, 57–58	1087.87	27.74	0.266	7.562	6.21	14.696	1.78	11.4	0.974	1.54	5.351	16.83	94.510
106	808C-84R-1, 55–57	1092.56	62.02	0.722	16.03	6.36	0.459	2.44	0.665	1.44	3.35	0.079	4.95	98.870

Table 5 (continued).

Sample	Hole, core, section, interval (cm)	Nb	Zr	Y	Sr	Rb	Ga	Zn	Ni	Th	Sc	V	Cr	Co	Cu	Ba	La	Ce	Nd
161	808C-12R-4, 34–36	11.9	146.1	32.7	238.0	66.6	17.5	65.9	30.2	0.0	13.7	135.8	55.3	17.3	50.9	376.1	13.9	33.8	11.0
157	808C-13R-2, 47–48	9.6	156.5	34.3	149.4	125.0	20.7	85.7	41.7	8.7	14.3	113.0	81.0	16.4	43.8	469.3	23.2	63.5	15.8
102	808C-15R-1, 73–74	11.7	158.2	26.2	119.9	118.1	18.2	91.0	40.8	14.0	13.6	117.9	82.1	15.7	43.8	457.3	30.6	60.9	16.6
97	808C-15R-3, 20–21	12.9	150.3	25.5	148.5	109.2	17.8	100.7	35.5	4.1	13.6	126.5	66.8	22.5	52.3	460.6	19.5	51.3	16.2
64	808C-16R-2, 53–55	12.9	168.4	30.3	153.4	115.1	16.8	77.7	43.3	15.0	11.3	108.7	93.3	20.5	41.6	453.9	29.6	61.0	31.6
60	808C-16R-4, 29–31	13.5	157.8	30.2	158.6	118.7	18.3	87.0	32.1	18.3	18.3	116.4	72.0	16.6	42.8	478.4	27.6	54.5	23.3
73	808C-16R-CC, 12–14	9.7	188.4	34.3	145.9	132.9	22.5	89.7	43.5	11.1	15.9	105.5	82.9	16.3	38.3	455.8	42.9	66.7	29.2
55	808C-18R-3, 65–67	7.2	76.8	13.0	76.9	50.0	10.6	35.1	42.4	4.9	9.8	47.3	28.6	0.0	42.4	209.4	9.5	27.0	4.7
202	808C-18R-3, 109–111	10.8	160.5	32.1	179.2	102.6	17.2	80.5	28.6	16.0	15.4	117.9	72.5	16.8	46.5	490.1	17.0	55.9	15.8
195	808C-20R-4, 81–83	16.9	179.4	31.6	152.7	138.5	19.6	86.0	35.0	14.7	15.1	115.0	75.6	15.1	45.8	486.6	22.8	59.7	19.7
68	808C-21R-1, 7–9	14.0	135.5	29.5	193.2	110.2	18.0	83.2	28.2	8.4	18.8	124.0	72.5	15.7	59.1	470.1	24.1	58.9	25.1
180	808C-21R-3, 0–2	8.3	161.1	32.1	142.0	113.7	18.2	79.6	39.7	15.9	16.3	121.1	58.6	17.2	46.0	497.6	24.7	63.0	19.2
122	808C-21R-3, 13–15	14.0	207.0	27.9	202.4	110.4	19.0	78.0	31.8	3.8	15.1	106.6	63.5	16.4	40.4	477.5	23.1	43.5	18.9
67	808C-22R-2, 44–46	5.2	144.9	25.7	147.6	108.4	14.5	81.2	29.4	23.8	13.5	117.6	64.1	15.4	53.4	501.1	25.6	50.9	26.6
58	808C-22R-4, 39–41	5.3	75.1	13.1	76.0	55.4	12.9	48.7	10.0	11.5	8.4	51.6	32.7	6.5	50.1	231.1	2.7	28.2	0.0
104	808C-23R-2, 85–86	10.8	177.1	30.2	126.3	121.5	20.1	81.0	35.1	14.4	8.4	119.1	68.9	16.8	55.5	447.1	21.0	62.9	17.2
47	808C-25R-1, 83–84	16.1	154.1	26.1	148.3	119.0	18.4	85.8	34.2	8.1	12.2	112.8	69.9	15.8	46.5	473.9	28.7	59.0	24.5
96	808C-25R-3, 74–75	12.9	157.3	30.1	135.0	124.3	21.1	86.8	30.3	0.3	10.5	106.0	75.8	14.6	44.8	487.8	23.0	57.6	16.4
140	808C-26R-4, 53–55	11.5	164.3	36.8	166.1	108.8	19.4	86.6	34.2	2.7	14.4	125.1	64.7	13.7	45.6	505.2	18.5	50.9	14.5
107	808C-27R-1, 33–34	18.2	179.2	34.5	175.4	136.5	20.6	78.5	37.4	4.1	16.2	127.6	74.0	16.3	55.2	472.6	27.1	58.4	16.7
89	808C-27R-1, 134–136	10.9	140.1	26.6	138.6	109.1	21.4	95.1	33.4	10.3	11.6	124.5	68.6	23.5	52.4	464.6	22.7	59.5	21.7
131	808C-27R-6, 9–10	14.9	296.4	42.1	192.2	112.4	21.2	57.0	3.8	10.6	11.1	45.1	12.6	6.3	17.4	641.3	29.3	78.4	21.8
169	808C-27R-6, 59–60	17.2	187.6	32.2	144.9	129.0	20.6	83.6	55.7	10.1	13.3	105.9	88.3	18.3	39.7	474.0	19.4	69.6	23.8
192	808C-29R-4, 42–44	14.1	145.8	33.0	151.5	102.7	21.1	87.8	37.6	4.7	14.7	109.0	73.7	14.9	37.4	495.2	23.0	53.2	14.8
160	808C-30R-3, 115–116	16.4	159.4	29.5	182.5	110.3	20.1	83.0	35.1	9.3	9.7	112.6	66.6	12.9	50.8	454.4	23.8	55.7	14.7
185	808C-31R-1, 96–98	10.9	162.7	28.8	179.8	122.5	15.0	76.8	37.9	19.4	16.6	104.4	72.2	18.7	42.0	532.7	26.4	63.0	16.3
57	808C-31R-2-A, 113–114	7.0	147.5	23.8	161.1	123.4	15.3	96.7	44.7	11.3	19.0	120.0	85.3	18.8	51.7	549.8	29.2	68.4	27.0
69	808C-31R-2-B, 117–118	3.8	184.9	33.2	178.9	106.5	17.1	91.2	51.5	23.7	12.0	106.2	69.2	21.2	39.7	688.4	25.1	46.6	22.3
208	808C-32R-2, 65–67	16.8	168.5	36.3	145.8	109.0	20.0	100.4	43.3	14.7	14.0	111.5	72.6	16.3	42.1	555.6	17.5	58.4	20.5
61	808C-34R-4, 139–141	10.0	142.9	29.0	147.0	101.4	15.6	90.0	39.4	18.7	15.9	124.8	64.1	14.6	59.0	463.2	27.1	52.9	23.5
207	808C-35R-3, 26–29	12.4	146.8	32.9	184.1	114.2	15.9	79.0	35.4	5.8	9.5	115.0	67.3	16.2	51.3	619.0	20.0	63.5	15.4
167	808C-35R-5, 133–135	14.4	153.3	29.7	162.8	109.5	19.3	94.6	38.5	12.2	12.4	122.2	70.7	18.3	94.7	514.6	21.9	44.8	12.6
53	808C-36R-4, 82–83	14.8	152.0	29.2	137.8	134.6	16.1	94.2	54.2	21.9	15.2	117.1	82.7	20.6	48.8	503.8	29.5	61.6	27.4
62	808C-38R-3, 146–148	10.7	134.9	36.3	256.3	118.5	17.0	89.2	52.3	13.7	18.3	121.2	72.1	19.2	79.5	431.6	27.6	54.3	22.0
126	808C-39R-1, 98–100	10.7	168.0	29.8	176.2	114.1	25.0	92.9	29.0	7.6	12.9	99.7	56.1	15.9	45.0	1123.9	27.3	51.1	14.4
81	808C-40R-1, 75–77	11.6	162.1	32.6	159.0	137.5	22.9	109.5	33.8	7.7	14.1	115.0	118.9	16.4	62.8	624.3	25.2	56.1	23.6
71	808C-42R-1, 135–137	10.8	142.5	24.7	287.4	124.8	21.8	85.2	38.0	14.7	22.6	202.5	127.8	10.7	66.3	588.5	54.3	95.9	43.4
11	808C-42R-3, 1–3	16.2	131.1	26.5	261.7	124.7	20.8	84.2	48.0	11.9	15.8	117.3	71.4	16.8	49.3	597.0	33.1	46.5	18.8
66	808C-43R-3, 20–22	14.5	182.7	29.8	137.0	145.8	17.7	104.7	36.0	18.0	9.6	125.2	73.4	19.0	59.8	623.6	33.6	61.4	26.4
188	808C-44R-2, 46–47	11.7	159.5	37.0	213.2	121.6	20.0	95.1	39.2	13.9	19.1	131.3	75.9	20.5	110.4	861.7	45.4	138.4	61.9
163	808C-45R-3, 52–54	9.4	248.3	35.8	168.4	7.0	17.6	45.8	0.0	10.2	6.4	33.9	12.5	9.7	11.4	986.8	20.4	51.8	15.9
130	808C-45R-3, 73–75	14.5	151.7	32.4	187.9	123.9	19.5	95.8	34.7	13.2	14.3	130.0	61.1	16.4	66.1	879.3	26.1	56.9	11.5
156	808C-45R-4, 50–52	13.4	152.1	30.9	178.3	123.5	18.1	95.5	38.7	0.0	14.3	120.5	73.8	17.6	70.9	489.4	17.4	58.5	19.8
54	808C-46R-1, 40–42	10.3	124.7	26.2	182.6	105.8	18.7	101.2	34.4	10.6	19.2	126.4	60.8	17.0	69.5	703.8	32.2	49.4	24.8
103	808C-47R-4, 26–28	13.0	133.8	36.9	208.6	70.7	18.4	73.7	38.3	13.5	12.8	80.2	50.8	14.2	46.2	654.7	26.4	62.8	19.8
203	808C-47R-4, 49–51	13.3	138.2	26.4	171.4	122.2	19.0	101.9	35.8	16.7	12.7	116.9	70.6	13.6	57.0	576.5	22.4	52.6	15.8
189	808C-48R-5, 88–89	15.9	123.9	37.4	262.8	116.0	14.7	73.9	25.0	8.4	14.1	101.1	67.7	12.0	46.5	536.4	18.4	59.4	20.5
56	808C-49R-3, 75–77	9.7	136.6	30.0	170.6	118.1	14.8	98.4	44.4	15.7	20.0	116.8	65.5	16.9	59.4	588.1	24.8	62.9	21.9
110	808C-50R-3, 58–60	9.0	166.3	31.8	166.5	101.3	17.7	73.4	26.3	5.0	14.6	102.0	53.5	15.1	60.8	426.4	15.9	52.2	20.9
5	808C-51R-2, 12–14	9.1	134.5	29.2	245.8	116.7	17.5	95.7	30.9	18.5	18.8	101.6	63.1	14.2	52.8	383.7	32.7	44.4	23.7
25	808C-52R-2, 7–9	11.5	160.8	37.4	208.9	114.2	15.9	99.0	46.7	14.2	13.7	106.6	58.0	19.0	61.5	425.7	24.6	53.5	25.1
77	808C-53R-5, 127–129	9.3	128.9	30.4	237.0	105.8	16.5	88.7	35.6	8.1	13.6	101.8	68.1	13.0	47.6	423.3	25.9	50.3	25.6
72	808C-54R-2, 87–91	8.8	143.7	25.5	211.8	114.8	14.4	88.3	24.7	14.2	15.1	115.7	64.1	8.4	69.1	729.6	23.9	60.1	20.0
12	808C-54R-2, 100–102	11.4	134.9	23.5	219.2	99.5	18.9	88.7	37.8	18.1	17.0	121.3	57.0	17.3	66.4	652.7	30.9	45.8	20.0
176	808C-55R-3, 70–72	11.0	172.6	25.4	163.4	114.4	23.8	92.9	38.2	12.0	16.3	107.5	68.5	14.9	58.1	718.4	20.9	60.1	19.4
201	808C-56R-3, 37–39	10.6	165.6	29.3	137.9	116.1	19.4	102.4	39.9	13.8	11.2	129.7	78.3	15.4	54.8	490.1	20.1	55.3	19.0
63	808C-57R-1, 50–52	16.8	158.1	36.6	114.1	128.2	17.7	105.1	55.2	13.6	14.9	118.1	79.8	21.2	83.6	505.9	19.2	52.8	14.1
194	808C-58R-2, 116–118	12.2	171.8	37.9	200.0	123.7	22.2	92.3	33.0	5.4	12.4	122.8	77.3	10.6	61.7	427.4	16.1	54.8	18.0
98	808C-59R-4, 29–30	12.3	146.7	35.5	164.3	99.5	18.3	90.5	27.7	7.4	12.3	105.7	61.6	17.0	55.3	380.5	23.7	63.9	18.4
151	808C-60R-3, 69–70	11.7	176.3	37.7	183.9	147.6	19.7	95.8	43.5	9.2	13.5	117.0	65.4	14.7	60.0	407.0	22.3	54.6	16.5
46	808C-61R-3, 94–95	10.7	162.9	34.3	140.0	129.6	20.7	113.5	34.7	10.7	21.3	135.2	76.5	15.8	70.9	391.9	42.1	61.2	25.2
210	808C-61R-4, 72–73	8.9	175.4	20.0	133.9	76.9	15.4	90.4	97.1	12.1	23.6	101.6	48.4	29.4	46.4	276.5	21.3	63.5	20.3
70	808C-62R-1, 114–116	11.2	155.1	37.4	135.7	127.8	17.4	108.6	45.7	20.1	14.3	129.8	72.7	17.8	68.5	375.4	44.3	54.3	25.0
65	808C-63R-3, 16–18	12.7	142.4	30.7	123.4	113.6	17.7	102.2	34.9	18.4	11.6	107.7	70.9	14.1	69.5	364.8	25.9	64.7	26.5
48	808C-64R-4, 58–60	13.6	170.8	37.0	102.2	159.6	22.0	103.1	49.9	10.8	18.2	135.8	87.1	18.5	50.3	532.6	35.6	67.1	34.9
196	808C-65R-1, 98–100	10.8	157.4	28.5	139.4	129.3	23.9	83.0	37.8	20.6	16.3	117.2	80.5	19.2	64.5	541.3	24.0	59.4	18.6
49	808C-66R-2, 94–95	16.0	173.9	35.3	114.6	167.9	22.7	109.9	57.7	20.8	15.3	132.2	87.6	20.7	57.9	591.1	32.4	66.5	32.2
177	808C-67R-1, 52–54	14.5	119.3	36.4	225.8	88.7	11.8	72.1	29.5	14.6	14.3	92.0	53.5	9.4	49.9	431.8	22.9	55.2	18.7
191	808C-68R-2, 14–16	14.6	158.2	34.4	172.4	132.6	19.8	98.9	38.7	3.7	11.4	110.7	76.9	15.5	56.3	551.4	22.2	74.5	25.9
3	808C-69R-3, 26–28	14.4	165.0	32.0	116.6	157.4	24.8	105.3	50.9	10.0	13.2	131.1	76.3	20.0	86.4	527.6	32.8	68.3	24.4
2	808C-69R-3, 120–122	14.0	167.4	33.7	120.2	152.7	21.1	107.8	48.4	16.4	11.7	112.2	70.7	19.0	64.4	567.3	35.5	59.6	29.6
94	808C-69R-5, 36–38	15.8	163.1	37.8	129.9	147.8	18.2	124.3	49.1	8.3	17.4	138.2	77.2	21.3	81.4	545.1	28.0	64.0	19.5
4	808C-71R-2, 106–107	15.1	144.6	27.8	217.4	125.4	20.8	106.8	31.6	10.2	14.3	107.4	64.9	14.4	83.1	598.9	27.3	65.5	27.8
186	808C-71R-4, 87–88	10.2	166.1	37.9	171.0	124.9	14.3	83.8	37.6	22.2	9.9	104.8	76.1	22.8	64.3	543.6	19.4	59.2	11.7
10	808C-72R-2, 12–14	13.6	138.9	25.8	127.4	130.3	20.1	114.0	53.8	26.4	12.4	118.7	74.7	28.1	69.1	565.6	28.9	63.5	24.3
138	808C-73R-2, 74–76	13.6	171.7	30.7	105.0	161.9	26.8	108.2	35.8	6.7	15.2	107.7	68.4	14.1	54.8	578.7	26.8	68.1	22.5
158	808C-74R-2, 35–36	15.4	176.7	41.2	105.7	150.4	22.5	111.2	85.0	0.0	12.4	125.9	70.9	27.6	70.6	557.4	26.7	64.8	14.9
193	808C-75R-1, 60–61	14.9	151.0	29.9	108.5	122.9	21.4	95.1	32.9	19.0	13.1	110.9	64.3	15.0	51.6	608.6	18.7	62.9	19.2
206	808C-76R-1, 0–2	8.7	155.2	32.6	91.7	142.6	24.0	102.4	25.1	18.9	12.4	132.9	69.1	13.2	49.0	610.1	23.3	60.2	18.6
45	808C-77R-1, 38–40	11.2	145.7	31.0	90.8	144.7	20.7	95.3	39.7	17.1	19.1	129.2	70.4	16.6	52.2	611.8	36.9	66.0	31.0
30	808C-79R-1-A, 37–39	15.7	164.4	32.0	101.4	167.7	21.9	107.1	75.4	15.0	20.1	124.8	81.0	29.9	61.3	642.0	35.2	64.0	30.7
40	808C-79R-1-B, 37–39	14.9	141.4	20.4	92.2	142.6	24.1	108.1	77.3	11.4	13.9	127.0	77.0	28.9	60.1	633.9	33.6	70.9	26.8
183	808C-80R-1, 60–62	14.9	145.7	26.3	154.0	133.9	16.0	93.2	35.6	19.3	10.2	122.7	60.2	14.7	82.5	779.5	21.8	58.6	13.1
127	808C-81R-1, 115–117	11.3	162.8	29.9	112.8	169.9	24.8	99.3	44.8	8.9	12.3	121.4	81.7	18.8	56.8	514.9	22.1	69.9	17.0
199	808C-82R-1, 34–35	19.7	158.2	27.8	94.8	146.8	21.7	98.6	36.2	15.2	12.5	124.5	61.9	15.2	61.8	475.6	23.2	52.1	14.6
95	808C-82R-2, 56–57	7.9	147.7	33.9	115.7	159.2	24.0	95.8	38.9	15.3	11.0	117.4	64.2	11.3	72.3	523.0	23.1	67.6	17.5
181	808C-83R-1, 35–37	15.3	157.2	28.5	95.3	156.8	17.9	96.8	41.4	27.3	15.9	125.8	76.1	21.9	69.7	493.7	26.7	69.5	22.2
205	808C-83R-2, 57–58	14.1	73.6	425.2	556.1	90.3	8.4	59.2	41.2	17.8	13.6	69.3	17.7	1.2	59.3	18760.6	124.3	239.1	49.3
106	808C-84R-1, 55–57	16.6	139.4	34.2	97.3	140.5	18.4	93.4	39.8	16.8	12.9	131.4	75.1	17.9	71.0	504.3	20.3	69.5	22.1

Table 5 (continued).

Sample	Hole, core, section, interval (cm)	Depth (mbsf)	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	LOI	Total
150	808C-85R-1, 59–61	1098.90	20.75	0.241	5.767	5.76	11.939	1.46	22.4	1.27	1.15	15.818	13.87	100.500
139	808C-85R-2, 68–70	1099.59	62.74	0.715	16.26	6.61	0.083	2.44	0.334	1.40	3.47	0.073	4.59	99.090
211	808C-86R-2, 110–112	1110.61	25.32	0.257	6.908	4.59	10.500	1.80	37.6	0.954	1.04	6.212	4.73	100.150
51	808C-87R-1, 78–79	1117.98	62.70	0.694	18.05	6.11	0.076	2.53	0.456	1.36	3.46	0.067	5.04	100.960
190	808C-88R-2, 21–24	1128.62	42.05	0.437	11.20	4.82	2.196	1.84	15.6	1.08	2.22	0.781	15.57	98.070
197	808C-89R-1, 58–60	1137.16	41.03	0.320	12.81	5.72	2.375	2.05	14.9	1.42	1.50	0.141	15.18	96.090
155	808C-89R-1, 126–128	1137.84	56.89	0.636	14.90	5.77	0.249	2.22	5.00	1.28	3.01	0.069	7.71	98.060
154	808C-90R-1, 98–100	1147.29	60.40	0.707	16.11	6.40	0.193	2.46	2.41	1.36	3.16	0.072	5.75	99.330
141	808C-92R-1, 110–113	1166.73	60.84	0.699	15.82	6.28	0.190	2.36	2.10	1.35	3.19	0.072	5.45	98.680
105	808C-92R-CC, 8–10	1167.72	41.58	0.432	10.78	4.70	2.145	1.76	16.6	0.984	2.17	0.369	16.58	98.360
182	808C-93R-1, 76–78	1176.07	62.07	0.704	16.05	6.63	0.191	2.41	0.952	1.33	3.21	0.082	4.76	98.720
50	808C-94R-1, 92–94	1185.83	62.94	0.712	16.38	6.00	0.122	2.27	0.655	1.24	3.43	0.073	5.09	99.360
187	808C-94R-1, 117–119	1186.11	62.01	0.722	16.32	6.60	0.154	2.33	0.865	1.27	3.43	0.068	4.89	99.010
175	808C-95R-1, 22–24	1194.80	61.54	0.732	16.53	6.26	0.122	2.27	1.04	1.26	3.45	0.068	4.87	98.450
79	808C-95R-1, 131–133	1195.89	37.62	0.424	10.70	4.40	1.506	1.52	19.6	0.853	2.25	2.754	16.53	98.370
178	808C-96R-1, 40–42	1204.99	61.74	0.701	16.32	6.71	0.138	2.25	0.715	1.13	3.56	0.081	4.60	98.310
52	808C-97R-1, 45–46	1214.45	60.27	0.687	17.45	6.51	0.292	2.41	1.85	1.27	3.63	0.075	5.97	100.730
129	808C-98R-1-A, 91–92	1224.61	61.34	0.736	16.45	6.85	0.232	2.34	1.78	1.20	3.82	0.742	4.49	100.290
133	808C-98R-1-B, 91–92 siderite?	1224.61	62.55	0.738	16.48	8.12	0.176	2.32	0.470	1.12	4.08	0.084	4.14	100.600
164	808C-99R-1, 86–88	1234.27	61.76	0.698	16.02	7.32	2.210	2.57	0.517	1.23	3.63	0.079	4.35	100.650
198	808C-100R-1, 39–41	1243.40	65.51	0.696	14.37	5.77	0.151	2.24	1.14	1.65	3.26	0.086	3.31	98.690
44	808C-101R-1, 85–87	1253.06	75.65	0.222	11.93	1.59	0.058	0.608	0.646	2.93	2.21	0.154	3.58	100.960
200	808C-101R-3, 55–57	1255.74	73.92	0.230	11.72	1.74	0.063	0.634	0.643	2.89	1.21	0.144	3.96	99.460
9	808C-101R-4, 62–64	1257.31	72.93	0.405	10.86	4.85	0.135	1.41	1.10	1.40	3.09	0.058	3.67	100.260
135	808C-102R-2, 80–82	1263.81	66.84	0.345	7.495	4.68	0.370	1.42	6.31	0.842	3.11	0.118	6.79	98.560
209	808C-102R-3, 133–134	1265.83	65.29	0.160	15.88	1.93	0.138	1.68	2.61	1.46	1.82	0.050	5.85	98.430
173	808C-103R-1, 121–123	1272.14	65.46	0.563	13.12	7.31	0.163	1.95	0.456	1.05	5.66	0.103	2.94	99.030
111	808C-103R-3, 16–18	1274.07	61.88	0.712	15.01	5.89	0.080	2.45	2.44	2.21	2.74	0.122	5.03	99.090
1	808C-103R-3, 40–42	1274.31	70.47	0.406	14.46	1.12	0.047	0.897	2.62	0.924	0.897	0.047	5.64	100.280
109	808C-104R-1, 74–75	1281.15	54.88	0.468	11.68	5.37	0.323	2.15	9.62	1.01	4.25	0.087	10.07	100.210
15	808C-106R-2, 103–108	1301.54	49.08	0.473	12.17	7.01	0.062	2.99	10.7	0.650	6.04	0.098	10.76	100.250
39	808C-106R-2, 103–108	1301.54	49.13	0.472	11.83	7.04	0.062	2.97	10.9	0.705	6.07	0.098	10.97	100.320

Table 5 (continued).

Sample	Hole, core, section, interval (cm)	Nb	Zr	Y	Sr	Rb	Ga	Zn	Ni	Th	Sc	V	Cr	Co	Cu	Ba	La	Ce	Nd
150	808C-85R-1, 59–61	7.8	74.2	482.6	804.0	78.4	4.7	60.8	37.6	19.0	20.0	50.9	22.9	2.5	66.7	8278.6	177.0	235.6	34.7
139	808C-85R-2, 68–70	17.8	164.9	24.2	97.8	166.3	21.7	103.9	63.9	16.0	11.1	132.3	76.7	22.9	60.2	629.0	21.3	64.3	18.8
211	808C-86R-2, 110–112	3.9	99.1	219.0	460.9	55.5	13.0	57.9	34.8	21.4	28.2	57.5	32.4	4.6	60.6	578.4	76.5	154.5	43.7
51	808C-87R-1, 78–79	17.0	149.5	31.1	97.7	142.9	25.7	107.5	49.6	6.9	10.8	124.6	69.5	21.9	72.0	489.4	31.6	61.4	25.4
190	808C-88R-2, 21–24	13.5	103.3	58.2	223.9	103.5	14.6	73.0	42.8	12.2	17.7	96.2	45.8	9.3	74.0	563.6	30.5	72.9	19.9
197	808C-89R-1, 58–60	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0	–1.0
155	808C-89R-1, 126–128	12.6	139.6	21.7	233.8	147.6	19.1	93.3	31.5	14.0	13.9	110.4	64.3	12.6	66.2	456.4	19.1	55.0	18.9
154	808C-90R-1, 98–100	14.7	149.4	21.8	150.3	149.0	18.7	99.1	23.3	17.1	14.8	112.6	68.5	16.3	60.7	540.0	24.7	64.9	20.3
141	808C-92R-1, 110–113	9.4	141.6	31.4	146.5	152.9	19.8	103.9	50.1	15.1	11.9	111.9	71.5	19.0	66.3	553.6	25.9	70.3	16.4
105	808C-92R-CC, 8–10	8.8	115.1	32.6	186.3	115.7	15.7	71.1	32.3	18.8	19.6	81.0	50.1	9.5	59.3	747.7	23.6	46.4	12.4
182	808C-93R-1, 76–78	12.9	168.4	28.7	103.6	153.5	21.0	103.1	31.3	22.7	15.5	123.7	70.0	15.6	90.0	495.7	27.6	69.6	27.2
50	808C-94R-1, 92–94	18.1	161.3	25.2	97.2	151.5	26.1	104.6	36.8	9.7	12.7	120.6	80.6	17.5	120.1	447.7	25.7	69.2	19.2
187	808C-94R-1, 117–119	17.0	165.1	27.9	106.1	167.1	23.2	105.2	35.3	12.6	11.9	120.9	79.3	16.8	59.0	481.1	24.2	75.5	16.9
175	808C-95R-1, 22–24	16.3	152.8	26.2	104.8	148.5	20.4	102.5	34.7	6.6	14.6	137.6	68.4	14.3	66.3	427.5	28.2	79.3	20.4
79	808C-95R-1, 131–133	10.0	109.4	59.7	252.2	116.7	15.1	81.4	32.9	25.5	20.4	71.3	44.1	10.7	37.7	645.9	48.2	58.9	20.2
178	808C-96R-1, 40–42	15.0	152.3	31.1	92.7	162.6	23.9	105.2	48.4	12.5	13.7	125.1	75.7	21.4	54.3	440.4	30.7	73.5	17.3
52	808C-97R-1, 45–46	14.6	157.5	34.0	117.8	159.7	22.3	111.9	51.2	8.9	15.0	132.4	76.8	18.8	83.0	694.3	35.2	71.2	29.2
129	808C-98R-1-A, 91–92	12.7	183.3	85.4	127.2	210.8	21.9	103.1	35.5	9.2	19.6	134.4	77.7	21.0	113.0	882.1	46.5	141.7	63.3
133	808C-98R-1-B, 91–92 siderite?	14.2	181.0	34.2	98.3	230.8	21.9	98.3	27.3	9.5	15.1	124.2	64.5	18.6	58.8	604.5	31.7	66.5	18.5
164	808C-99R-1, 86–88	16.8	163.8	27.7	87.1	191.3	20.4	110.8	38.1	25.8	10.2	125.5	73.5	21.6	63.0	512.0	23.3	70.8	17.8
198	808C-100R-1, 39–41	11.9	152.1	31.9	104.2	158.0	18.7	79.3	43.7	10.9	13.2	95.2	70.9	17.0	41.2	561.7	22.1	61.0	20.7
44	808C-101R-1, 85–87	8.1	84.0	39.8	58.3	36.6	14.5	45.1	1.7	4.3	3.8	12.7	23.7	0.0	4.9	200.1	17.2	39.9	21.6
200	808C-101R-3, 55–57	11.8	122.7	39.5	72.3	11.2	15.4	34.8	0.0	7.2	4.5	16.1	5.6	0.0	4.2	270.2	12.8	39.4	9.5
9	808C-101R-4, 62–64	5.5	87.5	16.1	89.4	162.5	17.5	84.0	13.1	1.4	7.5	77.7	32.5	8.3	44.4	196.1	15.1	35.5	17.8
135	808C-102R-2, 80–82	5.7	78.6	29.2	218.2	172.4	13.7	62.1	20.2	0.0	10.8	69.7	27.1	8.4	39.3	200.5	20.5	41.3	12.0
209	808C-102R-3, 133–134	27.3	216.8	24.6	806.3	28.8	23.8	46.2	0.0	33.5	5.5	11.9	7.1	0.0	8.9	757.6	29.8	74.3	20.4
173	808C-103R-1, 121–123	11.9	124.0	32.7	49.9	230.0	18.9	91.0	28.5	19.9	10.6	113.0	55.7	14.4	75.6	723.4	22.2	55.9	17.9
111	808C-103R-3, 16–18	17.0	198.7	50.4	73.5	162.9	18.3	95.2	26.2	11.3	16.9	81.9	38.1	10.1	91.8	659.9	23.9	71.1	19.5
1	808C-103R-3, 40–42	8.9	295.4	52.7	785.3	4.0	19.9	26.6	0.0	10.0	11.1	27.0	5.4	0.0	3.4	841.1	25.1	64.7	29.9
109	808C-104R-1, 74–75	11.1	133.6	34.4	320.0	181.9	19.2	86.4	31.4	4.2	13.8	95.2	49.4	15.0	62.4	593.1	17.3	45.2	11.9
15	808C-106R-2, 103–108	15.9	111.0	23.4	260.3	142.5	19.2	88.2	40.8	19.9	16.8	92.6	40.3	18.1	33.7	223.3	24.4	36.8	21.0
39	808C-106R-2, 103–108	10.4	100.1	25.7	262.1	133.5	12.8	92.2	43.2	24.8	13.5	77.0	45.0	20.8	32.3	218.9	24.0	41.2	23.8

Table 6. Mean values and 1-sigma standard deviations for the REE's determined on the PV8060 from the reference materials analyzed with the Site 808 samples.

	Reference Sample				JB-1a				SO-1 SO-2			
Element	Mean	Std. dev.	%Std. dev.	Number of runs	Mean	Std. dev.	%Std. dev.	Number of runs	Mean	Std. dev.	%Std. dev.	Number of runs
La	36.39	3.21	8.83	6	57.98	2.79	4.81	3	50.08	1.05	2.1	2
Ce	62.82	5.01	2.97	6	114.21	5.93	5.19	3	123.48	2.43	1.97	2
Pr	7.47	0.44	5.89	6	13.92	0.65	4.69	3	15.13	0.47	3.11	2
Nd	26.42	2.4	9.06	6	52.73	3.33	6.32	3	63.3	0.68	1.08	2
Sm	4.84	0.32	6.59	6	8.35	0.36	4.33	3	12.74	0.25	1.93	2
Eu	1.55	0.12	7.4	6	1.78	0.1	5.39	3	3.82	0.07	1.79	2
Gd	5	0.5	9.99	6	7.02	0.37	5.26	3	12.11	0.37	3.03	2
Dy	4.33	0.32	7.48	6	5.06	0.23	4.56	3	9.54	0.12	1.26	2
Er	2.47	0.19	7.6	6	2.64	0.09	3.45	3	4.51	0.14	3	2
Yb	1.98	0.16	8.32	6	2.14	0.11	5.24	3	3.46	0.08	2.18	2
Lu	0.3	0.02	5.94	6	0.31	0.02	5.76	3	0.48	0.01	2.68	2

Note: Analyses were for repeated sample preparations and therefore reflect both sample preparation and instrumental precision combined. The analyses are reported on a fully oxidized, volatile-free basis.

Table 7. ICP/OE analyses for REE's for selected samples from ODP Site 808. Analyses recalculated to include loss on ignition (LOI).

Number	Hole	Core	Base (cm)	Depth (mbsf)	La	Ce	Pr	Nd	Sm	Eu	Gd	Dy	Er	Yb	Lu	La/Yb	Ba ICP	Nd (raw)
6	H, mud T8	1.1	61	0.61	25.20582	53.11288	6.756625	23.684	4.54648	1.0812	4.78611	3.4485	2.19383	1.3117	0.194	19.216	451.60	35.335
9	H, mud T6	5.2	21	36.51	23.37323	50.71854	6.218668	22.321	4.59189	1.05986	4.51993	3.50655	1.94804	1.51814	0.22361	15.396	374.60	31.986
10	H, mud T7	10.2	16	79.46	23.14714	50.03829	6.025871	22.280	4.4407	1.03925	4.32268	3.34995	1.74967	1.4016	0.20357	16.515	370.62	31.842
1	X, mud T4	2.1	27	120.87	25.02938	53.9632	6.528808	23.914	4.7711	1.11143	4.63423	3.74382	2.00238	1.67189	0.24697	14.971	379.40	33.703
2	X, mud T8	10.1	136	198.76	25.52106	54.71858	6.621415	23.854	4.68294	1.01223	4.420239	3.34421	1.80442	1.44309	0.2082	17.685	406.30	34.337
3	X, mud T8	15.1	11	244.61	25.93293	56.5773	6.507949	25.241	4.75895	1.06679	4.75368	3.63729	1.90917	1.5813	0.22643	16.400	442.70	36.663
4	X, mud T8	20.1	64	288.54	28.09798	61.72237	6.941755	26.399	5.13645	1.11367	4.79826	3.66133	1.86663	1.57881	0.22831	17.797	393.20	36.544
7	R, mudstone	1.1	100	299.5	19.56879	44.65028	5.708311	20.304	4.31489	1.00788	4.55162	2.51356	2.11852	1.49654	0.23113	13.076	380.30	30.116
5	X, mud T8	25.1	29	336.29	21.02888	46.68863	5.795912	19.083	4.17163	0.88125	4.10568	2.93797	1.68534	1.26001	0.19502	16.689	351.30	28.146
8	R, mudstone	5.1	38	337.28	26.02474	57.3836	6.556127	25.230	4.86245	1.09272	4.71695	3.56105	1.90215	1.49896	0.21358	17.362	390.70	35.310
11	R, mudstone	10.1	73	385.93	23.27912	51.60208	6.359632	23.756	4.74786	1.09805	4.899011	3.79739	2.23283	1.66262	0.24536	14.001	378.80	33.529
12	R, mudstone	15.1	50	434.2	24.15981	53.82382	6.443034	23.675	4.63952	1.04945	4.5121	3.5983	1.89833	1.58991	0.23144	15.196	387.00	33.660
13	R, mottle mud	20.4	122	487.42	22.15208	49.69103	5.98105	22.738	4.65613	1.09507	4.27981	3.70166	2.04061	1.63047	0.24147	13.586	397.40	32.991
14	R, mudstone	25.1	52	530.52	24.94615	54.75072	6.36764	23.588	4.38125	0.99573	4.32537	3.21846	1.64809	1.33397	0.19172	18.701	415.30	34.303
15	R, mudstone	30.1	116	579.46	25.43581	55.03364	6.37449	23.962	4.67668	1.04357	4.23798	3.33389	1.64347	1.33794	0.19594	19.011	401.20	34.313
16	R, crumbled ?	33.2	20	608.6	27.14651	59.40911	6.865552	25.472	4.98096	1.08199	3.9691	3.51765	1.89833	1.33816	0.19624	20.286	408.80	36.019
17	R, mottle mud	35.5	86	633.05	24.12469	50.37546	5.960838	21.968	4.34159	1.0077	4.27701	3.55342	1.88893	1.68731	0.2556	14.298	371.50	31.553
18	R, mottle mud	40.2	11	675.81	29.31103	62.03017	7.27521	26.264	4.91982	1.11517	4.65023	3.43985	1.72127	1.38356	0.20427	21.185	428.50	37.319
19	R, mottle mud	43.2	69	705.39	27.89676	61.22523	6.921568	25.709	4.90196	1.06156	4.62238	3.43591	1.65647	1.3412	0.19439	20.800	432.90	36.878
20	R, pyrocl sst	45.3	60	725.6	20.18387	43.08026	5.268607	24.146	2.8718	1.12499	5.08716	4.64934	2.40775	2.75584	0.43876	7.3240	1771.0	69.837
21	R, mottle mud	50.3	54	773.94	26.52588	55.63246	6.424997	25.146	4.66848	1.09924	4.72488	3.91005	2.01024	1.8096	0.26434	14.658	382.70	35.019
22	R, mottle mud	52.1	62	790.42	28.85009	62.39654	7.183707	27.153	4.59138	0.98892	4.36599	3.31777	1.57423	1.29312	0.1886	22.310	521.50	40.608
23	R, mottle mud	55.1	101	819.71	29.53042	61.18817	6.961075	26.350	4.66703	1.08922	4.36169	3.17378	1.66958	1.31172	0.18588	22.513	438.20	37.655
24	R, mottle mud	57.2	110	840.7	32.48187	67.46812	7.816065	29.292	5.09239	1.13781	4.83829	3.59363	1.88336	1.52597	0.22029	21.286	452.90	40.977
25	R, mottle mud	60.1	14	866.94	28.70824	59.93343	6.835717	25.787	4.65399	1.02228	4.31851	3.29014	1.72221	1.41271	0.20173	20.321	351.40	34.853
26	R, mottle mud	65.1	113	916.23	35.18215	72.23592	8.256433	30.509	5.28074	1.17895	4.89881	3.63756	1.85902	1.55463	0.22649	22.631	494.30	43.261
27	R, mottle mud	66.2	117	927.47	35.83366	74.26247	8.35845	31.350	5.42213	1.1788	4.79621	3.51399	1.80471	1.46756	0.21482	24.417	468.30	43.432
28	R, mottle mud	67.1	147	935.97	34.82556	71.59315	8.414363	31.069	5.55353	1.24617	5.1316	3.94459	2.06829	1.64666	0.24333	21.149	502.00	44.021
29	R, mottle mud	68.1	48	944.68	34.54346	71.23864	8.254707	31.554	5.38984	1.2204	4.81869	3.72544	1.92733	1.54692	0.22438	22.330	471.40	43.716
30	R, decollement	69.1	6	953.86	33.88381	72.76306	8.465125	32.191	6.19577	1.56603	7.023099	5.6922	3.29406	2.3982	0.35341	14.129	458.70	44.026
31	R, decollement	69.3	112	957.92	36.33672	73.35169	8.497578	32.176	5.72894	1.3349	5.88767	4.67509	2.62292	2.18883	0.3217	16.601	522.70	45.662
32	R, decollement	69.4	68	958.98	32.69526	65.44059	7.790429	28.561	5.02995	1.09076	4.57677	3.18591	1.58774	1.09916	0.15576	29.746	437.40	39.846
33	R, decollement	69.5	63	960.42	38.54763	77.19643	9.025819	34.648	6.46384	1.51924	7.12265	6.71667	4.34408	4.21062	0.64281	9.1549	526.70	48.237
34	R, mottle mud	70.1	43	963.83	34.18828	69.34116	8.11881	30.727	5.21143	1.17346	5.10571	3.83333	1.86647	1.50903	0.21836	22.656	604.30	46.318
35	R, mottle mud	71.1	33	973.43	34.6924	72.98605	8.301262	32.420	6.00345	1.37978	6.07771	5.0026	2.71138	2.23476	0.33005	15.524	478.40	44.763
36	R, mottle mud	71.3	92	977.02	36.76616	74.1359	8.298916	31.927	5.31167	1.1591	4.74375	3.31919	1.50511	1.2024	0.16964	30.577	575.70	46.780
37	R, mottle mud	75.1	117	1012.52	33.14368	70.661	7.804063	29.562	5.0798	1.08422	4.50358	3.3516	1.59756	1.35044	0.19635	24.543	508.80	42.689
38	R, mottle mud	78.4	95	1044.52	34.81438	72.52616	7.947577	30.571	5.04251	1.07416	4.64257	3.36155	1.61471	1.39363	0.20362	24.981	566.60	45.190
39	R, carbonate	80.2	78	1060.11	186.6305	298.4738	30.59836	117.38	20.87868	6.4967	33.68956	31.86821	21.18133	14.61138	'2.16009	12.773	1004.4	143.29
40	R, mottle mud	82.1	107	1077.61	31.84775	67.31701	7.574239	28.026	4.75189	1.05185	4.29493	2.99711	1.43972	1.14372	0.16949	27.846	438.90	39.350
41	R, mottle mud	85.2	28	1100.12	30.03079	60.44579	6.7477	25.187	4.21445	0.93294	4.03464	3.29767	1.79469	1.7705	0.27329	16.962	538.30	39.075
42	R, mottle mud	88.1	41	1127.3	34.75351	72.83688	8.238038	30.886	5.38884	1.19998	5.12069	3.88196	2.05594	1.73052	0.25766	20.083	469.70	43.004
43	R, mottle mud	90.1	59	1156.51	33.93098	70.15169	8.097703	29.485	5.43559	1.17671	5.26082	4.16793	2.36493	2.02883	0.30334	16.724	425.40	40.460
44	R, mottle mud	92.1	140	1167.01	34.70989	74.84795	8.369534	30.885	5.61517	1.22766	5.12884	4.07034	1.69649	1.9057	0.25016	18.214	461.70	42.797
45	R, mottle mud	94.2	46	1186.81	34.94095	72.88142	8.292532	29.296	5.11196	1.0935	4.89825	3.21971	1.74645	1.03646	0.15138	33.712	472.70	41.492
46	R, mottle mud	97.1	25	1214.21	22.28646	51.14859	5.853738	23.295	4.1291	0.97504	4.04551	3.27128	1.68171	1.49398	0.22286	14.918	483.30	35.764
48	R, ashy mud	100.1	73	1243.71	13.39534	30.54262	3.714891	11.919	2.6398	0.01926	11.74462	4.56671	2.95867	1.56755	0.31218	8.5454	217.90	17.541
49	R, ash	101.2	21	1253.91	51.15969	128.3653	15.34446	65.531	12.43248	3.78772	20.30998	10.00324	4.9236	2.81103	0.48428	18.200	946.20	89.943
47	R, green mud	102.1	30	1261.81	30.50893	61.25724	7.255175	27.291	4.82266	0.95909	5.080659	4.81216	2.94636	2.42155	0.34715	12.599	374.30	36.948

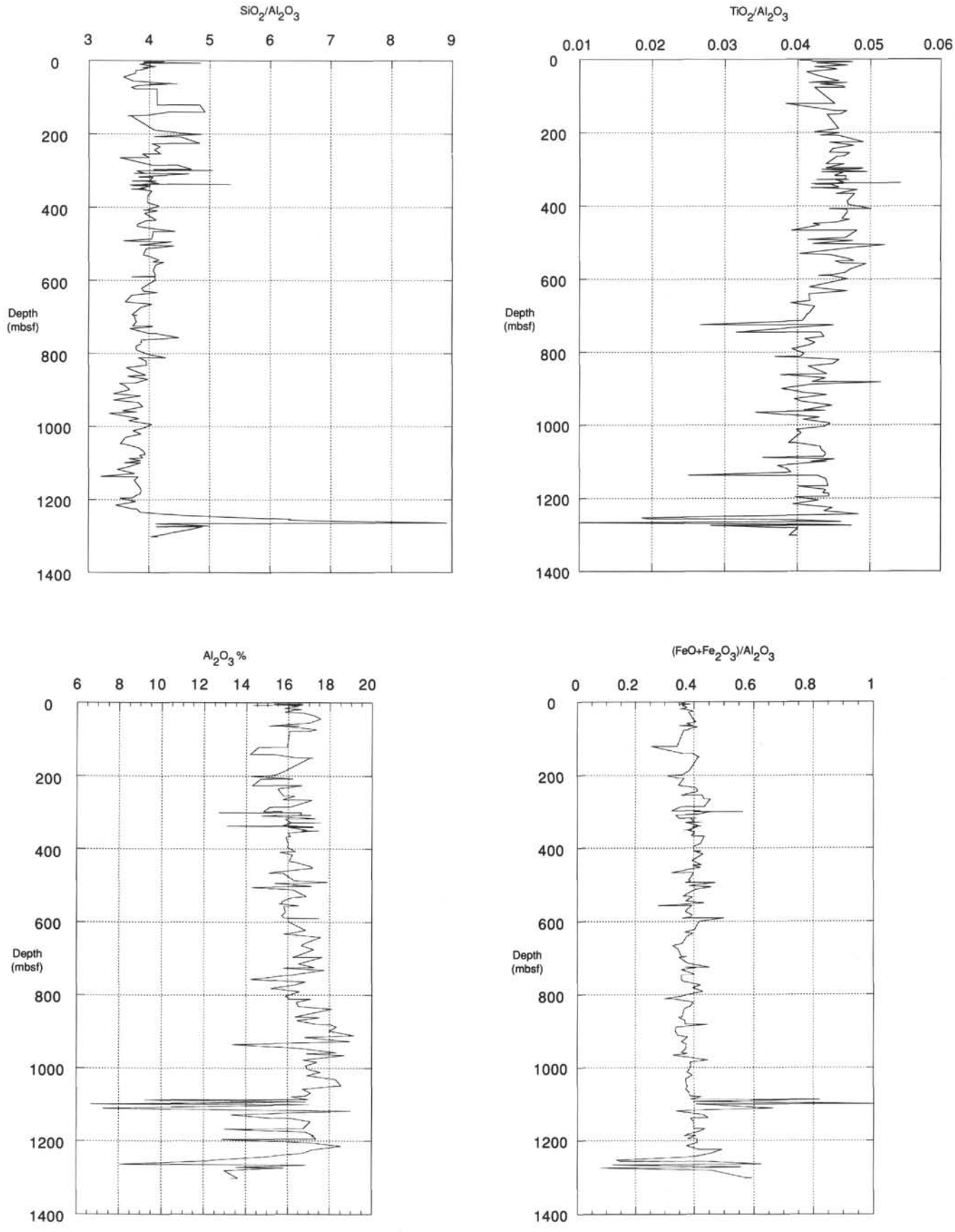
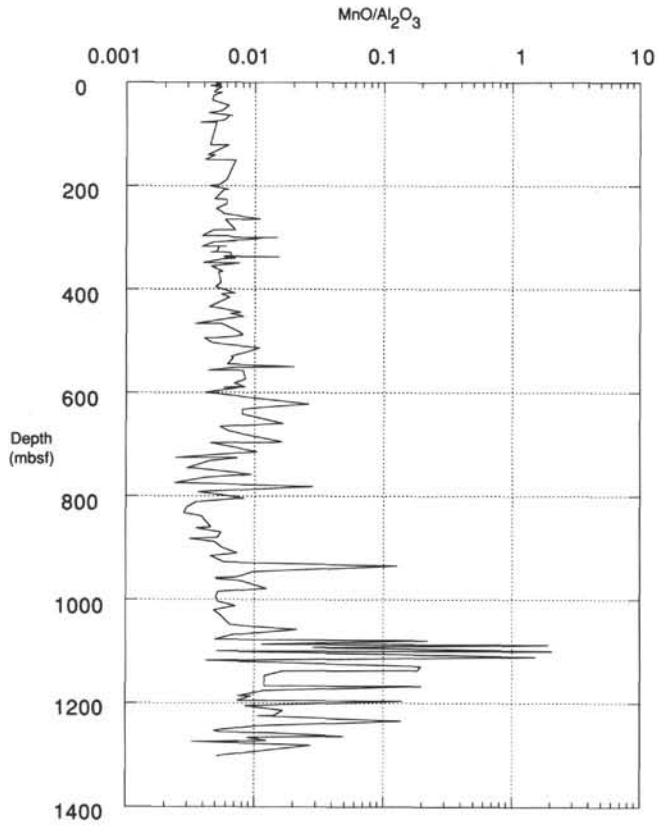
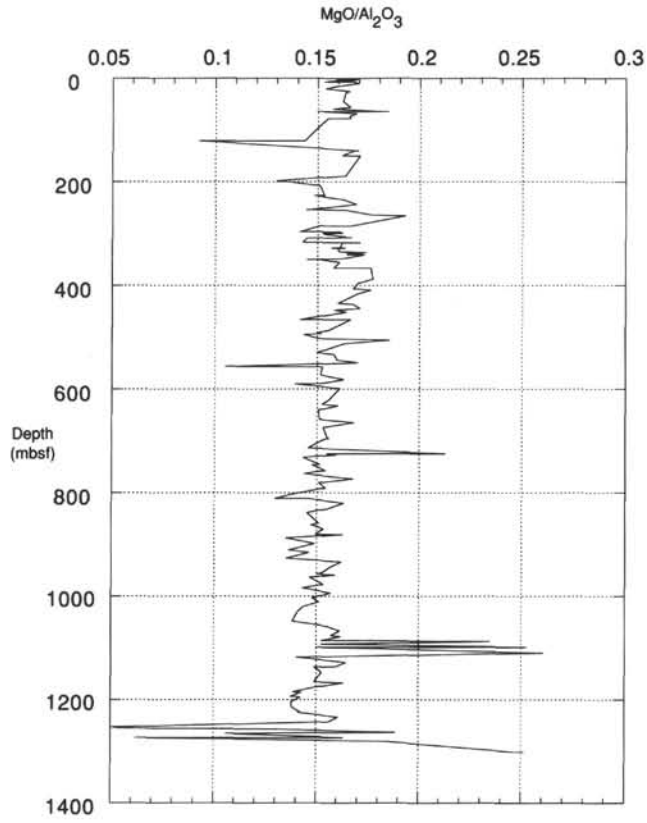
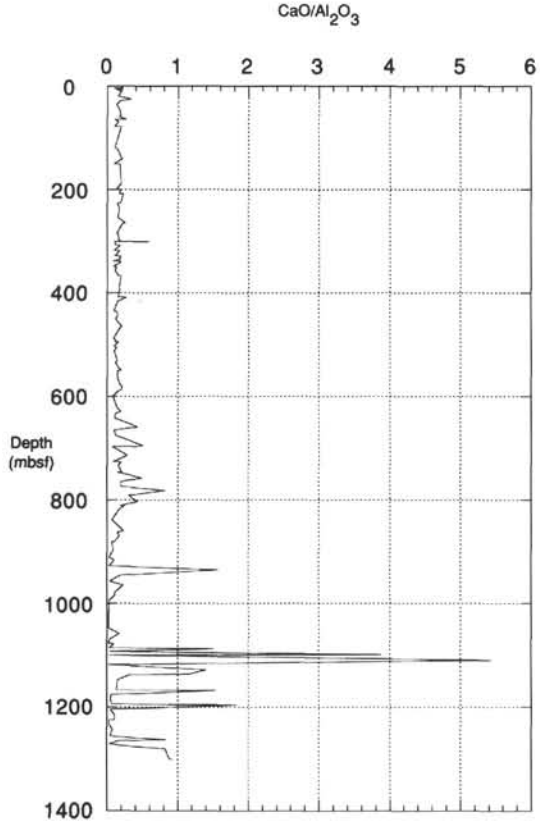


Figure 1. Element and element oxide abundances vs. depth (mbsf) for Site 808. Graphs show element and element oxide abundances normalized to Al_2O_3 vs. depth.







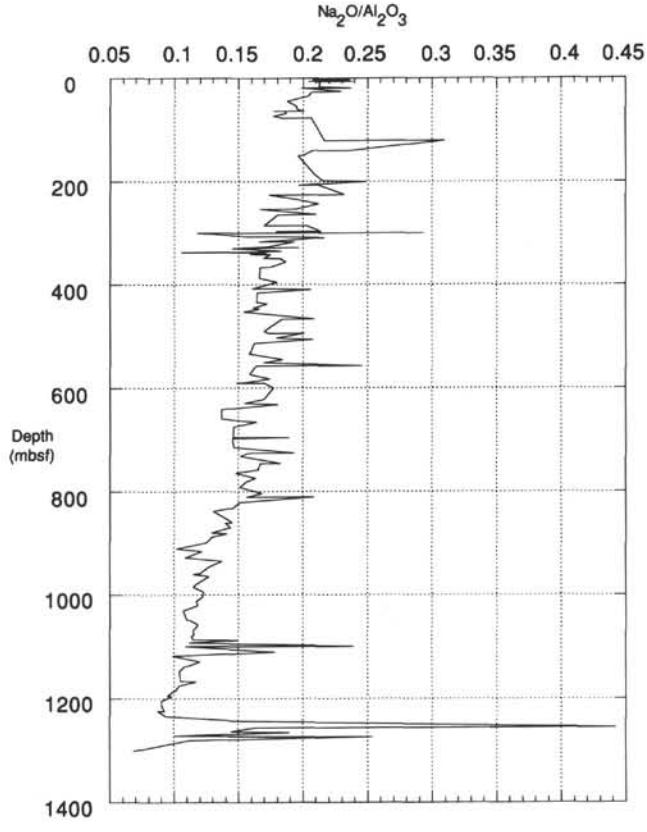
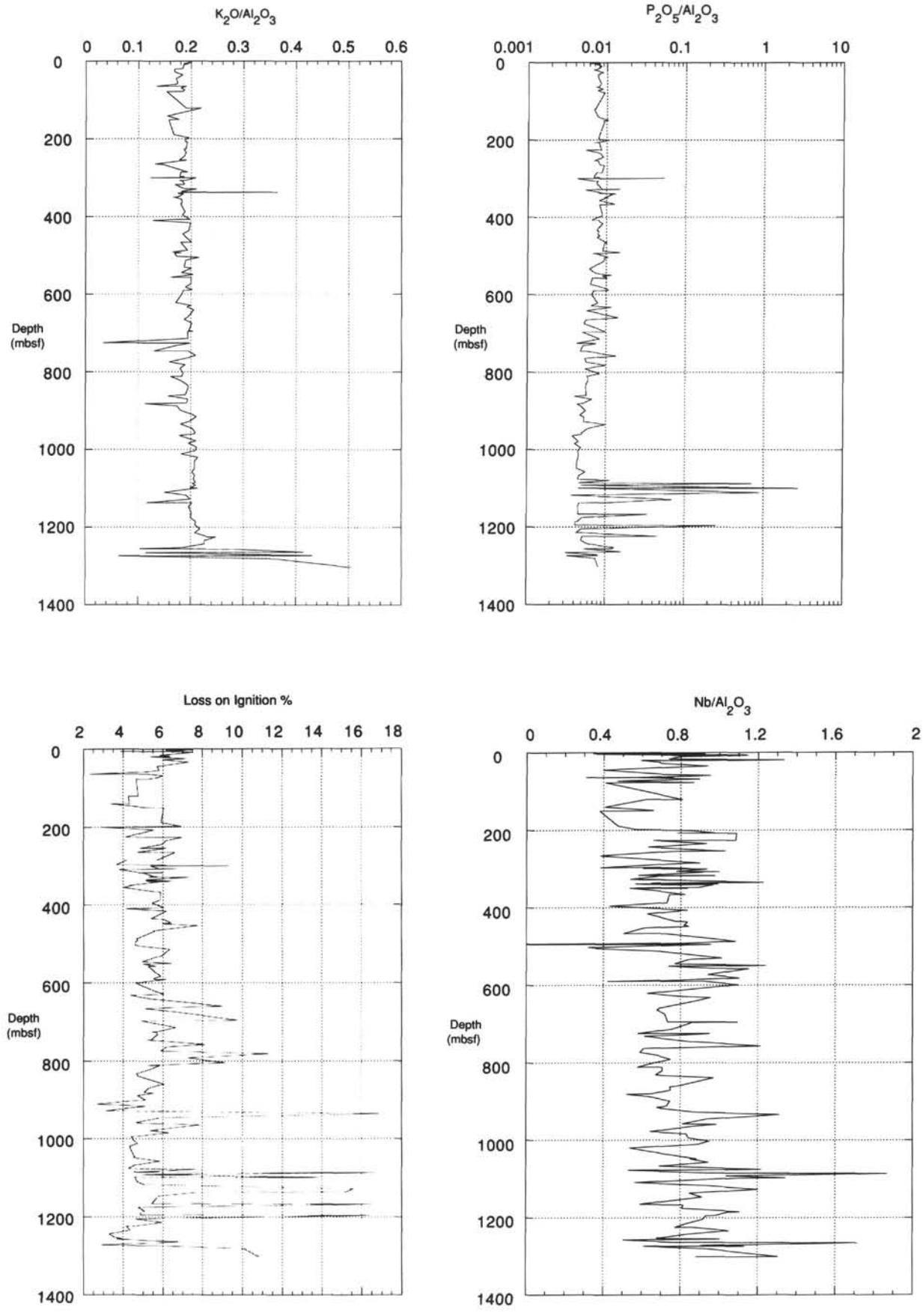


Figure 1 (continued).



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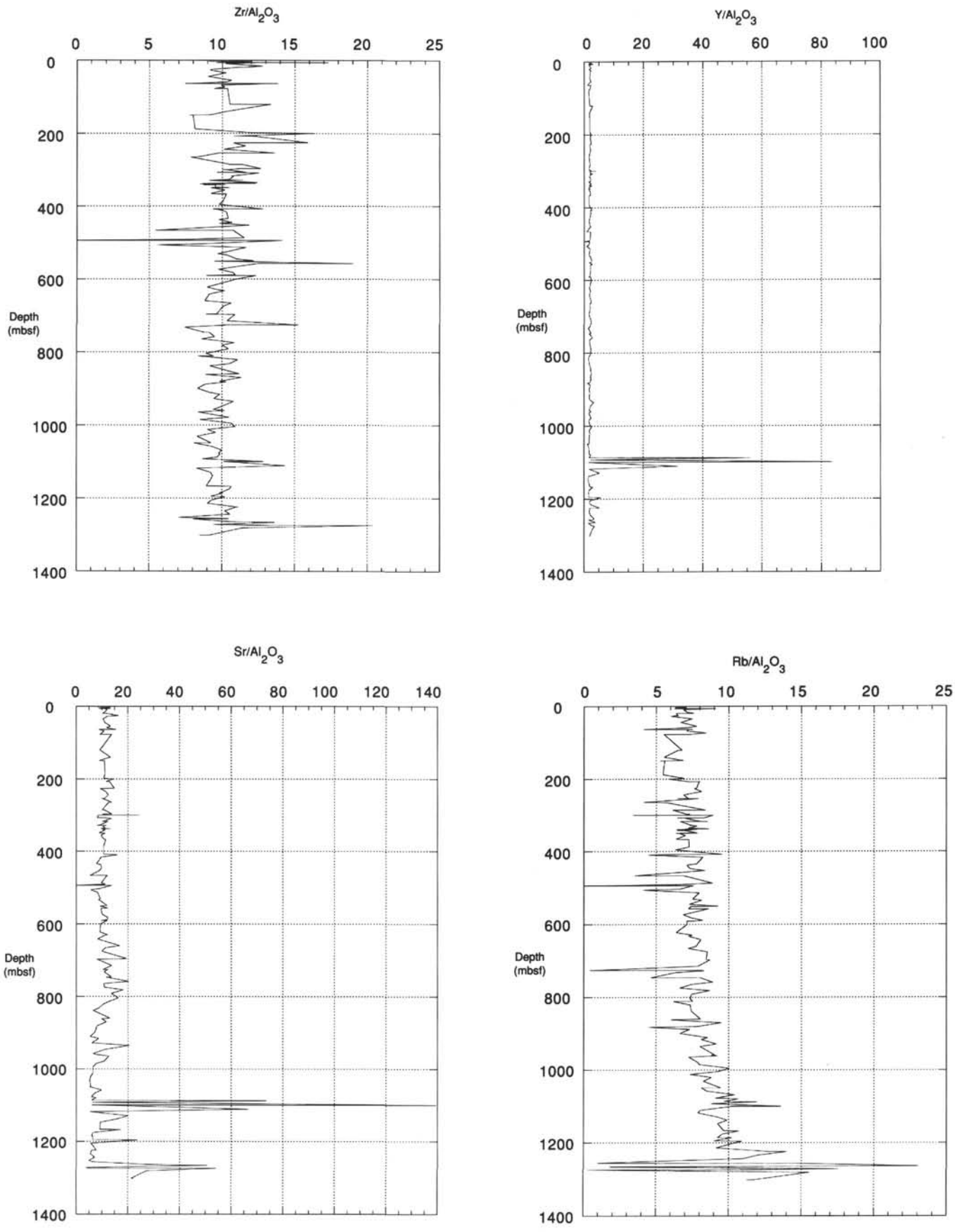

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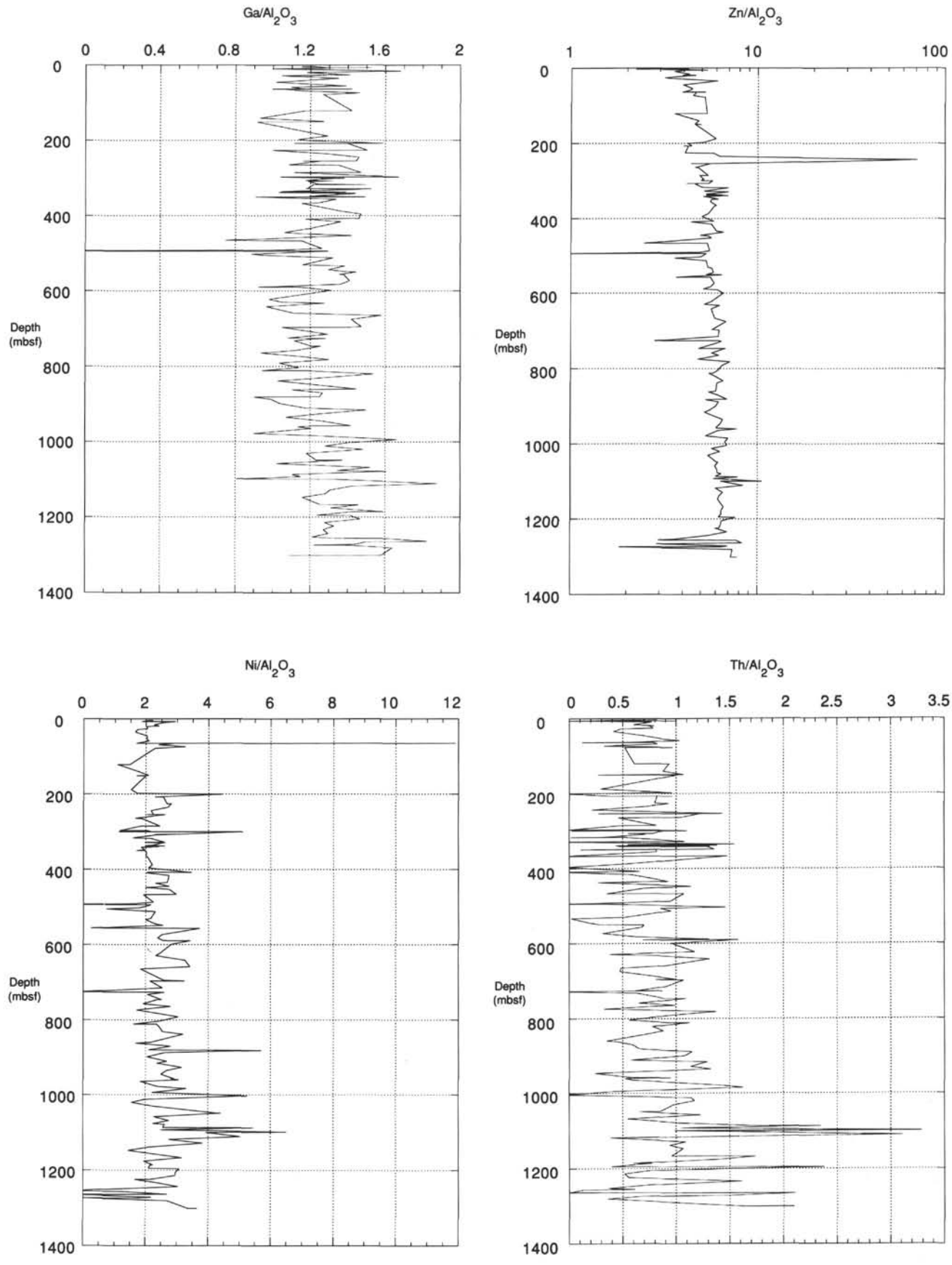

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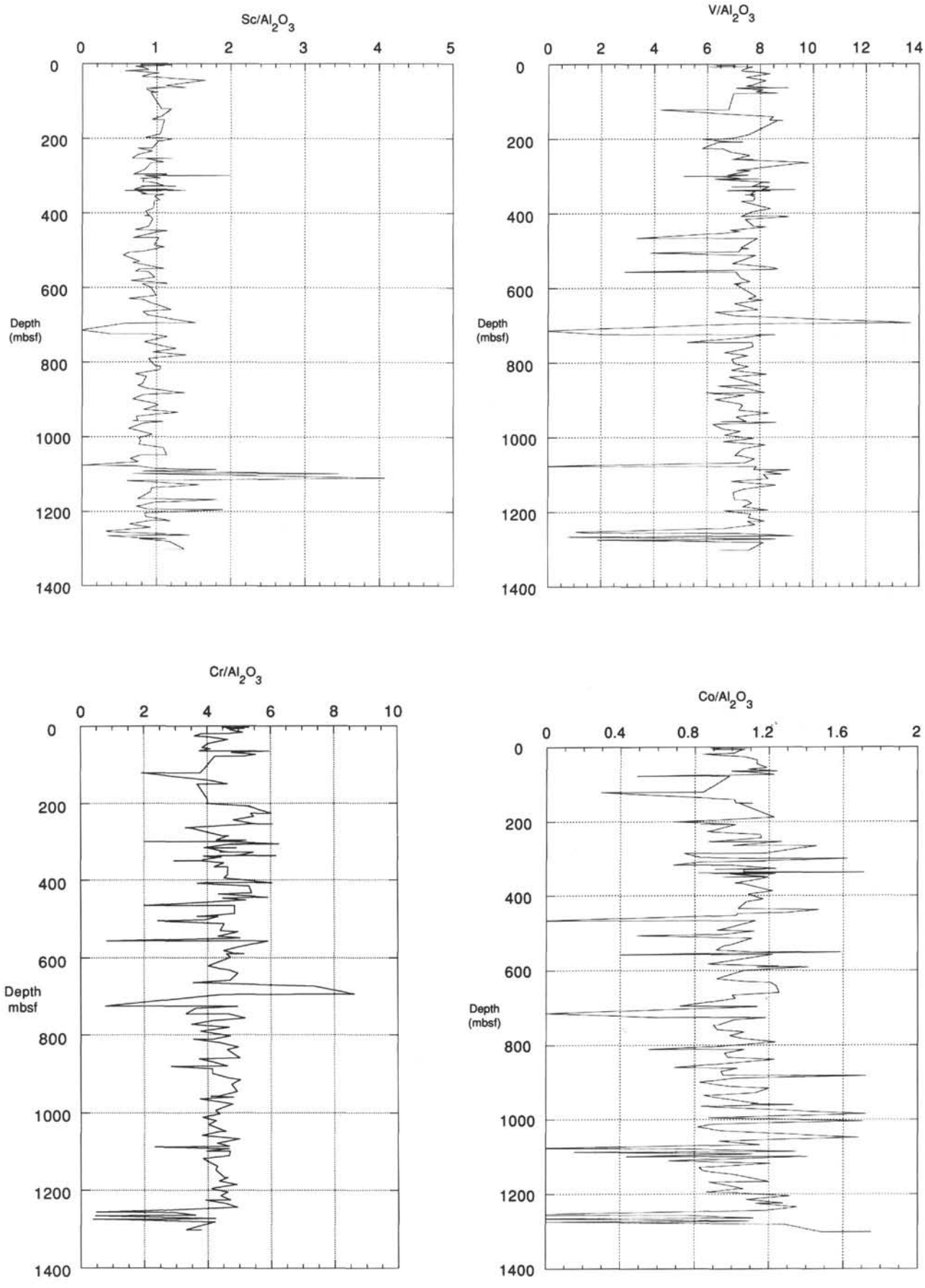

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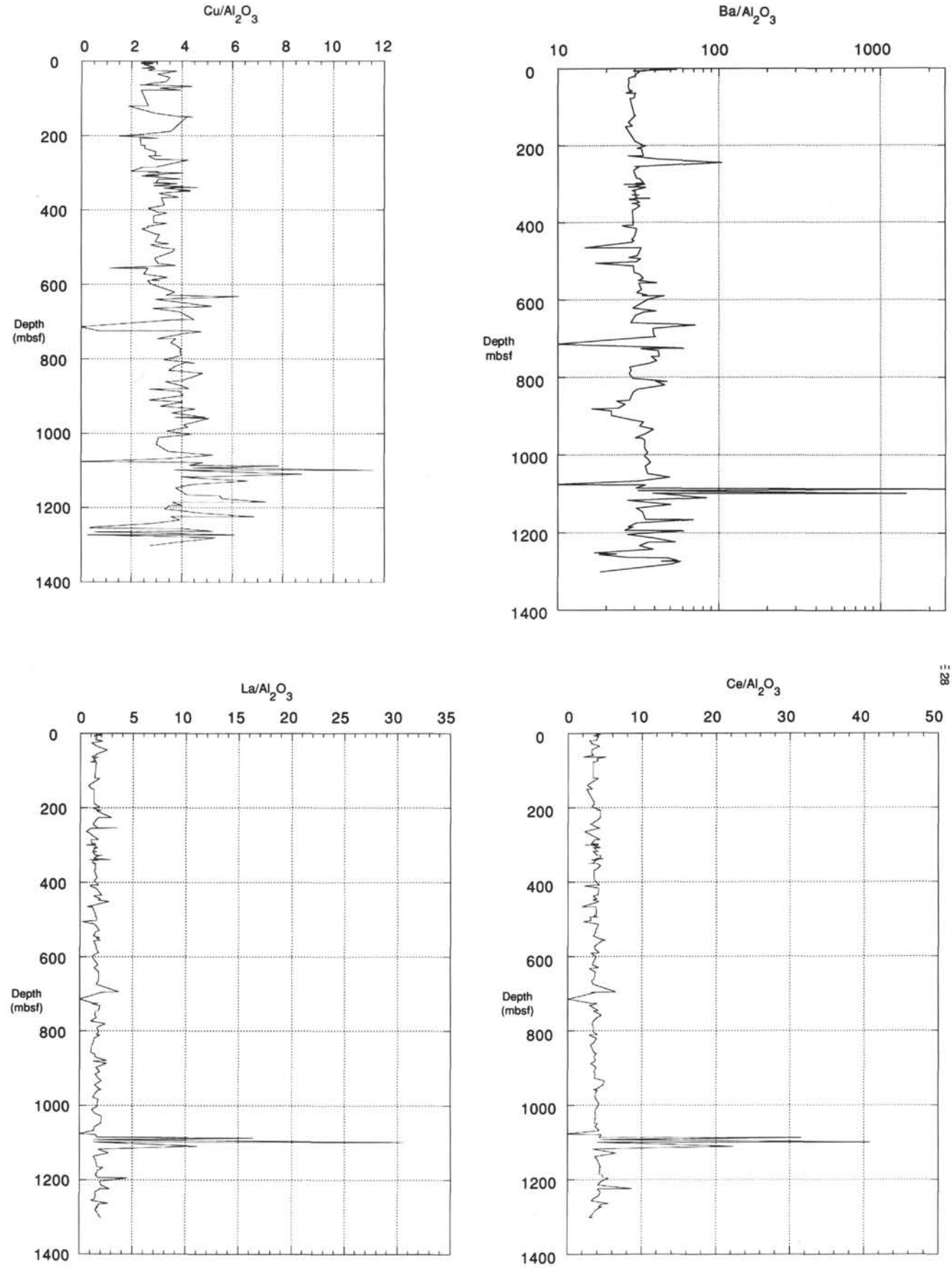

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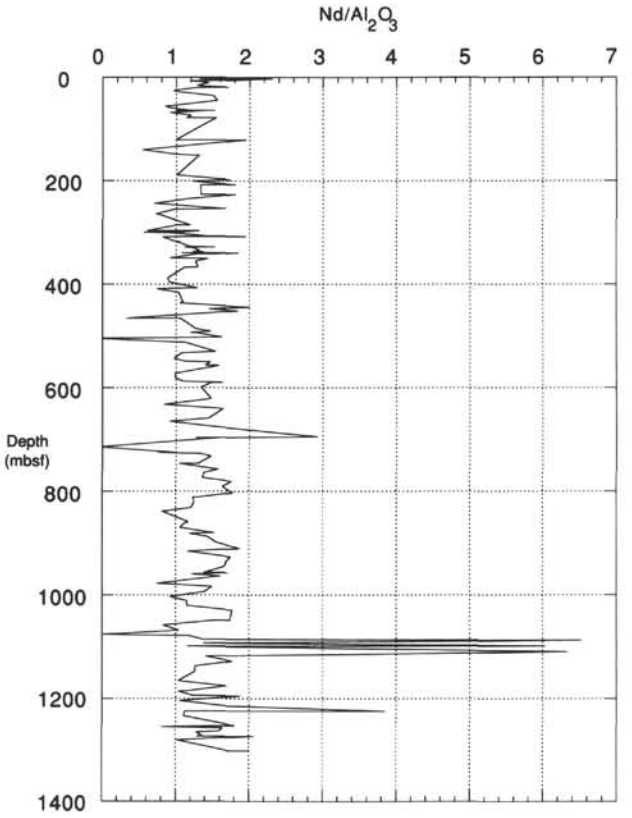

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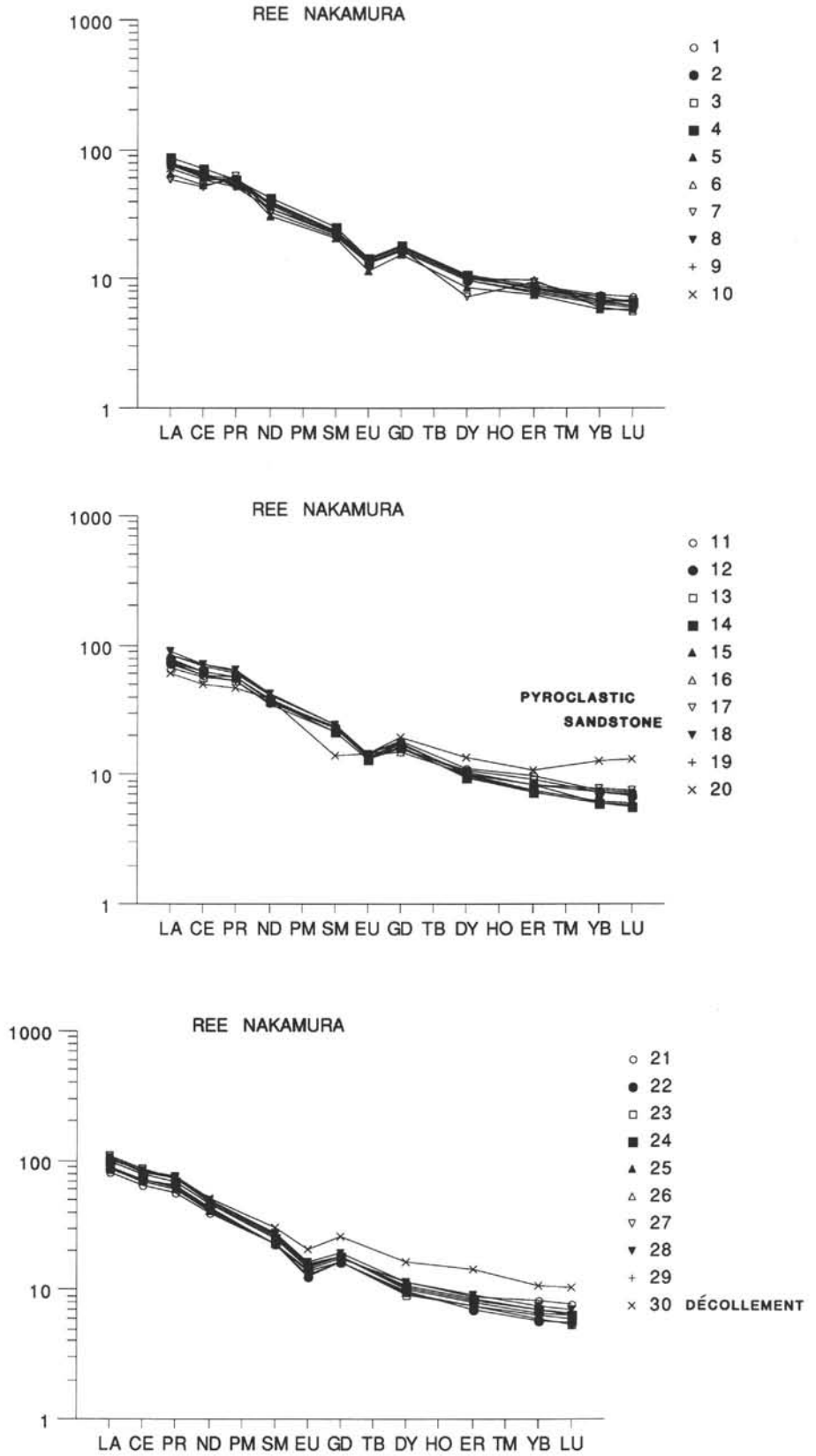
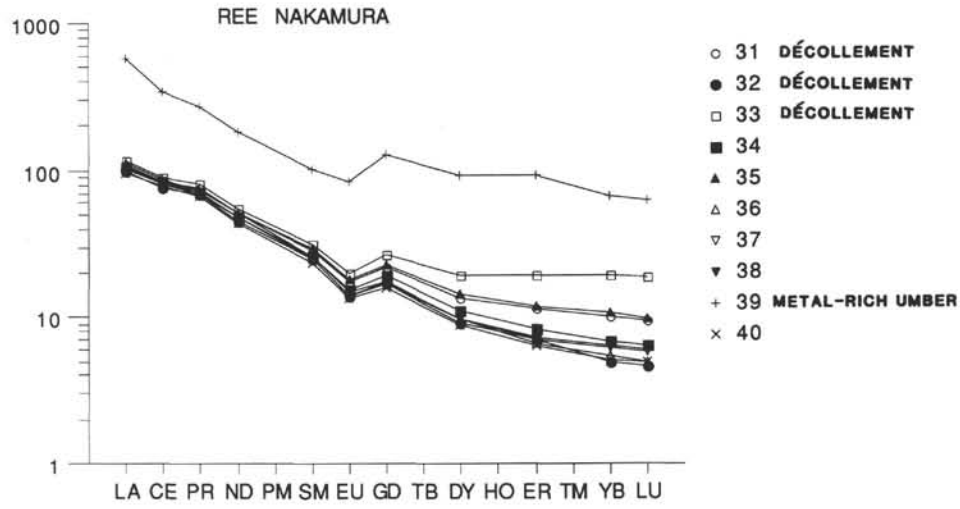
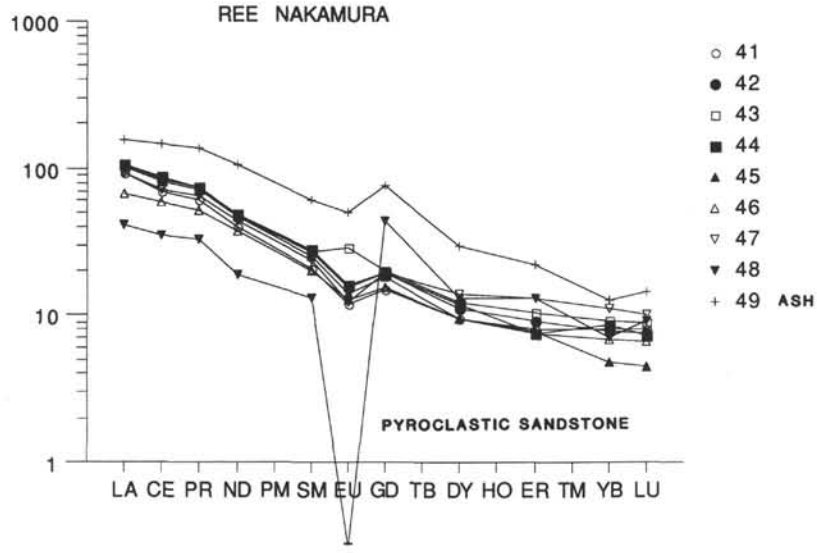


Figure 2. Chondrite normalized (Nakamura, 1974) REE abundances for 49 sediment samples, mainly mud, throughout Site 808, grouped for clarity in tens. Note that the few primary volcanic sands and ashes analyzed show typical higher total abundances of REE, with pyroclastic sand showing large negative Eu anomaly. Also note that three out of four mud samples from the ~20-m-thick décollement show enhanced heavy REE abundances.





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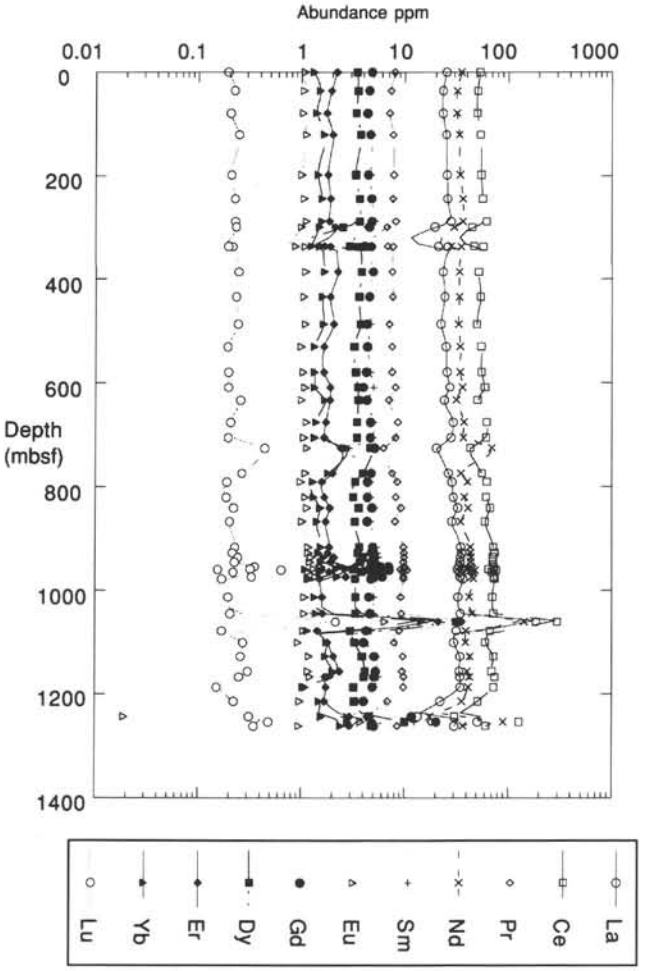

Figure 3. Rare-earth-element abundances (ppm) vs. depth (mbsf) for Site 808. Logarithmic axes used to clarify abundance data. Note the dramatic increase in abundances in the interval at ~1060 mbsf, associated with a metalliferous brown mud, also enriched in Ca, Fe, Mg, Mn, and P oxides.