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9. *DATA REPORT:* TRACE ELEMENTS AND ISOTOPES IN PORE WATER FROM SITES 1023 THROUGH 1032, EASTERN FLANK OF THE JUAN DE FUCA RIDGE[1]

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INTRODUCTION

Pore water was collected from each of 10 sites during Ocean Drilling Program (ODP) Leg 168 on the eastern flank of the Juan de Fuca Ridge. These ten sites delineate a transect perpendicular to the present ridge axis and span a crustal age of 0.86–3.59 Ma. At nine of the ten sites the entire sediment section, which ranged from 41.3 to 613.8 m thick, was cored and attempts were made to recover at least one whole round of sediment per section of core for extraction of pore water. Several (2–5) whole-round sediment samples were taken from the uppermost and lowermost cores to constrain the chemical gradient near the sediment/water and sediment/basalt interfaces, respectively.

Pore water was extracted from whole-round sediment core sections by squeezing only the most pristine sediment in a titanium squeezer designed by Manheim and Sayles (1974). Two additional water samples were collected in situ using the water-sampler temperature probe (WSTP; Barnes, 1988). Both of these samples were collected in the cased section of the open borehole from ODP Hole 1026B. Formation fluids were flowing up the cased hole into the overlying deep seawater (Fisher et al., 1997). Detailed descriptions of the sampling methods that were used to collect fluids are given by the Shipboard Scientific Party (Davis, Fisher, Firth, et al., 1997).

An additional composition listed is that of the Baby Bare springs. Baby Bare is a basement bathymetric high that penetrates the thick turbidite sediment and rises 80 m above the surrounding turbidite plain. It is located about 6.5 km south-southwest of ODP Site 1026 (Wheat and Mottl, 1994; Mottl et al., 1998). The spring composition is a composite of 39 samples from several springs on the outcrop and extrapolated to the end-member fluid, which contained virtually no magnesium (Wheat and Mottl, in press).

We present chemical analyses for Li, Rb, F, B, Mn, Fe, Sr, and Ba, and the isotopic composition of Sr, O, H, and S in pore water from Leg 168 (Table 1; Figs. 1–3). Radiocarbon measurements are reported by Elderfield et al. (1999).

ANALYTICAL METHODS

Li and Rb were determined by flame emission spectrometry using a standard addition method similar to that of Stoffyn-Egli (1982) on a five-fold dilution of an unacidified aliquot. We measured Li at 671.0 nm and Rb at 779.4 nm, using a 0.2-nm slit. To account for spectral interference, we measured the background intensity 0.4 nm above and below the peak intensity. The average background intensity was then subtracted from the peak intensity. Precision on replicate analyses of the International Association for the Physical Sciences of the Ocean (IAPSO) standard is 1.3% for Li and 3.8% for Rb.

B, Mn, Fe, Sr, and Ba were determined at the University of Hawaii by inductively coupled plasma-atomic emission spectrometry (ICP-AES) on acidified samples, with a precision of 2%–5%. These samples were acidified with 40 µL of sub-boiled hydrochloric acid (6 N) per 10 mL of sample. Samples were then diluted five times with 1% sub-boiled nitric acid before being injected. Sr and Ba were also determined at Universite Paul Sabatier in Toulouse by inductively coupled plasma-mass spectrometer (ICP-MS) using Indium as an internal standard, with a precision of 3% (Freydier et al., 1995). Agreement between the two methods was generally within the stated uncertainties; values reported are means.

Fluoride was determined using a modified form of the electrode method described by Froelich et al. (1983). A fluoride-ion–selective electrode was immersed in 0.2 mL of sample that was mixed with 0.2 mL of TISAB II (Orion #94-09-09) buffer. This method suffers from an interference by magnesium. Because concentrations of magnesium differ from about 0 to 52 mmol/kg in these samples, we determined the empirical relationship between the concentration of magnesium and the extent of the interference for the entire range of magnesium concentrations. This relationship was then applied to each of the samples using the concentration of magnesium that was determined shipboard. Precision was 2%.

Sr isotopic analyses were performed at the University of Cambridge (Oyun et al., 1995). O, H, and S isotopic analyses were performed by NERC Scientific Services (NIGL Keyworth and SURRC East Kilbride/University of Arizona), using standard methods.

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Table 1. Composition of pore water from Sites 1023 through 1032.

Core, section, interval (cm)	Depth (mbsf)	Li (mmol/kg)	Rb (mmol/kg)	F (mmol/kg)	B (µmol/kg)	Mn (mmol/kg)	Fe (mmol/kg)	Sr (µmol/kg)	Ba (mmol/kg)	$^{87}Sr/^{86}Sr$	$\delta^{18}O$ (per mil)	δD (per mil)	$\delta^{34}S$ (per mil)
168-1023A-													
1H-1, 140-150	1.45	23.1	1.93	51.9	479	139.5	7.9	87.8	3.4				
1H-2, 140-150	2.95			39.8	492	97.6	4.7	86.4	2.9				
1H-3, 140-150	4.45	13.7	1.51	33.2	491	83.5	16.8	85.0	1.7				
1H-4, 140-150	5.95			28.8	498	37.1	32.4	86.9	1.7				
1H-5, 140-150	7.45		1.58	30.6	447	0.0	0.0	76.8	1.5				
2H-1, 140-150	10.75			35.2	482	25.0	10.2	84.8	1.7				
2H-5, 140-150	16.75	14.5	1.43	37.9	487	33.2	9.3	83.1	5.5				
3H-5, 140-150	26.25			24.7	484	26.9	9.5	79.0	7.7				
4H-5, 140-150	35.75	14.2	1.10	16.9	490	14.0	6.0	79.3	2.9				
5H-5, 140-150	45.25			13.0	451	7.9	6.5	83.8	13.0				
6H-5, 140-150	54.75	10.6	0.94	14.4	420	4.7	7.5	95.9	40.7				
7H-5, 140-150	64.25			16.6	442	5.2	4.8	95.6	30.3				
8H-5, 140-150	73.75	10.2	0.83	12.0	428	7.8	6.8	95.1	40.6				
9H-5, 140-150	82.85			7.0	426	5.0	3.5	94.3	41.0				
10H-5, 140-150	92.75	9.9	0.93	10.3	389	12.2	6.5	98.4	52.3				
11H-5, 140-150	102.25			8.5	427	7.1	9.8	98.1	38.8				
12H-5, 140-150	111.75	10.3	0.88	5.9	414	11.3	7.2	98.8	45.4				
13H-5, 140-150	121.25			7.1	345	4.5	5.3	95.3	52.3				
14H-4, 140-150	129.25	9.9	0.54	7.1	422	6.2	6.1	96.1	40.2				
15X-2, 135-150	132.93	10.2	0.59	6.9	367	4.2	1.4	93.2	31.1				
16X-3, 135-150	137.13			3.9	339	9.8	5.2	89.4	35.4				
17X-3, 135-150	146.73	11.6	0.64	3.4	307	9.3	10.5	94.2	37.2				
18X-4, 135-150	157.83			4.6	326	4.1	2.3	91.1	7.2				
19X-2, 135-150	164.53	16.7	0.87	4.2	294	10.1	5.7	91.0	3.0				
20X-4, 135-150	177.13			6.5	378	16.5	5.6	91.1	3.3				
21X-3, 135-150	185.23	24.7	1.11	11.0	326	21.8	3.7	92.8	2.9				
21X-4, 135-150	186.73			13.8	365	21.4	3.6	91.0	3.0				
21X-5, 110-125	187.98	23.9	1.28	12.4	382	21.4	4.0	88.8	1.5				
21X-6, 75-85	189.10	23.9	1.32	14.5	375	24.8	9.1	90.2	1.6				
22X-1, 88-103	191.36	24.3	1.36	17.4	359	26.5	4.7	90.1	2.0				
22X-2, 47-62	191.98	24.3	1.27	16.2	342	26.0	6.0	90.0	4.0				
168-1024A-													
1H-1, 115-125	1.20			58.4	520	126.0	22.9	85.9	1.0				
1H-2, 140-150	2.80			48.5	483	94.4	20.1	86.4	0.7				
1H-3, 140-150	4.30			39.2	491	64.5	20.8	86.2	0.7				
1H-4, 140-150	5.80			36.8		5.1							
1H-5, 140-150	7.30			40.3	495	51.9	17.2	83.5	0.9				
1H-6, 140-150	8.80			37.8	517	45.2	17.3	84.8	1.8				
168-1024B-													
1H-1, 140-150	1.45		1.84	55.9		92.8		87.9	0.6				
1H-2, 140-150	2.95	18.6	1.65	44.4	489	109.2	7.4	88.4	0.6				
1H-3, 140-150	4.45			35.1	513	85.6	4.8		4.0				
1H-5, 140-150	7.33	8.8	1.31	36.0	530	70.3	32.2	85.9	2.6				
2H-2, 140-150	10.55			26.7	520	57.8	11.4	82.5	1.3				
2H-5, 140-150	15.05	14.3	1.37	34.9	514	47.0	17.0	85.2	0.8				
3H-5, 140-150	24.55			26.3		41.3		83.3	0.8				
4H-5, 140-150	34.05	15.9	1.18	17.5	511	15.0	4.8	79.5	2.9				
5H-5, 140-150	43.55			9.3		0.7		79.4	3.5				
6H-5, 140-150	53.05	11.0	1.04	6.7		3.3		82.0	1.6				
7H-5, 140-150	62.55			4.2		9.3		79.5	2.5				
8H-5, 140-150	72.05	14.6	1.15	5.6		5.5		82.2	8.7				
9H-5, 140-150	81.55			5.1	406	13.3	4.7	96.4	45.7				
10H-5, 135-150	91.03	13.6	0.89	3.5	399	8.7	4.9	98.4	66.3				
11H-5, 135-150	100.53			3.4	362	9.2	6.0	95.3	61.1				
12H-5, 135-150	110.03	16.9	0.84	6.2		11.8		101.4	38.9				

Table 1 (continued).

Core, section, interval (cm)	Depth (mbsf)	Li (mmol/kg)	Rb (mmol/kg)	F (mmol/kg)	B (µmol/kg)	Mn (mmol/kg)	Fe (mmol/kg)	Sr (µmol/kg)	Ba (mmol/kg)	$^{87}Sr/^{86}Sr$	$\delta^{18}O$ (per mil)	δD (per mil)	$\delta^{34}S$ (per mil)
13H-5, 135-150	119.53	18.6	0.82	2.4		0.5		101.7	7.5				
14X-5, 135-150	129.03	18.3	0.90	4.5		0.4		100.6	3.1				
15X-5, 135-150	138.63			5.4	364	24.5	8.1	102.0	1.6				
16X-5, 135-150	148.23	29.0	0.82	6.3		0.7		101.7	3.2				
17X-5, 135-150	157.83	30.8	1.12	9.6	363	41.4	9.3	97.1	1.0				
18X-1, 135-150	161.43	31.3	1.07	13.0				97.8	2.4				
18X-2, 135-150	162.93			15.0	315	45.0	5.4	96.1	1.1				
18X-3, 135-150	164.43	30.5	1.22	15.8	315	38.2	2.7	93.6	0.9				
18X-4, 135-150	165.93	29.4	0.97	14.3	313	34.0	10.4	93.8	0.6				
18X-5, 135-150	167.43	28.1	1.24	14.1	313	26.0	2.2	91.7	1.5				
168-1025A-													
1H-1, 140-50	1.45			56.3	486	108.6	11.5	87.1	1.4		–0.09	–1.65	22.2
1H-2, 140-150	2.95			40.1	483	72.1	24.3	86.3	0.8				
1H-3, 140-150	4.45			29.9	485	35.1	4.9	87.1	1.0		0.19	–2.02	30.4
168-1025B-													
1H-1, 140-150	1.45	22.9	1.80	52.8		74.3		92.6	0.5				
1H-2, 140-150	2.95			39.4	476	75.6	18.3	90.3	0.5		–0.10	–1.58	24.4
1H-3, 140-150	4.45	12.5	1.39	29.1	481	37.6	23.6	91.0	0.5				
2H-1, 140-150	6.45			19.0	499	25.8	24.3	87.8	1.0		0.04	–0.68	43.1
2H-2, 140-150	7.95	8.3	0.97	15.3	486	23.2	13.6	86.3	0.6				
2H-3, 140-150	9.45			14.1				87.6	0.9		0.09	2.14	58.5
2H-4, 140-150	10.95	9.5	0.97	12.6	510	17.3	17.4	87.6	0.8				
3H-5, 140-150	21.95			12.7		0.4		91.8	0.9		0.38	2.81	
4H-5, 140-150	31.45	17.5	1.04	6.9		0.4		104.1	1.2				
5H-5, 140-150	40.95			3.5		10.9		111.4	0.7		0.56	2.99	
6H-5, 140-150	50.45	21.1	0.98	3.1	433	14.4	6.7	116.4	1.4				
7H-5, 140-150	59.95			4.2	415	34.3	5.6	116.8	0.8		0.64	4.14	36.2
8H-5, 140-150	69.45	39.8	0.96	4.9	348	27.3	3.5	114.9	1.6				
10X-1, 135-150	82.53	48.1	0.78	11.2	307	81.7	5.3	108.9	0.8		0.32	1.55	24.1
10X-5, 135-150	88.53	42.7	0.79	13.8	332	79.5	4.7	105.4	1.0				
11X-2, 135-150	93.63	34.8	0.89	11.2	327	71.8	10.1	99.9	0.8		0.04	0.90	
11X-3, 135-150	95.13	32.0	0.88	9.9	318	64.4	3.9	100.8	1.0		–0.02	1.05	
11X-4, 135-150	96.63	26.9	0.92	9.1	307	46.9	3.2	98.6	0.8		–0.07	0.27	21.7
168-1026A-													
1H-1, 140-150	1.45	24.9	1.88	47.9	504	79.2	3.7	107.9	4.7	0.709076	–0.16	–1.36	
1H-2, 140-150	2.95			37.1	464	28.6	5.1	87.4	0.9	0.709076	–0.16	–1.81	
1H-3, 140-150	4.45	19.1	1.67	29.5	477	33.3	6.7	88.7	0.6		–0.20	–0.51	
2H-2, 140-150	8.35			17.7		8.9	0.0	88.9	1.0	0.708650	–0.16	–0.04	
2H-3, 140-150	9.85	10.8	1.18	13.8	447	7.6	5.9	80.6	0.5	0.708587	–0.18	2.49	
2H-5, 140-150	12.85			14.7	433	6.5	4.9	79.4	0.6	0.708382	–0.15	0.97	
3H-5, 140-150	22.35	5.8	0.60	29.2	349	6.8	2.7		2.5		–0.02	1.67	
4H-5, 140-150	31.85			36.7	362	4.9	2.9	81.8	1.6	0.707795	0.21	6.22	
5H-5, 140-150	41.35	5.0	0.48	8.7	367	6.5	4.1	83.5	7.1	0.707938	0.29	5.00	
6H-1, 140-150	44.85			10.5	382	3.8	2.5	87.2	12.3		0.21	3.19	
7H-5, 140-150	60.35	7.1	0.46	5.5	368	8.6	5.0	86.4	7.6	0.708039	0.31	2.80	
8H-6, 140-150	71.35			3.8	374	3.9	4.1	97.5	9.9	0.708114	0.38	3.29	
9H-4, 140-150	77.85	6.5	0.43	3.3	400	4.5	5.7	111.8	15.3		0.39	3.38	
10H-5, 140-150	88.85			1.7	430	6.1	14.8	116.0	14.5	0.708044	0.48	2.93	
11H-5, 140-150	98.35	7.6	0.41	1.5	430	4.8	11.4	120.1	18.4	0.708025	0.60	3.07	
168-1026B-													
WSTP-1 prime	256	7.3	0.92	79.4	540	5.6	10.5	112.8	0.7	0.707392			
Overflow*	256	286.9			476	12.8	0.6	102.3	1.7				
WSTP-2 prime	256	13.6	1.01	50.4	537	2.0	2.8	111.6	0.3				
Overflow*	256	39.2			554	6.8	0.8	111.8	1.5				
Baby Bare Springs†		9.0	1.13	9.4	567	7.8	0.1	110		0.7074			
168-1026C-													
4R-1, 45-128	114.71	28.2	0.41	6.0		5.5		153.9	27.1	0.707798	0.51	2.40	
5R-1, 135-150	124.53			6.4	487	20.3	4.8	149.5	55.4	0.707782	0.53	4.32	
7R-1, 128-148	143.68	54.8	0.69	6.1		21.1		148.6	6.2	0.707554	0.26	2.36	
8R-1, 63-78	152.71			5.8		28.6		150.2	3.1	0.707471	0.12	2.22	
9R-1, 135-150	163.03	70.5	0.41	5.6	455	21.7	3.5	160.9	3.3	0.707207	0.04	0.89	
10R-2, 135-150	174.13			8.9	400	18.1	1.2	180.4	3.4		–0.16	1.03	
10R-5, 135-150	178.63	75.1	0.25	12.6		14.7		188.4	4.0	0.707068	–0.26	–0.43	
12R-1, 130-150	191.90			19.3	318	37.4	0.9	183.6	2.3	0.707079	–0.37	1.75	
13R-4, 130-150	206.00	75.1	0.21	26.6		52.2		174.6	1.7	0.707121	–0.58	–0.22	
14R-4, 130-150	215.60	65.1	0.33	29.1		66.4		161.5	2.4	0.707194	–0.59	2.34	
15R-1, 81-104	220.23	60.1	0.26	30.1	143	54.4	1.1	160.3	2.4	0.707242	–0.48	–0.90	
15R-2, 66-86	221.56			43.4		26.9		160.2	2.1	0.707210	–0.59	–0.60	
15R-3, 59-79	222.99	52.5	0.25	35.7		35.9		157.4	2.8		–0.59	–0.73	
15R-4, 130-150	225.20	51.8	0.26	27.7	200	50.9	1.4	155.9	1.8	0.707261	–0.60	0.53	
15R-5, 45-65	225.85	50.4	0.32	28.7		34.8		153.0	1.2	0.707270	–0.65	–0.84	
15R-6, 70-90	227.60	45.3	0.25	25.5	195	27.9	2.0	156.3	1.3		–0.60	–0.53	
15R-7, 25-45	228.65	44.8	0.22	24.7	176	27.3	1.1	156.1	3.0	0.707260			
168-1027B-													
1H-1, 140-150	1.45	25.1	1.84	46.0		59.0		83.7	1.6	0.709112	0.01	0.31	
1H-2, 140-150	2.95		1.81	34.8	496	50.7	5.4	81.9	0.9				
3H-1, 140-150	15.15			20.7		8.4		94.8	0.8		0.07	1.65	
3H-2, 140-150	16.65	6.6	0.75	30.0	378	14.6	8.4	88.3	1.3				
3H-3, 140-150	18.15			32.2		10.2		99.6	1.4	0.707988			
3H-4, 140-150	19.65	5.8	0.60	31.4	373	10.3	12.0	100.6	1.6		0.07	0.58	
3H-5, 140-150	21.15			34.2	388	7.2	9.0	97.5	1.5	0.707882	0.33	1.02	
4H-3, 140-150	27.65	3.9	0.46	33.1		5.1		94.6	1.4				
5H-2, 140-150	35.65			31.5	349	4.0	5.7	95.4	1.1	0.707685	0.37	3.19	
6H-5, 140-150	49.65	6.5	0.57	21.4		5.8		92.0	1.2				
7H-3, 0-18	54.79			16.1	394	13.5	5.2	102.8	1.3	0.707787	0.45	1.57	
8H-1, 140-150	62.65	7.3	0.43	11.1		0.2			0.8				
17X-2, 130-140	148.35	11.7	0.55	11.6		0.2		87.5	1.2	0.708051	0.35	0.97	

Table 1 (continued).

Core, section, interval (cm)	Depth (mbsf)	Li (mmol/kg)	Rb (mmol/kg)	F (mmol/kg)	B (µmol/kg)	Mn (mmol/kg)	Fe (mmol/kg)	Sr (µmol/kg)	Ba (mmol/kg)	$^{87}Sr/^{86}Sr$	$\delta^{18}O$ (per mil)	δD (per mil)	$\delta^{34}S$ (per mil)
19X-2, 0-12	166.26			5.2		4.4		86.4	28.5				
22X-1, 135-150	194.93	23.8	0.76	5.1		4.2		93.3	52.6	0.708559	0.21	1.04	
22X-3, 135-150	197.93			3.3	396	5.5	5.3	99.4	56.8				
23X-1, 85-100	204.13					3.1			42.8	0.708558	–0.03	0.37	
25X-1, 135-150	223.83	21.8	0.84	1.0		3.6		109.5	75.3				
26X-2, 135-150	234.93			0.8	389	5.5	6.0	115.2	64.1	0.708476	–0.12	0.95	
27X-1, 135-150	243.03	34.8	0.81	1.5		0.9		115.5	97.6				
28X-4, 135-150	257.23			1.7	408	5.2	6.1	119.0	119.8	0.708409	–0.31	0.85	
29X-5, 135-150	268.33	42.4	0.79	2.0				116.7	10.5				
30X-5, 135-150	277.93	45.1	0.89	2.0	390	7.9	5.8	123.8	42.4	0.708270	–0.41	–0.01	
31X-5, 135-150	287.53			2.6		0.4		119.3	7.0				
32X-5, 135-150	297.23	51.0	0.62	3.4	360	5.9	6.9	127.1	35.3	0.708124	–0.53	–0.50	
33X-5, 130-150	306.80			2.8		0.5			63.9				
34X-5, 135-150	316.53	48.2	0.47	3.3	413	13.6	4.9	130.1	60.7	0.708001	–0.49	–1.47	
35X-2, 130-150	321.60			4.1		5.3		134.3	63.2				
36X-5, 130-150	335.80	44.5	0.21	6.3	238	8.4	2.1	142.5	86.4	0.707959	–0.76	–0.49	
37X-5, 130-150	345.40			7.4	280	14.6	4.8	153.0	24.4				
38X-5, 130-150	355.10	48.2	0.38	8.9		18.2		149.8	100.4	0.707965	–0.66	–0.69	
39X-5, 125-150	364.68			8.6	280	12.3	4.8	160.9	107.3				
40X-5, 125-150	374.38	43.7	0.29	8.9		14.2		165.5	75.8		–0.85	–0.11	
41X-2, 125-150	379.48			8.6	336	15.5	5.2	173.6	229.6	0.707777			
42X-5, 125-150	393.58	42.4	0.21	9.7		11.3		182.2	255.2	0.707745	–0.65	–1.77	
43X-5, 125-150	403.18			11.0	263	13.8	3.7	201.9	274.8				
44X-5, 125-150	412.78	67.5	0.34	13.1		21.5		172.0	291.2	0.707782	–0.80	–0.66	
45X-5, 125-150	422.38			13.8	315	34.3	2.5	201.2	151.0				
46X-3, 125-150	428.98	85.0	0.28	16.2		27.3		183.3	89.3	0.707746	–0.88	–0.51	
47X-5, 125-150	441.58			16.5	362	23.6	2.9	198.6	351.7				
48X-5, 125-150	451.28	63.5	0.23	13.1		13.3		201.5	316.1	0.707539	–0.91	–1.39	
49X-5, 125-150	460.88			13.1	301	13.0	3.5	209.4	365.5	0.707434			
50X-5, 125-150	470.38	51.0	0.27	10.4		13.8		213.7	310.0	0.707317	–0.90	–1.71	
51X-5, 125-150	479.98			11.1	350	18.9	3.3	220.5	53.2				
52X-5, 125-150	489.58	52.5	0.25	11.5		16.7		246.0	134.7		–0.74	–1.37	
53X-5, 125-150	499.08			13.1	348	17.7	3.4	222.6	17.9	0.707051			
54X-5, 125-150	508.68	133.3	0.33	1.2		5.3		276.8	28.8	0.706962	–0.54	–1.78	
55X-5, 125-150	518.38			7.2	308	15.1	3.9	282.2	81.1				
56X-5, 125-150	527.98	47.2	0.25	9.2		14.7		344.8	51.9	0.706683	–0.68	–1.93	
57X-2, 125-150	533.18			7.1	294	22.3	4.2	286.3	19.0		–0.72	–1.77	
57X-6, 125-150	539.18	42.8	0.28	12.6	213	10.5	0.4	253.2	5.2	0.706686			
58X-5, 125-150	547.28	40.7	0.28	16.1		13.7		276.4	9.5		–0.70	–1.44	
59X-5, 125-150	556.88	46.2	0.23	12.8	193	10.1	2.4	252.8	6.3	0.706838		–1.90	
60X-2, 125-150	561.98	40.2	0.30	13.8		23.3		226.8	5.9				
60X-3, 125-150	563.48			14.6	212	29.3	2.8	225.6	4.3	0.707060	–0.58	–1.09	
60X-4, 125-150	564.98	39.3	0.33	17.4	143	16.5	2.1	227.2	4.0				
60X-5, 125-150	566.48	36.0	0.31	17.3	144	22.5	2.0	230.4	5.5		–0.48	–1.60	
60X-6, 125-150	567.98	42.9	0.30	12.5		35.3		227.5	3.7	0.707168			
168-1027C-													
1R-6, 117-131	591.75	44.9	0.47	39.4		44.2		201.0	1.9		–0.12	–2.26	
2R-2, 130-150	596.36	38.5	0.45	54.9		17.3		182.2	1.7		–0.09	–1.65	
2R-4, 130-150	599.36	37.8	0.44	52.5		12.2		188.4	2.9		–0.13	–0.61	
2R-6, 125-150	602.36	30.6	0.46	69.1		4.7		161.5	1.9		–0.20	–1.24	
3R-1, 86-100	605.03												
168-1028A-													
1H-1, 140-150	1.45	25.1	1.89	50.5		96.5		85.4	0.6				
1H-2, 140-150	2.95			39.7	473	68.6	10.1	84.6	1.1				
2H-3, 150-160	8.25	9.8	1.21	19.0		14.0		77.0	0.8				
3H-2, 140-150	16.15	11.1	1.04	17.0	546	13.5	5.2	72.0	1.1				
4H-5, 140-150	30.15	21.5	1.16	19.1	552	19.0	11.7	85.9	3.9				
5H-5, 140-150	39.65			9.0		19.9		88.9	3.1				
6H-5, 140-150	49.15	20.2	0.93	4.5	435	22.3	4.1	93.6	2.8				
7H-5, 140-150	58.65			3.4		8.8		101.8	2.6				
8H-5, 140-150	68.15	31.6	0.74	3.3	396	6.6	3.2	111.6	2.5				
9H-5, 135-150	77.63			3.4		24.1		118.6	2.3				
10H-5, 135-150	87.13	68.9	0.52	7.4	410	32.7	3.5	129.0	1.8				
11H-5, 135-150	96.63			13.1		54.4		130.7	1.2				
12H-3, 135-150	106.13	92.2	0.51	15.5	384	72.5	5.5	135.3	1.5				
13X-2, 135-150	111.13	89.5	0.46	15.7	379	66.5	4.4	133.8	1.3				
13X-5, 122-137	115.50	96.9	0.45	16.9		71.8		136.6	1.0				
15X-1, 135-150	125.23	80.1	0.48	18.8	280	50.9	3.6	140.3	2.3				
15X-2, 135-150	126.73			17.8		45.3		141.5	0.7				
15X-3, 135-150	128.23	76.6	0.57	21.8	249	29.1	6.2	141.2	2.0				
15X-4, 135-150	129.73			18.5	297	42.9	2.9	138.6	1.1				
15X-6, 0-15	131.38	69.8	0.47	18.9		21.1		137.7	0.7				
168-1029A-													
1H-2, 140-150	2.95	17.2	1.48	37.1	484	68.3	19.6	85.5	0.8		0.09	–3.49	
2H-2, 140-150	7.45			21.6	503	15.7	8.5	81.1	0.7				
2H-5, 140-150	11.95	9.4	1.12	26.4	506	12.6	22.5	83.5	1.3		0.26	1.04	
3H-5, 140-150	21.45					11.5		88.0	0.0				
4H-5, 140-150	30.95	14.6	0.94	18.3	519	23.7	5.7	93.8	4.0		0.39	3.05	
5H-4, 140-150	38.95			13.0	462	8.6	8.1	107.9	7.0				
6H-5, 140-150	49.95	13.3	0.97	9.2	452	9.5	6.7	135.8	105.6		0.47	4.57	
7H-2, 140-150	54.95			6.2	489	6.7	6.1	124.1	68.2				
8H-1, 140-150	62.95	15.3	1.00	5.7	453	17.4	8.4	130.9	96.6		0.46	4.80	
9H-1, 140-150	72.45			5.3	445	8.0	8.2	134.0	97.7				
10H-1, 140-150	81.95	20.5	0.93	3.4	444	4.7	6.6	135.6	97.6		0.43	2.41	
11H-2, 140-150	92.95			3.5	446	8.7	5.5	138.7	118.1				
12H-3, 140-150	103.95	28.2	0.78	4.5	430	15.5	6.4	144.8	123.6		0.43	2.85	
13X-2, 135-150	111.93	32.6	0.78	5.2	390	16.3	7.3	138.8	7.7				
16X-2, 135-150	133.33	45.1	0.36	4.4	416	23.1	3.3	168.5	24.7		0.19	2.39	

Table 1 (continued).

Core, section, interval (cm)	Depth (mbsf)	Li (mmol/kg)	Rb (mmol/kg)	F (mmol/kg)	B (µmol/kg)	Mn (mmol/kg)	Fe (mmol/kg)	Sr (µmol/kg)	Ba (mmol/kg)	$^{87}Sr/^{86}Sr$	$\delta^{18}O$ (per mil)	δD (per mil)	$\delta^{34}S$ (per mil)
17X-2, 130-150	142.90			5.5	428	26.6	2.9	179.3	6.8				
18X-2, 130-150	152.50	53.4	0.27	7.0	422	38.2	2.8	196.4	5.5		0.01	2.72	
19X-2, 130-150	162.10			6.7	391	32.5	3.4	205.2	3.3				
20X-2, 130-150	171.70	63.4	0.26	8.0	384	44.1	3.3	208.3	2.8		–0.03	1.93	
21X-2, 130-150	181.30			10.8	389	60.7	1.6	198.1	1.9				
22X-2, 130-150	190.90	69.4	0.28	13.9	324	70.9	2.6	199.2	2.3		–0.04	3.04	
22X-6, 130-150	196.90			15.7	300	73.2	2.1	194.9	2.3				
23X-2, 130-150	200.50	67.9	0.30	16.7	291	82.8	4.8	185.6	1.2		–0.13	1.15	
23X-6, 130-150	206.50	63.9	0.36	16.4	280	94.8	2.8	169.9	1.3				
24X-5, 125-150	213.10	56.4	0.50	22.2	197	67.9	4.0	155.3	1.5		–0.08	1.43	
24X-5, 125-150	214.60	54.0	0.36	18.4	227	98.2	4.2	156.4	1.9				
24X-6, 125-150	216.10	53.9	0.37	17.4	185	95.8	3.2	157.9	0.9		–0.05	3.35	
25X-1, 125-150	218.20	45.4	0.59	13.7	205	67.9	4.9	134.9	0.8				
25X-2, 125-150	219.70	42.8	0.60	14.3	205	80.3	2.9	136.5	2.8		–0.27	1.40	
168-1030B-													
1H-1, 140-150	1.45	20.3	1.97	38.5		61.8		93.4	0.6				
1H-2, 140-150	2.95	13.2	1.50	21.1	529	50.0	9.7	99.9	0.7				
1H-3, 74-84	3.79	12.1	1.58	15.8		43.6		100.1	0.5				
2H-1, 140-150	5.45	13.8	1.29	7.7	571	45.3	4.5	105.3	0.6				
2H-2, 140-150	6.95	15.7	1.42	8.9		46.1		107.2	0.8				
2H-3, 140-150	8.45	18.1	1.38	9.2	576	48.4	6.9	108.4	0.6				
2H-4, 140-150	9.95	21.9	1.23	9.5	514	51.6	7.6	108.0	0.6				
2H-5, 140-150	11.45	23.2	1.29	11.3		45.9		109.1	0.6				
2H-6, 140-150	12.95			10.8	500	52.6	15.1	108.5	0.5				
2H-7, 62-72	13.67	24.8	1.21	11.1		54.7		108.4	0.5				
3H-2, 140-150	16.45			10.1	555	58.4	9.1	107.8	0.8				
3H-4, 140-150	19.45	29.1	1.16	9.6		66.7		110.8	0.7				
3H-6, 140-150	22.45			11.8	477	80.5	4.1	109.0	0.9				
4H-2, 140-150	25.95	27.3	0.92	15.7		86.7		108.6	0.5				
4H-4, 140-150	28.95			17.2	468	81.8	7.2	109.9	0.6				
4H-6, 140-150	31.95	30.4	0.78	18.2		77.5		109.7	0.6				
5H-2, 140-150	35.45	28.9	0.90	20.3	424	58.3	1.6	110.4	1.1				
5H-4, 140-150	38.45			19.8		36.3		109.4	0.7				
5H-6, 140-150	41.45	24.6	0.72	18.0	412	37.9	3.3	110.1	0.7				
6X-CC, 0-20	41.65	22.6	0.69	17.1		31.8		109.1	0.7				
168-1031A-													
1H-1, 140-150	1.45	27.6	1.78	37.5	492	50.6	12.3	104.2	0.4	0.707997	0.05	1.74	
1H-2, 140-150	2.95	29.2	1.63	33.7	473	55.6	8.8	107.0	0.5	0.707783	0.19	2.01	
1H-3, 140-150	4.45	30.1	1.54	31.9	511	63.5	5.2	108.1	0.4	0.707661	0.19	0.80	
1H-4, 140-150	5.95	30.5	1.60	31.1	475	62.6	8.4	109.6	0.5	0.707621	0.32	1.59	
1H-5, 140-150	7.45	30.9	1.48	29.1	483	67.1	10.4	111.2	0.4	0.707526	0.37	1.61	
2H-2, 140-150	11.75	31.6	1.23	27.6	487	90.1	5.7	113.3	0.6	0.707499	0.34	3.48	
2H-5, 130-150	16.20	32.9	1.15	27.7	435	91.3	8.5	111.7	0.6	0.707474			
3H-5, 140-150	25.75	33.1	0.92	31.6	399	50.5	2.4	111.6	0.9	0.707448	0.08	1.70	
4H-2, 140-150	30.75	27.5	0.83	34.0	342	23.7	2.2	111.6	0.7	0.707473	–0.06	1.66	
4H-5, 140-150	35.25	21.2	0.78	21.1	353	26.7	1.6	111.6	0.8	0.707398	–0.09	2.74	
5H-1, 140-150	38.75	15.5	0.74	12.7	377	16.2	2.3	113.1	0.8	0.707350	–0.18		
5H-2, 140-150	40.25	12.5	0.74	8.4	329	9.0	0.7	114.5	0.7	0.707358	–0.17		
168-1032A-													
2R-1, 130-150	195.50	46.3	0.38	9.4	384	20.6	5.6	161.4	3.3				
3R-1, 130-150	205.10	47.2	0.37	8.2	360	16.1	4.6	182.2	9.9				
5R-2, 130-150	225.80			9.5	400	25.1	6.1	207.2	11.0				
6R-2, 130-150	235.40	51.1	0.27	12.2	371	41.3	2.1	198.9	4.9				
7R-2, 130-150	245.00			11.1	316	42.7	1.9	206.1	2.8				
8R-2, 130-150	254.60	51.7	0.28	15.1	270	28.0	5.4	194.9	5.3				
10R-1, 43-63	271.53	54.9	0.25	23.3	269	64.6	5.0	181.9	2.9				
10R-2, 88-108	273.48			23.6	237	71.1	5.9	180.7	0.8				
10R-3, 130-150	275.40	56.5	0.28	25.4	228	68.3	1.3	179.9	1.5				
10R-4, 30-50	275.90	50.7	0.31	37.3	161	30.6	1.5	176.5	1.6				
11R-1, 130-150	282.00	47.1	0.24	29.9	202	99.0	0.2	169.0	1.3				
11R-2, 130-150	283.50			29.7	215	82.6	–0.2	166.2	1.1				
11R-3, 130-150	285.00	28.0	0.26	23.2	156	20.3	2.2	156.4	1.0				

Notes: * = aliquot from overflow chamber; values have been corrected to the chlorinity of the prime aliquot, from the titanium coil. † = trace element data from Wheat and Mottl (2000); Sr isotopic data from Butterfield et al. (in press).

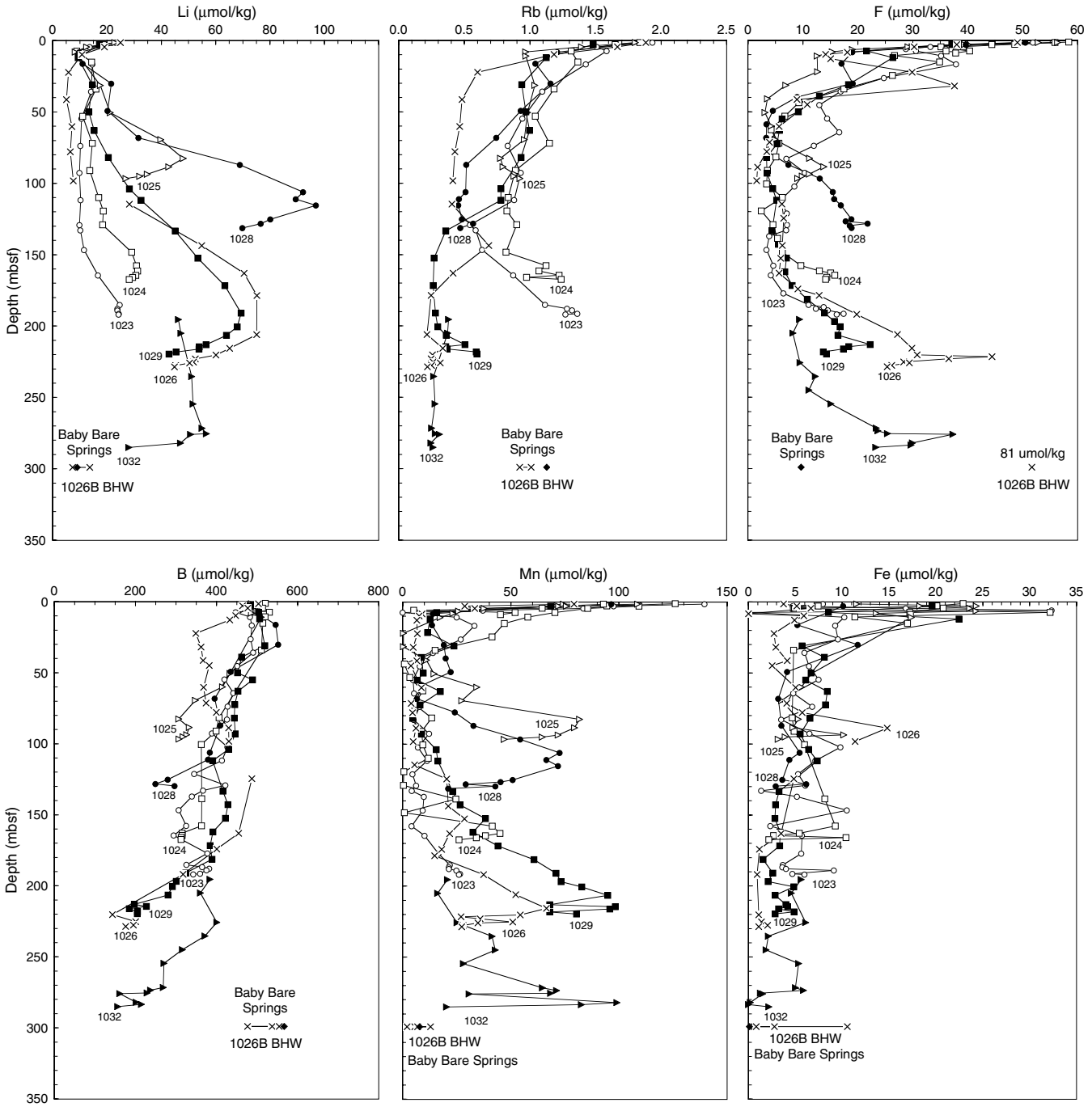

Figure 1. Composition of pore water from cores at Sites 1023 (open circles), 1024 (open squares), 1025 (open triangles), 1026 (×'s), 1028 (solid circles), 1029 (solid squares), and 1032 (solid triangles), compared with water sampled from 256 m depth within the basement section of the open borehole in Hole 1026B (×'s at bottom) and with spring waters sampled from Baby Bare summit (diamonds). BHW = borehole water.

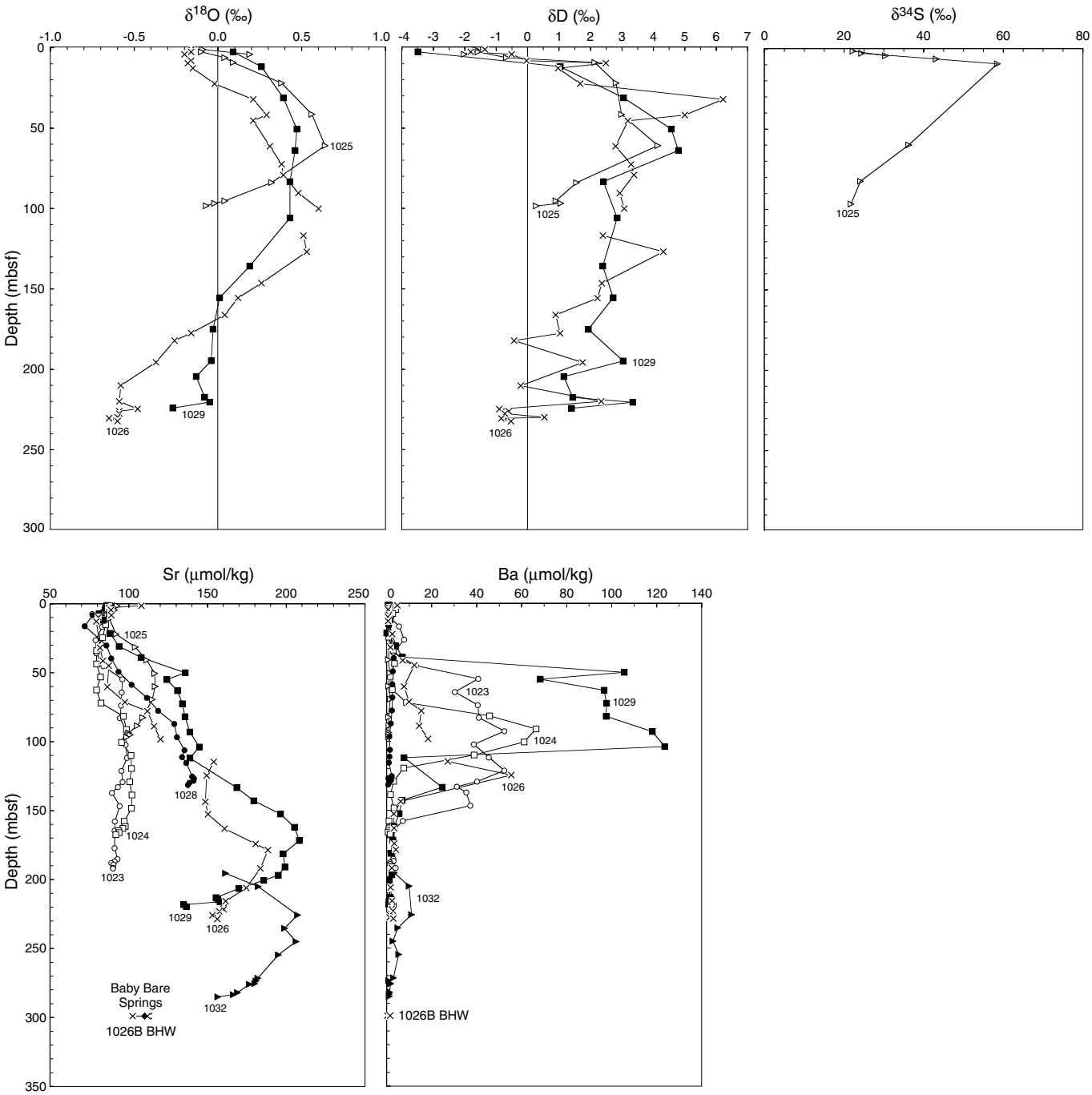

Figure 1 (continued).

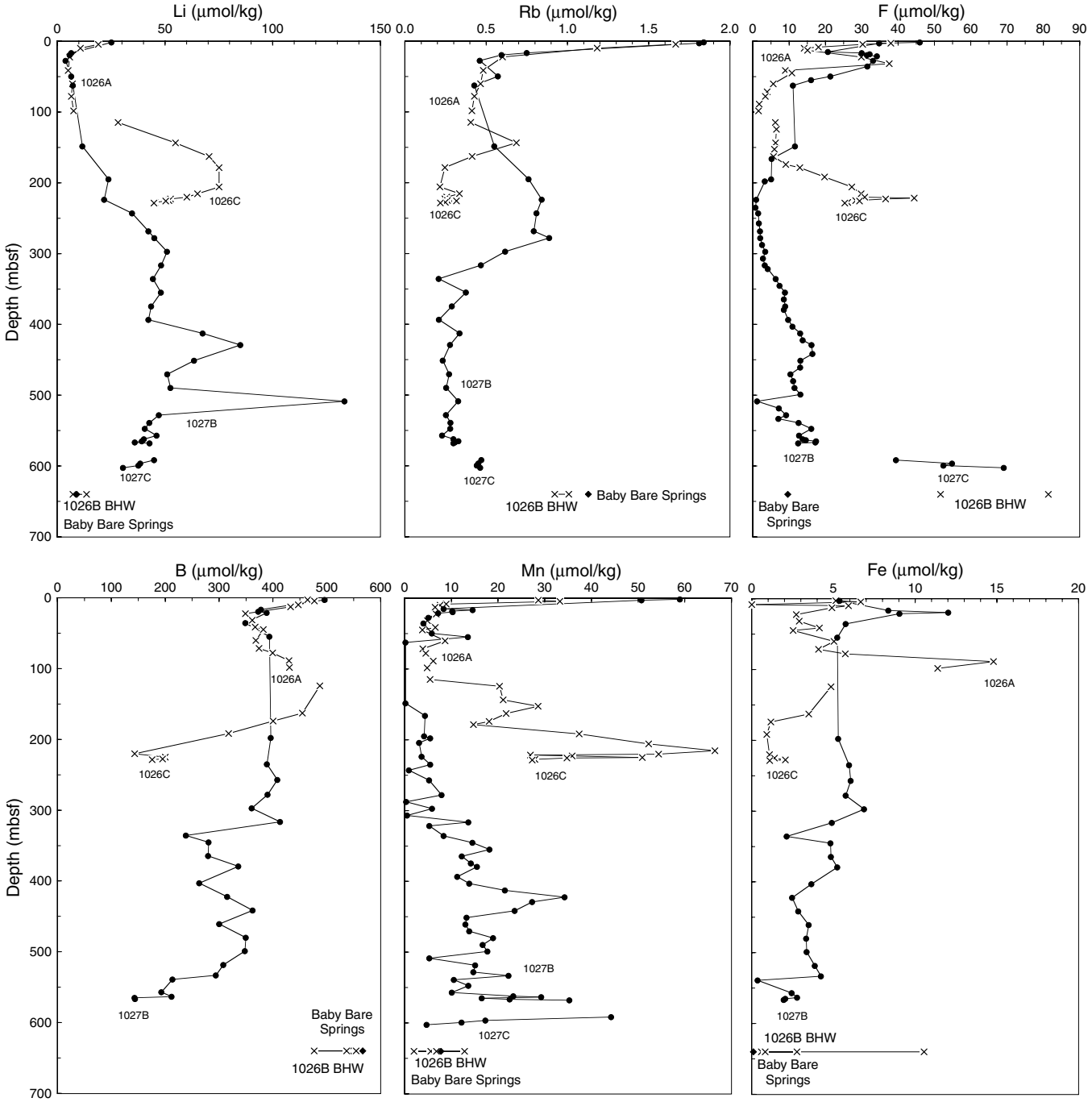

Figure 2. Composition of pore water from cores at Sites 1026 (×'s) and 1027 (solid circles), compared with water sampled from 256 m depth within the basement section of the open borehole in Hole 1026B (×'s at bottom) and with spring waters sampled from Baby Bare summit (diamonds). BHW = borehole water.

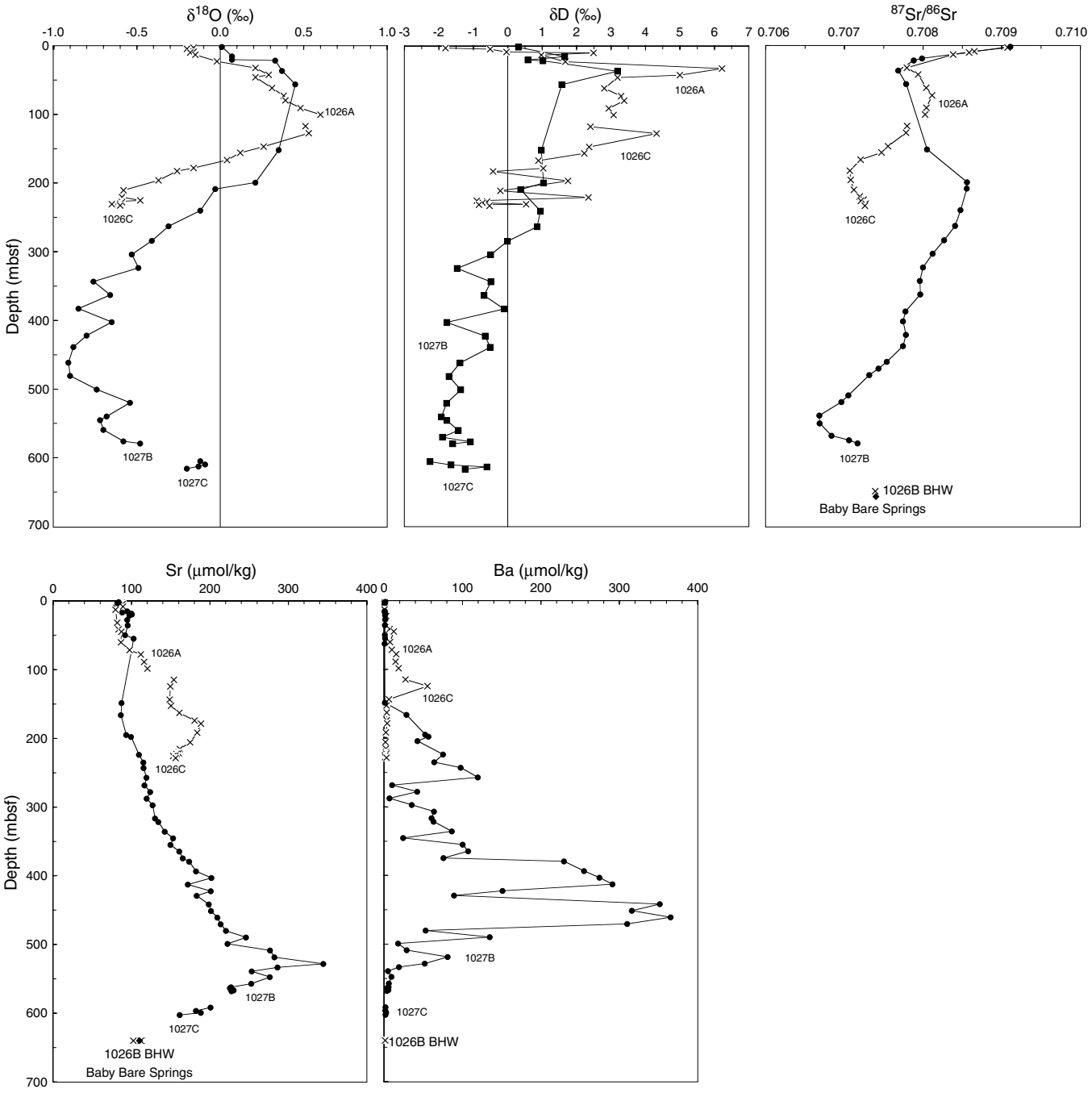

Figure 2 (continued).

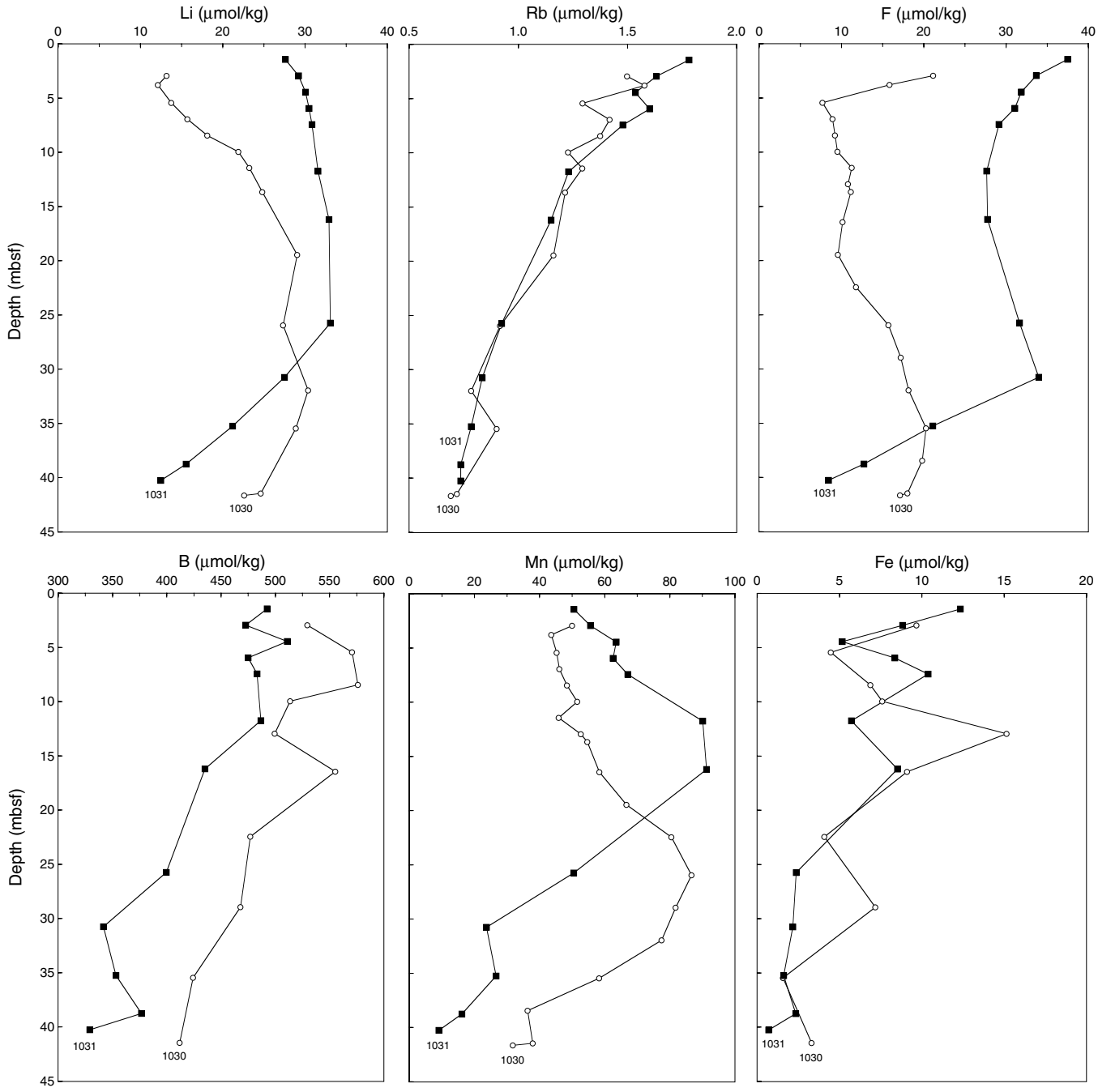

Figure 3. Composition of pore water from cores at Sites 1030 (open circles) and 1031 (solid squares).

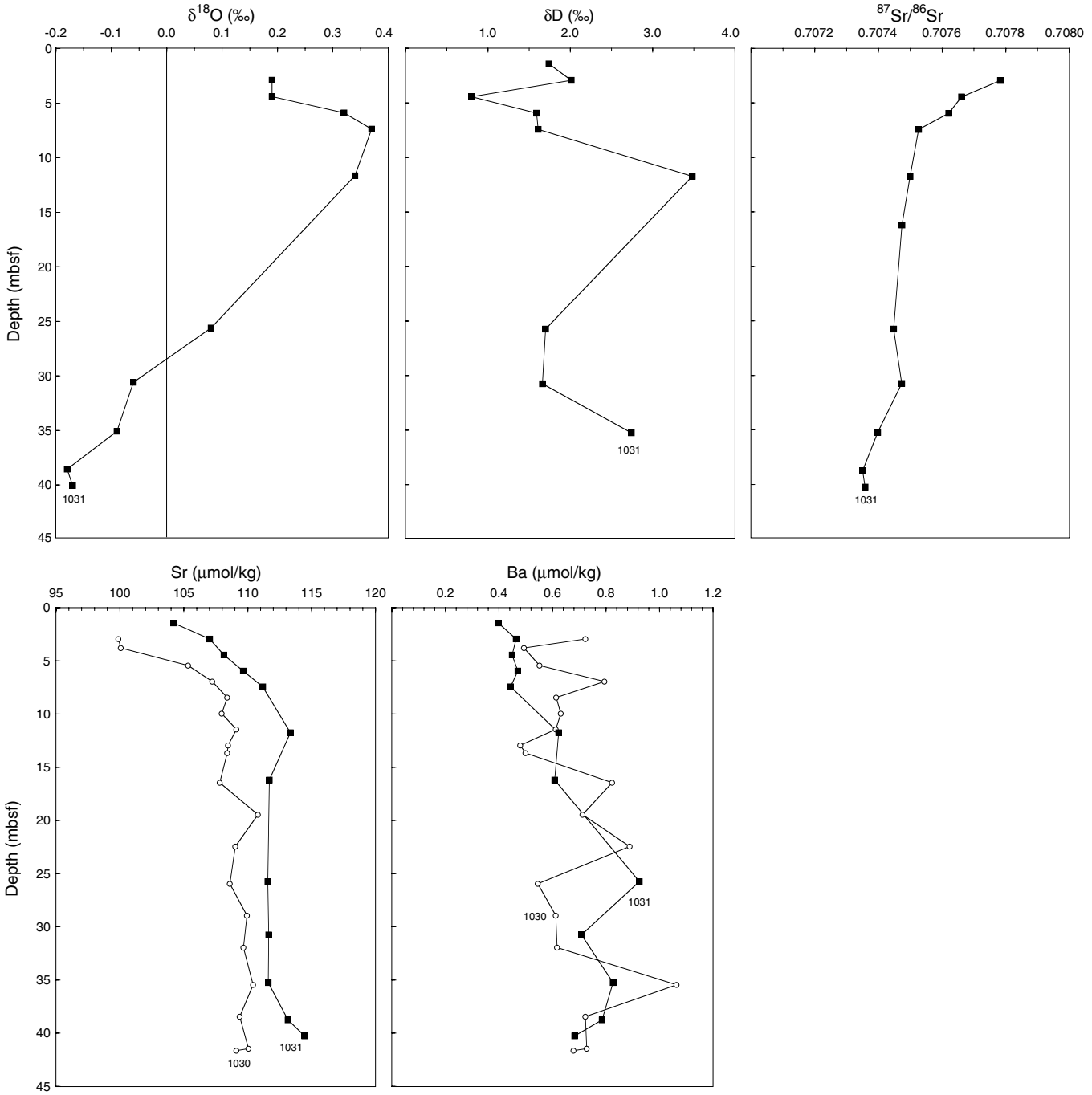

Figure 3 (continued).