

VII. INTERSTITIAL WATER RESULTS, LEG 42A

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INTRODUCTION

Interstitial water samples were routinely analyzed on board by V. S. Sotelo. Analyses included determinations of pH, salinity, chlorinity, alkalinity, calcium, and magnesium.

SAMPLING

Interstitial water samples were taken at regular intervals and where major changes in lithology occurred. Sampling was effected by removing a 10-cm mini-core from either end of a section. Care was taken not to sample lithologic boundaries, the top of Section 1 or the bottom of Section 6 (top or bottom of core) or their equivalents in cores with less than full recovery.

The mini-core was then capped, labeled, and refrigerated until the analyst could process it.

SAMPLE PREPARATION

All mini-cores were allowed to reach room temperature (required about 3 hours) before they were processed. When the temperature had reached equilibrium, the sediment was extruded onto a stainless steel tray and the outer deformed edges of the core carefully cut away. The cleaned sediment was then placed in a Manheim squeezer and squeezed with up to 24,000 pounds pressure in the more indurated sediments. The

released water was collected in a syringe and then filtered using a millipore filter.

ANALYTICAL PROCEDURES

The procedures used for shipboard analysis have undergone little change since they were described by Gieskes (1973) and Gieskes and Rogers (1973). The main difference is that all work is now done at room temperature rather than at thermostatically controlled temperatures and some sample sizes are smaller to conserve material. Also a non acid washed filter paper is used to prevent the titration of the sample during the squeezing process.

All interstitial water not used was sealed in polyethylene tubes and/or glass ampules and sent to DSDP for storage.

RESULTS

The results are listed in Table 1 and are displayed graphically in the individual site reports.

REFERENCES

- Gieskes, J. M., 1973. Interstitial water studies, Leg 15, alkalinity, pH, Mg, Ca, Si, PO₄, and NH₄. In Heezen, B. C., MacGregor, I. G., et al., *Initial Reports of the Deep Sea Drilling Project*, Volume 20: Washington (U.S. Government Printing Office), p. 813-830.
- Gieskes, J. M., and Rogers, W. C., 1973. Alkalinity determination of interstitial water of marine sediments. *J. Sediment. Petrol.*, v. 43, p. 272-277.

TABLE I
Results of the Interstitial Water Determinations, Leg 42A

Sample (Interval in cm)	Depth (m)	pH	Alkalinity (meq/l)	Salinity (‰)	Ca ⁺⁺ (mmoles/l)	Mg ⁺⁺ (mmoles/l)	Cl ⁻ (‰)
Site 371							
IAPSO Seawater	—	7.78	2.30	35.2	10.6	54.0	19.4
Surface Seawater	—	8.05	2.37	37.4	11.2	58.2	20.4
1-5, 144-150	8.0	6.90	3.58	40.7	14.2	63.6	22.3
2-2, 144-150	207.44	5.99	0.633	103.0	219.8	188.3	57.8
3-5, 144-150	368.94	8.16	0.567	133.6	335.1	264.6	76.2
4-5, 146-150	406.96	6.18	0.554	185.9	536.3	440.2	100.5
5-5, 140-150	463.9	5.76	0.569	253.0	691.6	633.9	127.2
6, CC	518.0	—	—	286.0	867.4	944.4	150.2
8-2, 140-150	549.4	5.27	2.91	332.2	1380.0	894.8	170.4
Site 372							
IAPSO Seawater	—	7.78	2.30	35.2	10.6	53.9	19.3
Surface Seawater	—	7.99	2.39	37.4	11.0	57.76	20.1
1-3, 144-150	119.94	6.82	2.37	55.0	35.6	77.3	29.9
2-3, 144-150	138.94	6.85	1.61	58.3	47.9	73.7	31.6
3-2, 144-150	148.44	6.92	1.36	59.4	52.8	74.6	31.9
9-3, 140-150	203.40	6.83	1.131	74.8	84.4	83.5	42.4
14-4, 140-150	251.40	7.07	0.752	73.4	71.9	69.3	42.5
19-4, 140-150	298.90	7.46	0.576	78.1	79.5	57.1	44.0
24-5, 140-150	347.90	6.94	0.762	83.1	79.7	59.2	48.4
29-4, 140-150	395.40	7.15	0.743	90.2	100.2	61.8	58.5
33-5, 140-150	471.40	6.98	0.860	95.7	104.1	65.4	57.1
35-2, 140-150	536.90	—	—	104.5	116.4	69.9	62.7
36-5, 140-150	579.0	7.06	0.879	106.7	118.0	65.4	63.7
38-3, 140-150	648.9	—	—	114.4	131.1	72.1	69.3
40-4, 140-150	727.9	—	—	—	No Pore Water Obtained		—
42-5, 140-150	794.4	—	—	117.7	128.9	63.8	71.1
43-5, 140-150	806.9	—	—	123.2	135.8	77.2	74.5
44-5, 40-50	840.9	—	—	112.2	120.4	85.1	68.1
45-3, 140-150	876.9	—	—	110.0	118.8	72.2	66.5
Site 374							
IAPSO Seawater	—	7.72	2.35	35.2	10.6	54.0	19.4
Surface Seawater	—	8.08	2.57	38.5	11.2	60.4	21.3
2-2, 140-150	159.9	7.56	3.70	57.7	17.7	93.0	34.0
4-3, 140-150	254.9	5.5	0.889	139.7	133.5	528.0	78.0
5-4, 140-150	302.4	4.9	0.406	247.5	267.0	1163.0	133.0
6-1, 140-150	332.4	4.8	0.337	242.0	359.2	1028.1	126.0
6-5, 140-150	338.4	5.1	0.352	240.0	372.0	1052.0	125.0
7-1, 140-150	341.9	6.0	1.56	336.6	489.7	1329.0	151.0
7-2, 140-150	343.4	—	—	290.4	508.4	1355.0	154.0
7-3, 140-150	344.9	—	—	341.0	495.4	1371.0	150.0
7-4, 140-150	346.4	5.6	1.72	288.0	503.5	1363.0	154.0
7-5, 140-150	347.8	5.4	1.68	367.4	523.1	1420.0	161.0
7-6, 140-150	349.5	6.0	1.62	362.0	493.8	1347.0	151.0
8-2, 140-150	355.9	6.0	2.03	352.0	452.4	1309.0	144.0
9-3, 140-150	366.9	5.9	2.97	371.8	477.0	1598.0	162.0
13-1, 140-150	389.4	5.6	3.42	387.2	025.5	2162.0	165.0
13-3, 0-10	391.0	—	—	290.0	10.8	1428.0	112.0
14-1, 140-150	395.4	5.3	4.86	407.0	10.3	2268.0	171.0
15-1, 140-150	404.9	5.3	4.90	462.0	10.3	2271.0	173.0
Site 375							
Surface Seawater	—	8.09	2.57	38.5	11.4	58.8	21.4
5-3, 140-150	364.9	7.95	3.66	33.0	12.3	25.3	20.4
6-5, 140-150	468.4	—	3.23	31.9	13.0	18.2	19.4
7-5, 140-150	572.9	8.097	3.7	31.6	12.6	17.9	19.0
8-5, 140-150	630.9	—	—	28.6	14.2	17.3	17.1
Site 376							
IAPSO Seawater	—	7.7	2.34	35.2	10.6	53.9	19.4
Surface Seawater	—	8.0	2.58	39.0	11.8	94.4	21.4

TABLE 1 - Continued

Sample (Interval in cm)	Depth (m)	pH	Alkalinity (meq/l)	Salinity (‰)	Ca ⁺⁺ (mmoles/l)	Mg ⁺⁺ (mmoles/l)	Cl ⁻ (‰)
1-4, 144-150	5.94	8.0	None	38.5	10.5	57.4	21.2
5-4, 144-150	43.94	7.7	3.02	38.0	11.3	55.0	21.1
9-3, 144-150	81.94	7.6	1.44	38.5	16.3	55.3	20.9
12-3, 140-150	108.90	7.6	1.27	38.5	24.3	52.5	20.7
13-2, 140-150	118.40	7.7	1.33	38.5	27.7	53.2	20.8
15-2, 140-150	129.40	7.8	0.61	42.4	38.3	55.8	21.8
Site 377							
IAPSO Seawater	-	7.6	2.30	35.2	10.5	53.9	19.4
Surface Seawater	-	8.1	2.60	38.5	11.5	60.0	21.8
1-1, 140-150	19.19	7.4	5.20	37.4	07.1	38.3	22.6
Hole 378							
IAPSO Seawater	-	7.6	2.30	35.2	10.6	53.9	19.4
Surface Seawater	-	8.1	2.58	39.0	11.4	60.7	22.4
1-2, 0-6	92.0	7.5	3.32	35.2	10.9	38.0	21.0
5-1, 140-150	129.9	7.3	3.40	36.3	13.3	40.9	21.3
7-4, 140-150	177.4	7.5	1.87	35.8	15.1	36.1	20.9
8-1, 0-10	223.5	7.2	2.62	35.8	15.3	37.2	20.9
11-3, 140-150	310.4	7.6	0.62	41.2	40.5	44.7	20.9
Hole 378A							
1-2, 140-150	50.9	7.5	4.13	36.3	07.4	44.9	21.3
3-5, 140-150	300.4	7.7	0.630	40.7	40.5	43.7	21.3