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Environmental Research Laboratories

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STD OBSERVATIONS IN THE NORTHEAST PACIFIC
NEAR 47°N, 128°W (AUGUST/SEPTEMBER 1971)

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Summaries of STD measurements recorded in the northeast Pacific during August and September 1971 are presented in computer-generated output as vertical profiles of temperature, salinity, sigma-T and dynamic height anomaly.

1. INTRODUCTION

On August 5 and 6 and on September 5 and 6, 1971, a number of vertical profiles of temperature and salinity against depth were measured from the surface to 1500 meters in a 25 km x 20 km region of the northeast Pacific (figure 1). The average water depth in this region is 2700 meters. Station positions, which were determined by satellite navigation, by Loran A and by radar to a transponder mounted on a surface buoy anchored tautly to the bottom, were accurate to about 1 km.

The measurements were made with a Hytech Model 9006 Salinity/Temperature/Depth/Sound Velocity (STD) recorder. The STD descent rate was maintained at approximately 0.5 m/sec from the surface to 100 meters and at about 0.75 m/sec from 100 to 1500 meters. Data were not recorded during the ascent of the instrument. Since all four sensors were used and because the sampling time per sensor was about 0.05 seconds, a complete digitizer scan required 0.2 seconds. During the August phase of the program we had access to a Bissett-Berman Model 8114A Digital

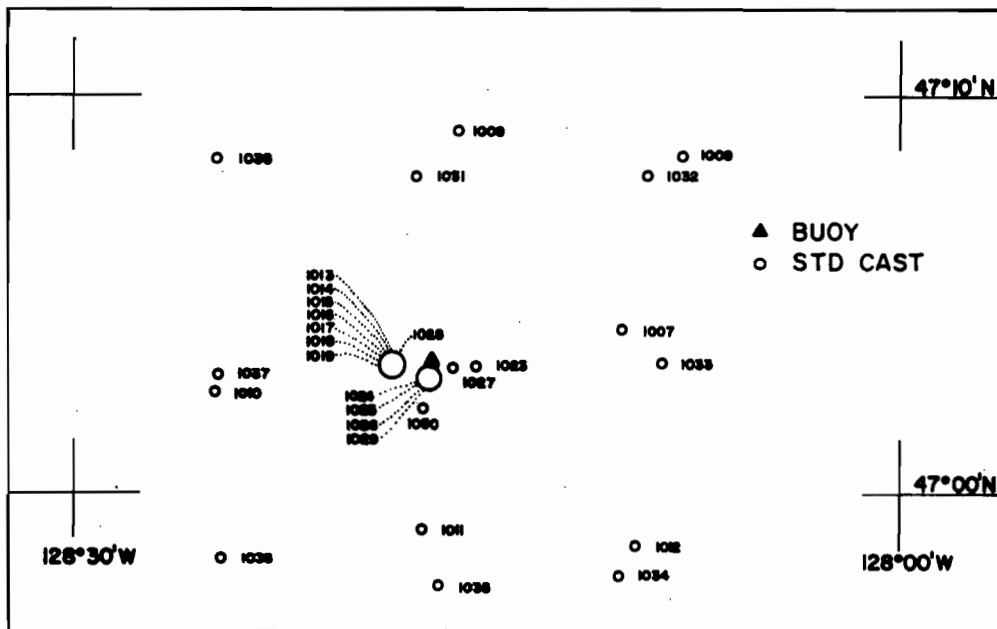
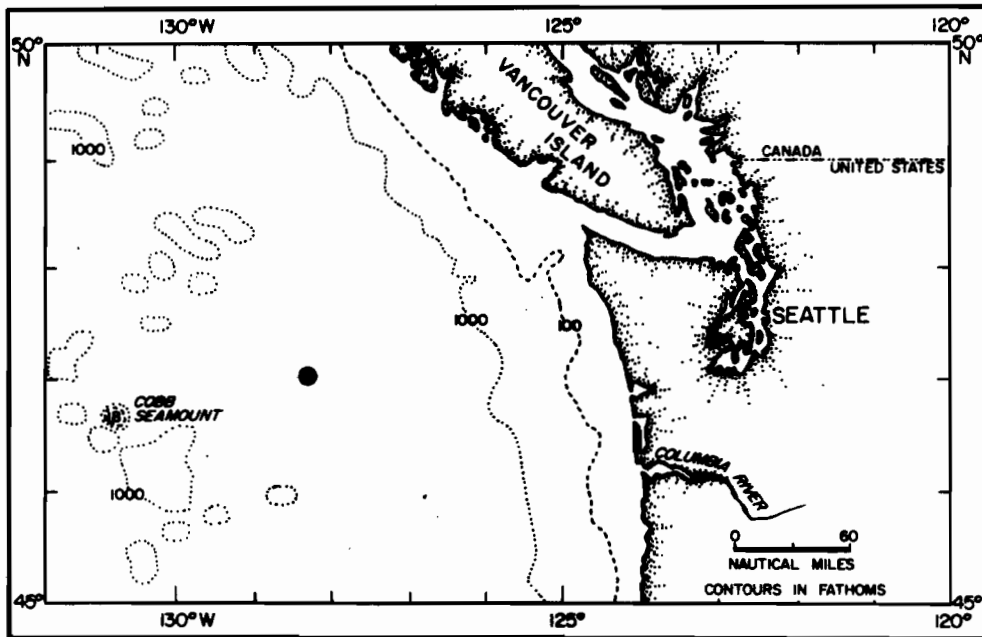


Figure 1. UPPER: The region of the STD measurements, represented by the black dot, was approximately 250 km from the continental shelf break. Contours in uncorrected fathoms. LOWER: Positions of the STD casts.

Data Logger and, therefore, this data set consisted of each measured scan. However, the September data set, which were processed by the data logging system aboard the NOAA research vessel OCEANOGRAPHER, were recorded on computer sheets printed by a typewriter. This processing consisted of passing non-overlapping blocks of five consecutive scans through a data reduction filter called SUPER 5,3 (Holloway, 1971) which discards the two extreme values and averages the remaining three to obtain a filtered scan. Because of the slow speed of the typewriter, only every third or fourth filtered scan was printed. Typically, a 1500-meter cast contained approximately 5000 scans if recorded in August and about 700 scans when obtained in September.

Copies of the data are stored at the Pacific Oceanographic Laboratory, Seattle, Washington and at the National Oceanographic Data Center, Washington, D.C. When using the raw data the values 3.75 and 0.20 must be added to all depths and salinities, respectively. The data presented in this report contain these corrections.

2. DATA REDUCTION

The data from each STD cast were passed through a series of black boxes that reduced the volume of the data and removed anomalous temperature and salinity values or spikes. First, the depth array was made into a monotonically increasing function and second, spikes were removed by a gradient technique. The data reduction consisted of the following steps:

- (1) An entire scan was removed from the cast when its depth value

was less than the preceding one.

(2) For the August data, average values of temperature and salinity were computed at one meter intervals, e.g., the computed temperature and salinity values associated with the depth 990 meters were equal to the average of the temperature and salinity values measured between 989.5 and 990.5 meters.

For the September data, scans having the same depth were replaced by a single scan containing temperature and salinity values that were equal to the average of the removed values.

(3) A temperature (or salinity) value was defined to be a spike and, therefore, was removed from the data set when the temperature gradient on both sides of the value exceeded a critical value and the sign of the gradient was different on both sides of the value. The critical gradients, which were determined from an examination of the raw data from casts 1022, 1025, 1032, and 1036, were $0.05^{\circ}\text{C}/\text{m}$ and $0.025 \text{ }^{\circ}/\text{oo}/\text{m}$ for depths between 0 and 200 meters, and $0.01^{\circ}\text{C}/\text{m}$ and $0.01 \text{ }^{\circ}/\text{oo}/\text{m}$ for depths from 200 to 1500 meters.

3. DATA PRESENTATION

The reduced data from each STD cast is summarized by a computer-generated plot containing the vertical profiles of temperature, salinity and sigma-T, and by a table of selected values of temperature, salinity, sigma-T and dynamic height anomaly. Sigma-T and the anomaly of specific volume were computed from equations developed by Ekman and Knudsen (LaFond, 1951). Depth in meters was defined as equivalent to

pressure in decibars. The trapezoidal method of integration was used to calculate the anomaly of dynamic depth.

The STD casts measured during the two anchor stations, defined by casts 1013 - 1019 and 1023 - 1030, were taken at 2-hour intervals. For each anchor station the vertical profiles of temperature (and similarly of salinity and of sigma-T) are presented in a single plot. The anchor station data were also described by the average profiles of temperature, salinity and sigma-T and by a table of key values associated with the averaged quantities.

4. ACKNOWLEDGEMENTS

I thank James Holbrook for preparing the STD computer plot program and Linda Olund for assisting with the data reduction. The kind and continuous support given me throughout the cruise by Captain Miller Tonkel and the officers and crew of the NOAA research vessel OCEANOGRAPHER is gratefully acknowledged.

The STD measurements were one segment of a program on ocean-atmosphere response supported by the International Decade of Ocean Exploration office of NSF under Agreement AG-253.

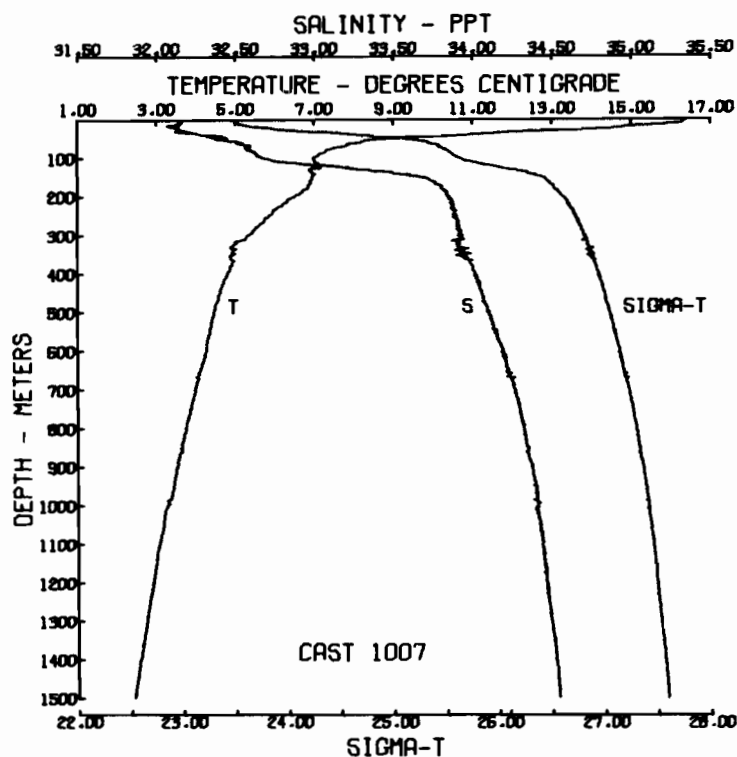
5. REFERENCES

Holloway, G., S/T/D Data Processing Aboard the NOAA Ship OCEANOGRAPHER, Interface, 1 : 1-2, 1971. (Published by Bissett-Berman, San Diego, California).

LaFond, E.C., Processing Oceanographic Data, H.O. Pub. 614, U.S. Navy Hydrographic Office, Washington, D.C., 1951.

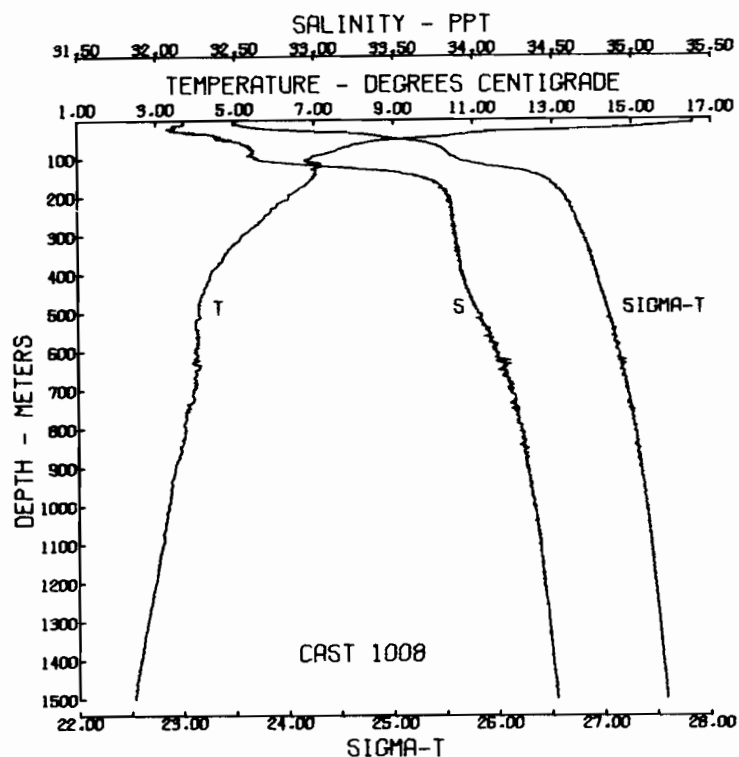
STD OBSERVATIONS IN NORTHEAST PACIFIC
NEAR 47°N, 128°W (AUGUST/SEPTEMBER 1971)

CAST NUMBER	PAGE
1007	8
1008	9
1009	10
1010	11
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1031	14
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1038	21
1013-1019 (Average values)	22
1023-1030 (Average values)	23
1013-1019/1023-1030 (Temperature)	24
1013-1019/1023-1030 (Salinity)	25
1013-1019/1023-1030 (Sigma-T)	26



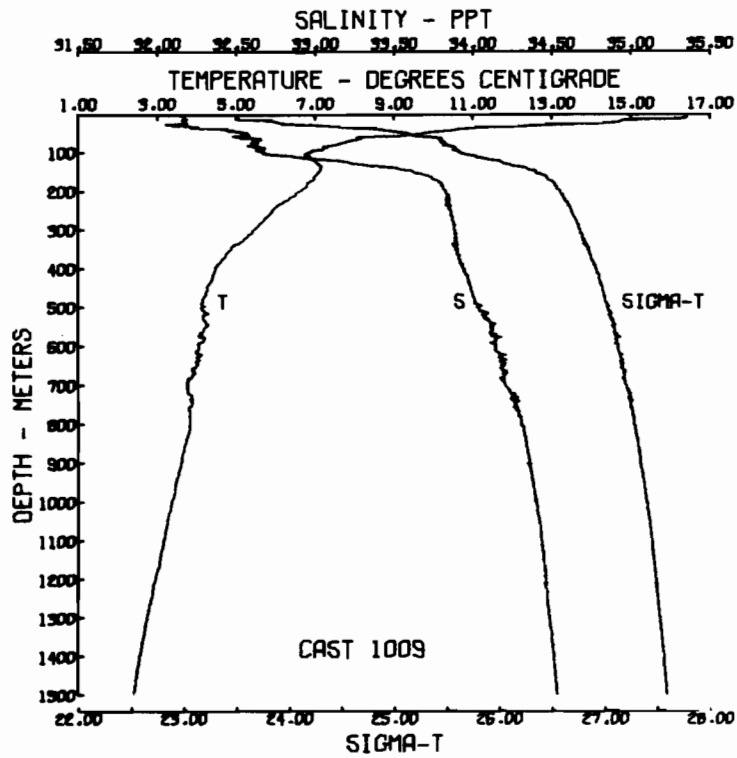
CAST 1007 DATE 5 AUG 71 0049 GMT
 LAT 47 03.9 N LONG 128 10.2 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-D (DYN M)
0	16.39	32.17	23.51	0.000
10	16.31	32.16	23.52	.044
20	15.03	32.08	23.74	.087
30	13.41	32.19	24.16	.127
50	9.20	32.42	25.09	.193
75	7.56	32.57	25.46	.260
100	7.02	32.66	25.59	.322
150	6.95	33.67	26.49	.424
200	6.55	33.84	26.59	.502
250	5.86	33.99	26.72	.573
300	5.26	33.92	26.80	.639
400	4.80	34.02	26.94	.762
500	4.46	34.10	27.04	.874
600	4.26	34.19	27.14	.977
700	3.96	34.26	27.22	1.073
800	3.73	34.32	27.30	1.161
900	3.51	34.37	27.35	1.244
1000	3.28	34.40	27.41	1.321
1100	3.07	34.44	27.45	1.395
1200	2.89	34.46	27.49	1.464
1300	2.74	34.49	27.53	1.531
1400	2.57	34.52	27.56	1.594
1500	2.42	34.54	27.59	1.653
NANSEN BOTTLE	16.36	32.17	DEPTH =	13 M



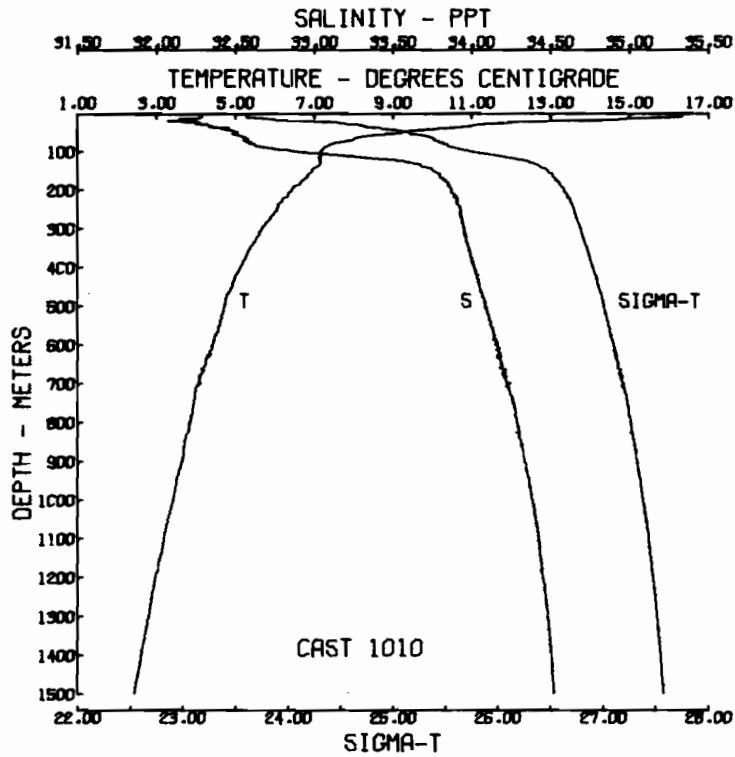
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 LAT 47 08.4 N LONG 128 03.6 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-D (DYN M)
0	16.54	32.17	23.47	0.000
10	16.54	32.17	23.47	.044
20	15.57	32.11	23.54	.088
30	13.26	32.09	24.11	.129
50	9.50	32.38	25.01	.193
75	7.69	32.59	25.45	.260
100	6.92	32.62	25.58	.323
150	6.96	33.68	26.41	.424
200	6.36	33.95	26.62	.501
250	5.74	33.98	26.72	.572
300	5.17	33.98	26.79	.638
400	4.36	33.93	26.92	.762
500	4.06	34.03	27.03	.875
600	3.97	34.13	27.12	.978
700	3.96	34.24	27.21	1.074
800	3.72	34.31	27.28	1.164
900	3.46	34.34	27.34	1.247
1000	3.28	34.39	27.39	1.327
1100	3.15	34.43	27.44	1.401
1200	2.95	34.45	27.47	1.473
1300	2.75	34.48	27.52	1.540
1400	2.57	34.50	27.55	1.604
1500	2.42	34.53	27.58	1.665
NANSEN BOTTLE	16.24	32.18	DEPTH =	12 M



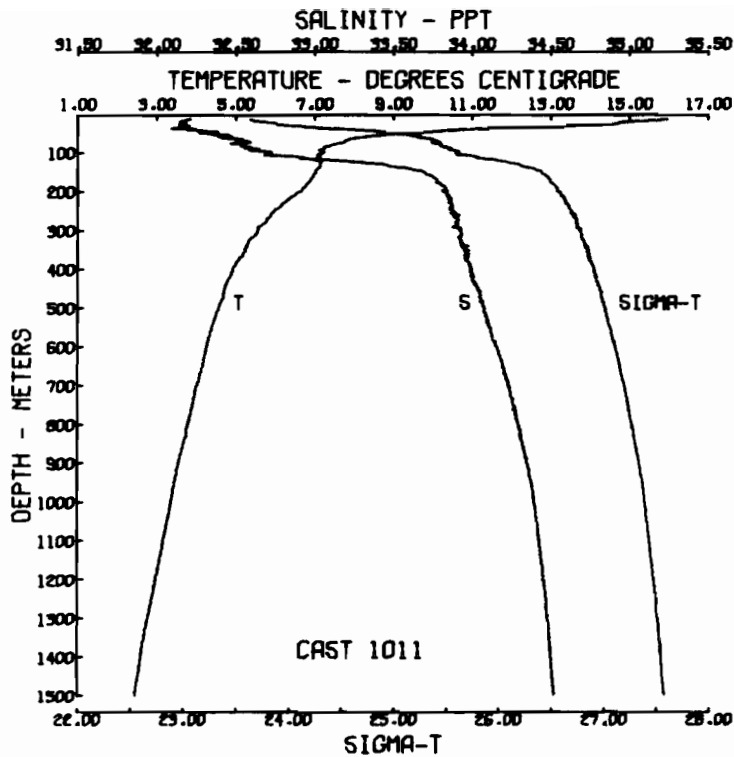
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DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DN M)
0	16.38	32.15	23.50	0.000
10	16.40	32.17	23.50	.044
20	14.75	32.16	23.86	.086
30	12.85	32.15	24.24	.125
50	9.84	32.54	25.08	.190
75	7.77	32.53	25.47	.257
100	6.90	32.65	25.61	.319
150	7.23	33.51	26.33	.422
200	6.63	33.83	26.57	.502
250	5.91	33.95	26.68	.574
300	5.45	33.87	26.75	.643
400	4.47	33.94	26.91	.769
500	4.17	34.04	27.03	.882
600	4.04	34.14	27.12	.987
700	3.76	34.20	27.20	1.084
800	3.82	34.31	27.27	1.174
900	3.61	34.36	27.34	1.258
1000	3.36	34.40	27.39	1.338
1100	3.15	34.43	27.44	1.412
1200	2.94	34.46	27.48	1.483
1300	2.73	34.48	27.52	1.550
1400	2.54	34.51	27.56	1.614
1500	2.40	34.53	27.58	1.675
NANSEN BOTTLE	16.00	32.18	DEPTH =	13 M



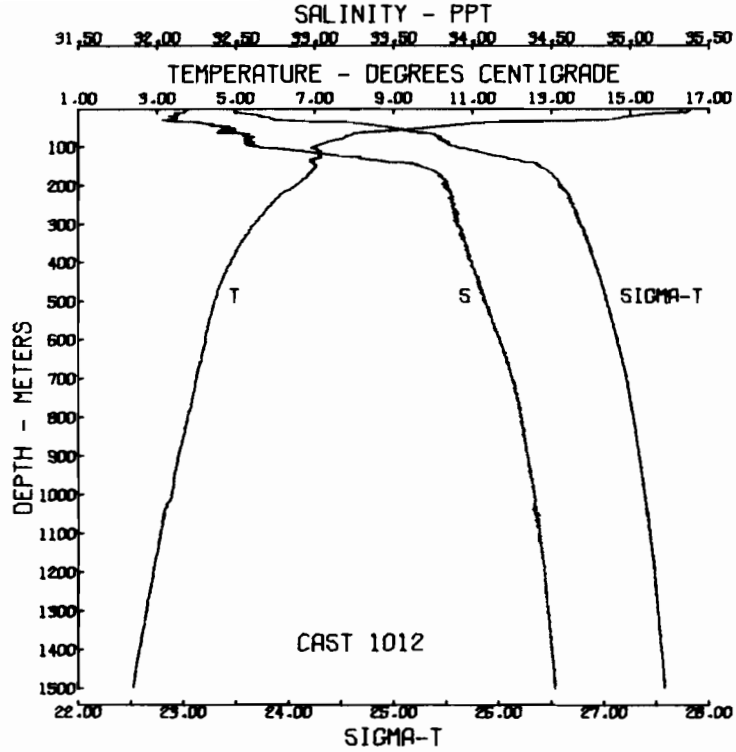
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 LAT 47 02.5 N LONG 128 24.5 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-D (DYN M)
0	16.29	32.28	23.61	0.000
10	16.32	32.28	23.61	.043
20	14.25	32.20	24.00	.094
30	11.26	32.32	24.67	.119
50	9.29	32.51	25.15	.181
75	7.70	32.56	25.43	.248
100	7.16	32.35	25.73	.309
150	6.94	33.76	26.47	.401
200	6.43	33.37	26.63	.477
250	6.06	33.93	26.72	.547
300	5.68	33.95	26.79	.613
400	5.12	34.02	26.90	.739
500	4.72	34.09	27.01	.854
600	4.40	34.15	27.09	.962
700	4.10	34.24	27.20	1.061
800	3.84	34.29	27.26	1.153
900	3.64	34.34	27.32	1.239
1000	3.42	34.38	27.38	1.320
1100	3.19	34.43	27.43	1.396
1200	2.97	34.45	27.47	1.468
1300	2.81	34.48	27.51	1.536
1400	2.61	34.51	27.55	1.600
1500	2.44	34.52	27.57	1.662
NANSEN BOTTLE	15.90	32.27	DEPTH =	13 M



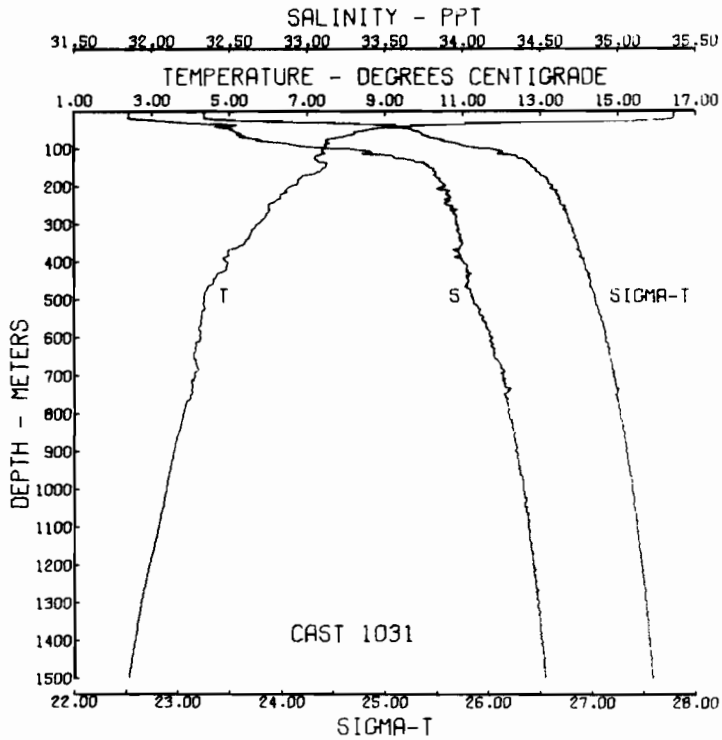
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 LAT 45 58.5 N LONG 128 15.8 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DYN 4)
0	15.94	32.21	23.64	0.000
10	12.27	32.78	24.66	.043
20	14.98	32.14	23.80	.085
30	13.58	32.20	24.13	.125
40	9.35	32.37	25.03	.193
50	7.75	32.56	25.42	.250
75	7.22	32.72	25.62	.323
100	7.02	33.37	26.39	.424
150	6.64	33.94	26.57	.503
200	5.98	33.88	26.69	.575
250	5.56	33.92	26.78	.643
300	4.91	33.99	26.91	.753
400	4.57	34.07	27.01	.884
500	4.26	34.15	27.10	.990
600	4.02	34.22	27.19	1.093
700	3.78	34.29	27.27	1.189
800	3.55	34.35	27.33	1.265
900	3.36	34.39	27.38	1.345
1000	3.17	34.42	27.43	1.420
1100	2.97	34.45	27.47	1.492
1200	2.78	34.47	27.51	1.560
1300	2.60	34.49	27.54	1.625
1400	2.45	34.52	27.57	1.687
1500	16.42	32.22	23.64	0.000
NANSEN BOTTLE DEPTH =				11 M



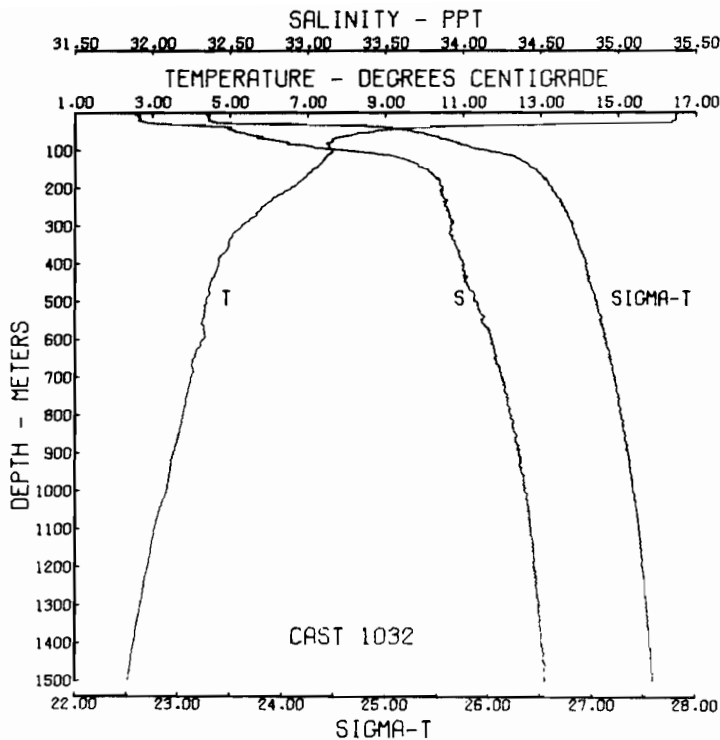
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 LAT 45 58.5 N LONG 128 10.0 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-D (DYN M)
0	16.51	32.18	23.49	0.000
10	16.48	32.17	23.49	.044
20	15.21	32.13	23.74	.087
30	14.43	32.07	23.86	.129
50	10.01	32.41	24.95	.195
75	7.81	32.51	25.45	.264
100	7.01	32.64	25.59	.327
150	7.04	32.65	26.38	.428
200	6.53	32.94	26.59	.506
250	5.91	33.88	26.71	.579
300	5.47	33.90	26.77	.545
400	4.86	33.39	26.92	.770
500	4.46	34.07	27.02	.883
600	4.22	34.17	27.13	.989
700	3.99	34.25	27.21	1.084
800	3.78	34.31	27.28	1.174
900	3.54	34.35	27.34	1.259
1000	3.37	34.39	27.39	1.339
1100	3.10	34.43	27.44	1.413
1200	2.91	34.46	27.48	1.484
1300	2.73	34.48	27.52	1.551
1400	2.55	34.51	27.55	1.615
1500	2.40	34.53	27.58	1.675
NANSEN BOTTLE	16.52	32.19	DEPTH =	13 M



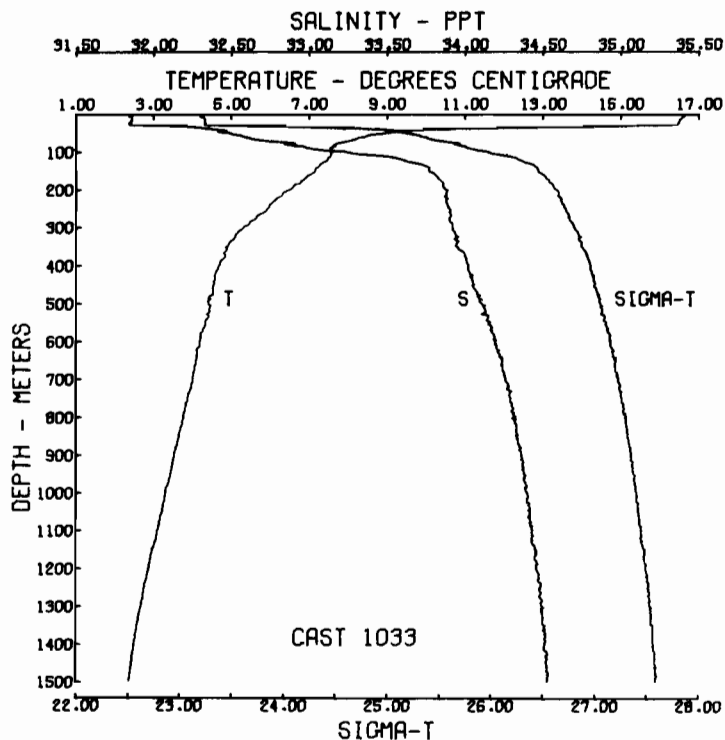
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 LAT 47 05.6 N LONG 128 15.1 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DYN 4)
0	16.44	31.85	23.25	0.000
10	16.44	31.85	23.25	.046
20	16.44	31.84	23.25	.093
30	13.66	32.13	24.07	.135
50	8.61	32.31	25.29	.198
75	7.61	32.35	25.51	.263
100	7.42	33.20	25.97	.321
150	7.44	33.78	26.42	.411
200	6.60	33.88	26.62	.488
250	5.99	33.90	26.71	.559
300	5.70	33.99	26.78	.629
400	4.90	34.00	26.92	.750
500	4.34	34.06	27.03	.863
600	4.26	34.19	27.14	.967
700	4.10	34.26	27.21	1.063
800	3.81	34.30	27.27	1.154
900	3.57	34.34	27.33	1.238
1000	3.37	34.39	27.39	1.318
1100	3.17	34.42	27.43	1.393
1200	2.93	34.45	27.48	1.464
1300	2.72	34.49	27.53	1.531
1400	2.57	34.51	27.55	1.595
1500	2.41	34.53	27.58	1.655
NANSEN BOTTLE	16.44	31.86	DEPTH =	23 M



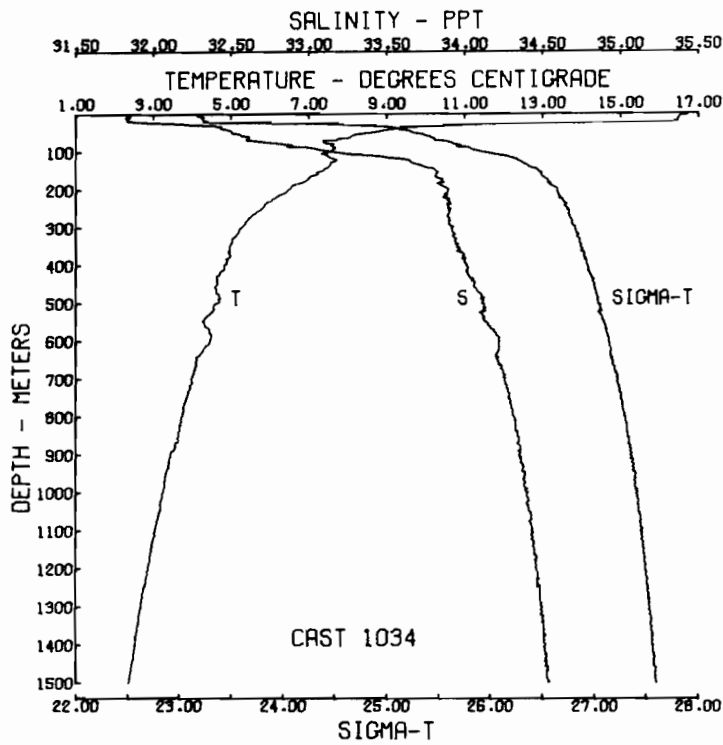
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 LAT 47 05.6 N LONG 128 05.9 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DYN CM)
0	16.50	31.89	23.27	0.000
10	16.48	31.92	23.29	.046
20	16.48	31.91	23.29	.092
30	14.64	32.08	23.82	.136
50	8.77	32.52	25.24	.200
75	7.60	32.77	25.61	.263
100	7.61	33.24	25.97	.319
150	7.13	33.77	26.45	.403
200	6.54	33.86	26.61	.485
250	5.81	33.90	26.73	.556
300	5.29	33.92	26.81	.621
400	4.70	34.01	26.95	.744
500	4.38	34.09	27.05	.856
600	4.30	34.19	27.13	.960
700	3.99	34.26	27.22	1.056
800	3.79	34.31	27.28	1.145
900	3.54	34.37	27.35	1.229
1000	3.37	34.40	27.39	1.307
1100	3.06	34.44	27.45	1.380
1200	2.88	34.46	27.49	1.449
1300	2.68	34.50	27.54	1.515
1400	2.52	34.51	27.56	1.579
1500	2.38	34.53	27.59	1.638
NANSEN BOTTLE	16.47	31.92	DEPTH =	25 M



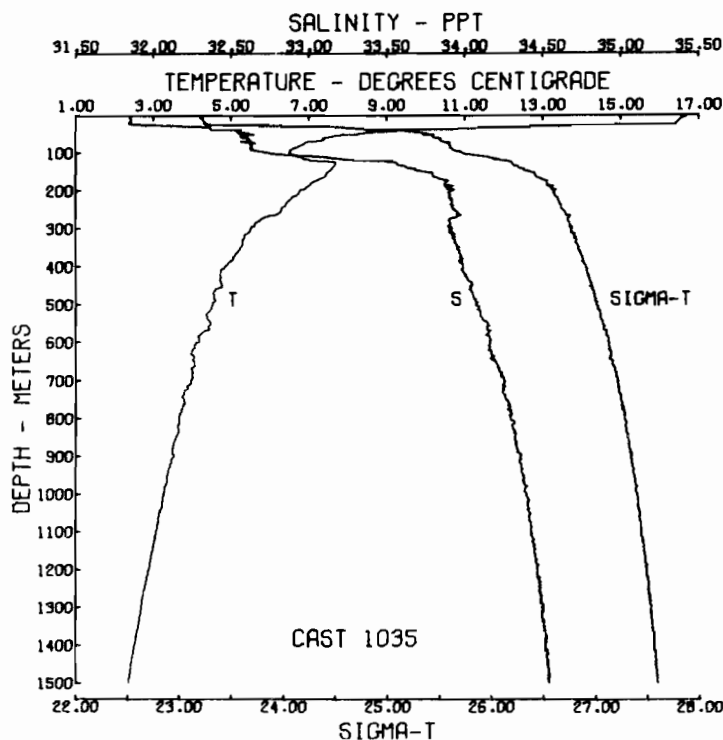
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 LAT 47 00.6 N LONG 128 05.8 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DYN M)
0	16.62	31.94	23.20	0.000
10	16.57	31.86	23.23	.047
20	16.49	31.85	23.24	.093
30	15.84	31.97	23.48	.139
50	9.05	32.48	25.16	.206
75	7.83	32.83	25.62	.271
100	7.59	33.23	25.96	.329
150	7.12	33.77	26.46	.416
200	6.47	33.88	26.63	.492
250	5.92	33.90	26.72	.562
300	5.30	33.92	26.81	.629
400	4.68	34.02	26.96	.750
500	4.41	34.11	27.06	.861
600	4.18	34.19	27.15	.963
700	3.99	34.26	27.22	1.058
800	3.77	34.32	27.29	1.146
900	3.52	34.36	27.35	1.229
1000	3.30	34.40	27.40	1.308
1100	3.10	34.43	27.45	1.382
1200	2.86	34.46	27.49	1.452
1300	2.66	34.50	27.54	1.517
1400	2.49	34.52	27.57	1.579
1500	2.36	34.53	27.59	1.639
NANSEN BOTTLE	16.49	31.86	DEPTH =	20 M



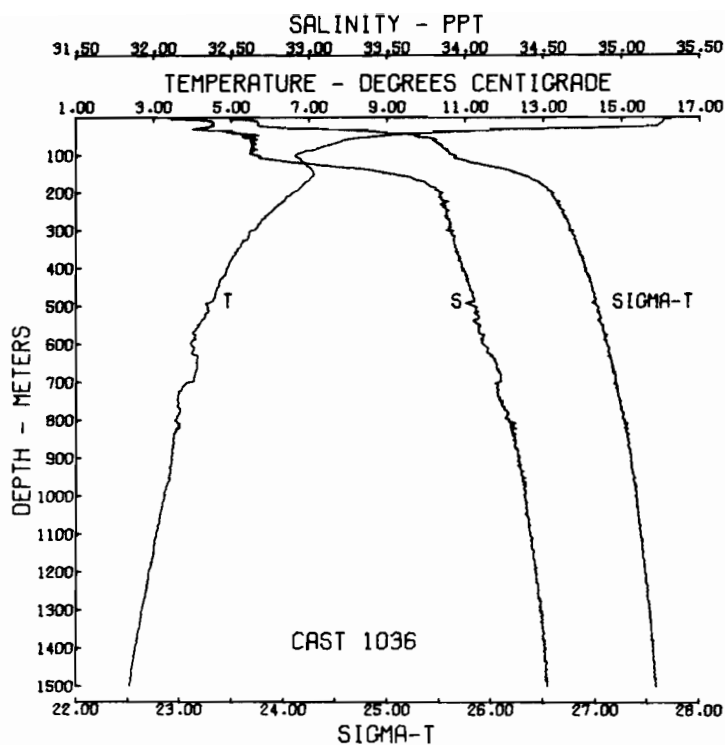
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 LAT 46 55.6 N LONG 128 10.0 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-S (DYN M)
0	16.69	31.93	23.18	0.000
10	16.50	31.84	23.23	.047
20	16.41	31.96	23.26	.093
30	11.17	32.27	24.64	.133
50	8.62	32.51	25.25	.192
75	7.34	32.69	25.57	.257
100	7.54	33.14	25.90	.314
150	7.36	33.91	26.45	.404
200	6.47	33.99	26.64	.480
250	5.76	33.91	26.74	.550
300	5.25	33.32	26.82	.616
400	4.85	34.01	26.93	.738
500	4.64	34.11	27.03	.851
600	4.45	34.22	27.14	.954
700	3.97	34.25	27.22	1.050
800	3.73	34.31	27.29	1.139
900	3.43	34.35	27.35	1.222
1000	3.24	34.40	27.41	1.299
1100	3.04	34.43	27.45	1.372
1200	2.86	34.46	27.49	1.442
1300	2.67	34.50	27.54	1.509
1400	2.53	34.52	27.57	1.570
1500	2.36	34.54	27.59	1.629
NANSEN BOTTLE	16.48	31.93	DEPTH =	20 4



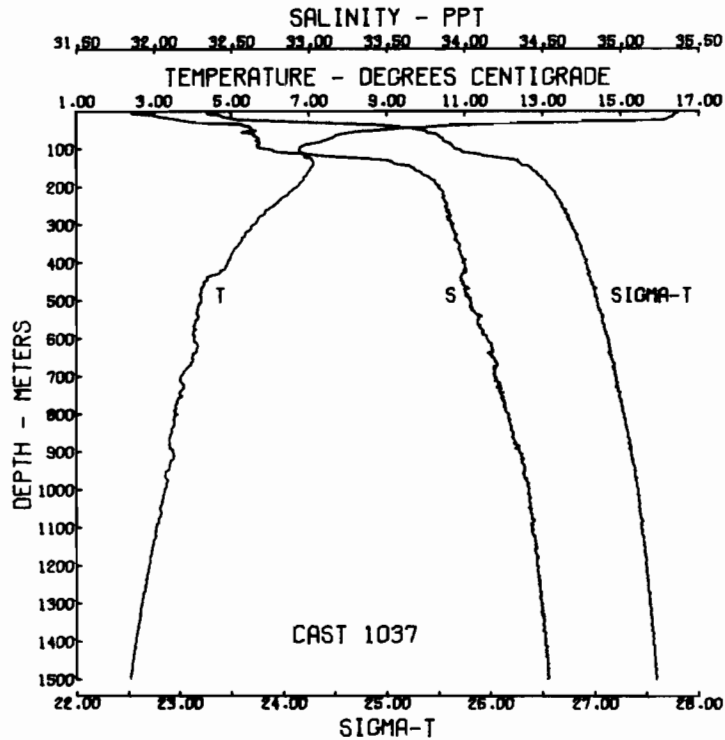
CAST 1035 DATE 6 SEP 71 0011 GMT
 LAT 45 55.6 N LONG 128 15.4 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DYN 4)
0	16.58	31.85	23.22	0.000
10	16.57	31.96	23.23	.047
20	16.44	31.86	23.26	.093
30	13.05	32.26	24.28	.136
50	8.25	32.50	25.37	.196
75	6.89	32.64	25.60	.259
100	6.50	32.74	25.73	.318
150	7.50	33.73	26.37	.414
200	6.77	33.32	26.62	.492
250	6.29	33.33	26.69	.564
300	5.91	33.30	26.77	.631
400	4.85	33.39	26.91	.757
500	4.53	34.07	27.01	.871
600	4.15	34.16	27.12	.976
700	3.98	34.25	27.21	1.072
800	3.66	34.29	27.28	1.162
900	3.54	34.36	27.35	1.245
1000	3.26	34.39	27.40	1.324
1100	3.06	34.42	27.44	1.399
1200	2.87	34.46	27.49	1.468
1300	2.68	34.49	27.53	1.534
1400	2.51	34.51	27.56	1.597
1500	2.35	34.53	27.59	1.656
NANSEN BOTTLE	16.47	31.85	DEPTH =	23 M



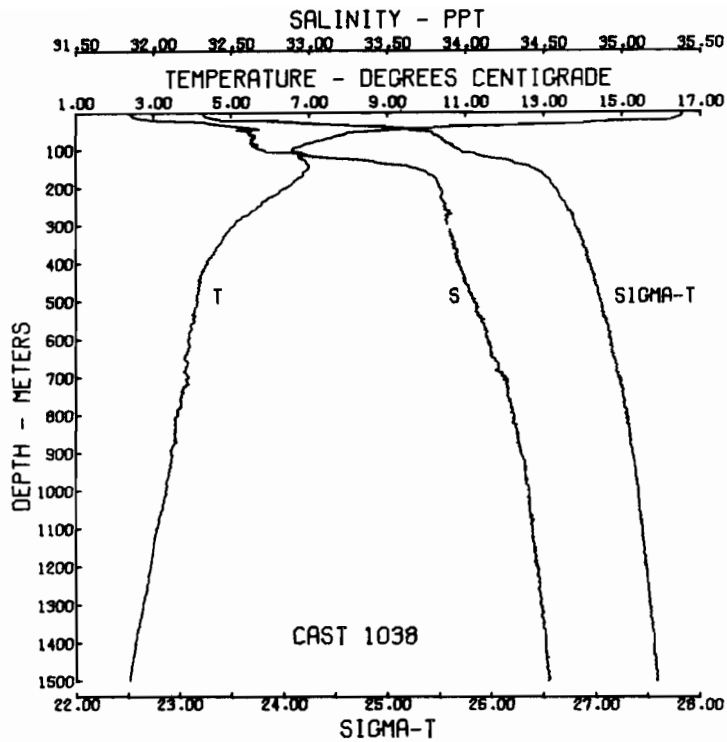
CAST 1036 DATE 6 SEP 71 0224 GMT
 LAT 45 55.7 N LONG 128 20.9 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DYN M)
0	16.23	32.12	23.51	0.000
10	16.08	32.37	23.73	.043
20	15.96	32.38	23.77	.085
30	13.71	32.28	24.17	.125
50	8.82	32.38	25.27	.185
75	7.49	32.53	25.51	.250
100	6.68	32.56	25.64	.311
150	7.12	33.33	26.27	.416
200	6.60	33.55	26.59	.497
250	6.03	33.89	26.69	.569
300	5.52	33.92	26.78	.637
400	4.88	33.38	26.91	.762
500	4.38	34.06	27.02	.877
600	3.97	34.12	27.11	.982
700	3.92	34.22	27.20	1.080
800	3.56	34.29	27.28	1.170
900	3.45	34.35	27.35	1.254
1000	3.28	34.38	27.39	1.333
1100	3.06	34.42	27.44	1.407
1200	2.87	34.46	27.49	1.478
1300	2.69	34.48	27.52	1.544
1400	2.52	34.51	27.56	1.607
1500	2.37	34.53	27.59	1.667
NANSEN BOTTLE	16.02	32.40	DEPTH =	23 M



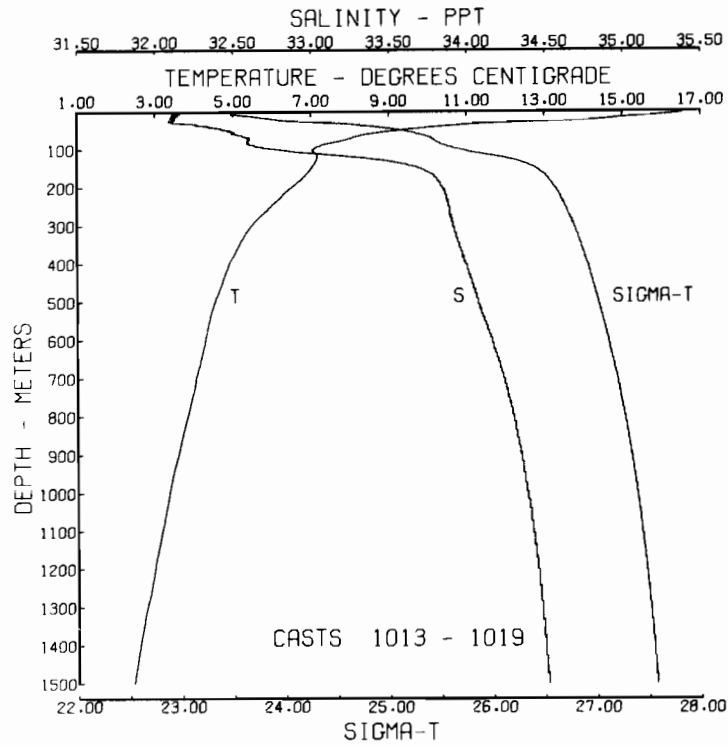
CAST 1037 DATE 6 SEP 71 0531 GMT
 LAT 47 00.6 N LONG 128 20.9 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-SI (DYN M)
0	16.44	31.87	23.27	0.000
10	16.39	31.92	23.32	.046
20	16.22	32.10	23.49	.091
30	13.41	32.25	24.20	.133
50	8.97	32.53	25.29	.194
75	7.50	32.57	25.54	.257
100	6.74	32.70	25.66	.313
150	7.04	33.57	26.38	.416
200	6.67	33.93	26.56	.495
250	6.07	33.99	26.69	.568
300	5.55	33.91	26.77	.636
400	4.88	33.98	26.90	.761
500	4.19	34.03	27.02	.875
600	4.01	34.14	27.12	.980
700	3.67	34.19	27.20	1.077
800	3.58	34.28	27.28	1.167
900	3.46	34.35	27.35	1.250
1000	3.26	34.41	27.41	1.328
1100	3.04	34.43	27.45	1.401
1200	2.85	34.46	27.49	1.470
1300	2.67	34.49	27.53	1.536
1400	2.52	34.52	27.56	1.599
1500	2.37	34.52	27.58	1.659
NANSEN BOTTLE	16.18	32.11	DEPTH =	22 M



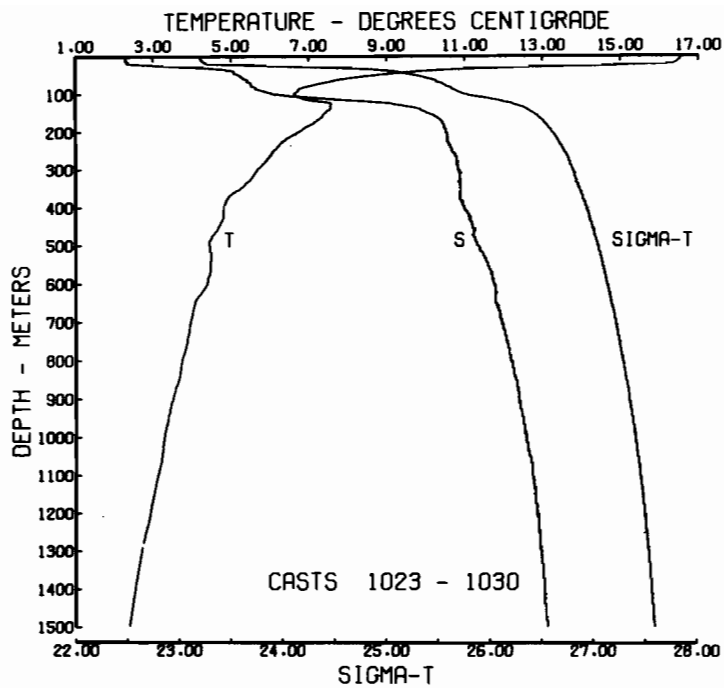
CAST 1038 DATE 6 SEP 71 0653 GMT
 LAT 47 05.7 N LONG 128 20.9 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DE TA-D (DYN M)
0	16.52	31.85	23.23	0.000
10	16.53	31.86	23.24	.046
20	16.23	32.01	23.42	.092
30	13.74	32.36	24.22	.133
50	8.58	32.53	25.35	.194
75	7.30	32.52	25.53	.257
100	6.55	32.59	25.68	.317
150	6.96	33.59	26.41	.416
200	6.39	33.84	26.60	.493
250	5.68	33.96	26.72	.563
300	5.05	33.38	26.80	.629
400	4.36	33.35	26.93	.751
500	4.12	34.05	27.04	.862
600	3.88	34.14	27.14	.965
700	3.90	34.25	27.22	1.060
800	3.62	34.31	27.30	1.148
900	3.44	34.35	27.35	1.231
1000	3.31	34.41	27.40	1.309
1100	3.09	34.43	27.44	1.383
1200	2.92	34.46	27.49	1.453
1300	2.72	34.48	27.52	1.520
1400	2.53	34.52	27.56	1.583
1500	2.37	34.53	27.59	1.643
NANSEN BOTTLE	15.92	32.03	DEPTH =	20 M



CAST 1013-1019 DATE 6 AUG 71 GMT
LAT 47 03.6 N LONG 128 17.3 W DEPTH 270. METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-D (DYN M)
0	16.46	32.16	23.48	0.000
10	16.07	32.11	23.53	.144
20	14.74	32.13	23.84	.086
30	12.35	32.11	24.30	.125
50	9.28	32.47	25.12	.189
75	7.90	32.61	25.44	.256
100	7.08	32.76	25.67	.318
150	7.01	33.69	26.41	.416
200	6.91	33.84	26.59	.493
250	5.97	33.88	26.69	.565
300	5.48	33.91	26.78	.632
400	4.89	33.99	26.91	.757
500	4.53	34.07	27.01	.872
600	4.27	34.16	27.11	.978
700	4.03	34.24	27.20	1.176
800	3.81	34.30	27.27	1.167
900	3.58	34.35	27.33	1.292
1000	3.34	34.39	27.39	1.332
1100	3.16	34.42	27.43	1.417
1200	2.97	34.45	27.47	1.479
1300	2.77	34.48	27.51	1.546
1400	2.58	34.50	27.55	1.611
1500	2.43	34.52	27.57	1.673
NANSEN BOTTLE	15.79	32.18	DEPTH =	13 M



CAST 1023-1030 DATE 5 SEP 71 GMT
 LAT 47 03.6 N LONG 128 17.3 W DEPTH 2700 METERS

DEPTH (M)	TEMPERATURE (C)	SALINITY (PPT)	SIGMA-T	DELTA-D (DYN M)
0	16.55	31.82	23.20	0.000
10	16.51	31.82	23.21	.047
20	16.36	31.83	23.25	.093
30	12.86	32.25	24.31	.135
50	8.86	32.54	25.24	.196
75	7.25	32.63	25.54	.260
100	6.63	32.76	25.73	.320
150	7.42	33.76	26.41	.415
200	6.76	33.88	26.59	.493
250	6.11	33.92	26.71	.564
300	5.68	33.96	26.79	.631
400	4.81	34.00	26.93	.755
500	4.44	34.09	27.04	.868
600	4.39	34.19	27.12	.972
700	3.95	34.24	27.21	1.068
800	3.73	34.30	27.28	1.158
900	3.50	34.35	27.34	1.241
1000	3.28	34.40	27.40	1.320
1100	3.12	34.44	27.45	1.393
1200	2.92	34.47	27.49	1.463
1300	2.70	34.50	27.53	1.529
1400	2.53	34.52	27.57	1.591
1500	2.39	34.54	27.59	1.651
NANSEN BOTTLE	16.38	31.87	DEPTH =	24 M

