Chapter 10

APPENDICES

This chapter presents detailed data on temperature, salinity, and biological samples taken in the Unimak Pass area during the course of this study. Data are given by sampling station and season; maps showing place names and station locations (Appendix E) provide a visual reference for spatial orientation. Appendix sections are as follows:

Section		Page
Appendix A.	Temperature and salinity sections along transects	10–2
Appendix B–1.	Temperature and salinity vertical profiles by station, fall 1986	10–30
Appendix B–2.	Temperature and salinity vertical profiles by station, winter 1987	10–77
Appendix B–3.	Temperature and salinity vertical profiles by station, spring 1987	10–117
Appendix C–1.	Distribution of water quality and biological samples, fall 1987	10–160
Appendix C–2.	Distribution of water quality and biological samples, winter 1987	10–170
Appendix C–3.	Distribution of water quality and biological samples, spring 1987	10–178
Appendix D.	Haul characteristics for forage fish samples	10–187
Appendix E.	Place names and station locations	10–190

APPENDIX A

Temperature and salinity sections based on CTD casts along transects in the Unimak Pass area, Alaska, in fall 1986 and winter and spring 1987. The transect for each section intercepted the stations indicated. Refer to station numbers in Appendix E (Figs 2-4) to determine the locations of transects.

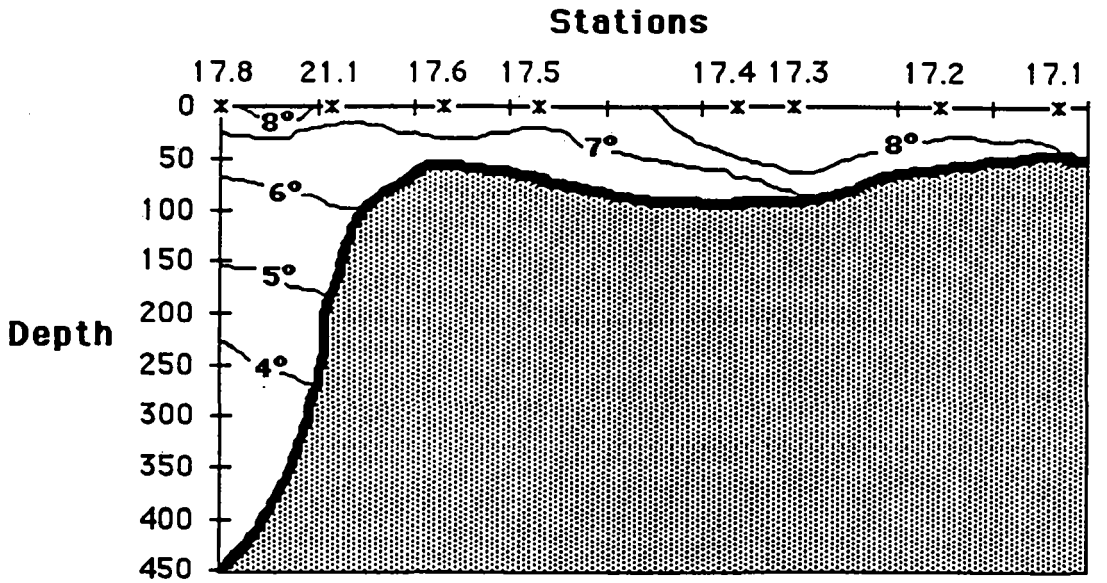


Fig. A-1. Horizontal temperature section from southwest (left) to northeast (right) on the north Aleutian shelf during fall. Transect was nearshore off Unimak, Akun, and Akutan islands. Depth is in meters.

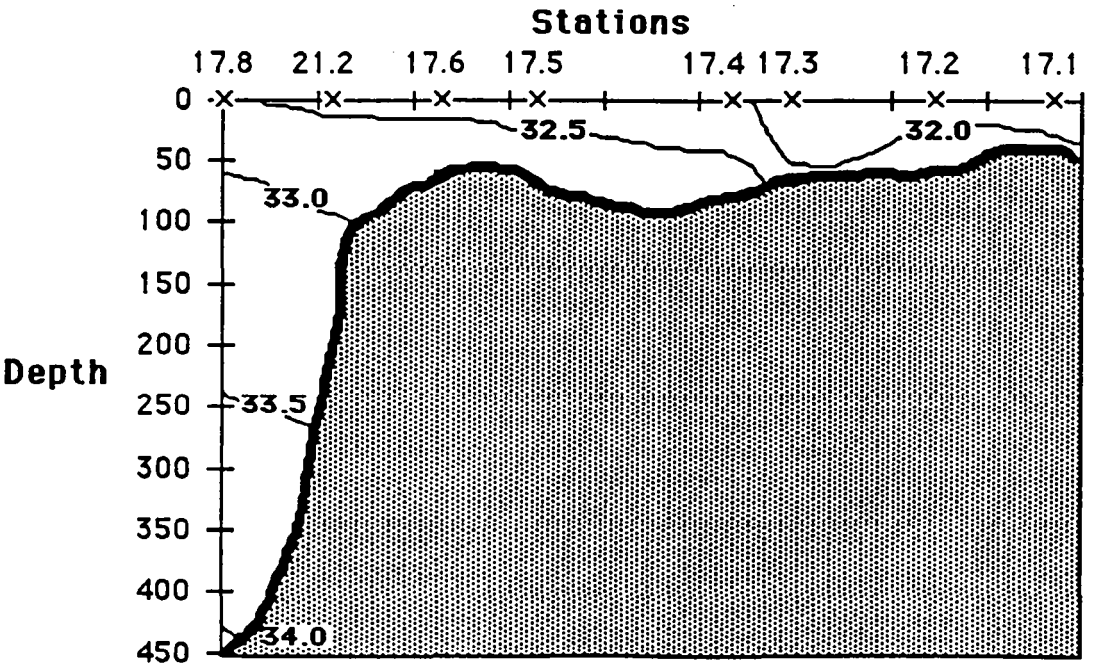


Fig. A-2. Horizontal salinity section from southwest (left) to northeast (right) on the north Aleutian shelf during fall. Transect was nearshore off Unimak, Akun, and Akutan islands. Depth is in meters.

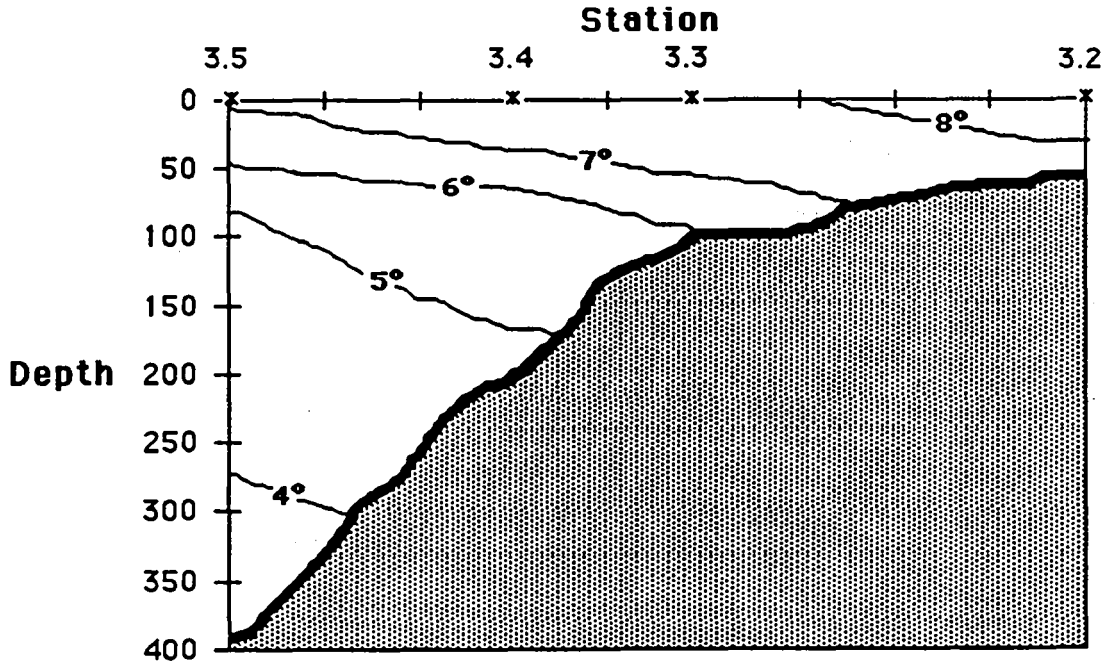


Fig. A-3. Horizontal temperature section from southwest (left) to northeast (right) on the north Aleutian shelf during fall. Depth is in meters.

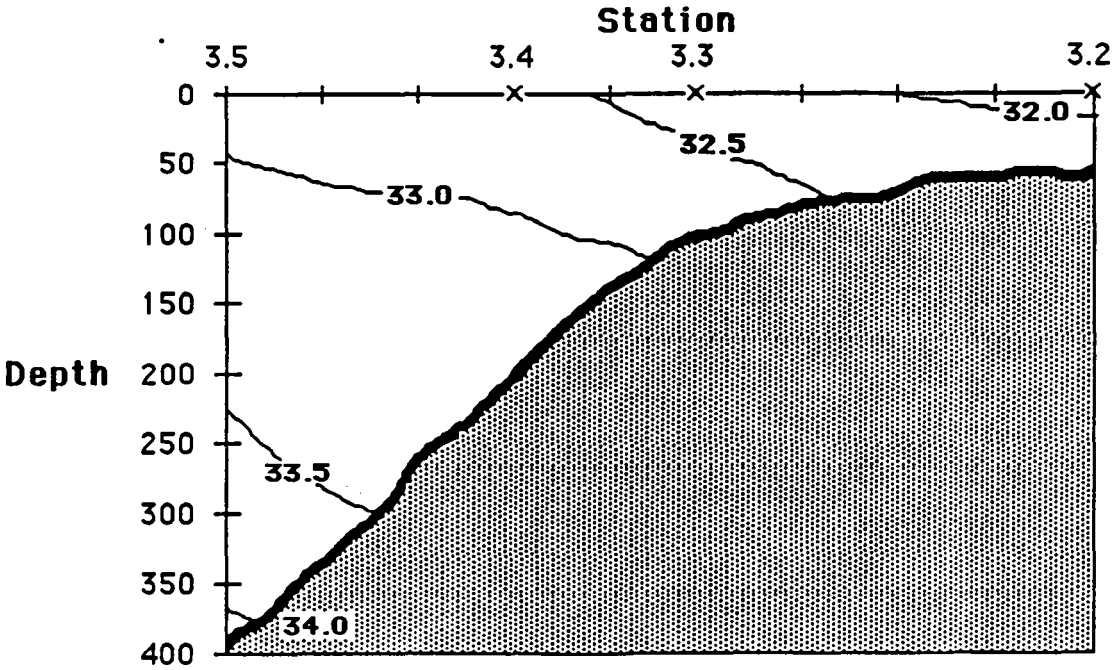


Fig. A-4. Horizontal salinity section from southwest (left) to northeast (right) on the north Aleutian shelf during fall. Depth is in meters.

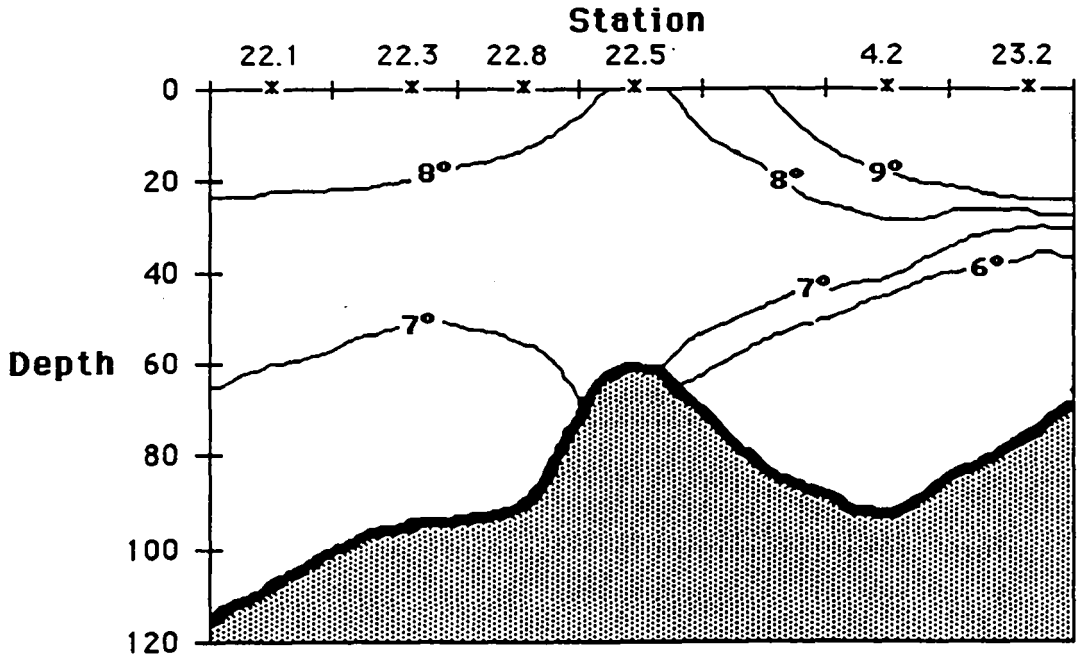


Fig. A-5. Horizontal temperature section from southwest (left) to northeast (right) on the south Aleutian shelf during fall. Transect was nearshore off Unalaska, Tigalda, and Unimak islands. Depth is in meters.

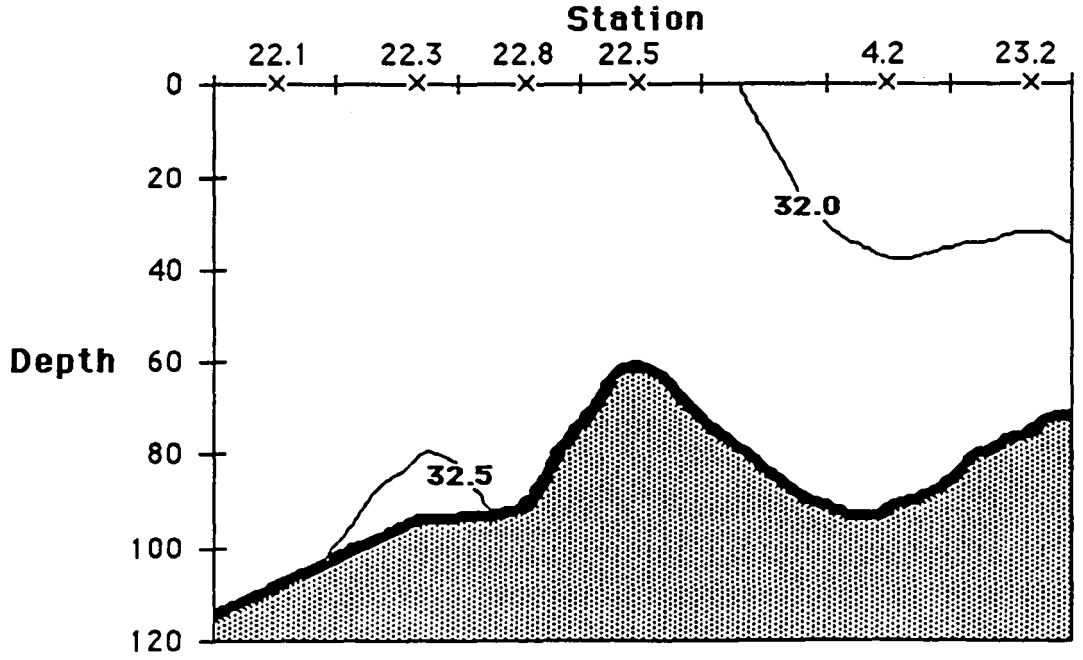


Fig. A-6. Horizontal salinity section from southwest (left) to northeast (right) on the south Aleutian shelf during fall. Depth is in meters.

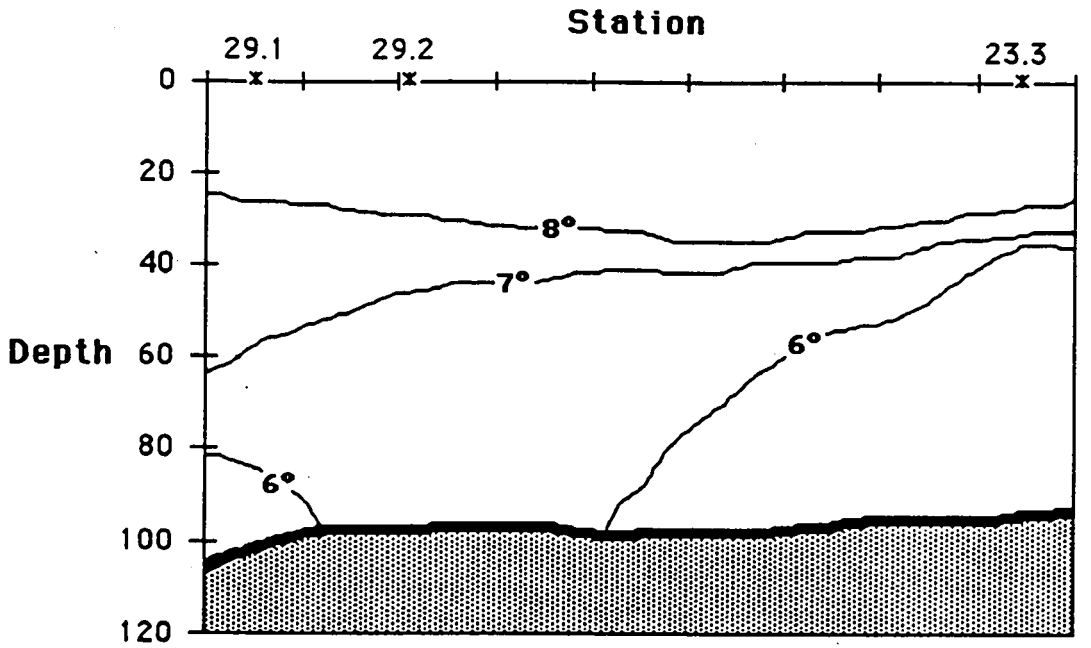


Fig. A-7. Horizontal temperature section from southwest (left) to northeast (right) on the south Aleutian shelf during fall. Transect was offshore of Unalaska, Tigalda, and Unimak islands. Depth is in meters.

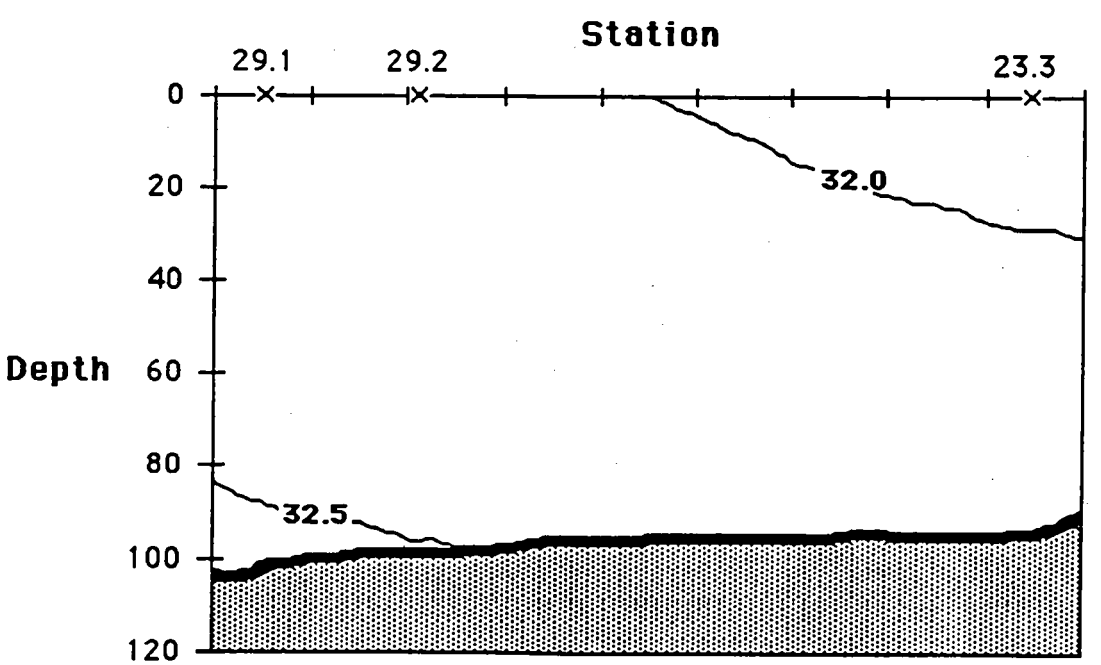


Fig. A-8. Horizontal salinity section from southwest (left) to northeast (right) on the south Aleutian shelf during fall. Depth is in meters.

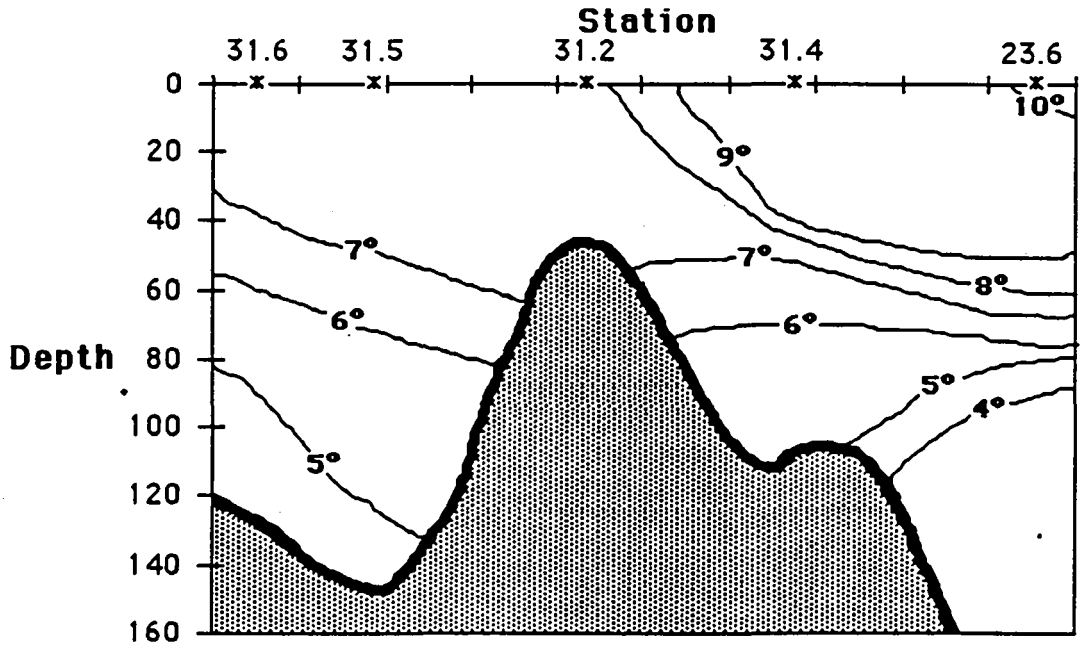


Fig. A-9. Horizontal temperature section from north (left) to south (right) through Unimak Pass during fall. Depth is in meters.

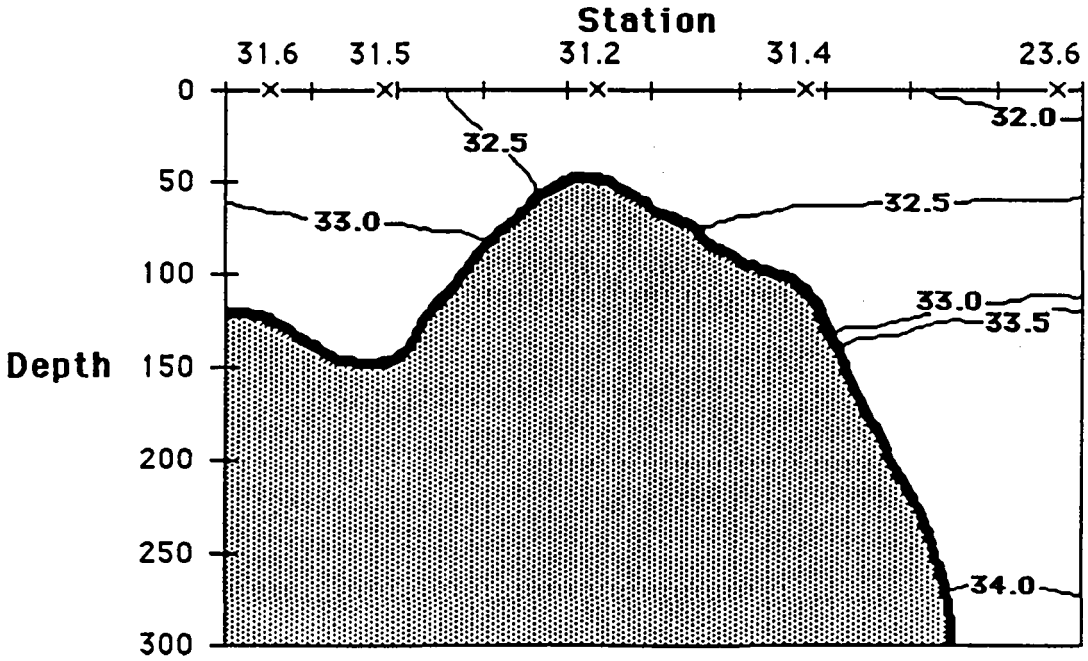


Fig. A-10. Horizontal salinity section from north (left) to south (right) through Unimak Pass during fall. Depth is in meters.

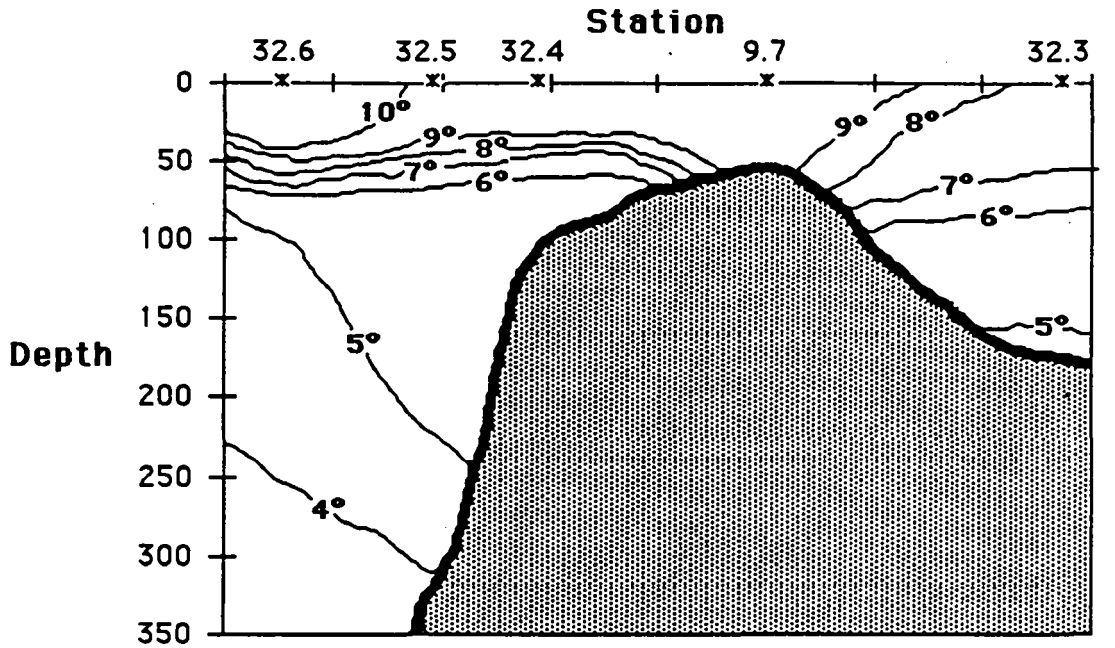


Fig. A-11. Horizontal temperature section from north (left) to south (right) through Ugamak Strait during fall. Depth is in meters.

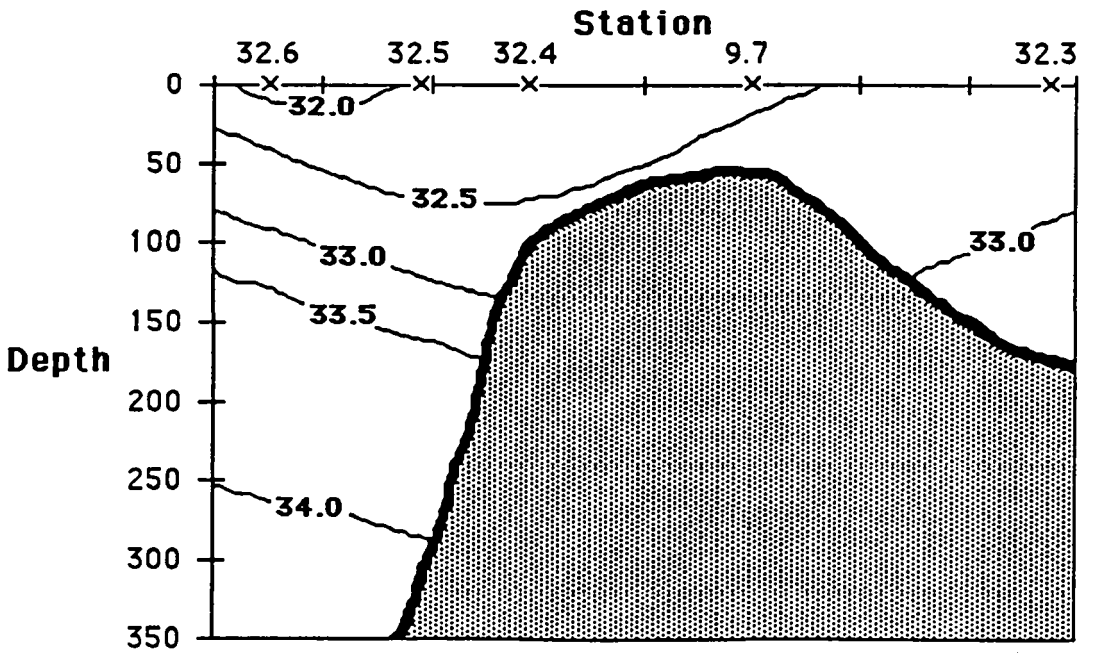


Fig. A-12. Horizontal salinity section from north (left) to south (right) through Ugamak Strait during fall. Depth is in meters.

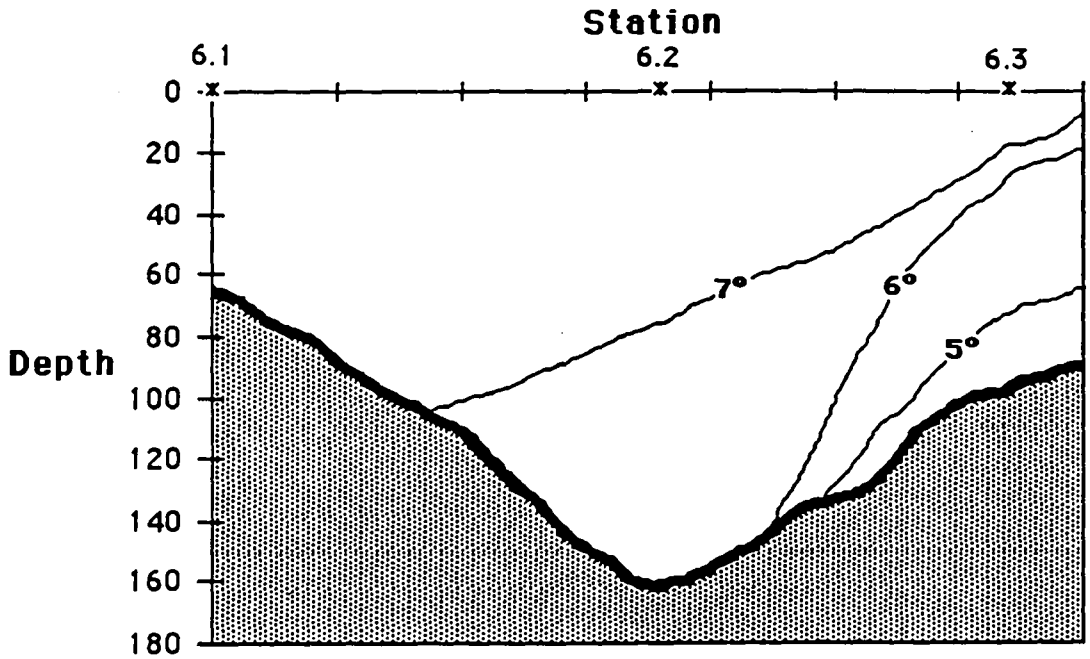


Fig. A-13. Horizontal temperature section from south (left) to north (right) on the west side of Unimak Pass north of Akun Island during fall. Depth is in m.

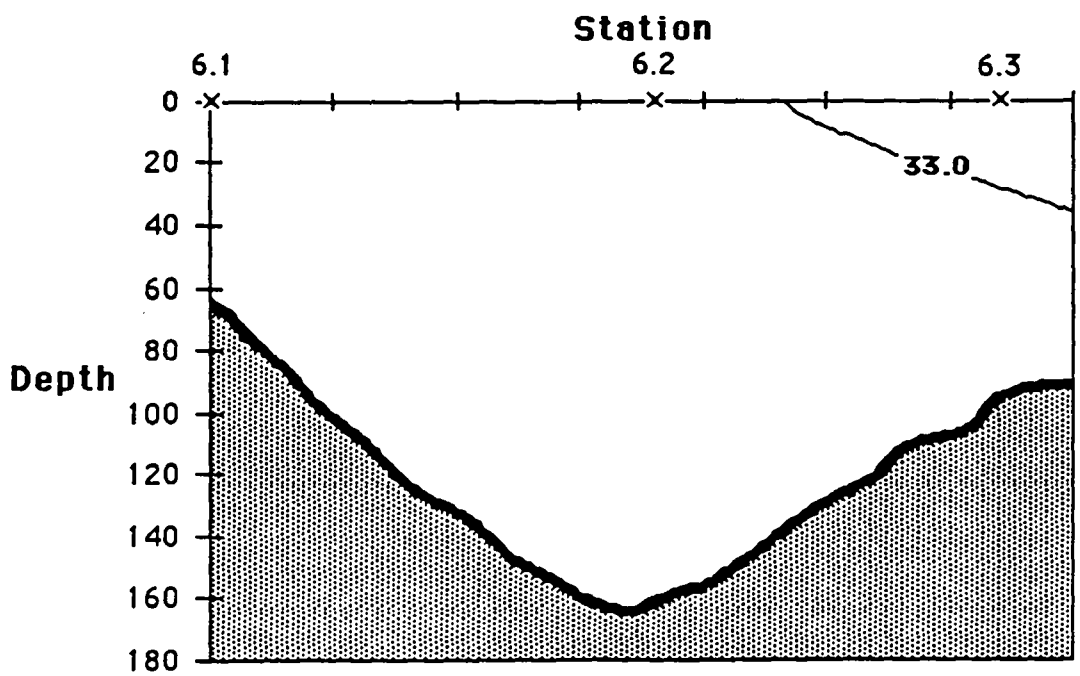


Fig. A-14. Horizontal salinity section from south (left) to north (right) on the west side of Unimak Pass north of Akun Island during fall.

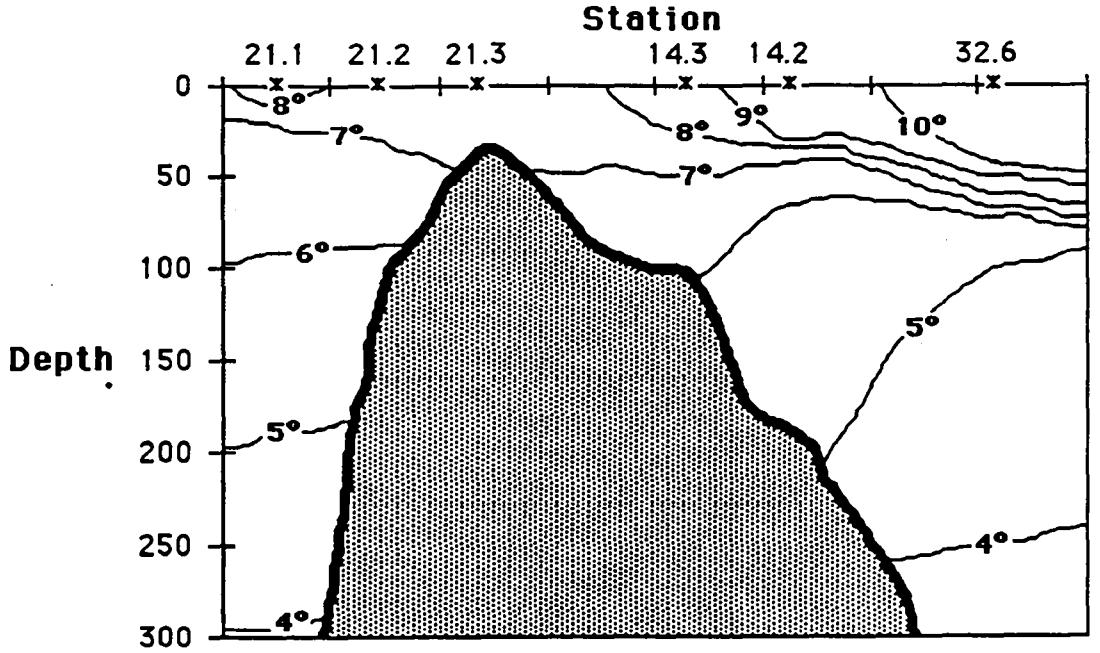


Fig. A-15. Horizontal temperature section from north (left) to south (right) through Akutan Pass during fall. Depth is in meters.

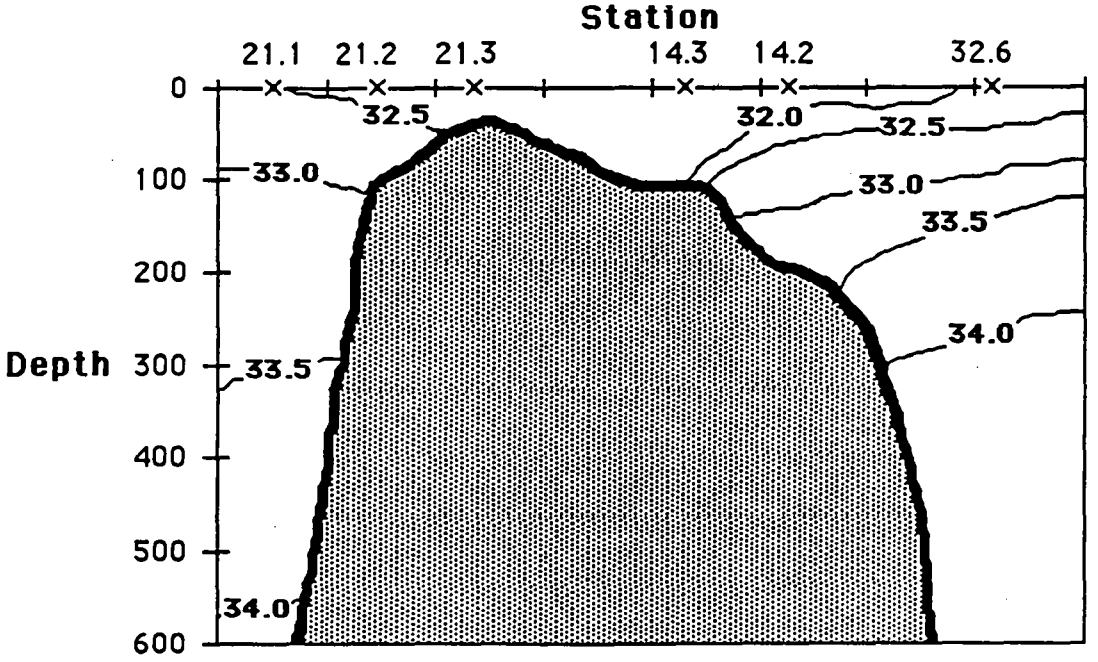


Fig. A-16. Horizontal salinity section from north (left) to south (right) through Akutan Pass during fall. Depth is in meters.

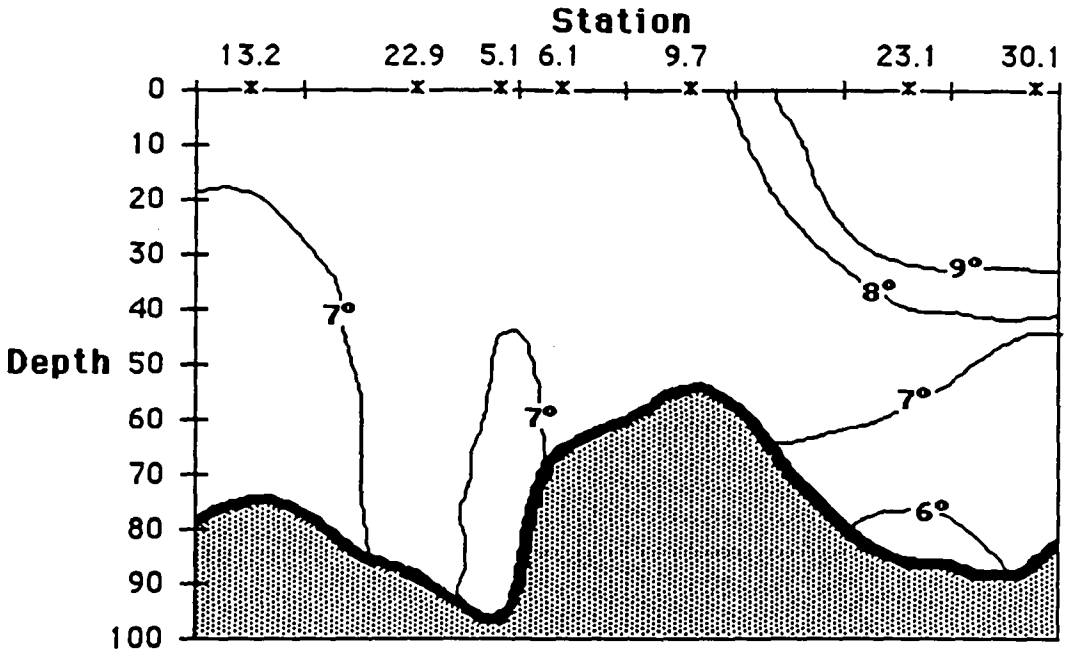


Fig. A-17. Horizontal temperature section from west (left) to east (right) through the eastern Aleutian Islands during fall.

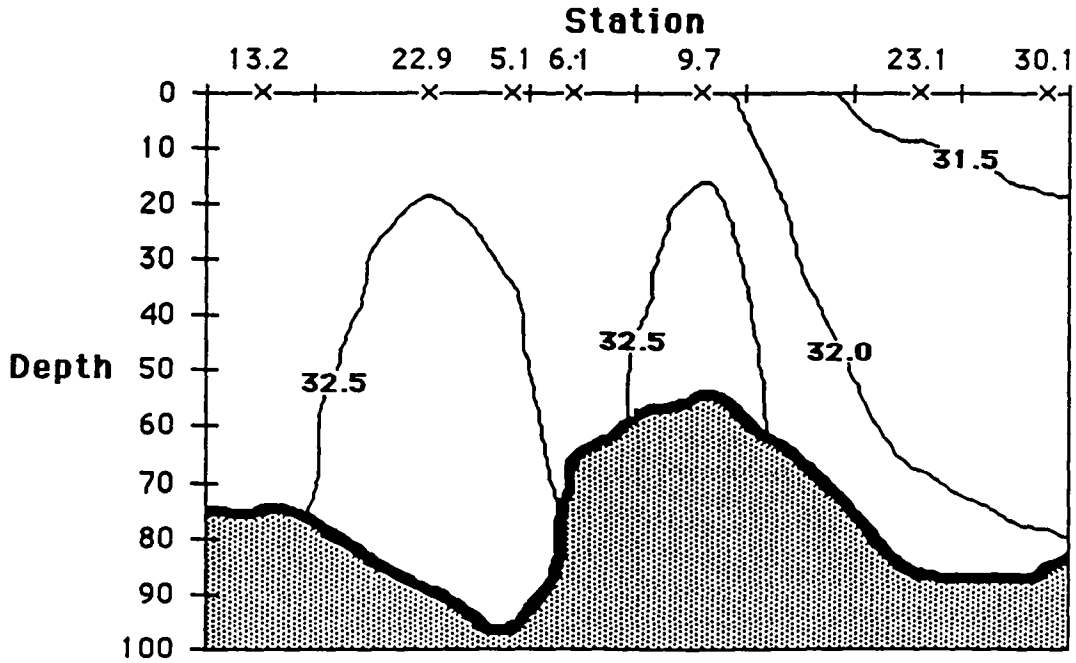


Fig. A-18. Horizontal salinity section from west (left) to east (right) through the eastern Aleutian Islands during fall.

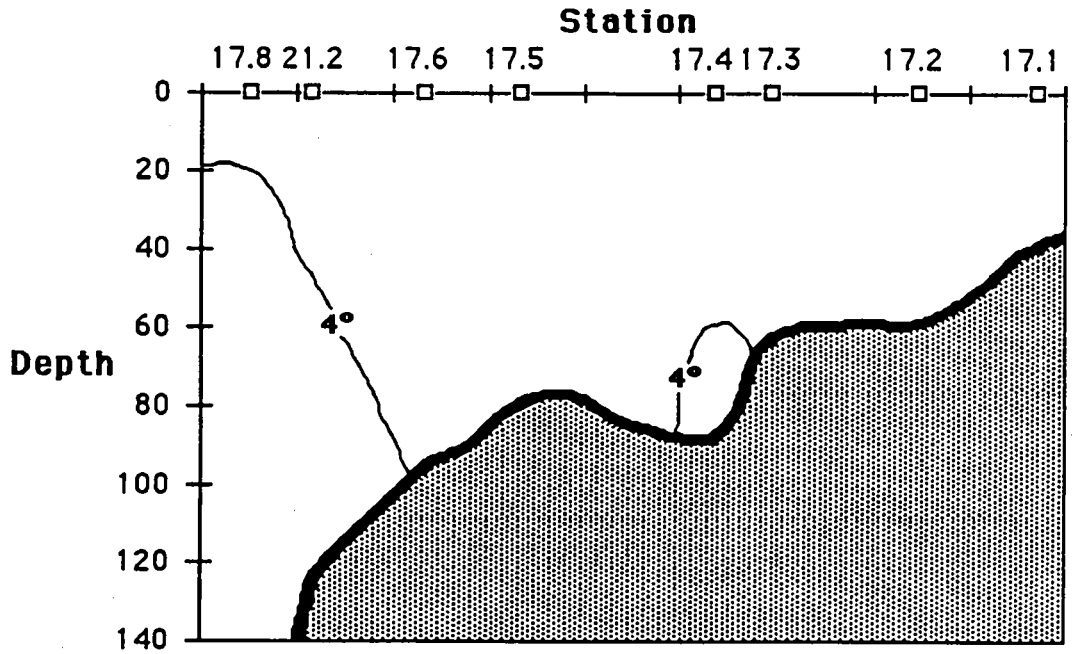


Fig. A-19. Horizontal temperature section from southwest (left) to northeast (right) on the north Aleutian shelf during winter. Transect was nearshore off Unimak, Akun, and Akutan islands. Depth is in meters.

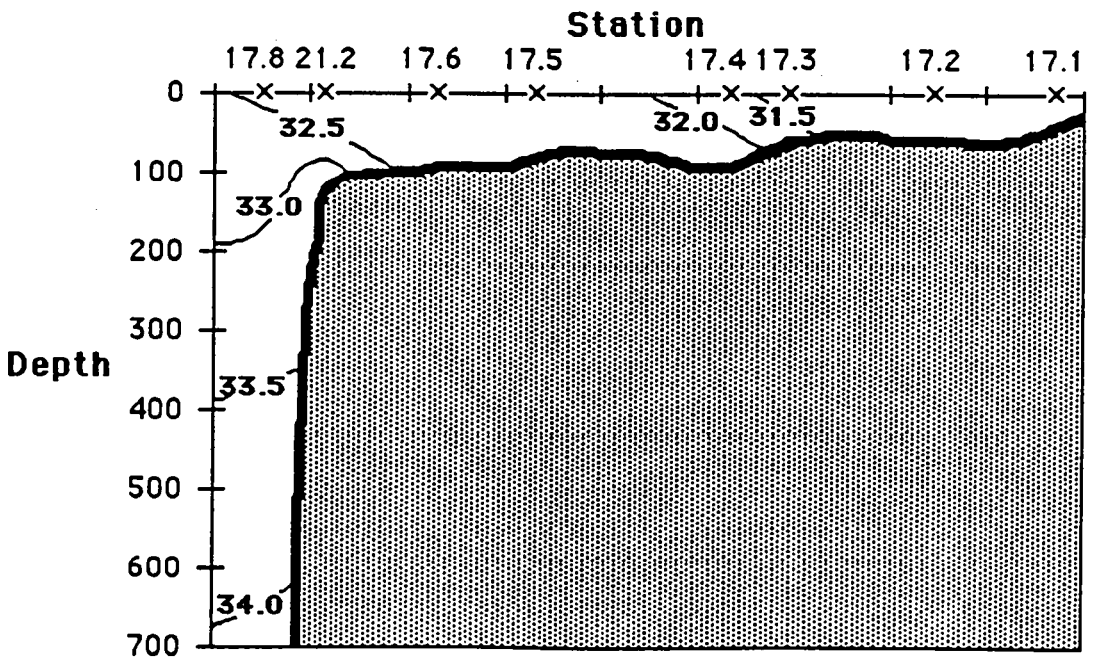


Fig. A-20. Horizontal salinity section from southwest (left) to northeast (right) on the north Aleutian shelf during winter.

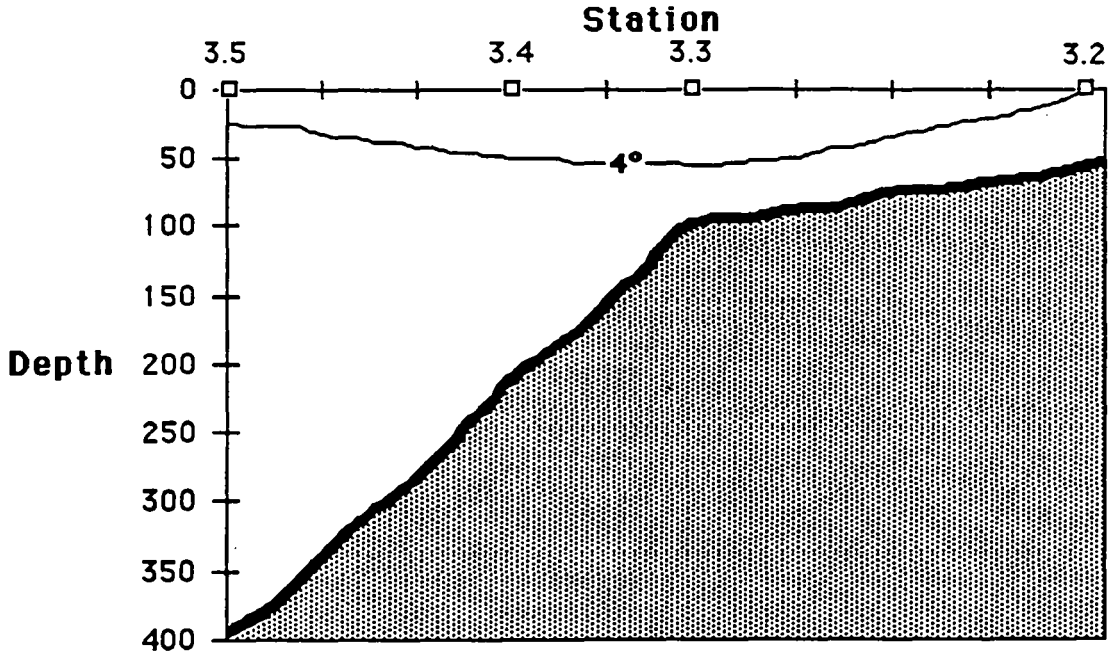


Fig. A-21. Horizontal temperature section from southwest (left) to northeast (right) on the north Aleutian shelf during winter. Depth is in meters.

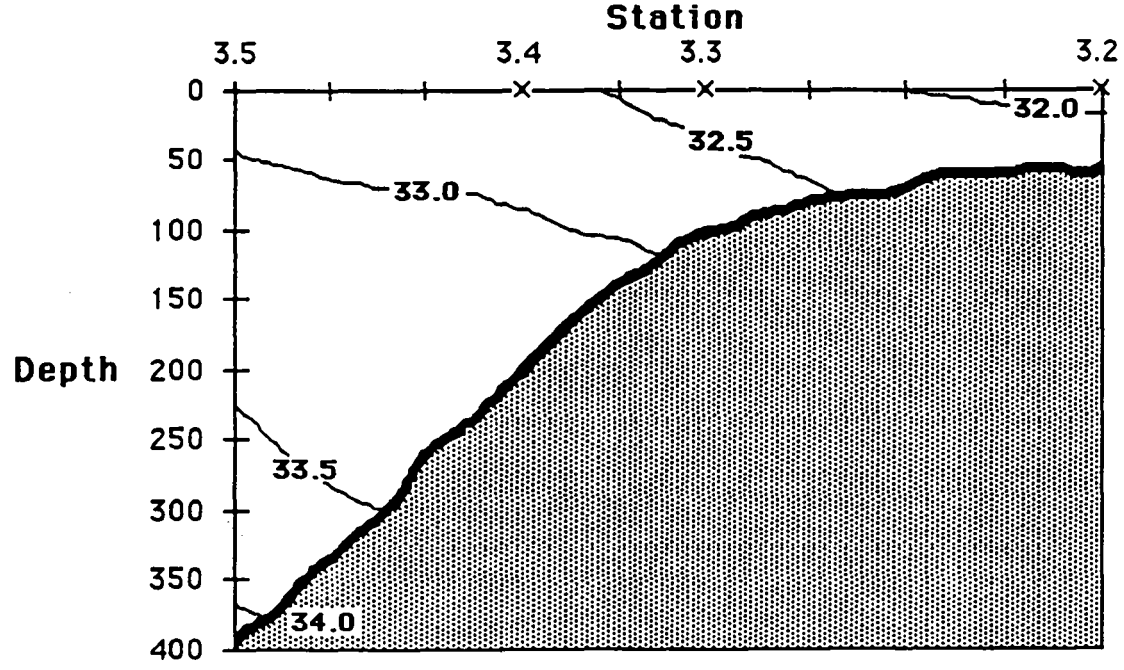


Fig. A-22. Horizontal salinity section from southwest (left)to northeast (right) on the north Aleutian shelf during winter. Depth is in meters.

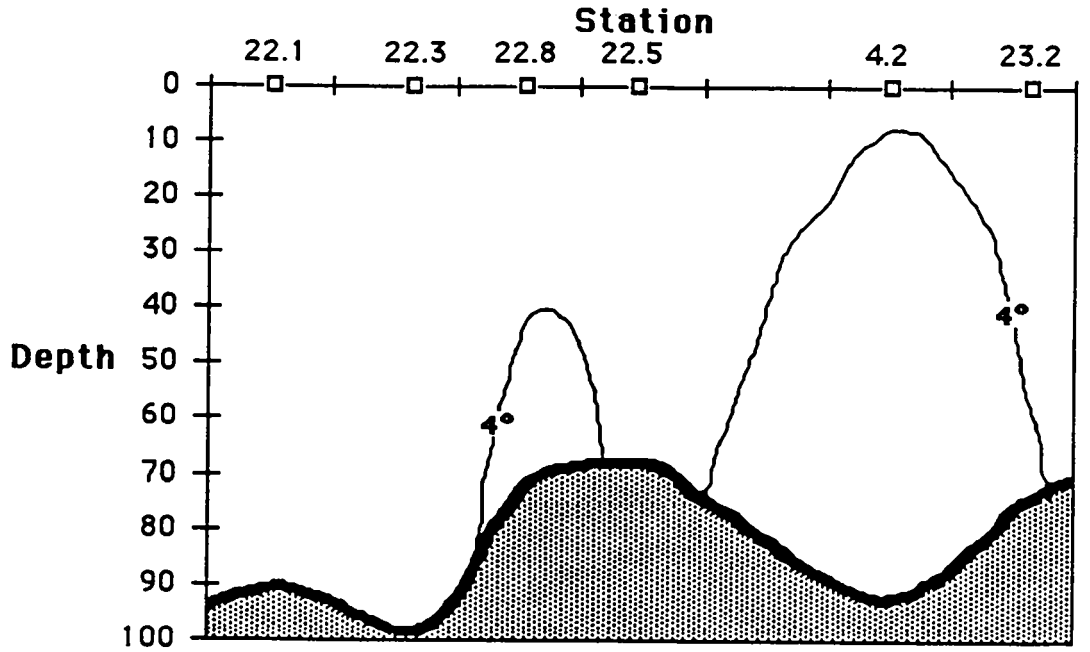


Fig. A-23. Horizontal temperature section from southwest (left) to northeast (right) on the south Aleutian shelf during winter. Depth is in meters.

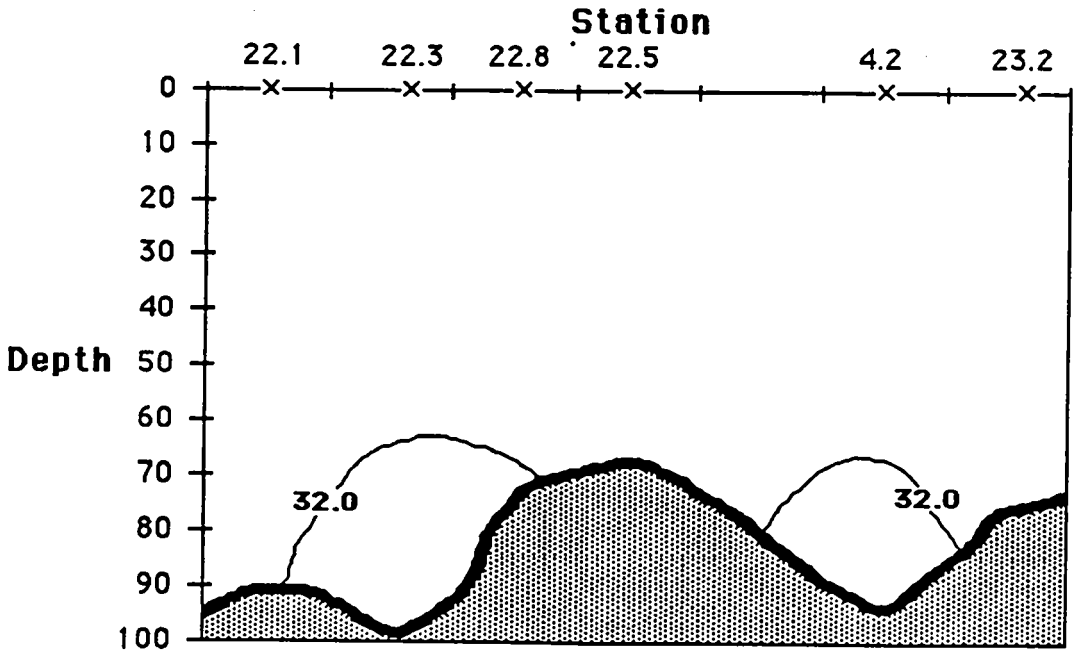


Fig. A-24. Horizontal salinity section from southwest (left) to northeast (right) on the south Aleutian shelf during winter. Depth is in meters.

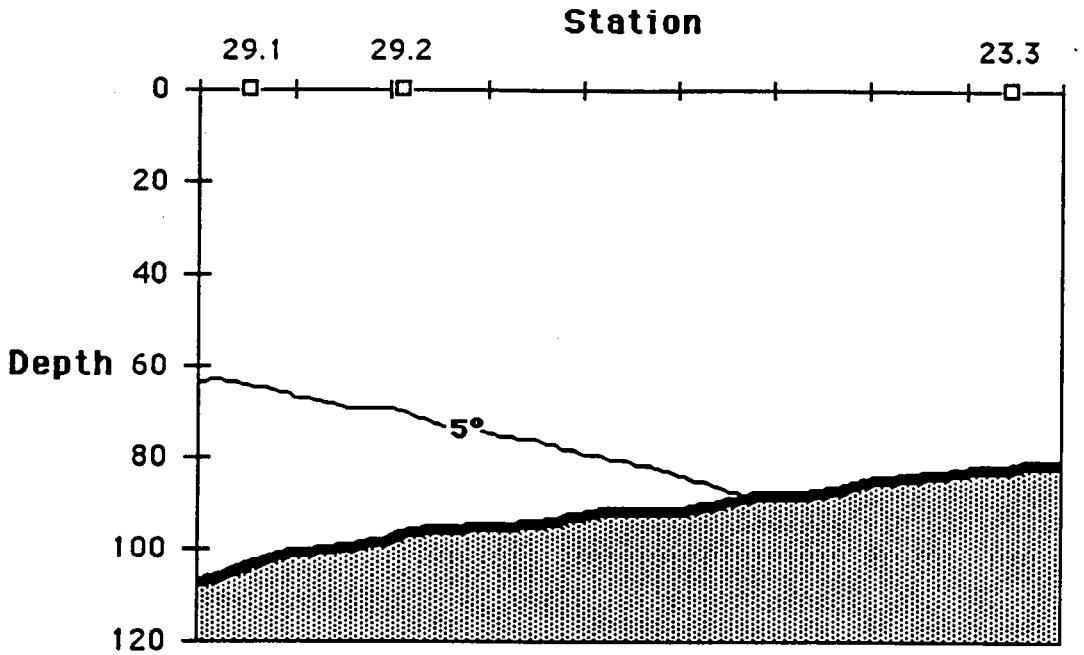


Fig. A-25. Horizontal temperature section from southwest (left) to northeast (right) on the south Aleutian shelf during winter. Transect was offshore of Unalaska, Tigalda, and Unimak islands. Depth is in meters.

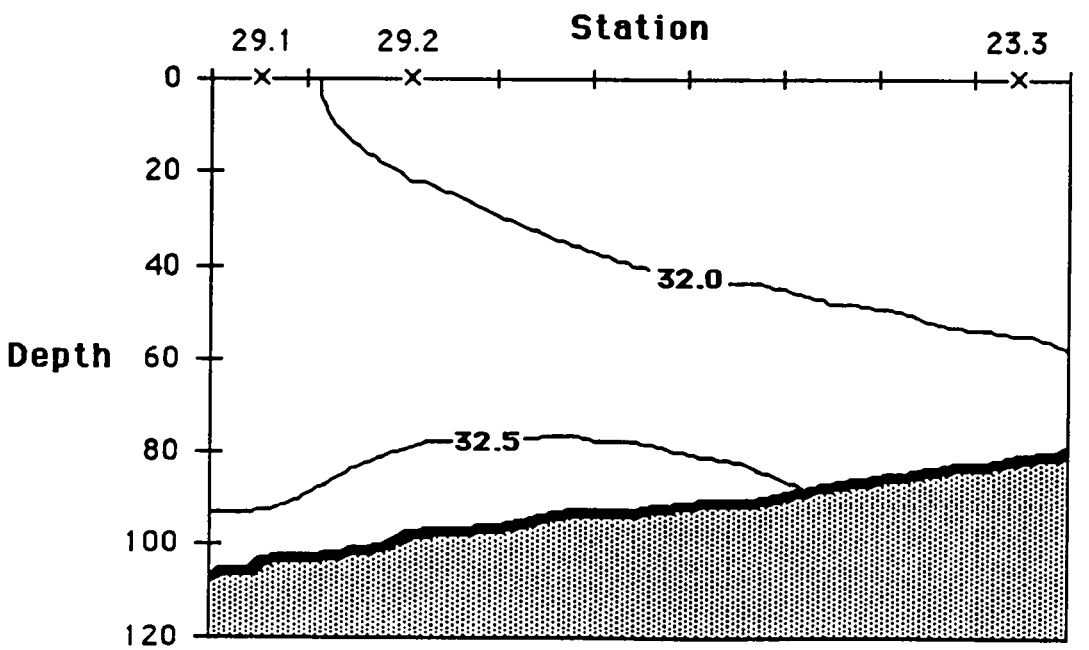


Fig. A-26. Horizontal salinity section from southwest (left)to northeast (right) on the south Aleutian shelf during winter. Depth is in meters.

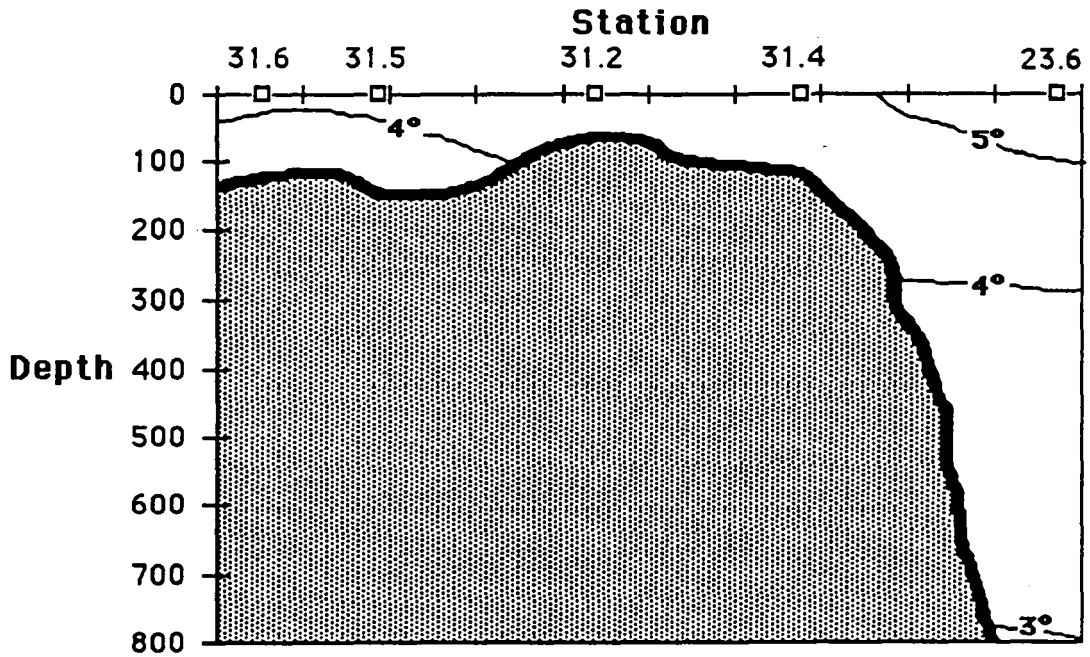


Fig. A-27. Horizontal temperature section from north (left) to south (right) through Unimak Pass during winter. Depth is in meters.

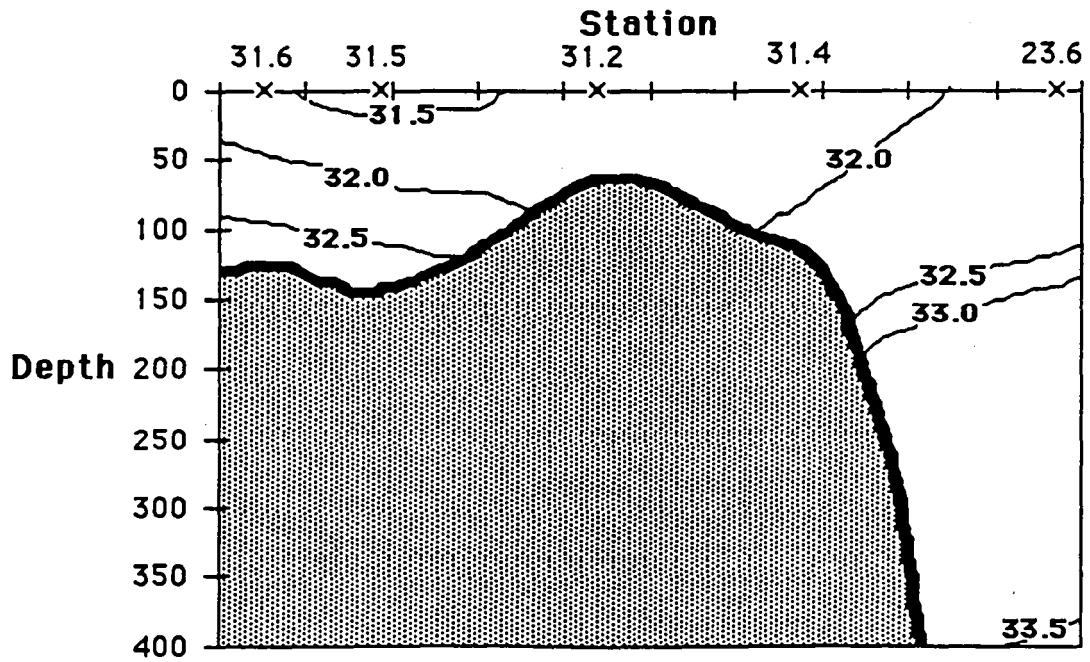


Fig. A-28. Horizontal salinity section from north (left) to south (right) through Unimak Pass during winter. Depth is in meters.

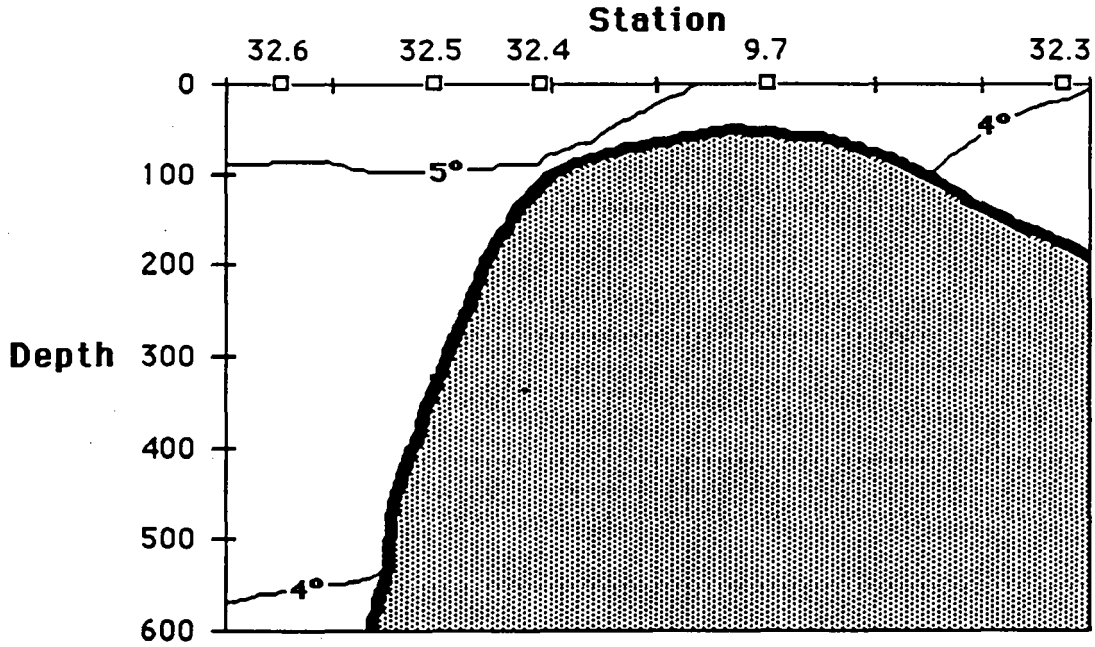


Fig. A-29. Horizontal temperature section from north (left) to south (right) through Ugamak Strait during winter. Depth is in meters.

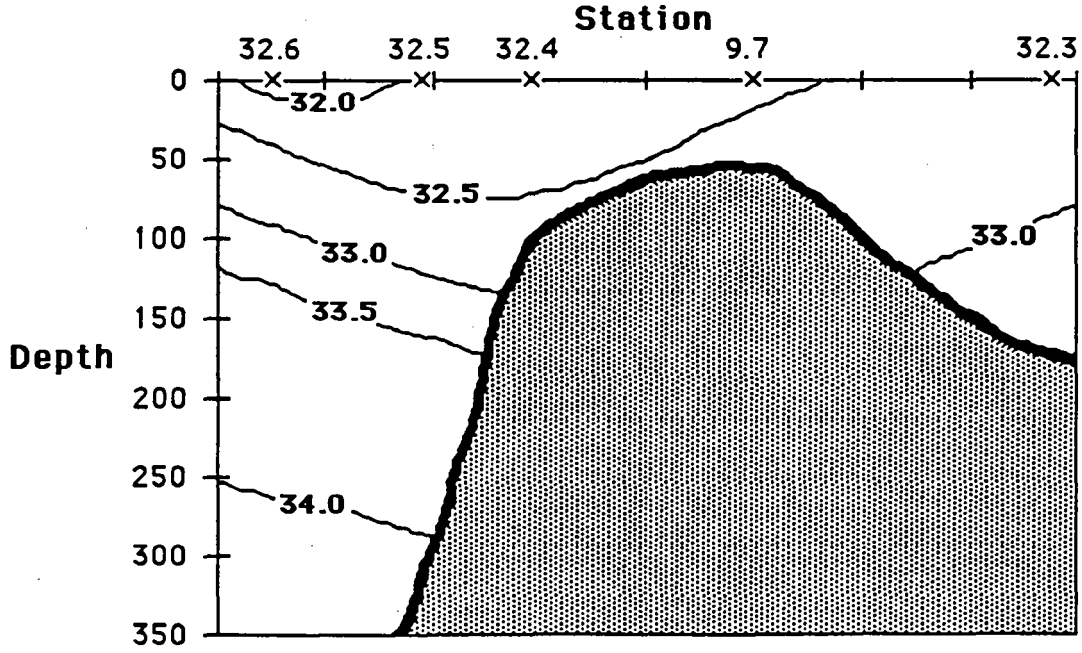


Fig. A-30. Horizontal salinity section from north (left) to south (right) through Ugamak Strait during winter. Depth is in meters.

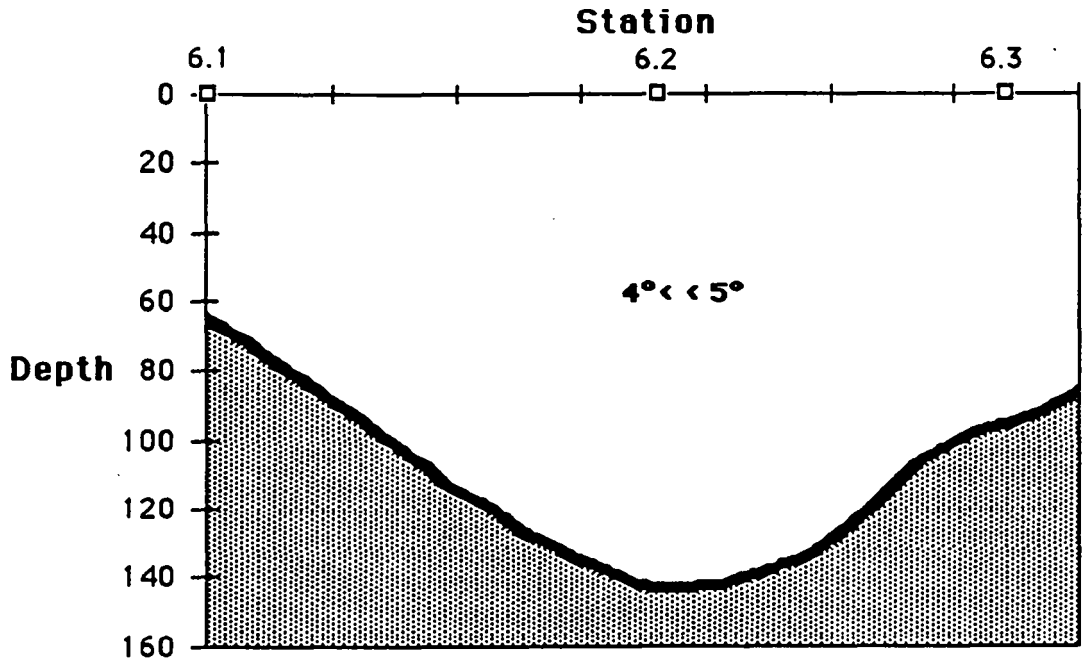


Fig. A-31. Horizontal temperature section from south (left) to north (right) on the west side of Unimak Pass north of Akun Island during winter. Depth is in meters.

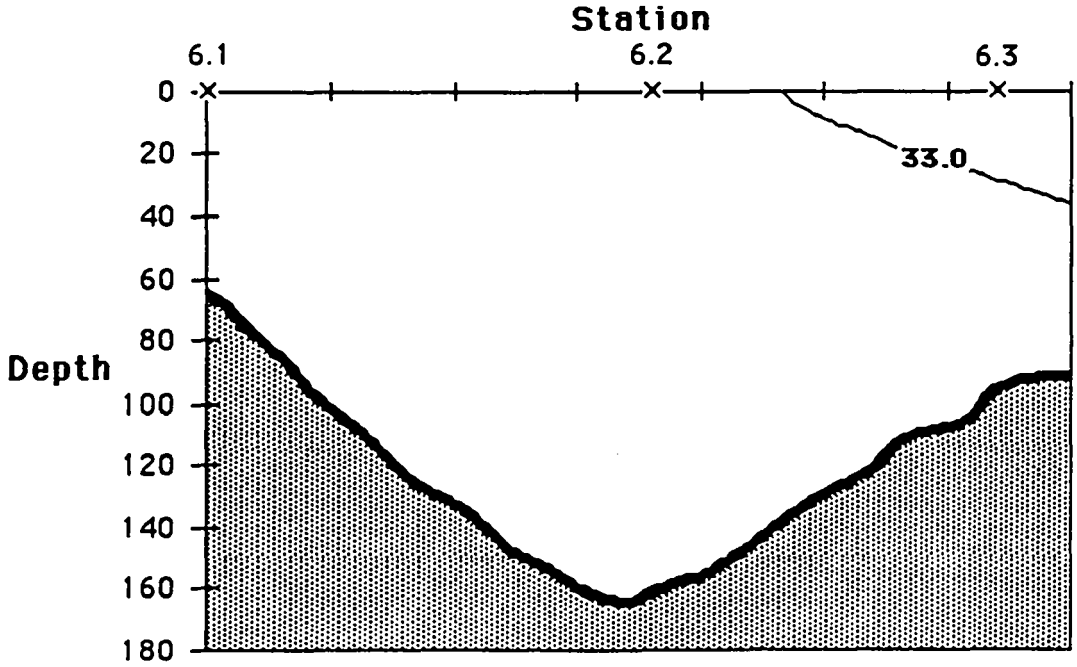


Fig. A-32. Horizontal salinity section from south (left) to north (right) on the west side of Unimak Pass north of Akun Island during winter.

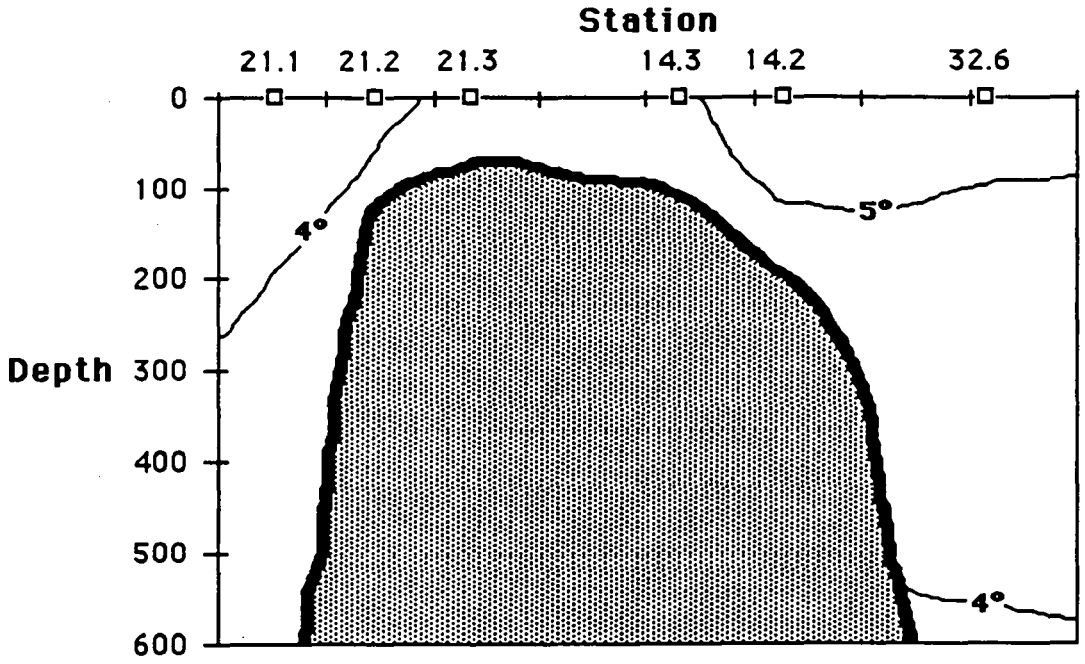


Fig. A-33. Horizontal temperature section from north (left) to south (right) through Akutan Pass during winter. Depth is in meters.

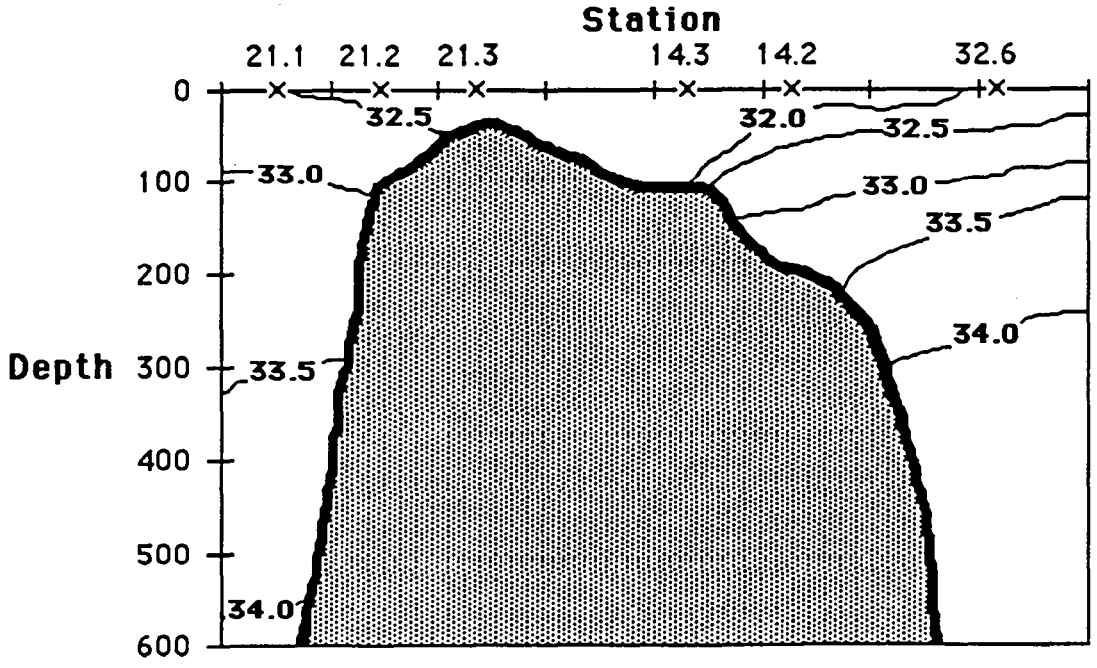


Fig. A-34. Horizontal salinity section from north (left) to south (right) through Akutan Pass during winter. Depth is in meters.

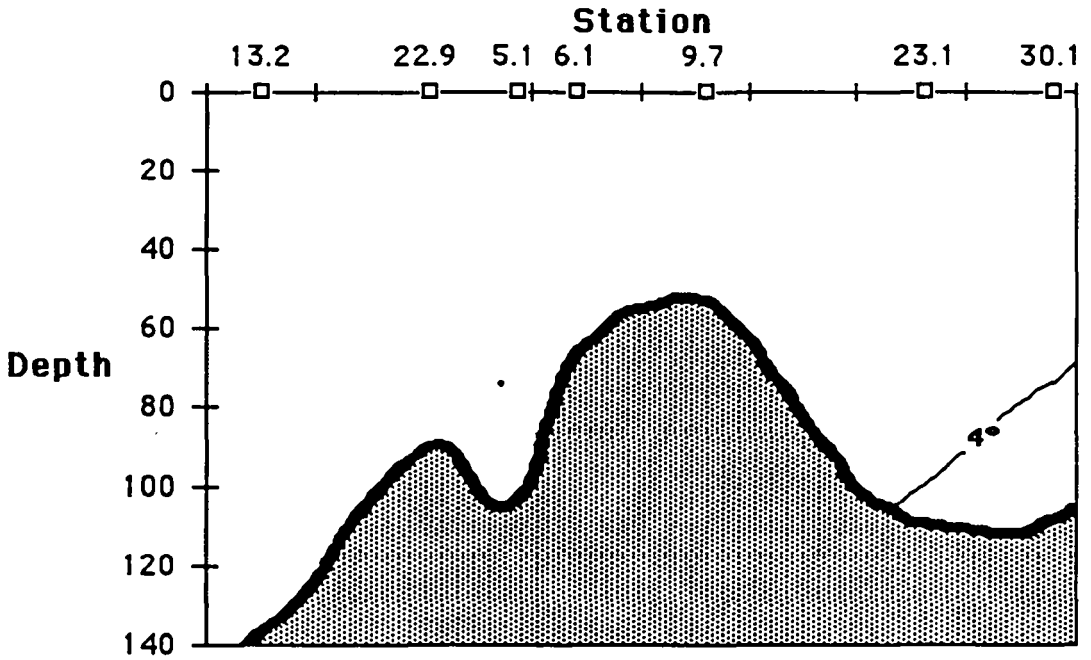


Fig. A-35. Horizontal temperature section from west (left) to east (right) through the eastern Aleutian Islands during winter.

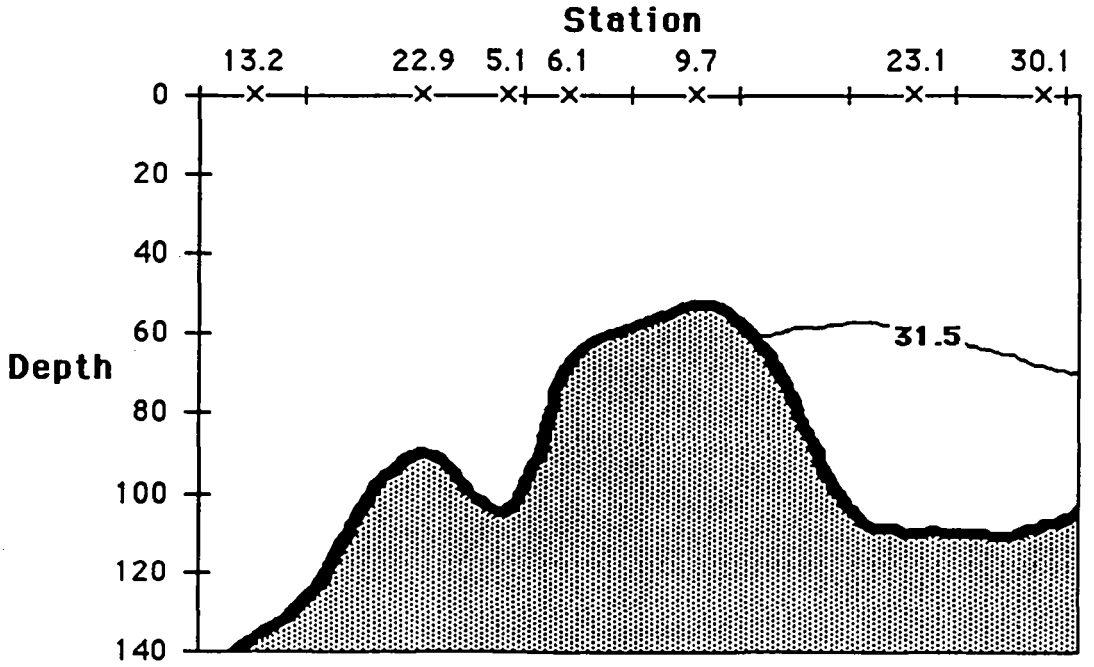


Fig. A-36. Horizontal salinity section from west (left) to east (right) through the eastern Aleutian Islands during winter.

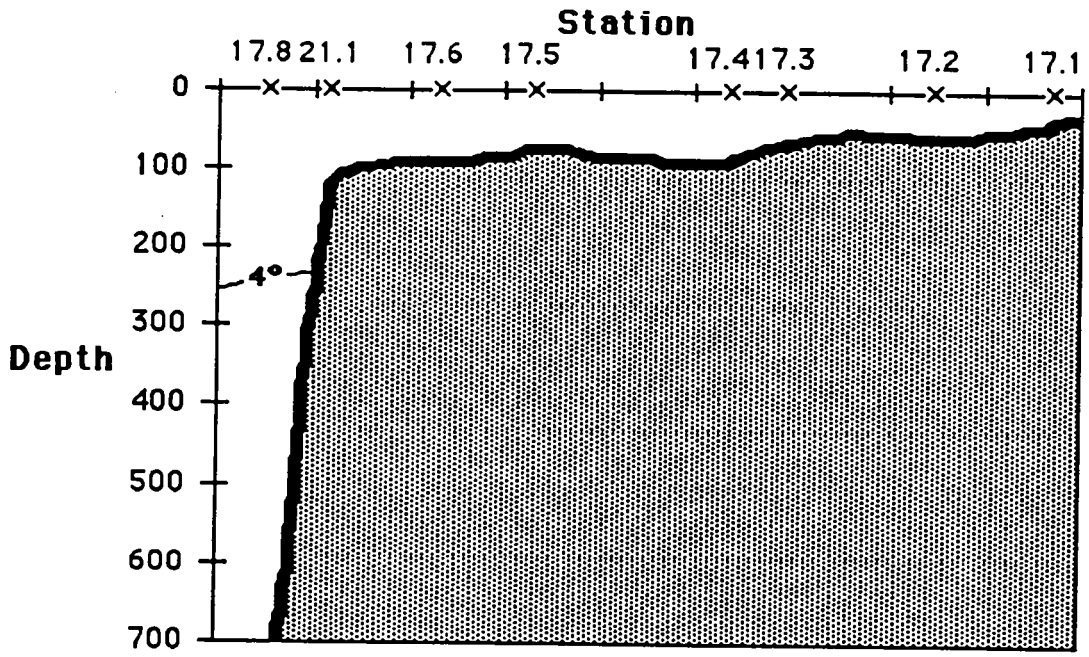


Fig. A-37. Horizontal temperature section from southwest (left) to northeast (right) on the north Aleutian shelf during spring. Transect was nearshore off Unimak, Akun, and Akutan islands. Depth is in meters.

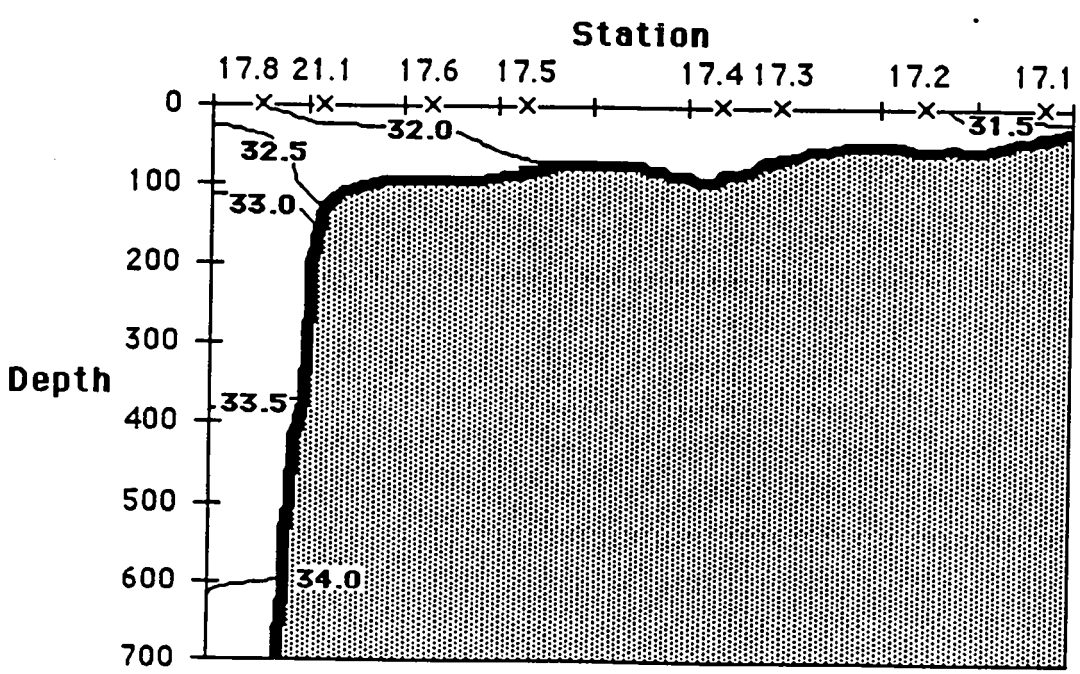


Fig. A-38. Horizontal salinity section from southwest (left) to northeast (right) on the north Aleutian shelf during spring.

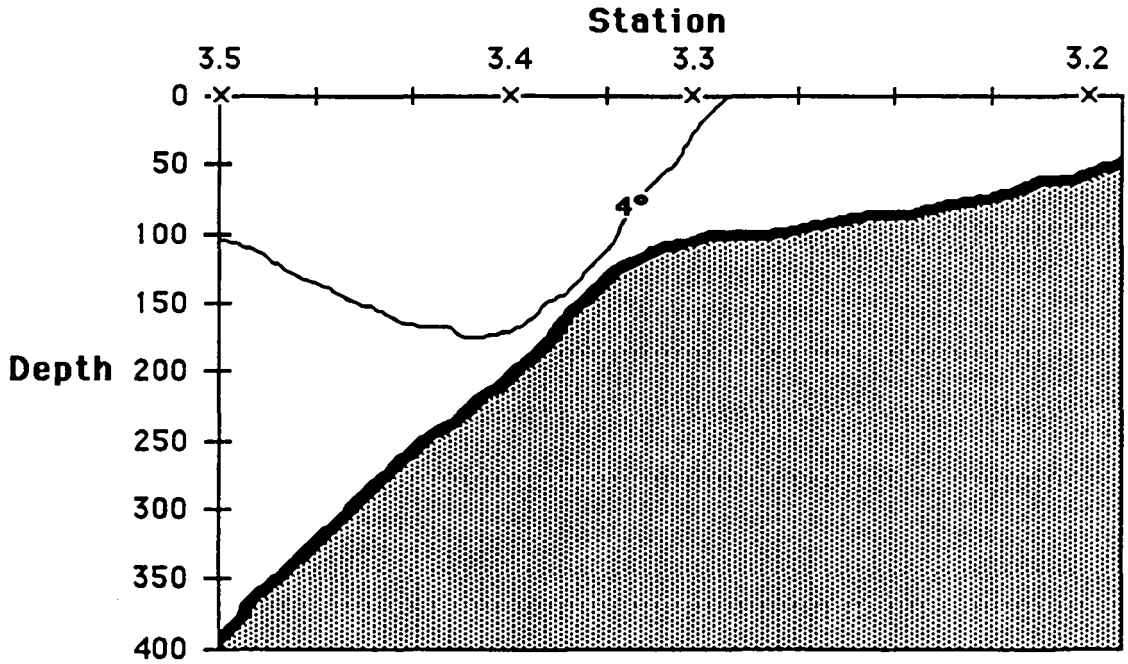


Fig. A-39. Horizontal temperature section from southwest (left) to northeast (right) on the north Aleutian shelf during spring. Depth is in meters.

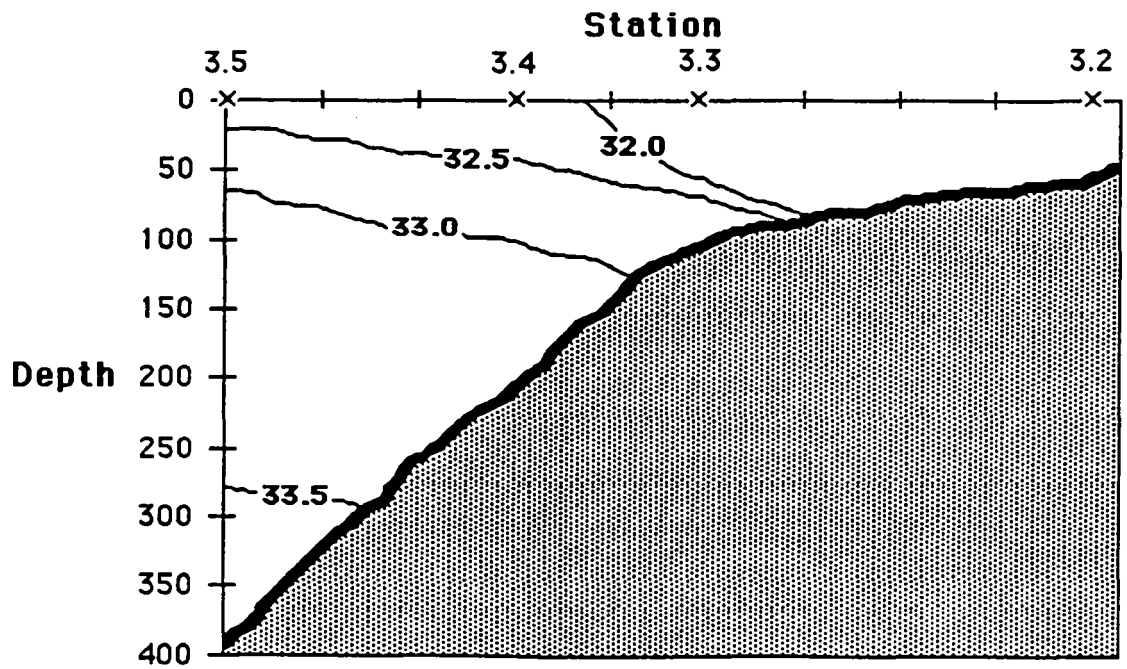


Fig. A-40. Horizontal salinity section from southwest (left) to northeast (right) on the north Aleutian shelf during spring. Depth is in meters.

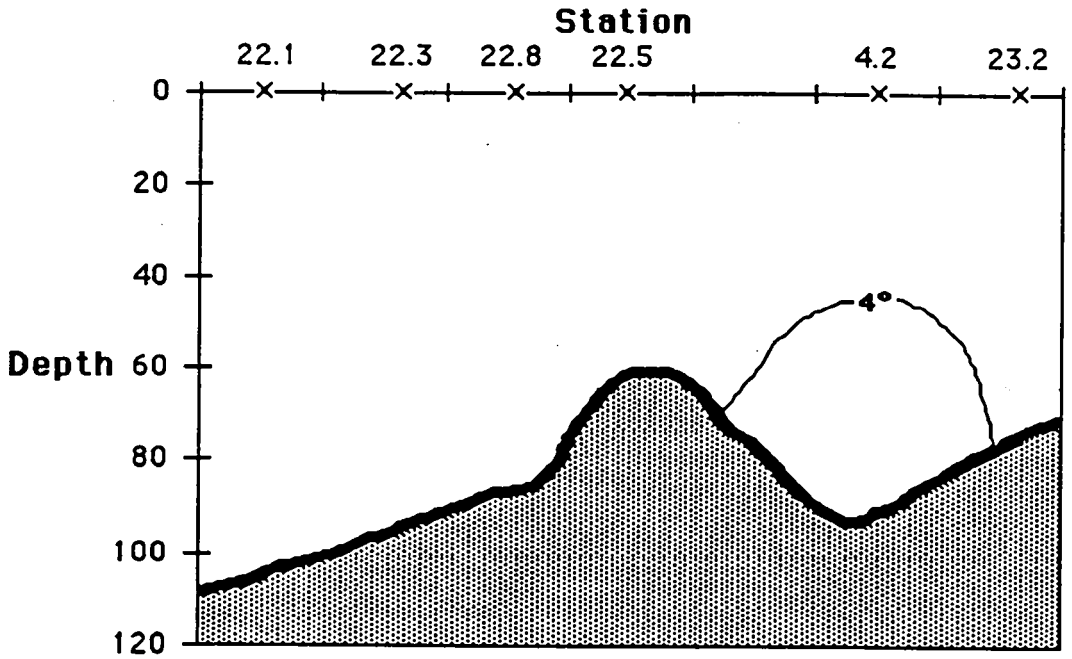


Fig. A-41. Horizontal temperature section from southwest (left) to northeast (right) on the south Aleutian shelf during spring. Transect was nearshore off Unalaska and Unimak islands. Depth is in meters.

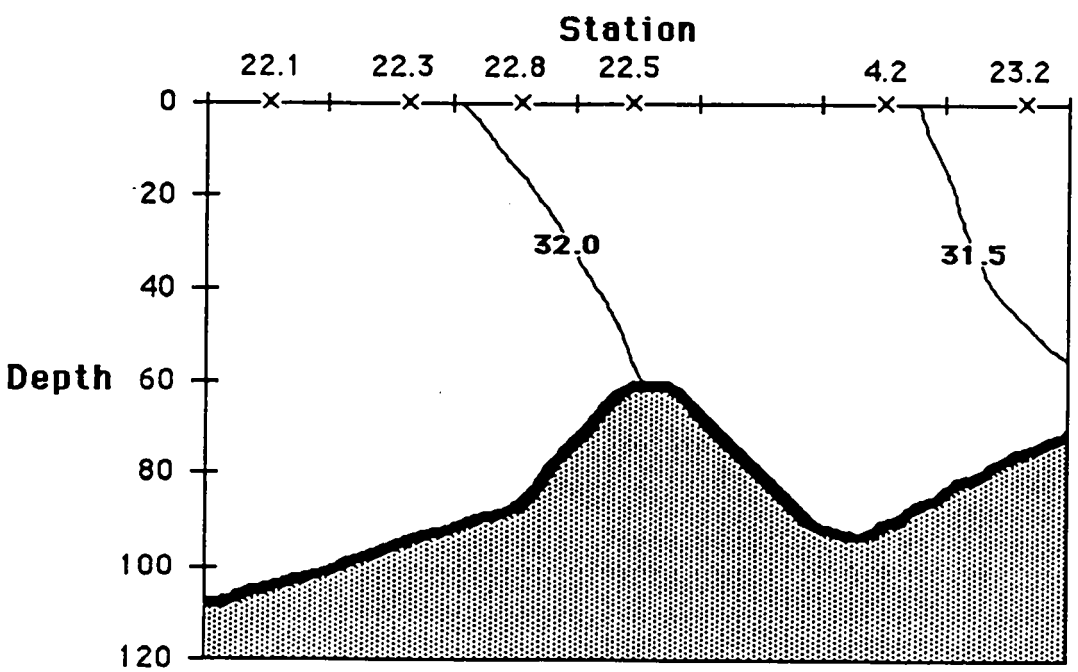


Fig. A-42. Horizontal salinity section from southwest (left) to northeast (right) on the south Aleutian shelf during fall. Depth is in meters.

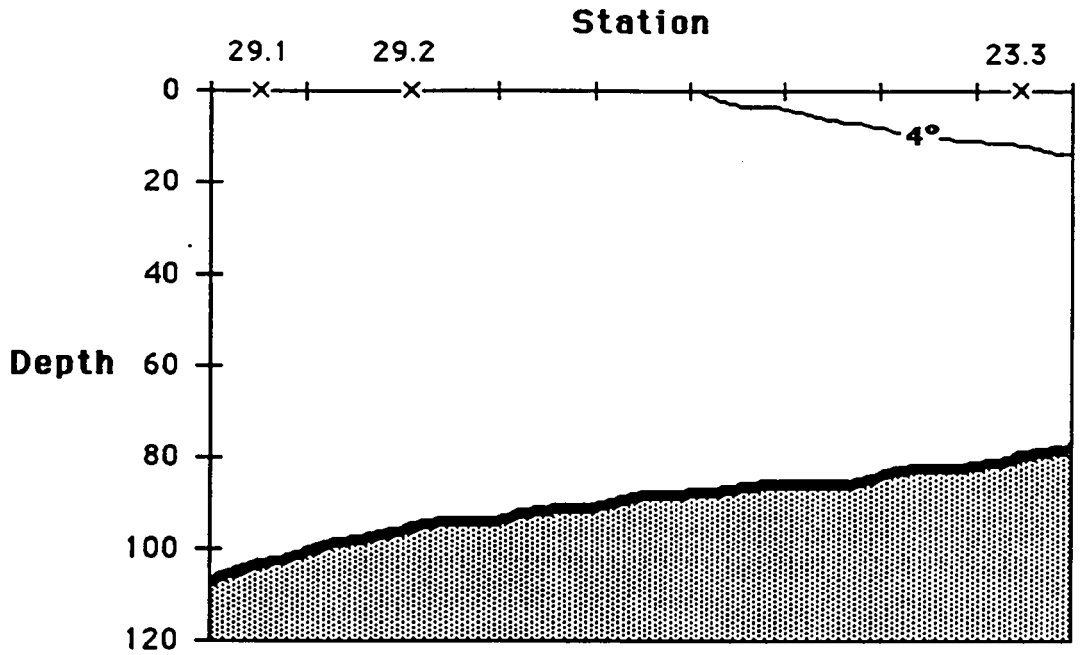


Fig. A-43. Horizontal temperature section from southwest (left) to northeast (right) on the south Aleutian shelf during spring. Transect was offshore of Unalaska, Tigalda, and Unimak islands. Depth is in meters.

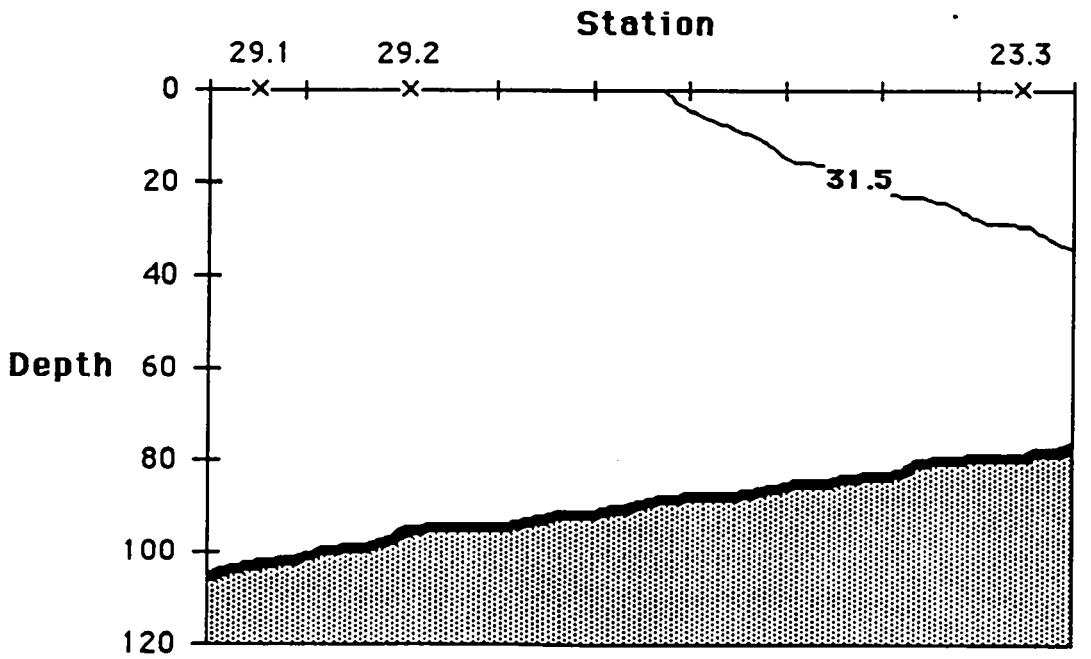


Fig. A-44. Horizontal salinity section from southwest (left) to northeast (right) on the south Aleutian shelf during spring. Depth is in meters.

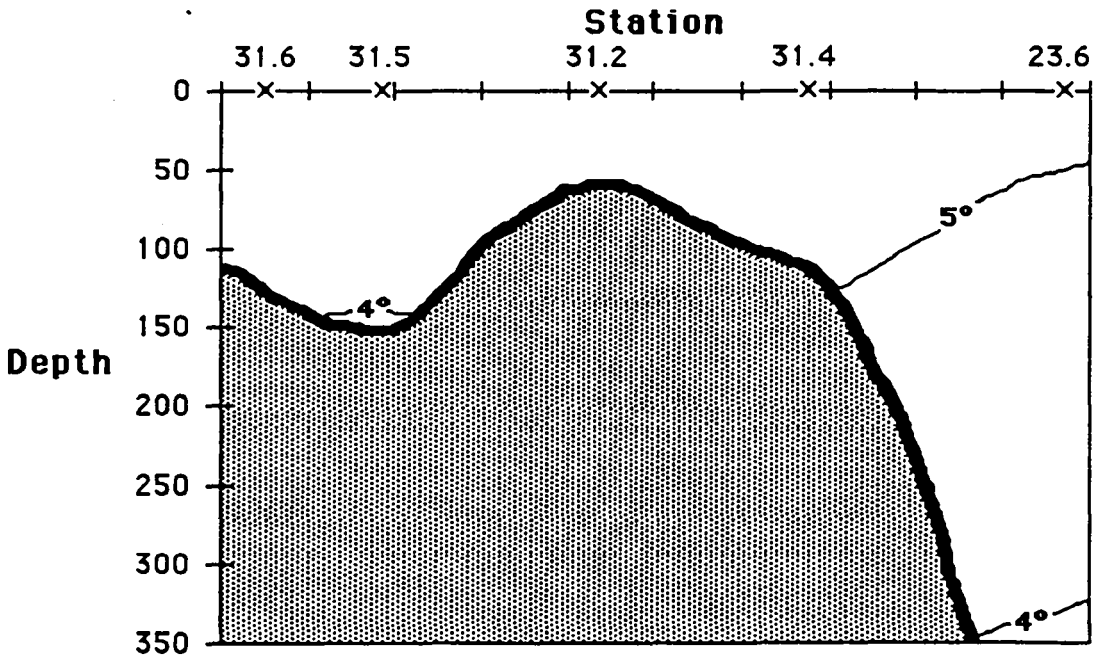


Fig. A-45. Horizontal temperature section from north (left) to south (right) through Unimak Pass during spring. Depth is in meters.

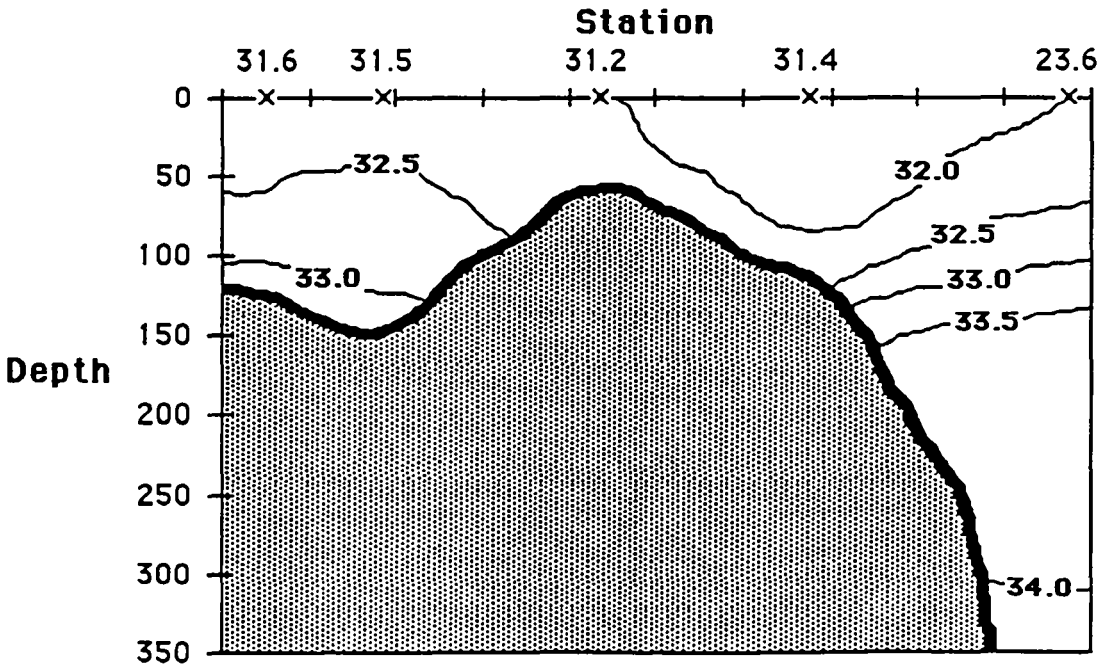


Fig. A-46. Horizontal salinity section from north (left) to south (right) through Unimak Pass during spring. Depth is in meters.

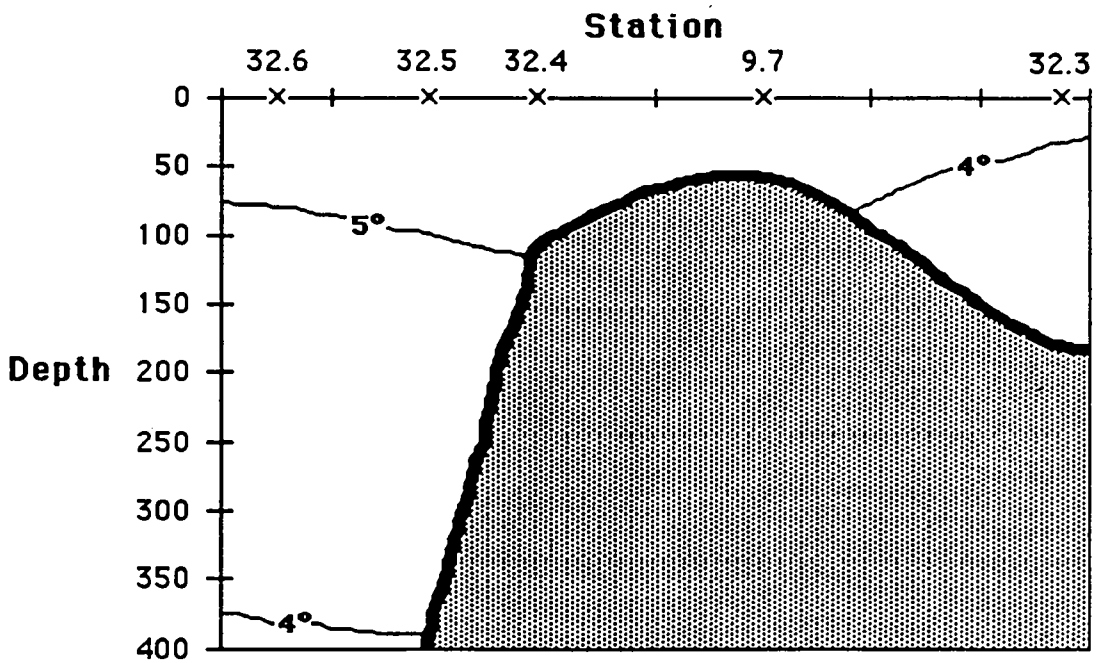


Fig. A-47. Horizontal temperature section from north (left) to south (right) through Ugamak Strait during spring. Depth is in meters.

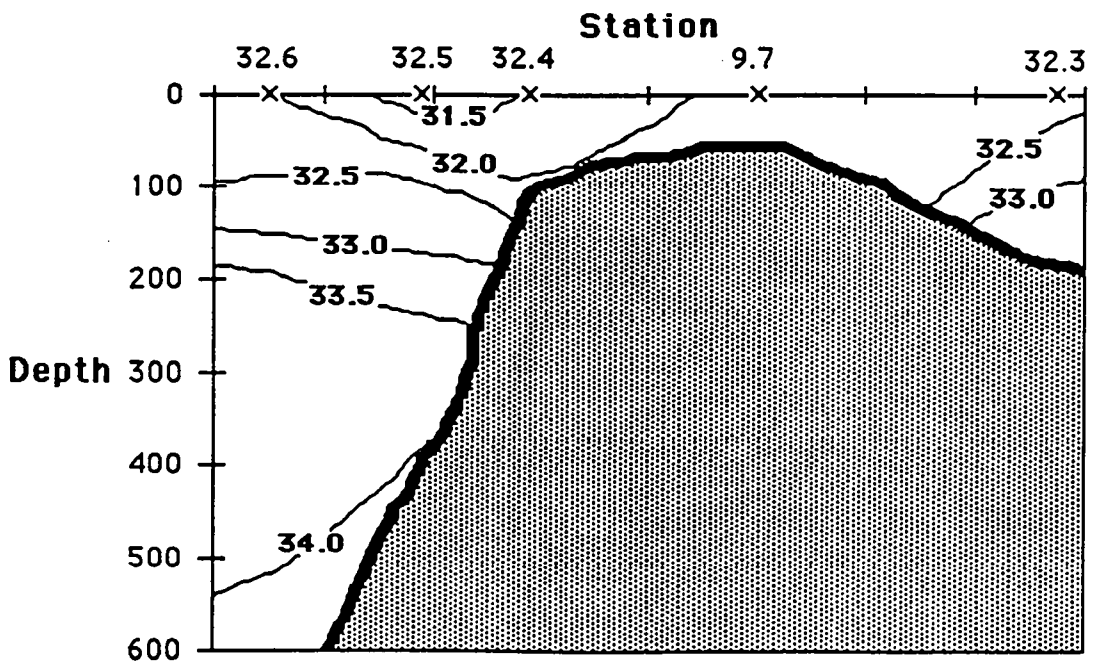


Fig. A-48. Horizontal salinity section from north (left) to south (right) through Ugamak Strait during spring. Depth is in meters.

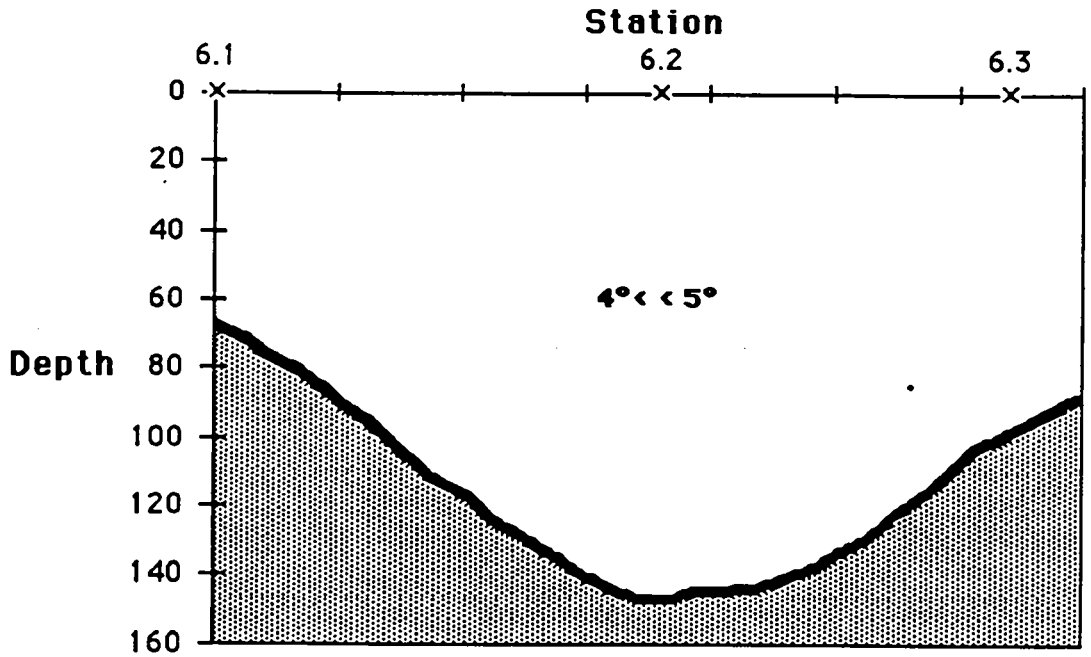


Fig. A-49. Horizontal temperature section from south (left) to north (right) on the west side of Unimak Pass during spring. Depth is in meters.

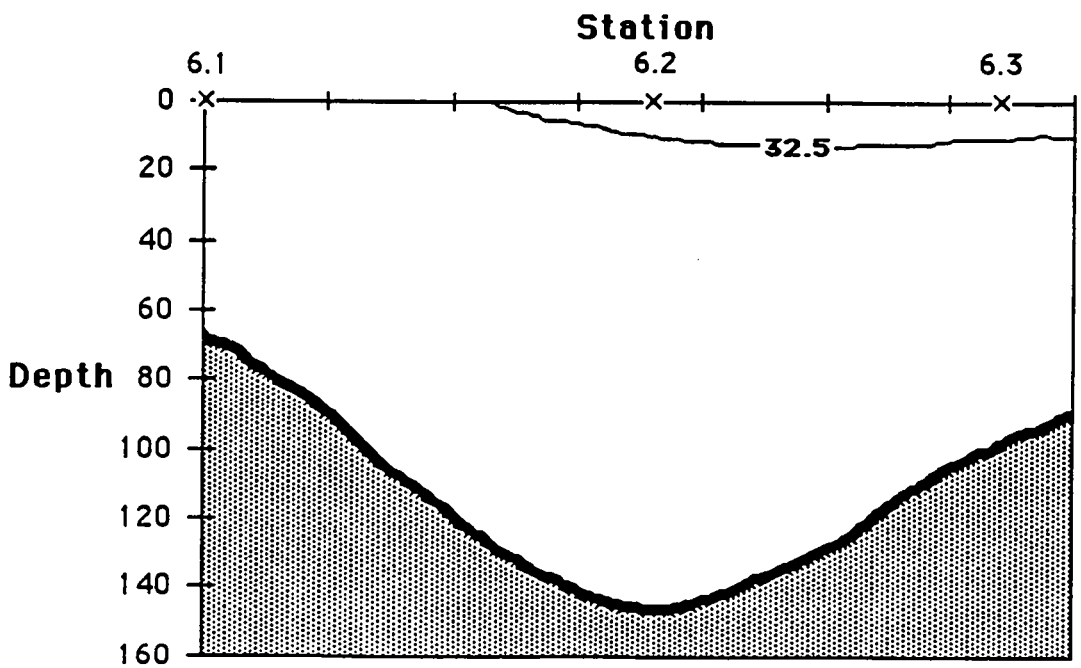


Fig. A-50. Horizontal salinity section from south (left) to north (right) on the west side of Unimak Pass during spring. Depth is in meters.

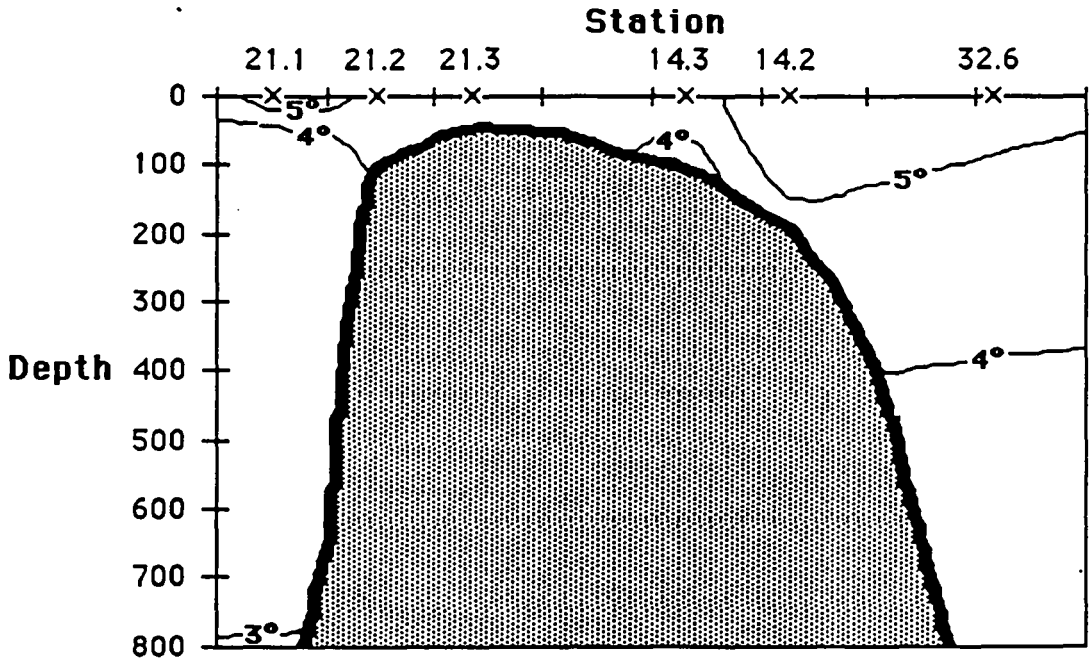


Fig. A-51. Horizontal temperature section from north (left) to south (right) through Akutan Pass during spring. Depth is in meters.

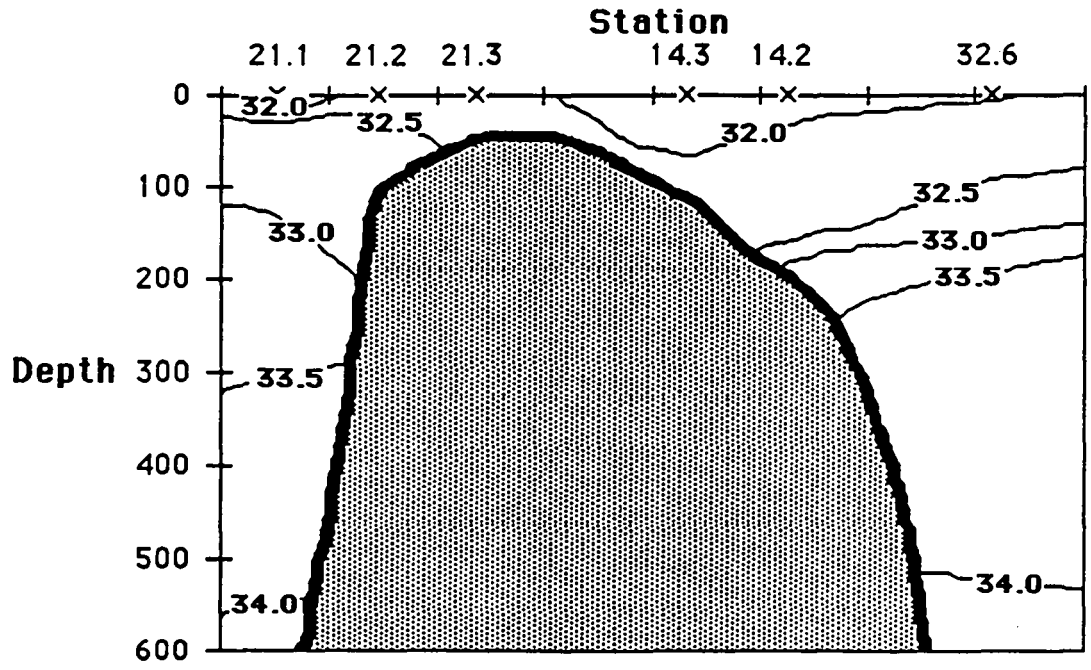


Fig. A-52. Horizontal salinity section from north (left) to south (right) through Akutan Pass during spring. Depth is in meters.

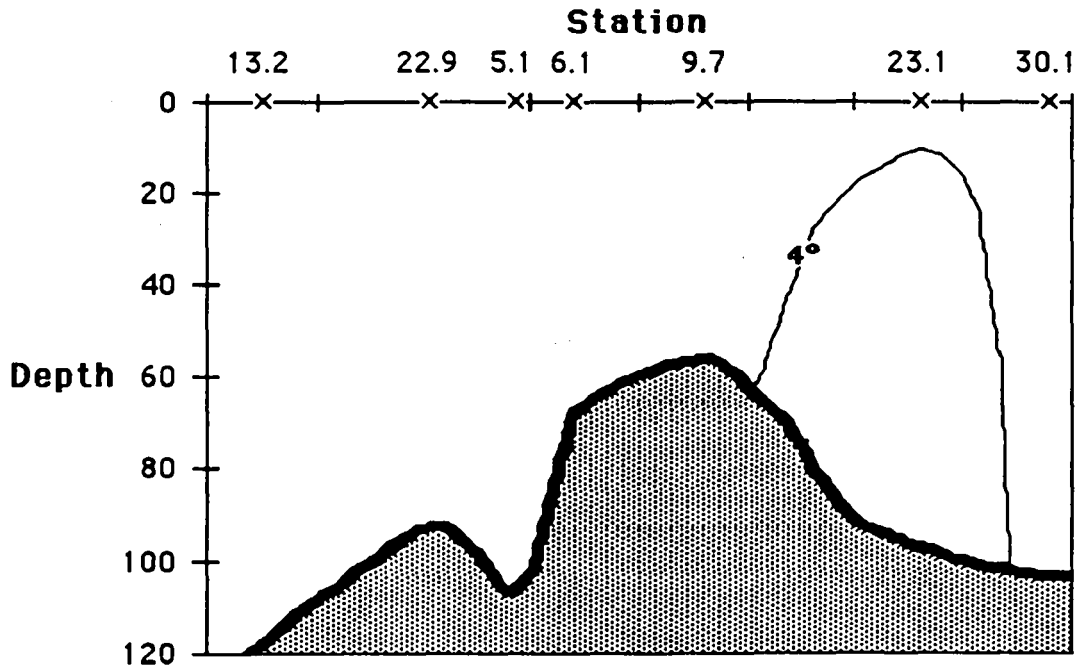


Fig. A-53. Horizontal temperature section from west (left) to east (right) through the eastern Aleutian Islands.

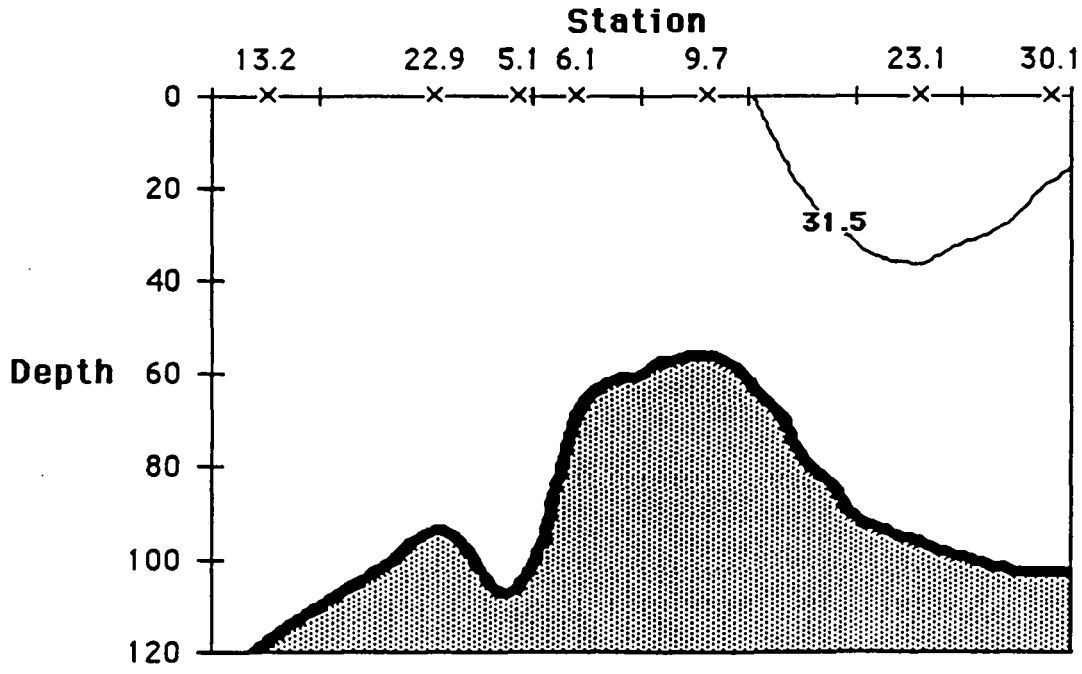
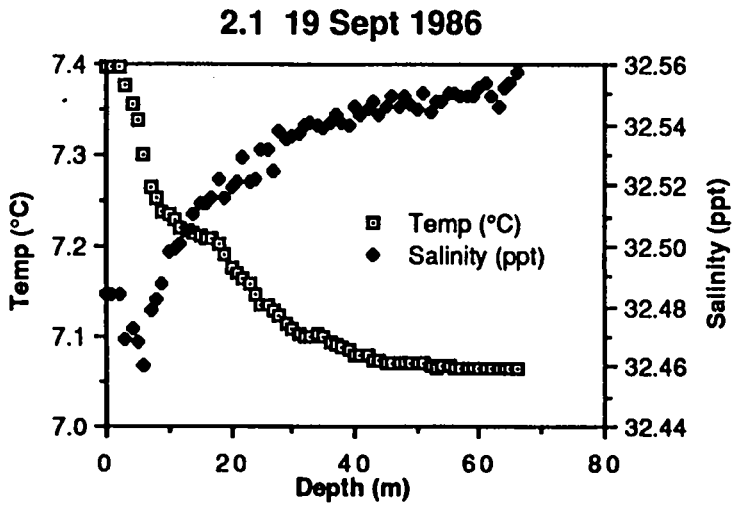
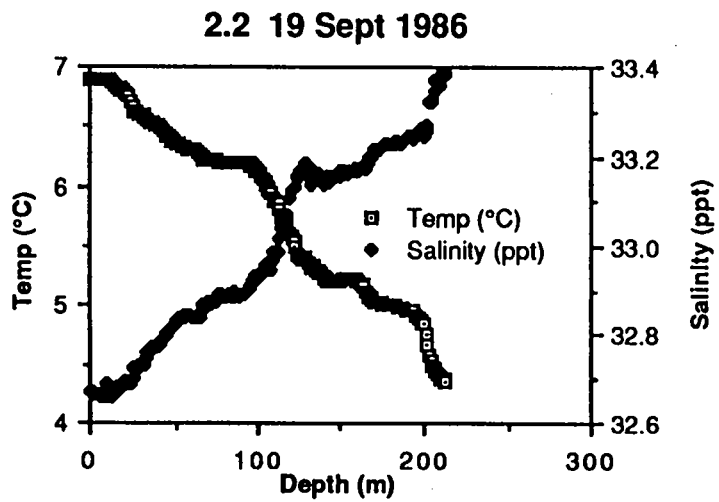


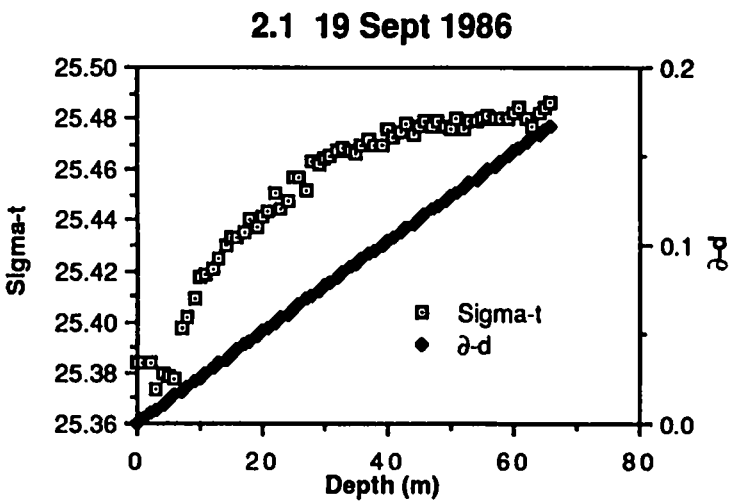
Fig. A-54. Horizontal salinity section from west (left) to east (right) through the eastern Aleutian Islands.

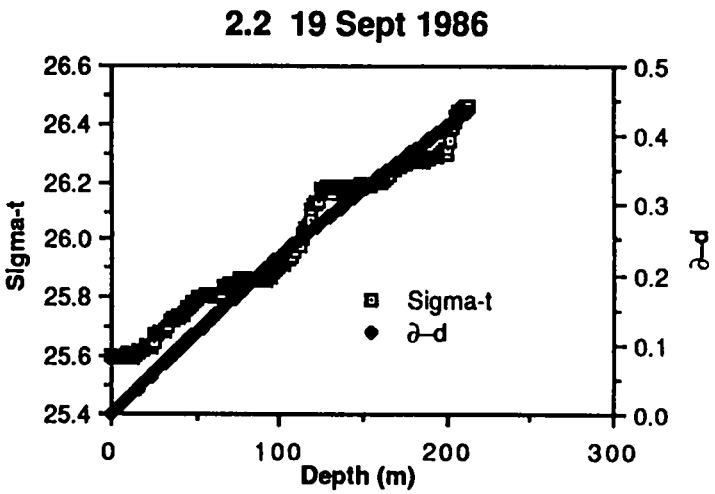
APPENDIX B-1

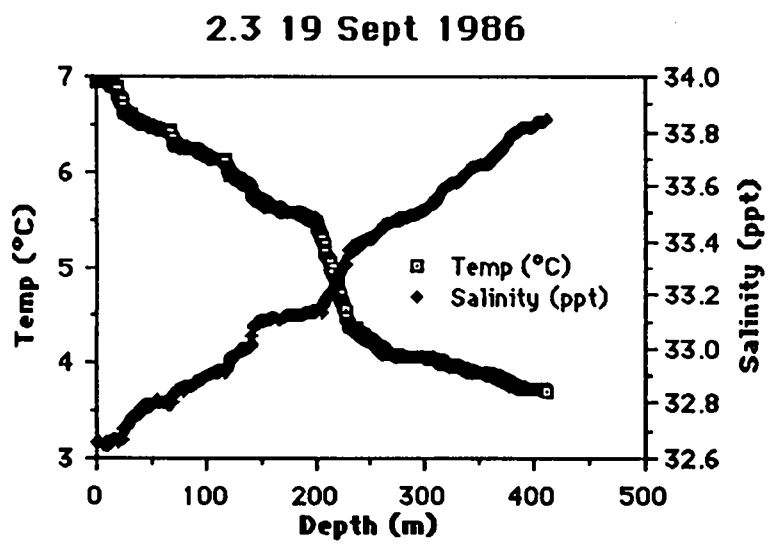
Temperature and salinity vertical profiles as determined by CTD casts at sampling stations in fall 1986 in the Unimak Pass area, Alaska. Sampling station numbers (tops of graphs) can be matched with their locations in Fig. 2 of Appendix E.

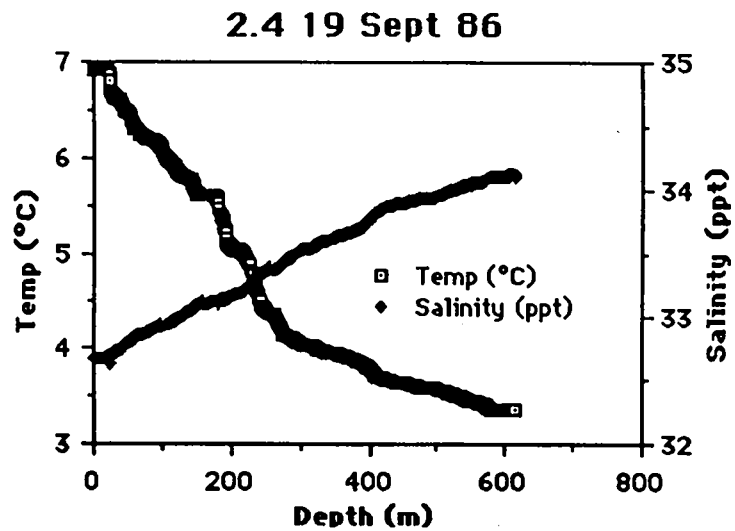

2.1 19 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.4
7.3
7.2
7.1
7.0
32.56
32.54
32.52
32.50
32.48
32.46
32.44
0
20
40
60
80

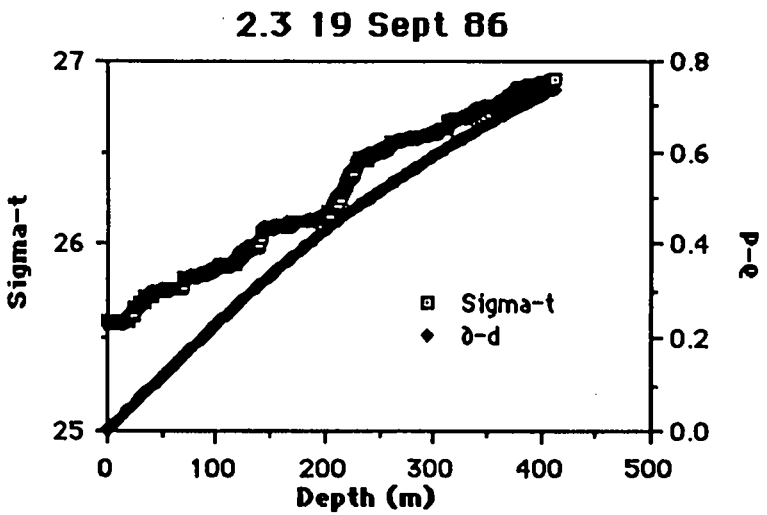

2.2 19 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7
6
5
4
33.4
33.2
33.0
32.8
32.6
0
100
200
300

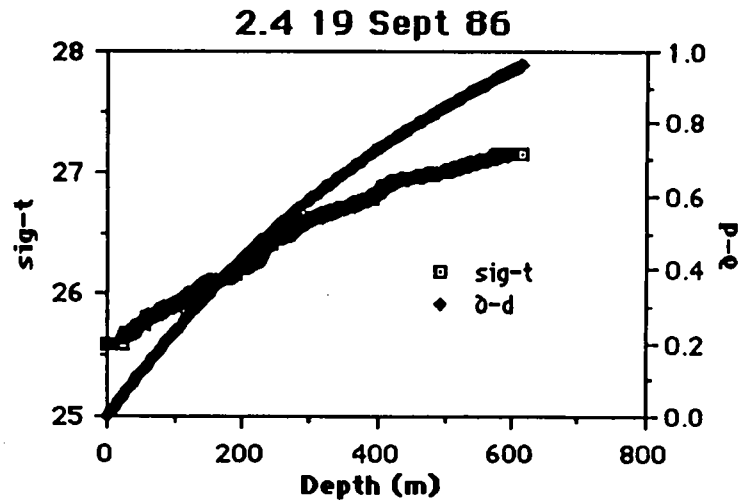

2.1 19 Sept 1986
Sigma-t
∂-d
Depth (m)
25.50
25.48
25.46
25.44
25.42
25.40
25.38
25.36
0.2
0.1
0.0
0
20
40
60
80

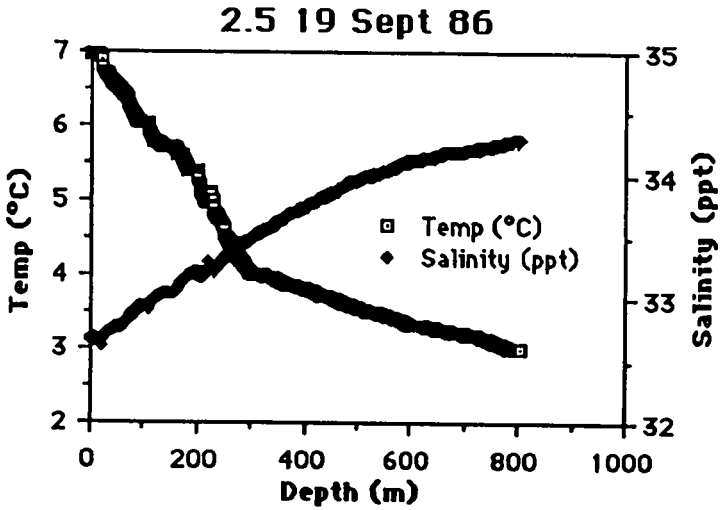

2.2 19 Sept 1986
Sigma-t
∂-d
Depth (m)
26.6
26.4
26.2
26.0
25.8
25.6
25.4
0.5
0.4
0.3
0.2
0.1
0.0
0
100
200
300

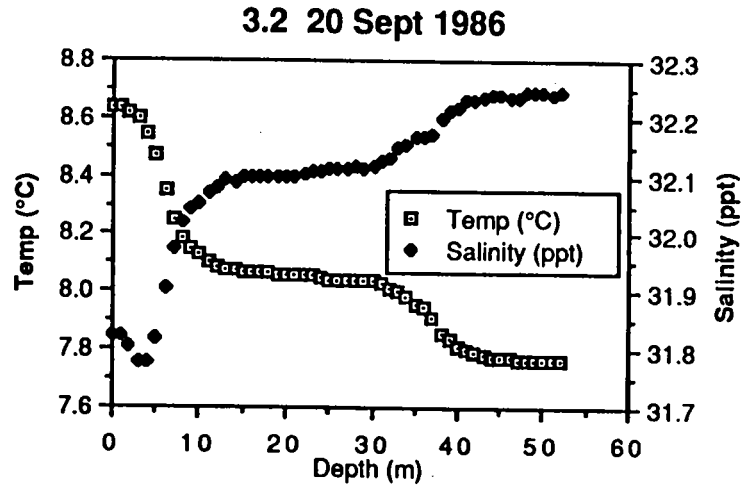

2.3 19 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

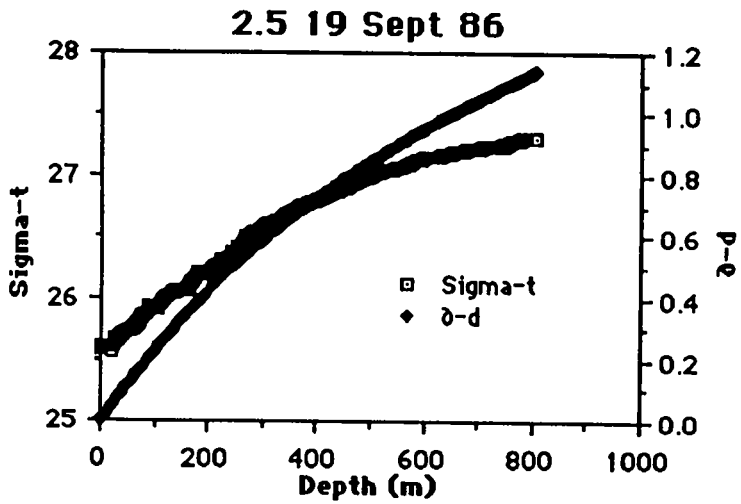

2.4 19 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

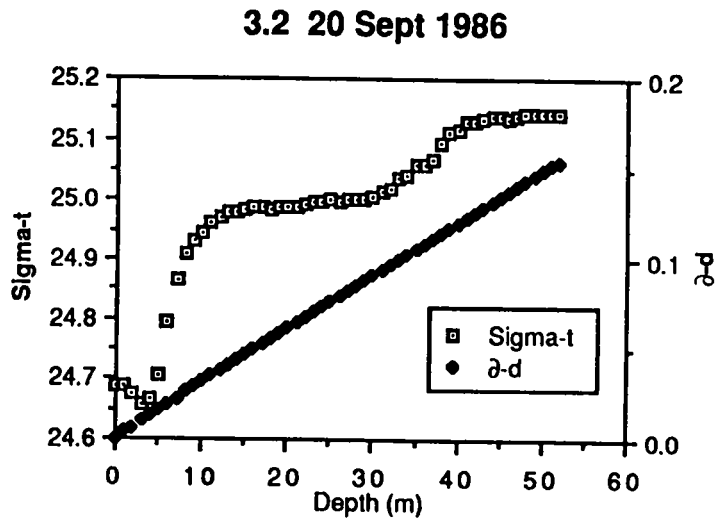

2.3 19 Sept 86
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

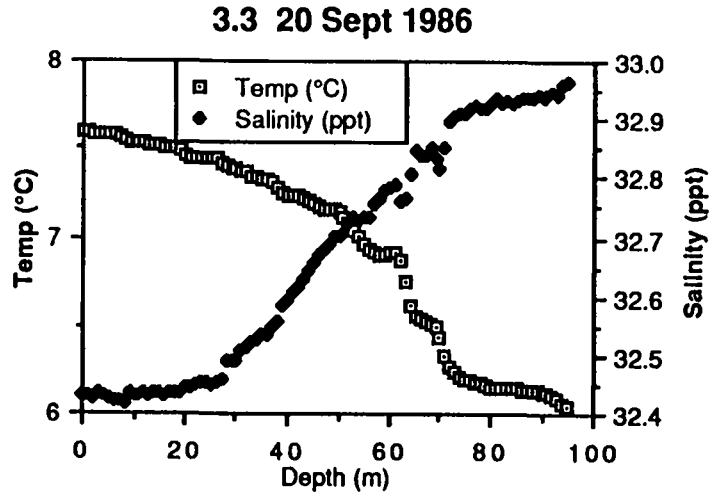

2.4 19 Sept 86
sig-t
∂-d
Depth (m)
sig-t
∂-d

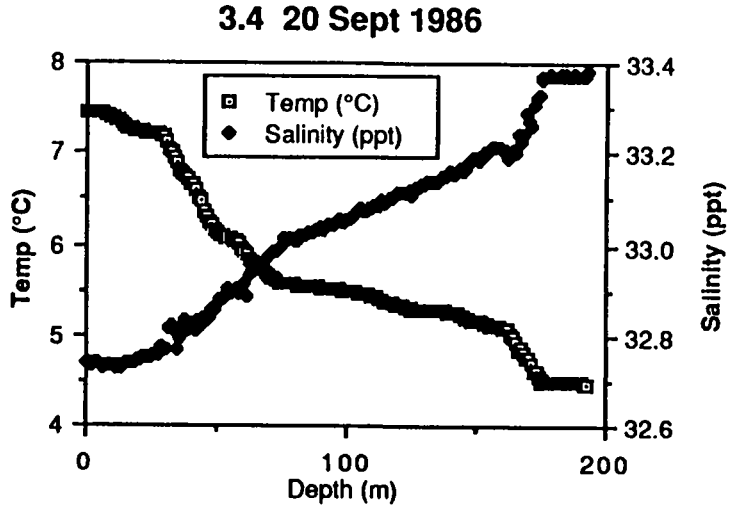

2.5 19 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

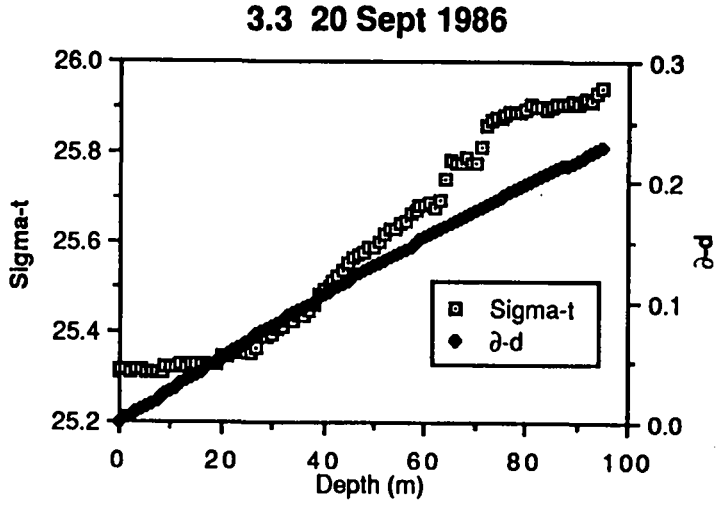

3.2 20 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

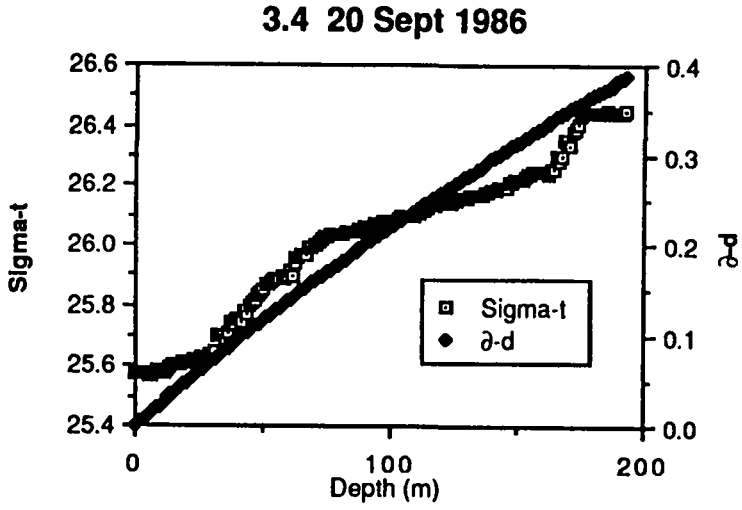

2.5 19 Sept 86
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

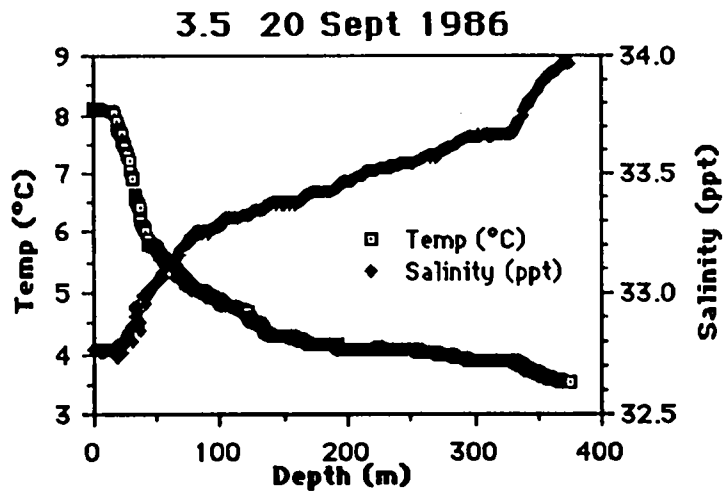

3.2 20 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

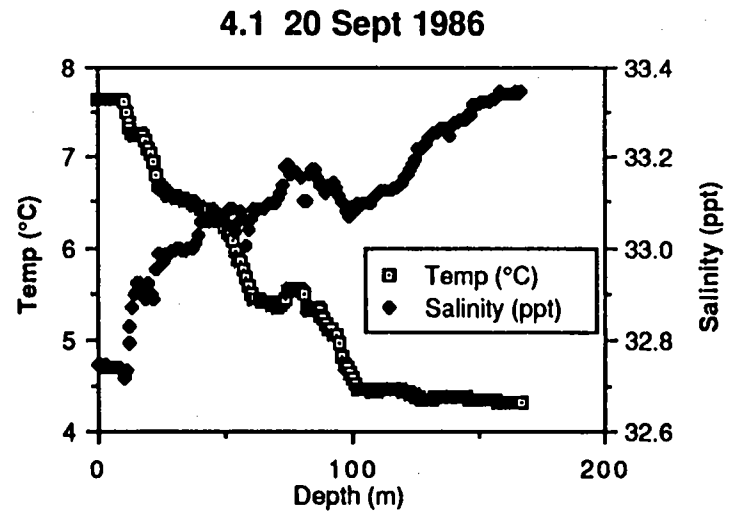

3.3 20 Sept 1986
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
8
7
6
33.0
32.9
32.8
32.7
32.6
32.5
32.4
0
20
40
60
80
100

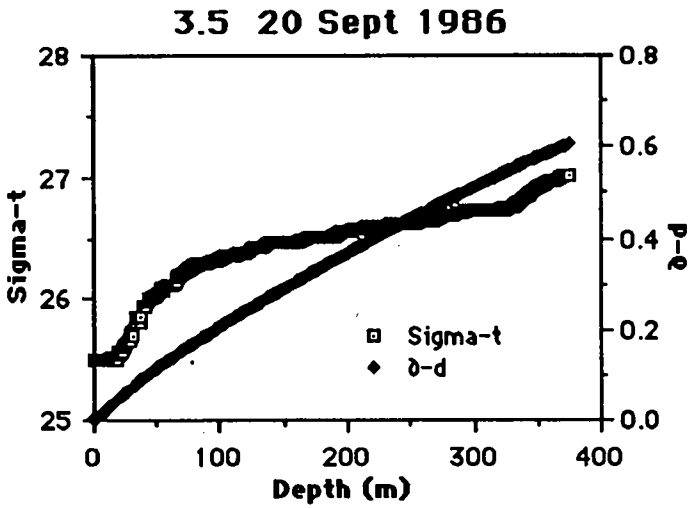

3.4 20 Sept 1986
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
8
7
6
5
4
33.4
33.2
33.0
32.8
32.6
0
100
200

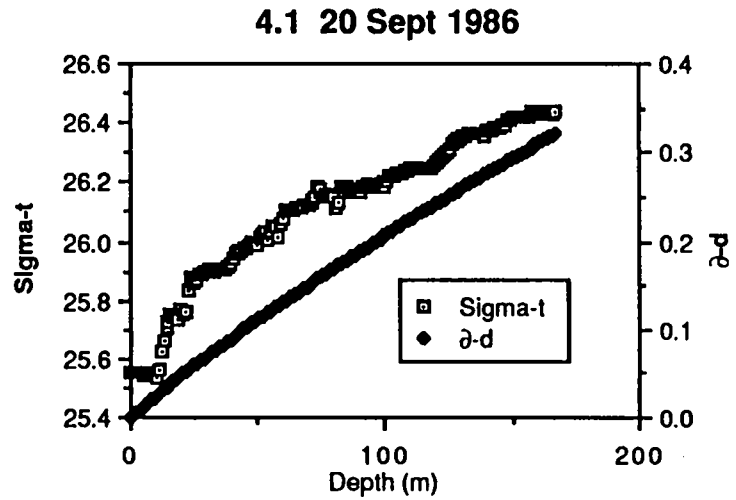

3.3 20 Sept 1986
Sigma-t
∂-d
Depth (m)
26.0
25.8
25.6
25.4
25.2
0.3
0.2
0.1
0.0
0
20
40
60
80
100

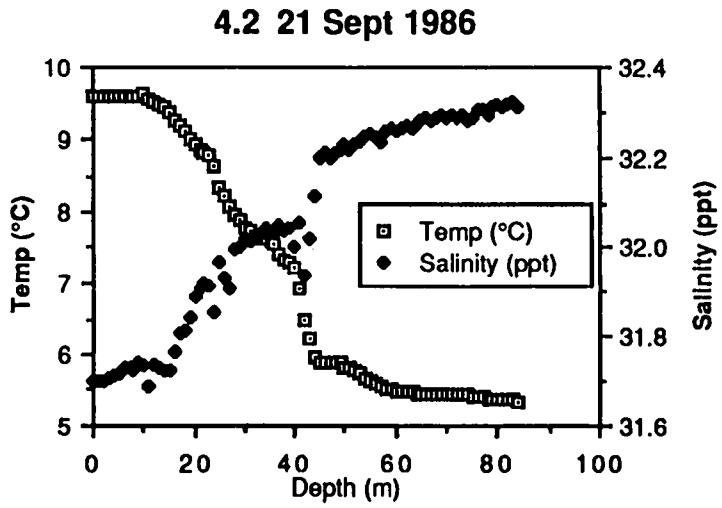

3.4 20 Sept 1986
Sigma-t
∂-d
Depth (m)
26.6
26.4
26.2
26.0
25.8
25.6
25.4
0.4
0.3
0.2
0.1
0.0
0
100
200

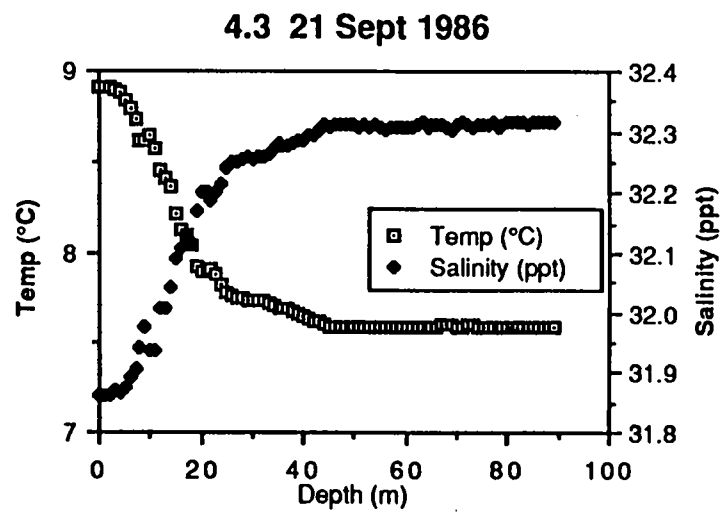

3.5 20 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

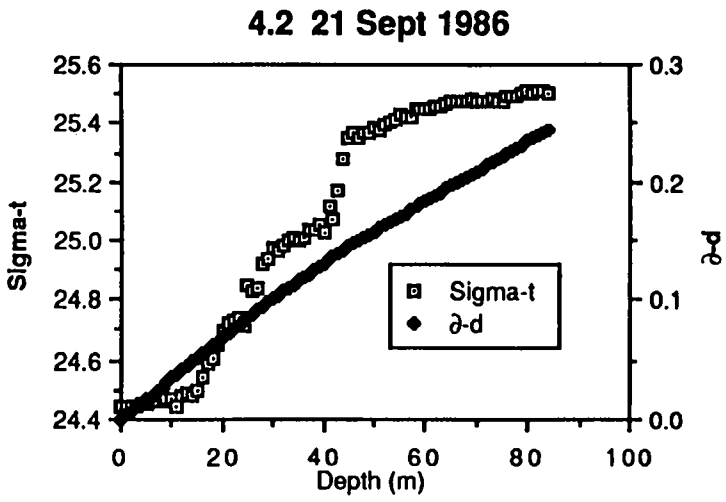

4.1 20 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

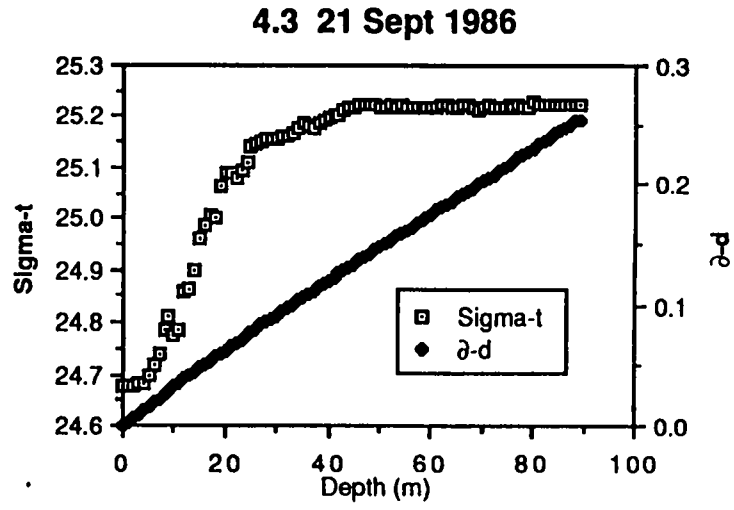

3.5 20 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

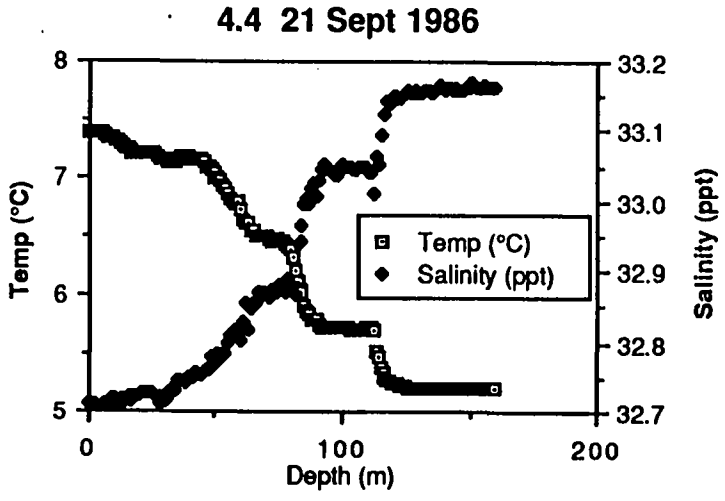

4.1 20 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

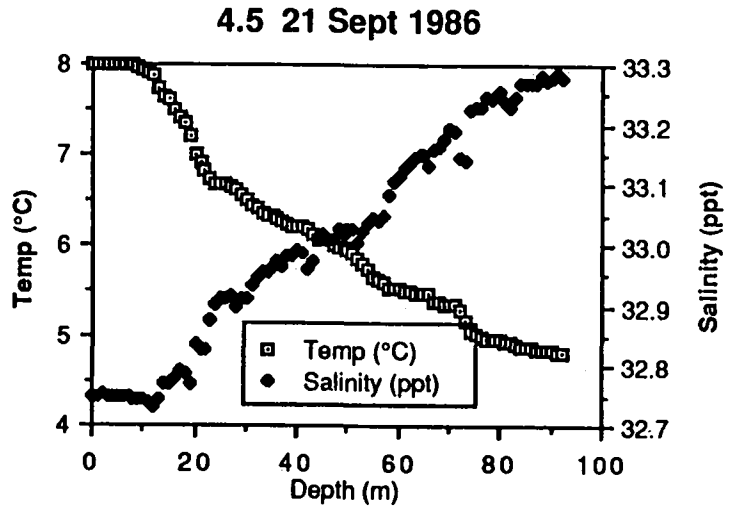

4.2 21 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

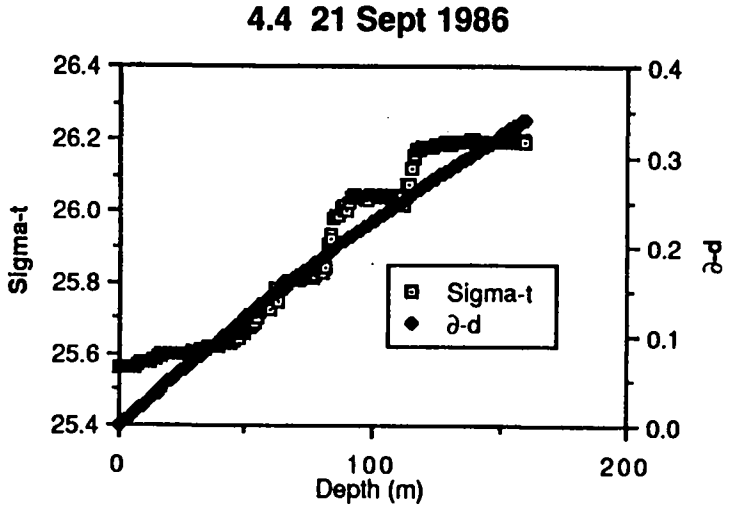

4.3 21 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

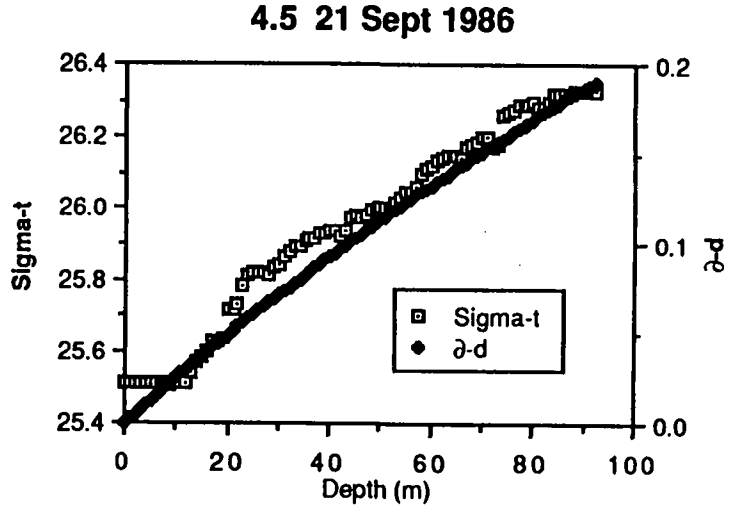

4.2 21 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

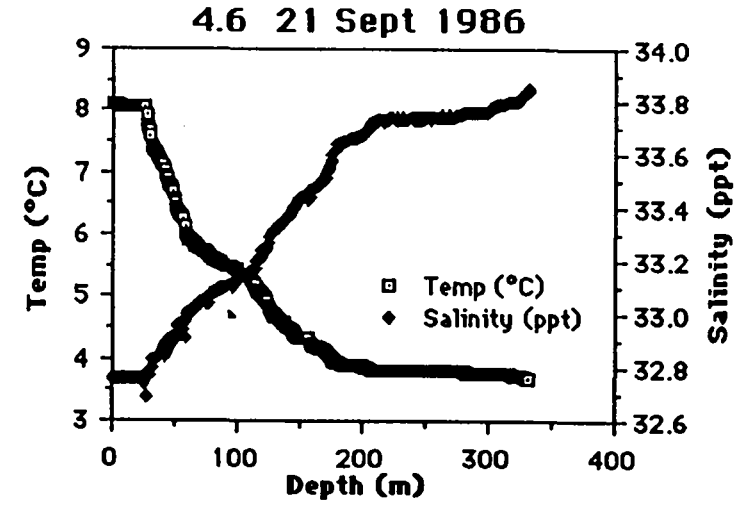

4.3 21 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

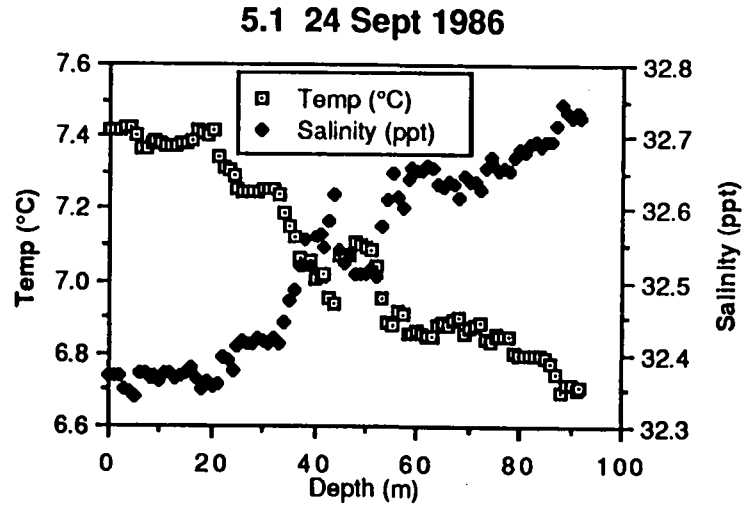

4.4 21 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

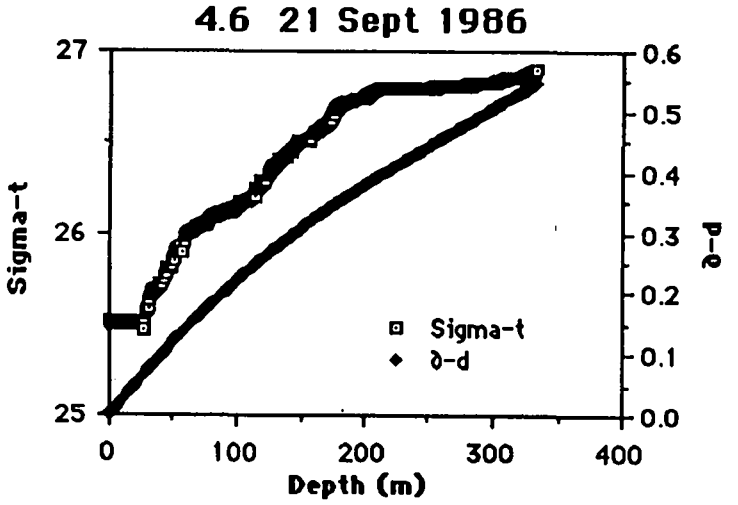

4.5 21 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

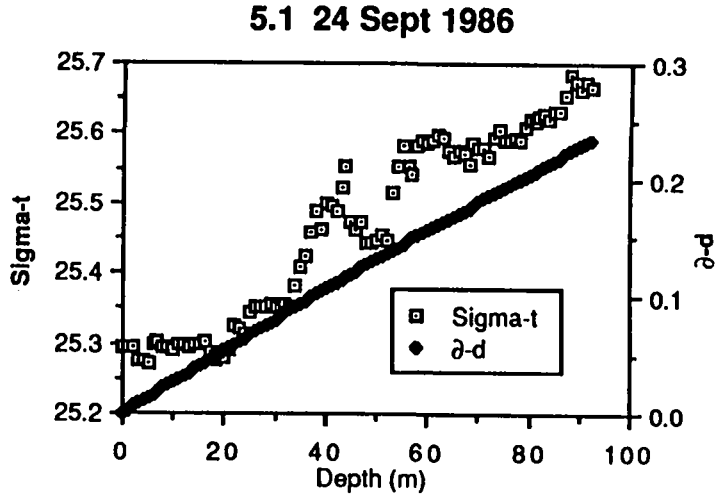

4.4 21 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

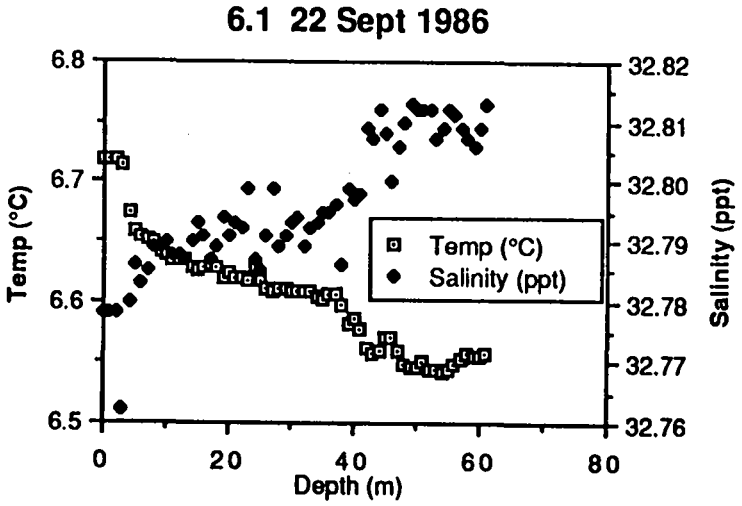

4.5 21 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

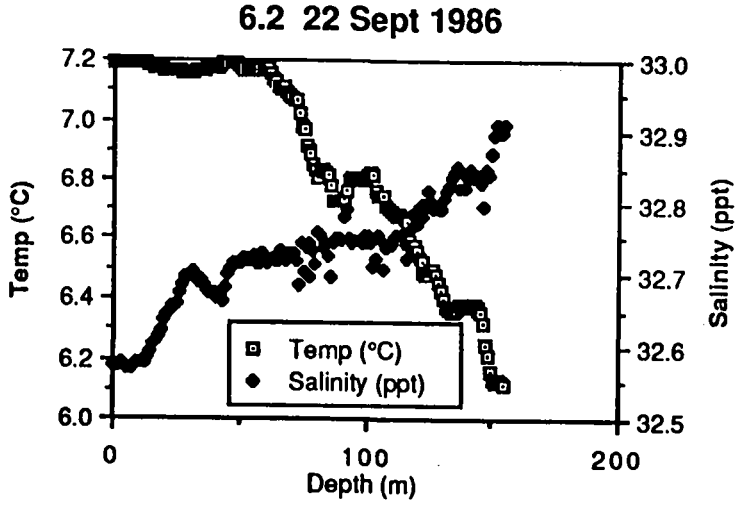

4.6 21 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

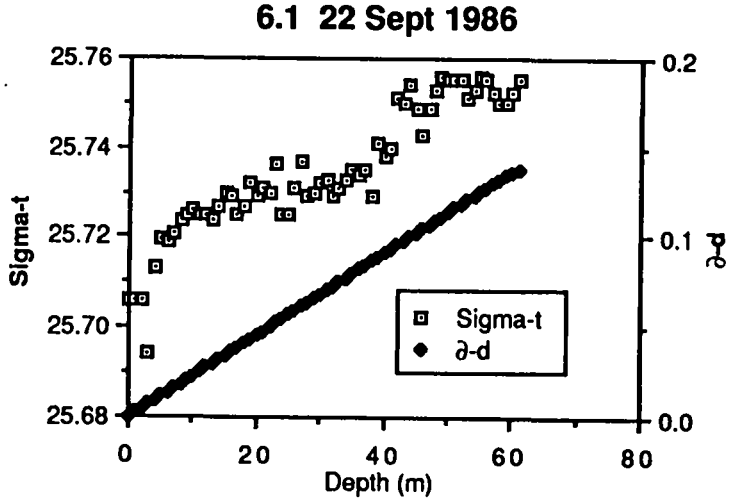

5.1 24 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

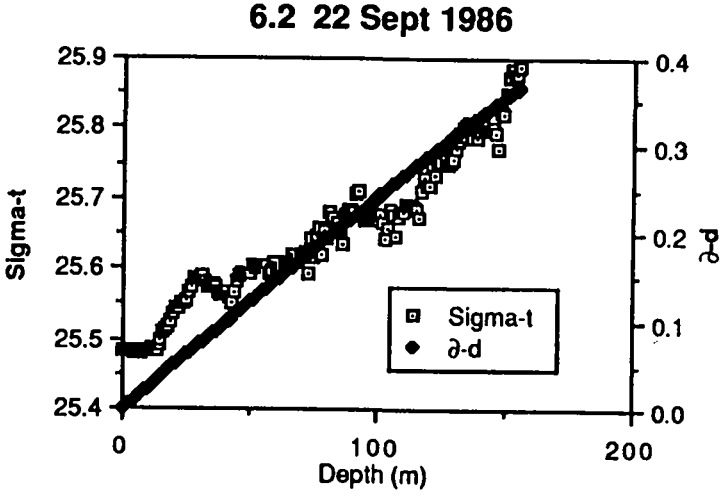

4.6 21 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

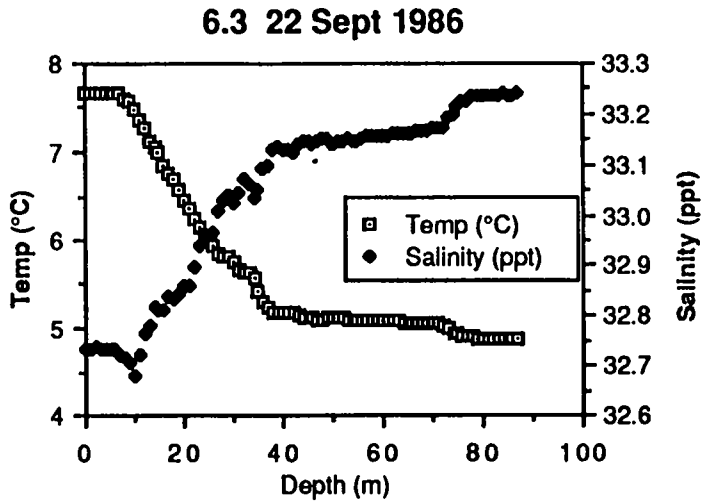

5.1 24 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

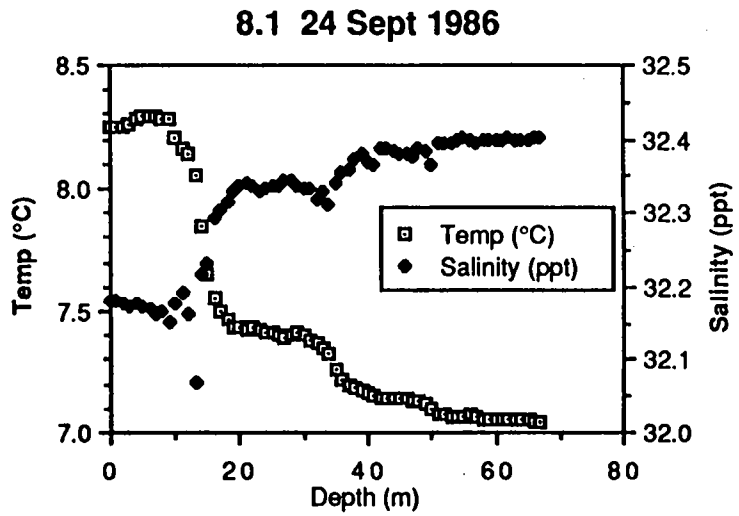

6.1 22 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

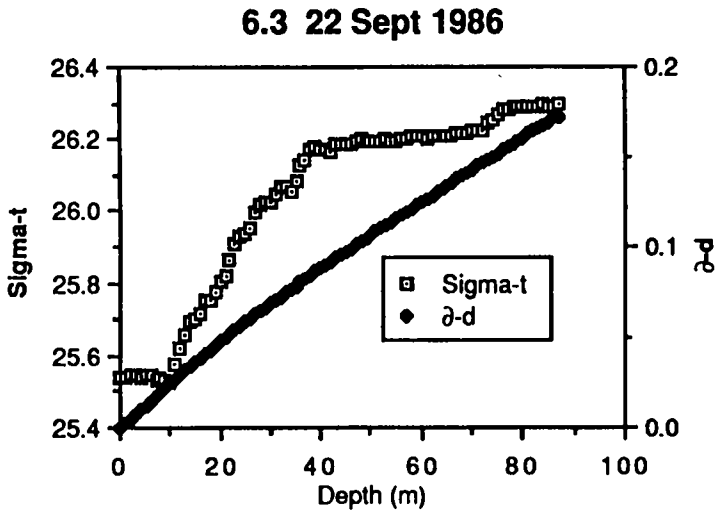

6.2 22 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

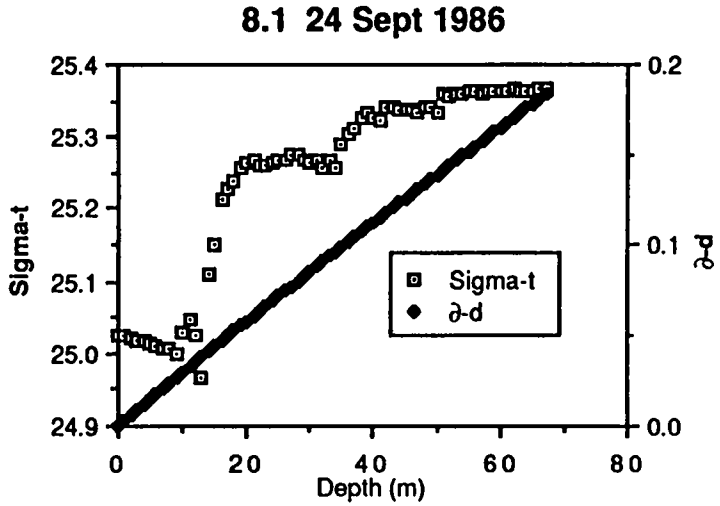

6.1 22 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

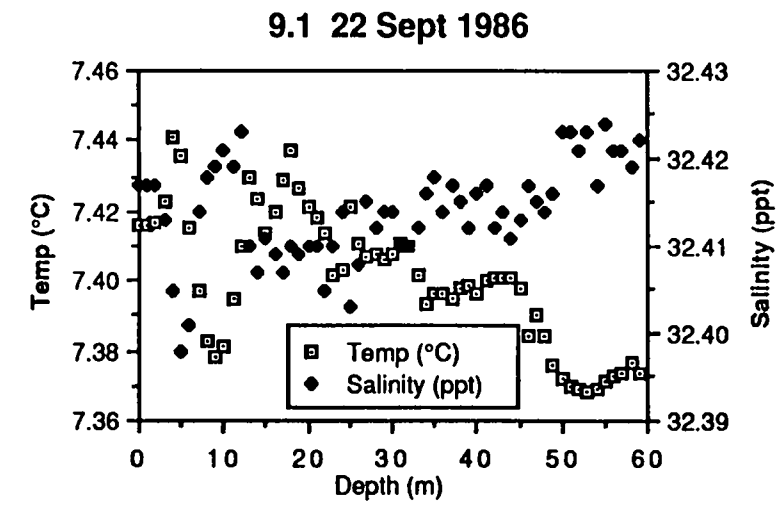

6.2 22 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

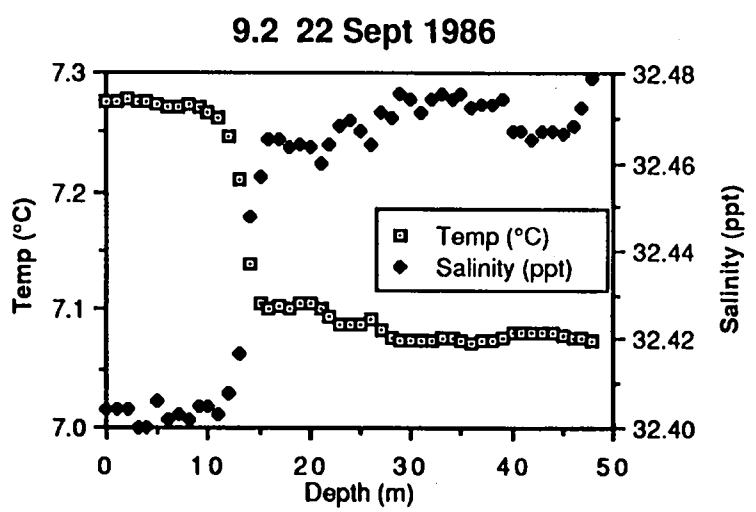

6.3 22 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

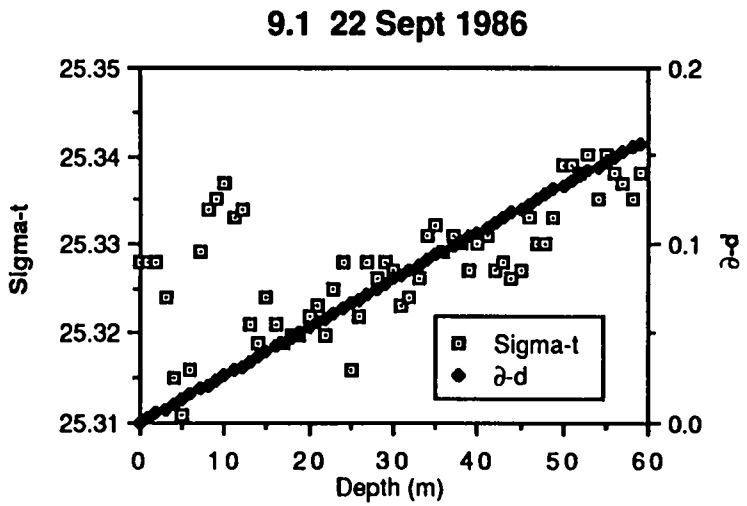

8.1 24 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

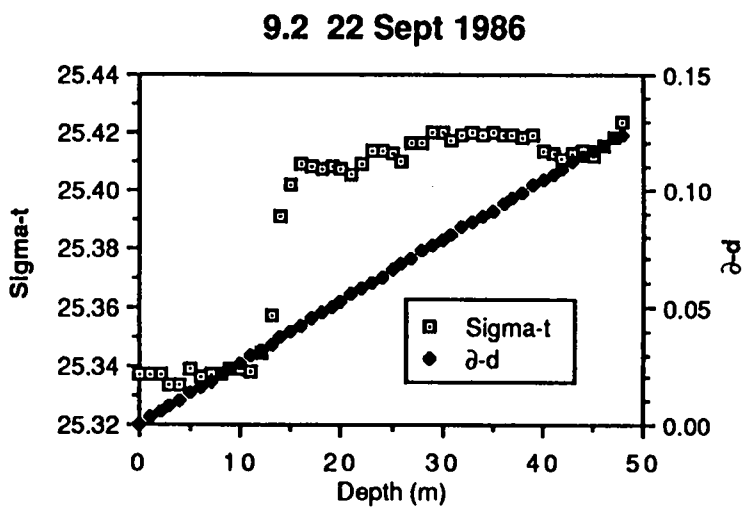

6.3 22 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

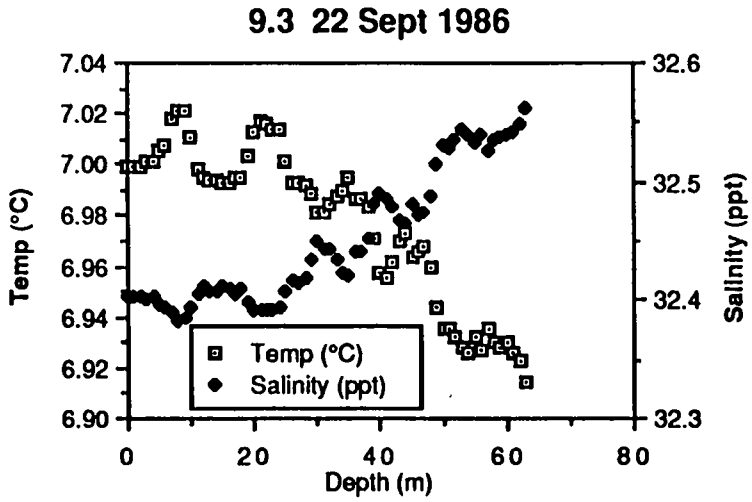

8.1 24 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

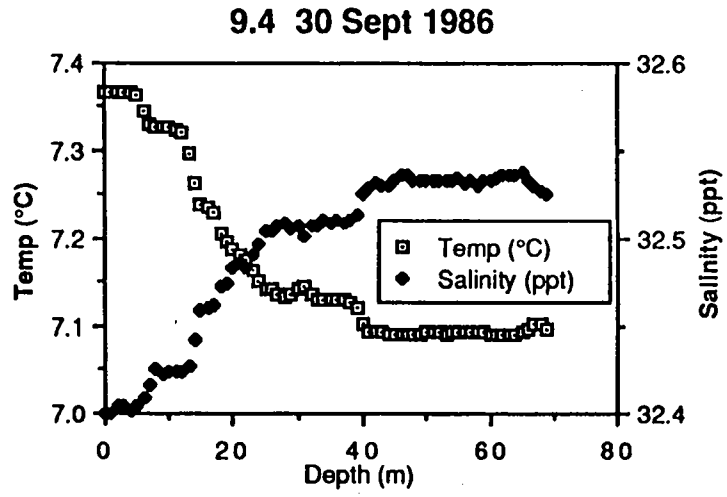

9.1 22 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.46
7.44
7.42
7.40
7.38
7.36
32.43
32.42
32.41
32.40
32.39
0
10
20
30
40
50
60

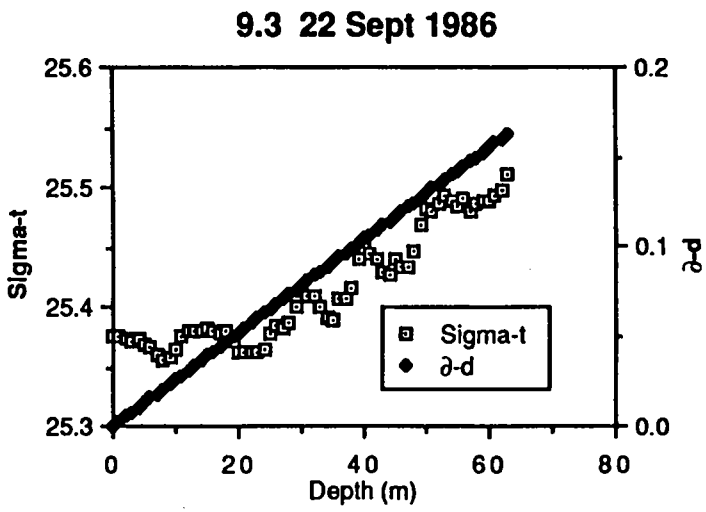

9.2 22 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.3
7.2
7.1
7.0
32.48
32.46
32.44
32.42
32.40
0
10
20
30
40
50

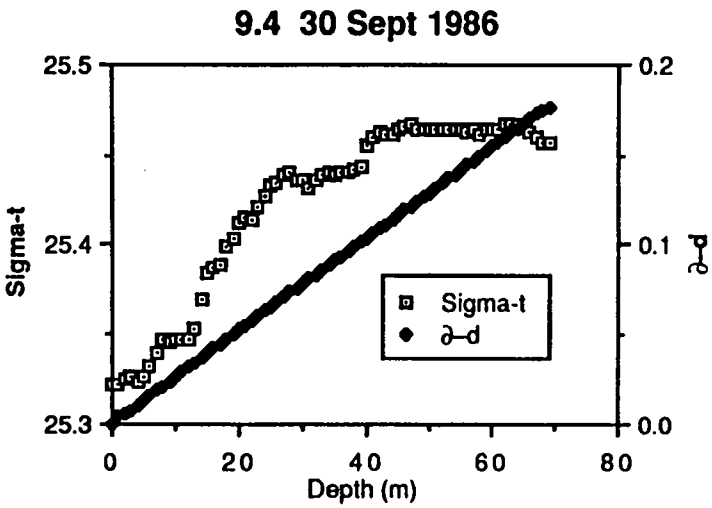

9.1 22 Sept 1986
Sigma-t
∂-d
Depth (m)
25.35
25.34
25.33
25.32
25.31
0.2
0.1
0.0
0
10
20
30
40
50
60

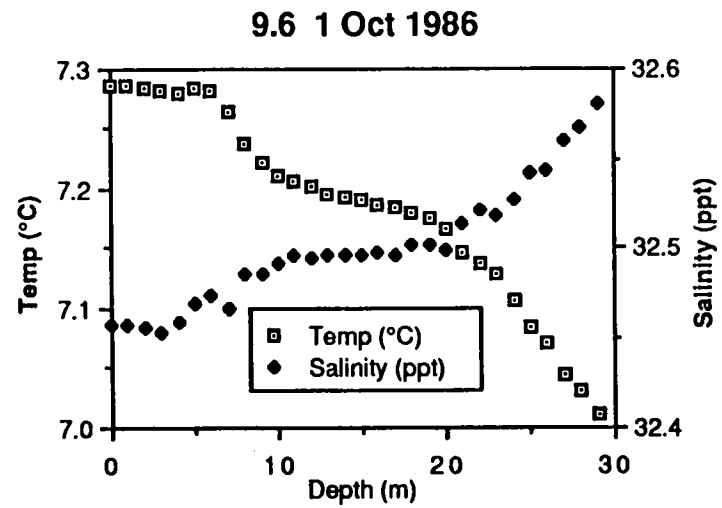

9.2 22 Sept 1986
Sigma-t
∂-d
Depth (m)
25.44
25.42
25.40
25.38
25.36
25.34
25.32
0.15
0.10
0.05
0.00
0
10
20
30
40
50

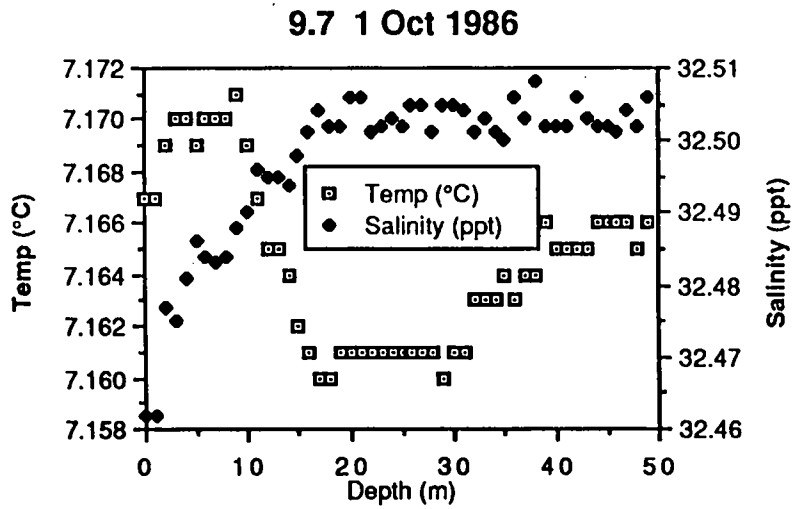

9.3 22 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.04
7.02
7.00
6.98
6.96
6.94
6.92
6.90
32.6
32.5
32.4
32.3
0
20
40
60
80
Temp (°C)
Salinity (ppt)

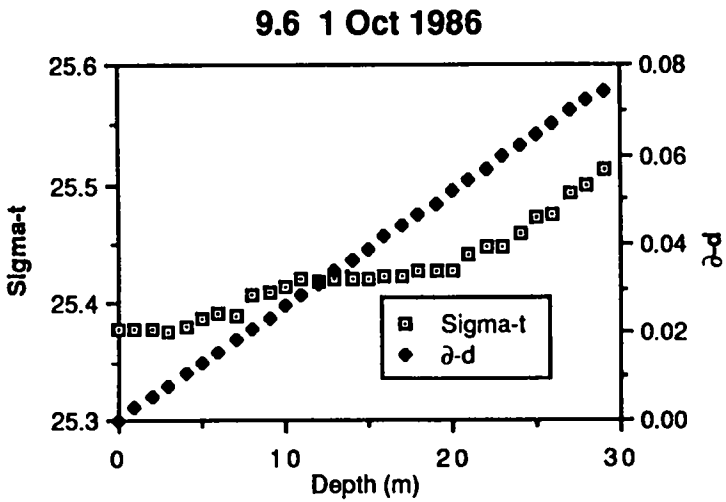

9.4 30 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.4
7.3
7.2
7.1
7.0
32.6
32.5
32.4
0
20
40
60
80
Temp (°C)
Salinity (ppt)

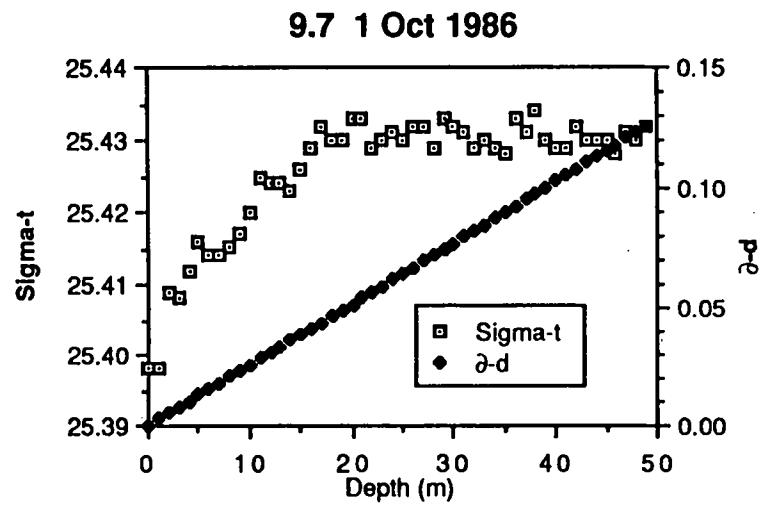

9.3 22 Sept 1986
Sigma-t
∂-d
Depth (m)
25.6
25.5
25.4
25.3
0.2
0.1
0.0
0
20
40
60
80
Sigma-t
∂-d

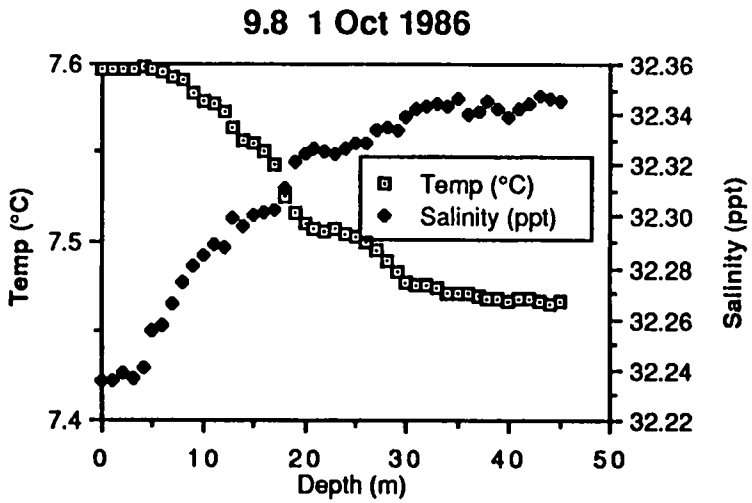

9.4 30 Sept 1986
Sigma-t
∂-d
Depth (m)
25.5
25.4
25.3
0.2
0.1
0.0
0
20
40
60
80
Sigma-t
∂-d

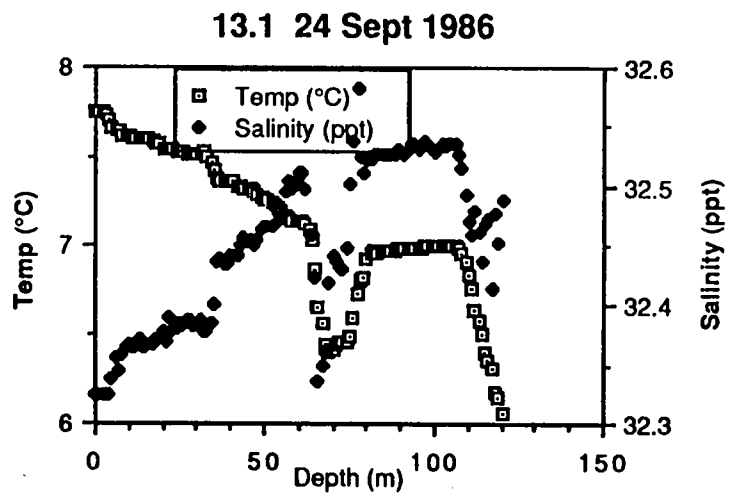

9.6 1 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.3
7.2
7.1
7.0
32.6
32.5
32.4
0
10
20
30

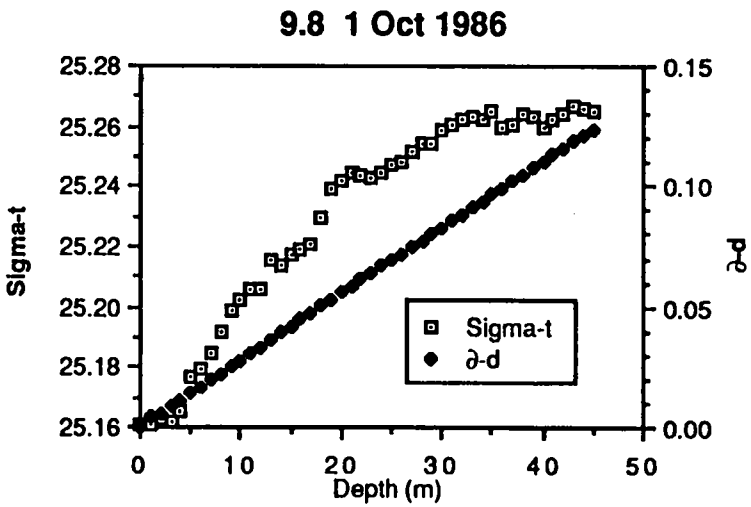

9.7 1 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.172
7.170
7.168
7.166
7.164
7.162
7.160
7.158
32.51
32.50
32.49
32.48
32.47
32.46
0
10
20
30
40
50

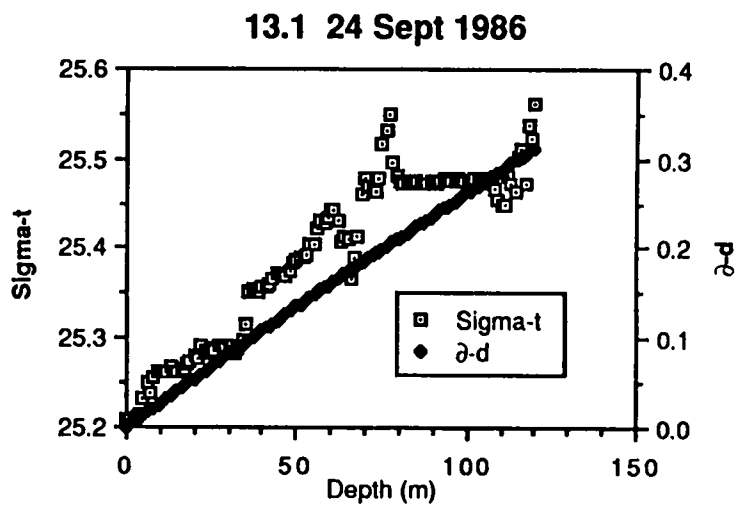

9.6 1 Oct 1986
Sigma-t
∂-d
Depth (m)
25.6
25.5
25.4
25.3
0.08
0.06
0.04
0.02
0.00
0
10
20
30

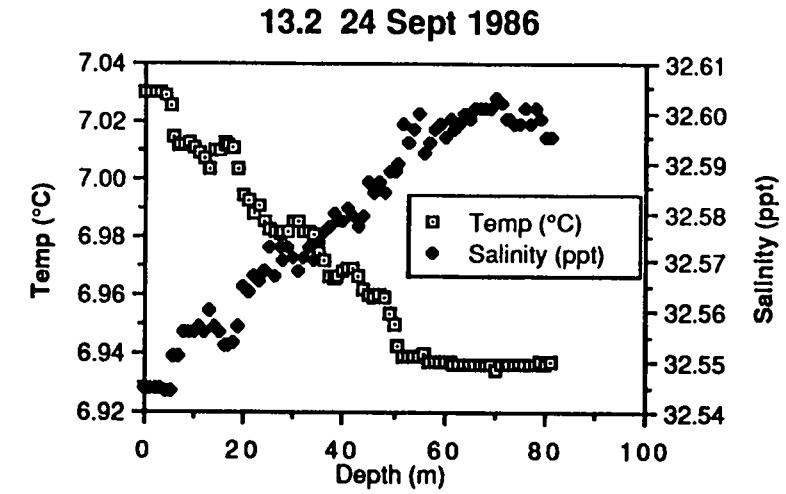

9.7 1 Oct 1986
Sigma-t
∂-d
Depth (m)
25.44
25.43
25.42
25.41
25.40
25.39
0.15
0.10
0.05
0.00
0
10
20
30
40
50

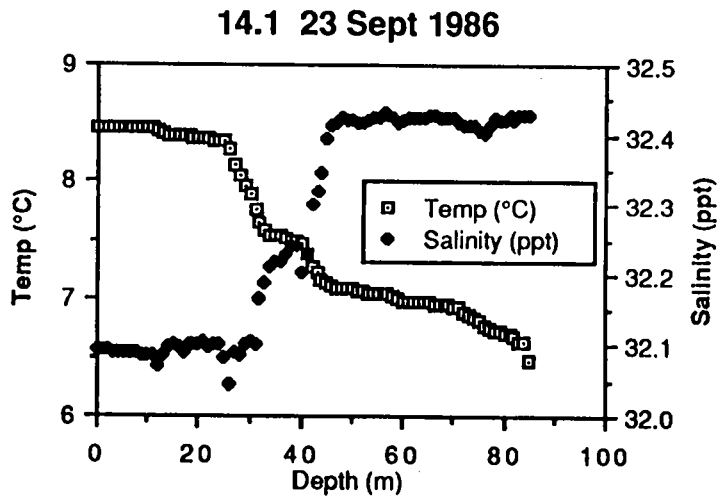

9.8 1 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.6
7.5
7.4
32.36
32.34
32.32
32.30
32.28
32.26
32.24
32.22
0
10
20
30
40
50

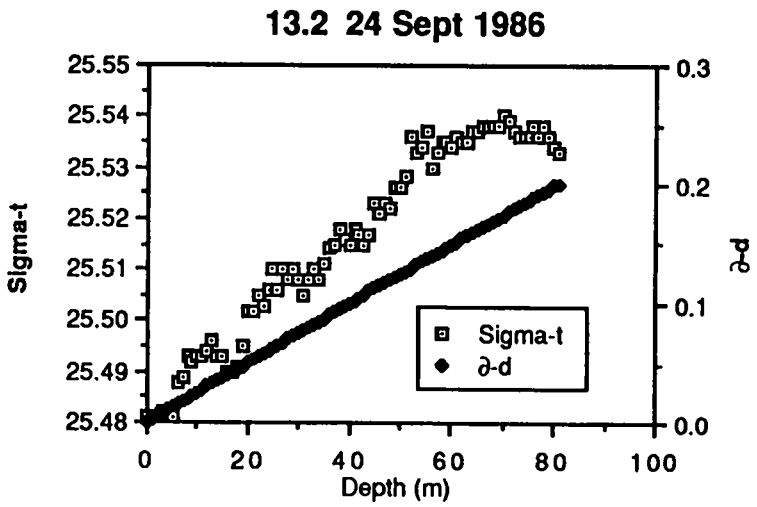

13.1 24 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
8
7
6
32.6
32.5
32.4
32.3
0
50
100
150

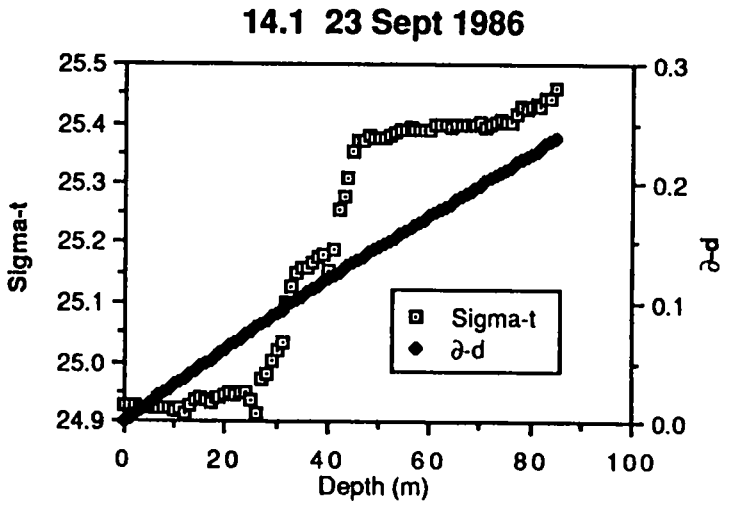

9.8 1 Oct 1986
Sigma-t
∂-d
Depth (m)
25.28
25.26
25.24
25.22
25.20
25.18
25.16
0.15
0.10
0.05
0.00
0
10
20
30
40
50

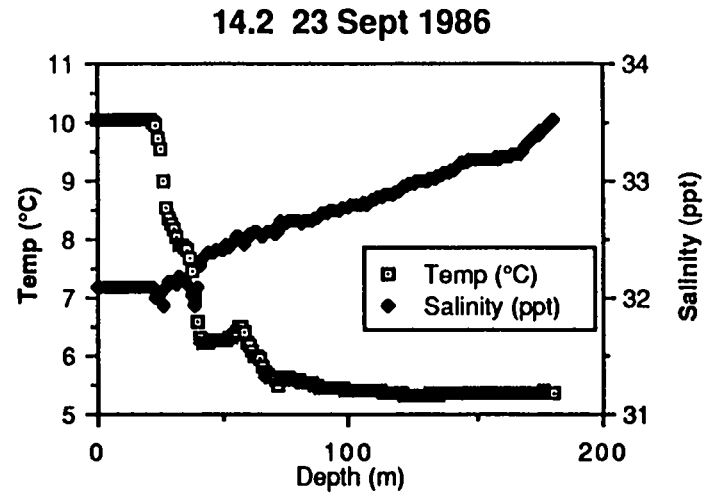

13.1 24 Sept 1986
Sigma-t
∂-d
Depth (m)
25.6
25.5
25.4
25.3
25.2
0.4
0.3
0.2
0.1
0.0
0
50
100
150

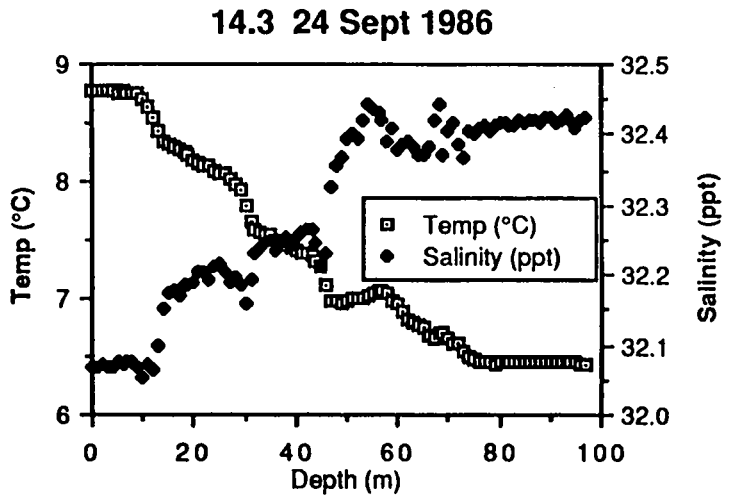

13.2 24 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.04
7.02
7.00
6.98
6.96
6.94
6.92
32.61
32.60
32.59
32.58
32.57
32.56
32.55
32.54
0
20
40
60
80
100

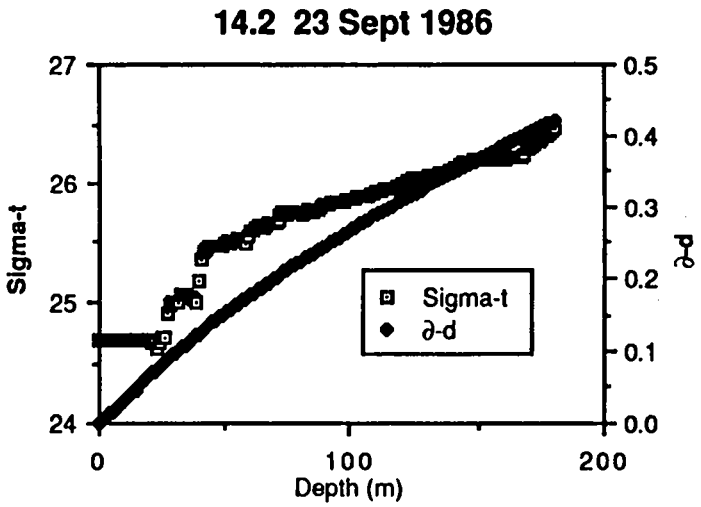

14.1 23 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
9
8
7
6
32.5
32.4
32.3
32.2
32.1
32.0
0
20
40
60
80
100

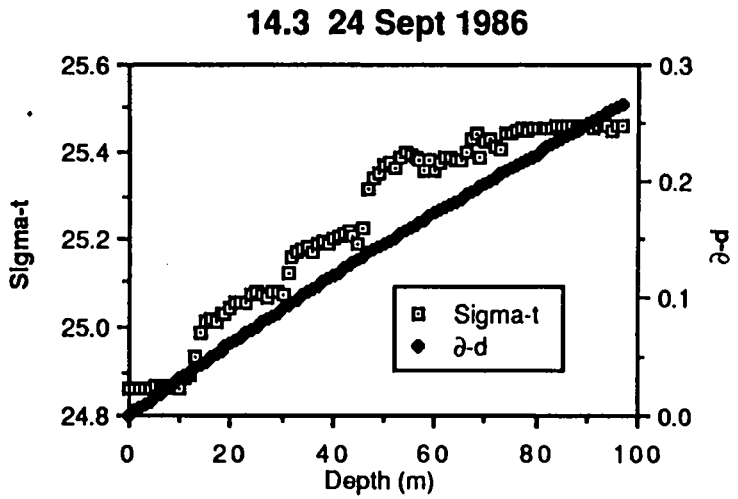

13.2 24 Sept 1986
Sigma-t
∂-d
Depth (m)
25.55
25.54
25.53
25.52
25.51
25.50
25.49
25.48
0.3
0.2
0.1
0.0
0
20
40
60
80
100

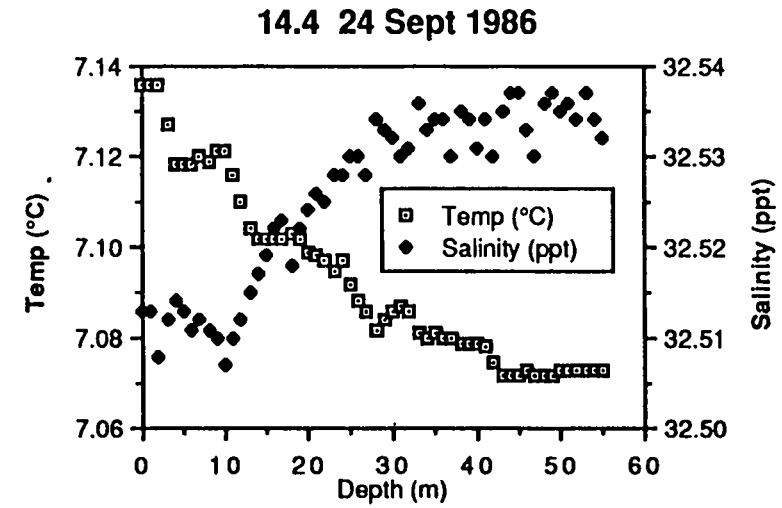

14.1 23 Sept 1986
Sigma-t
∂-d
Depth (m)
25.5
25.4
25.3
25.2
25.1
25.0
24.9
0.3
0.2
0.1
0.0
0
20
40
60
80
100

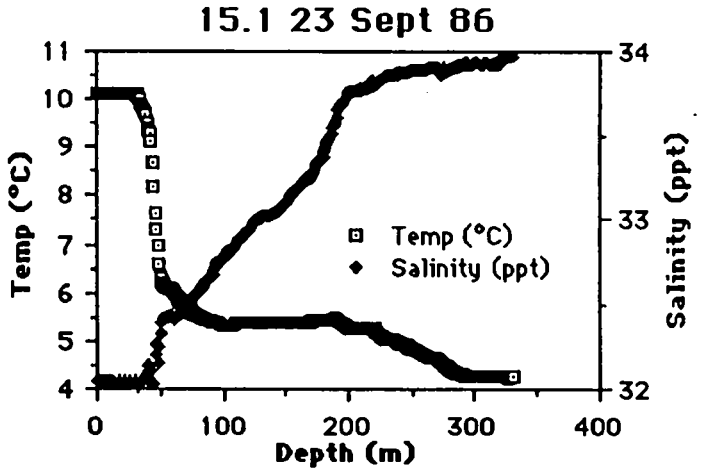

14.2 23 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

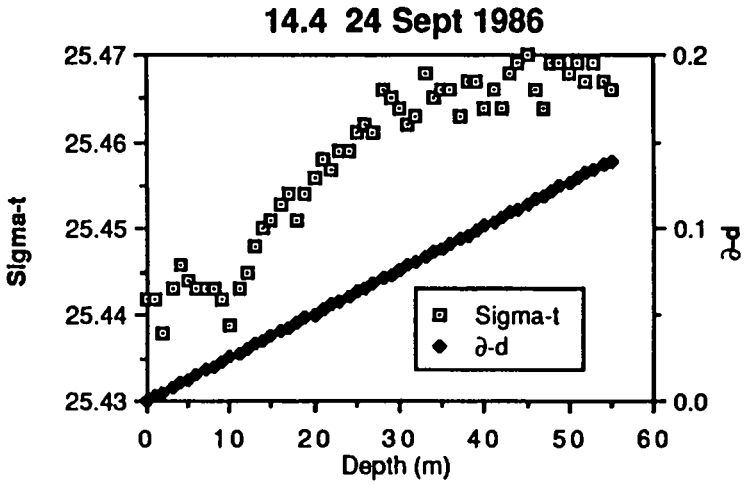

14.3 24 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

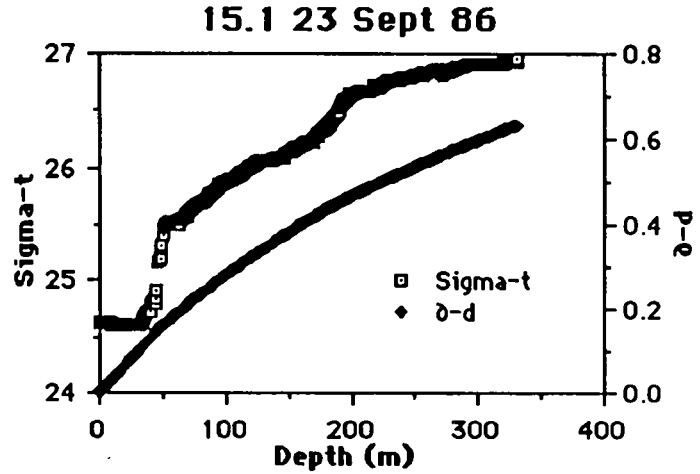

14.2 23 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

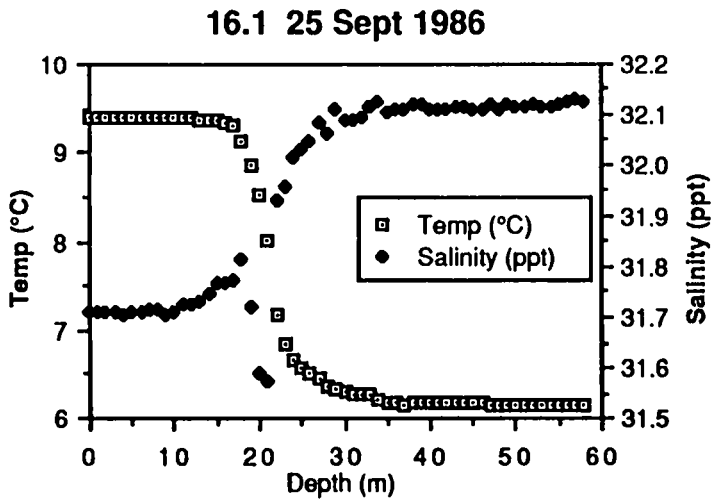

14.3 24 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

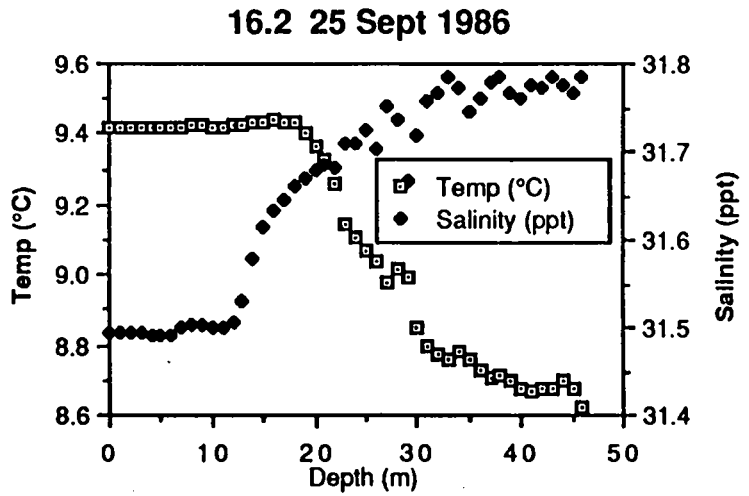

14.4 24 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

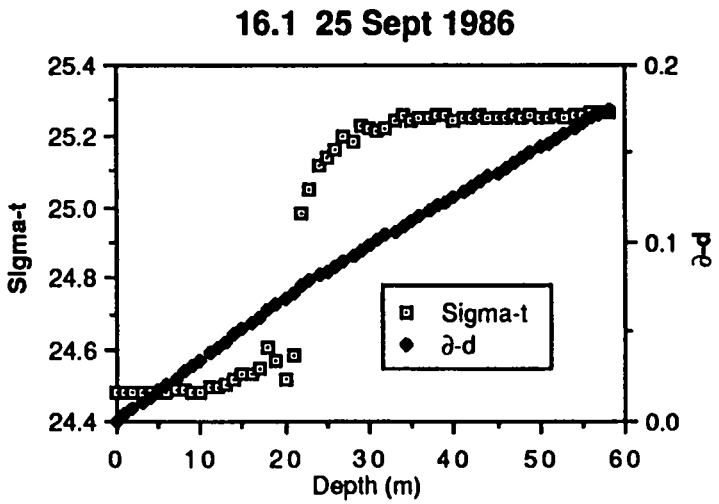

15.1 23 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

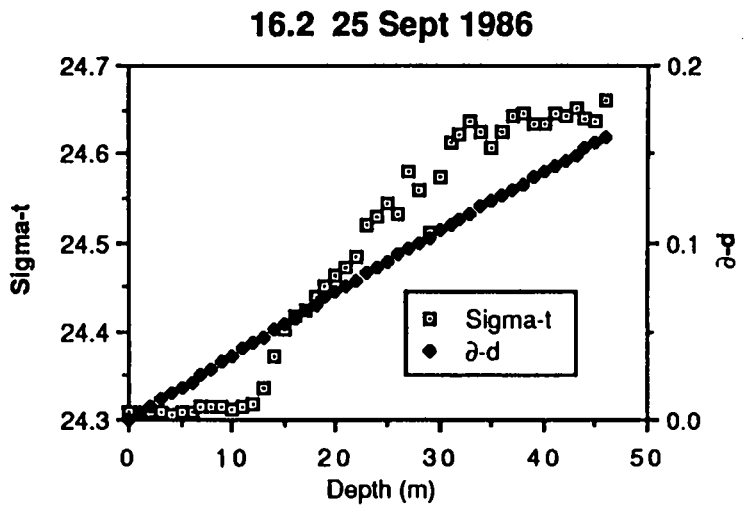

14.4 24 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

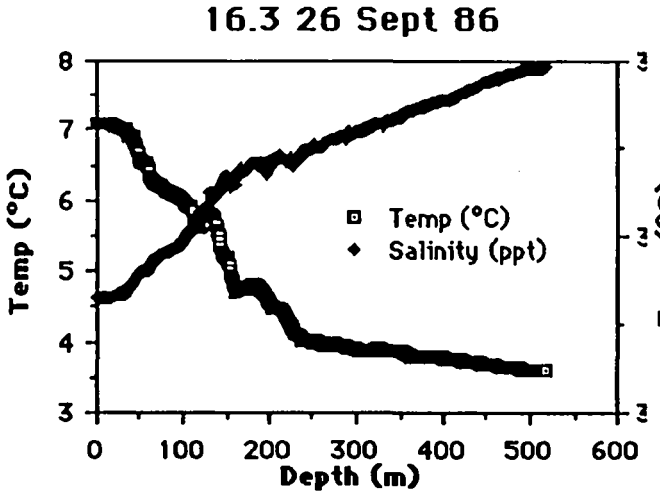

15.1 23 Sept 86
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

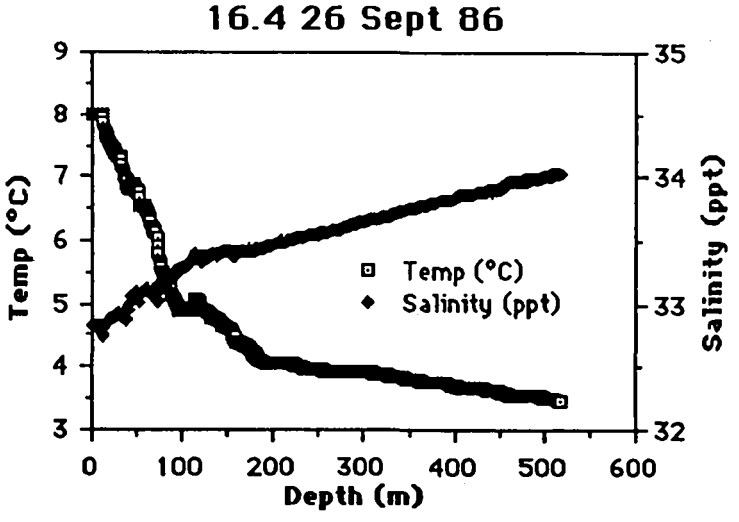

16.1 25 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

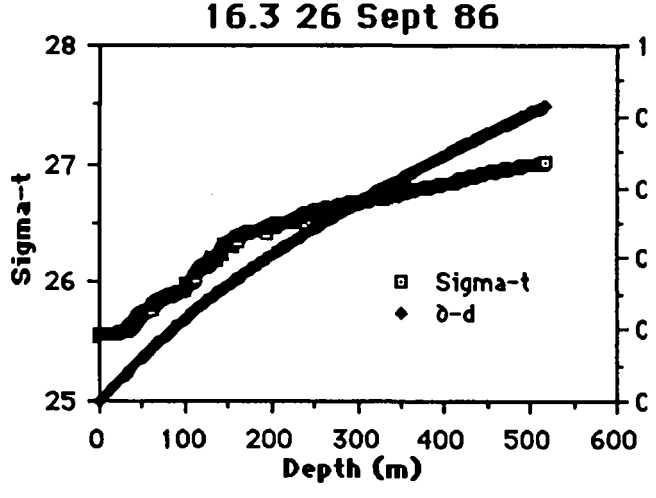

16.2 25 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

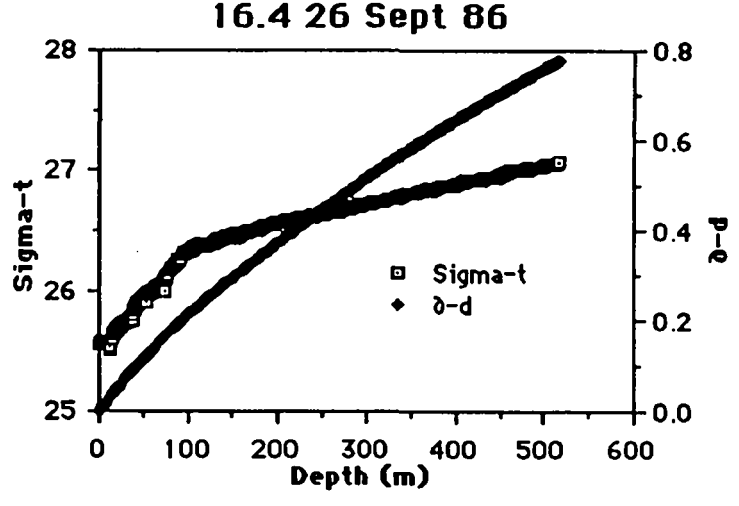

16.1 25 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

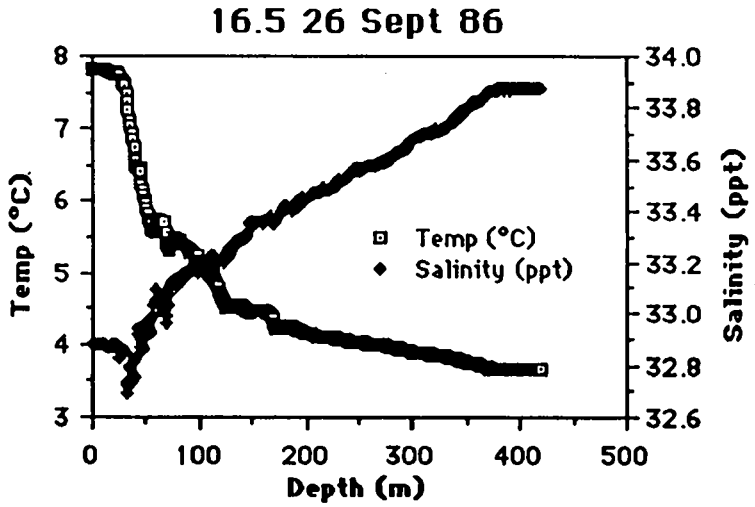

16.2 25 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

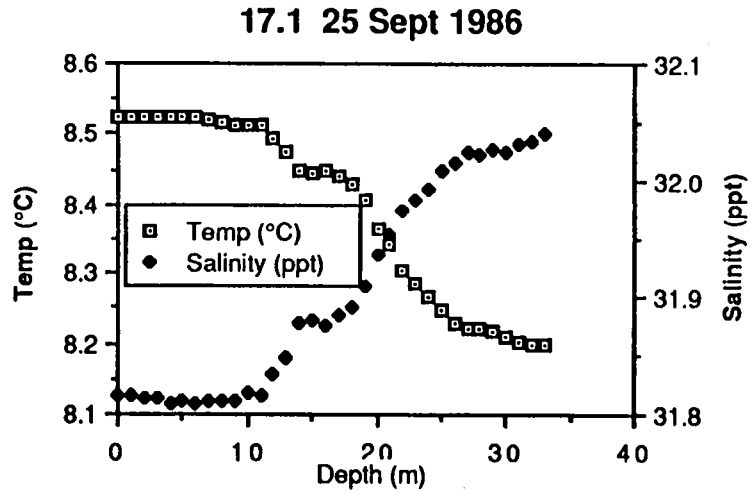

16.3 26 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)

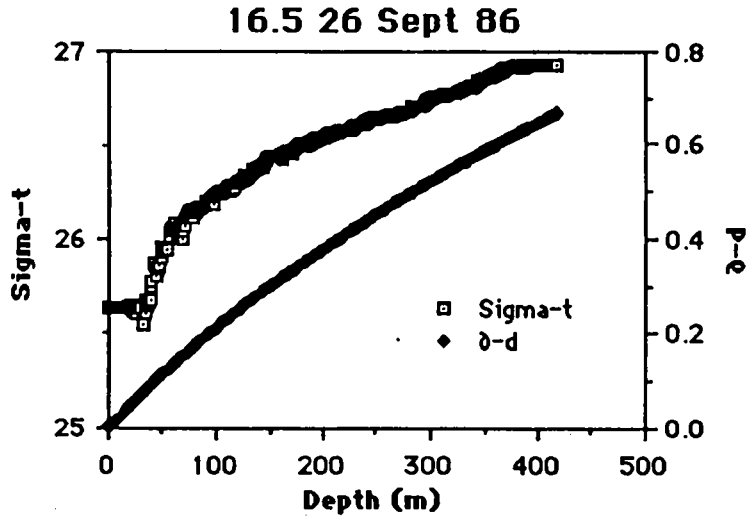

16.4 26 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)

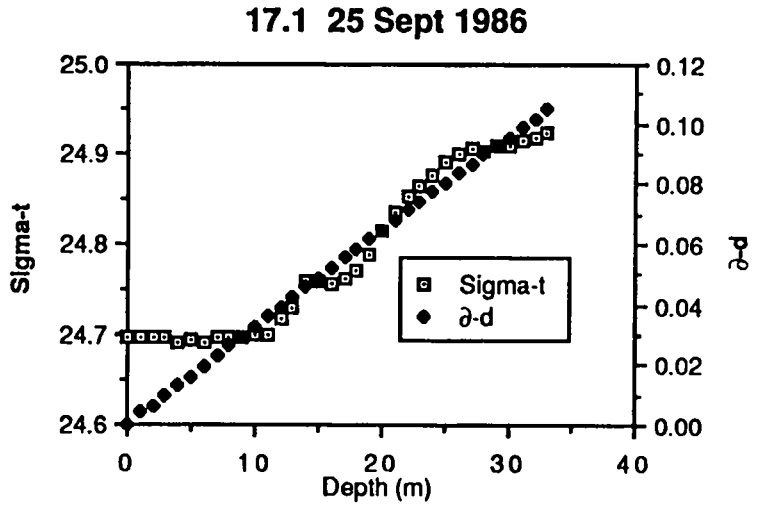

16.3 26 Sept 86
Sigma-t
∂-d
Depth (m)

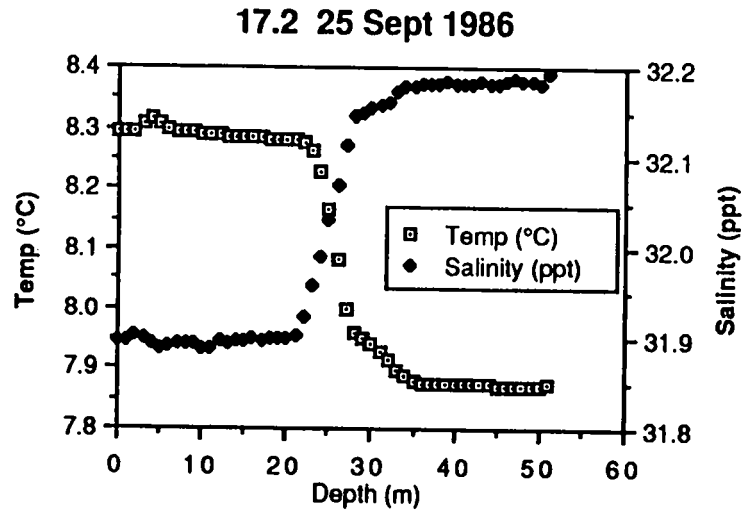

16.4 26 Sept 86
Sigma-t
∂-d
Depth (m)

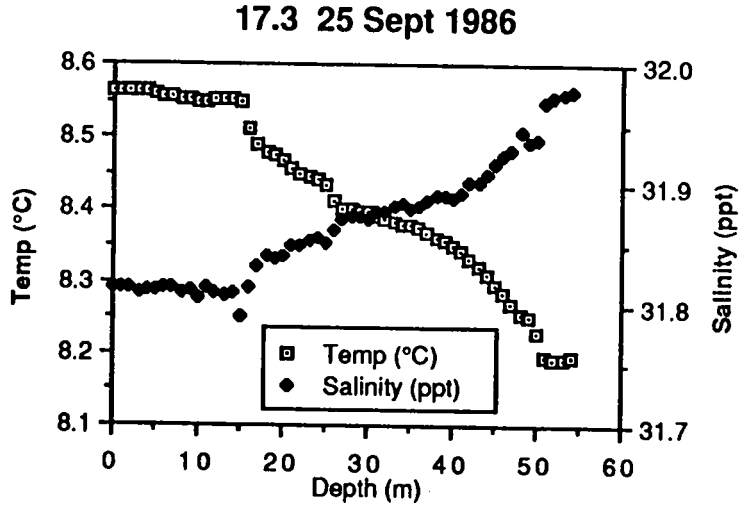

16.5 26 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

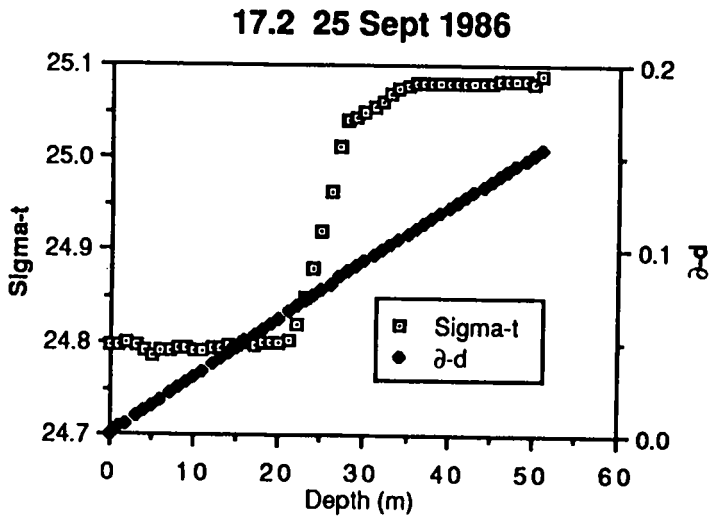

17.1 25 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

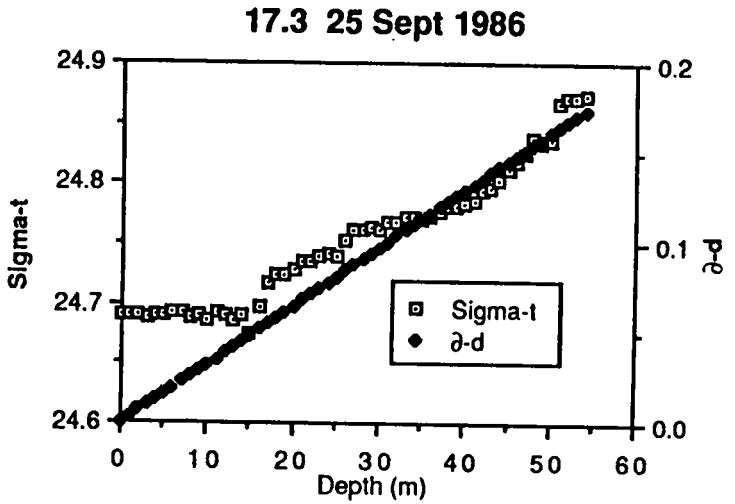

16.5 26 Sept 86
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

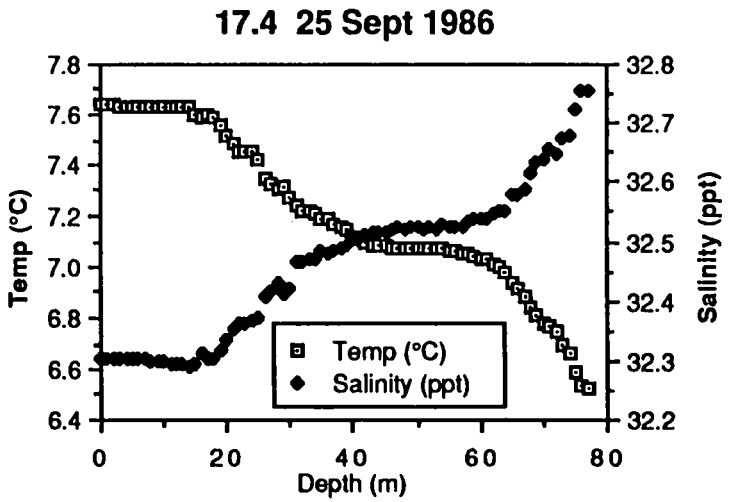

17.1 25 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

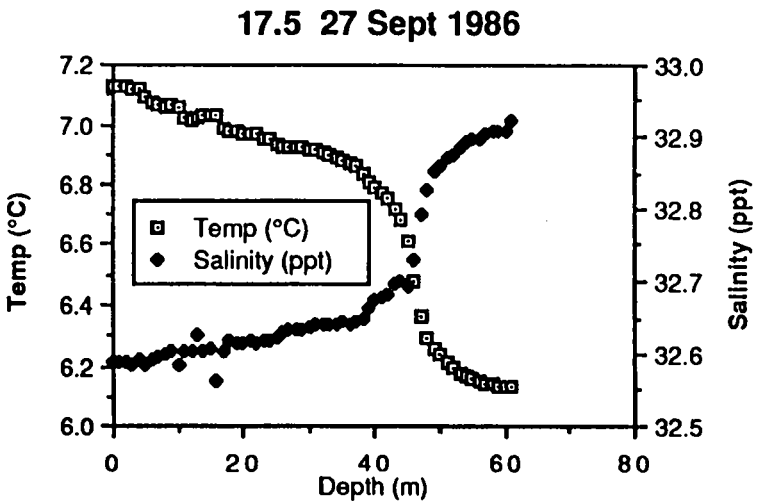

17.2 25 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

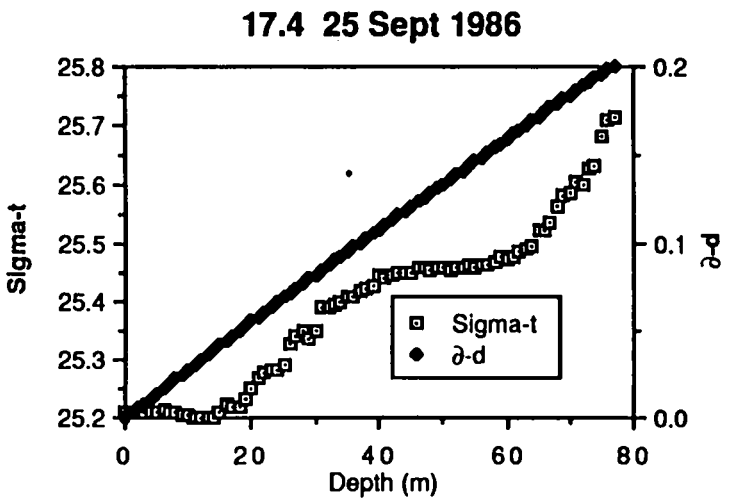

17.3 25 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

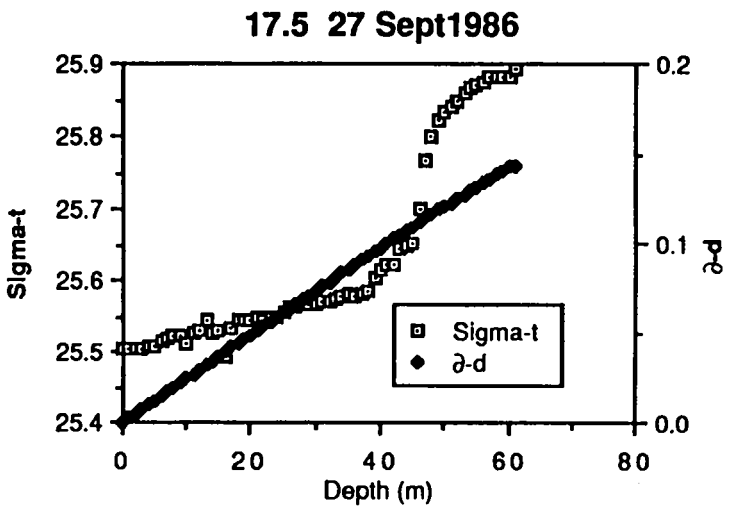

17.2 25 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

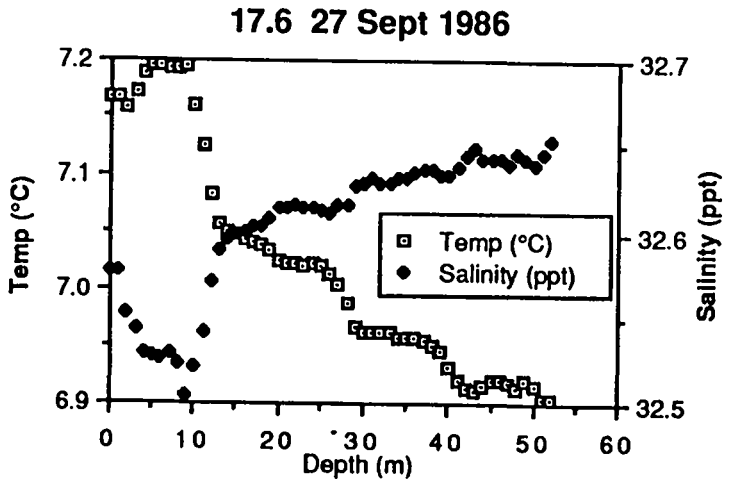

17.3 25 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

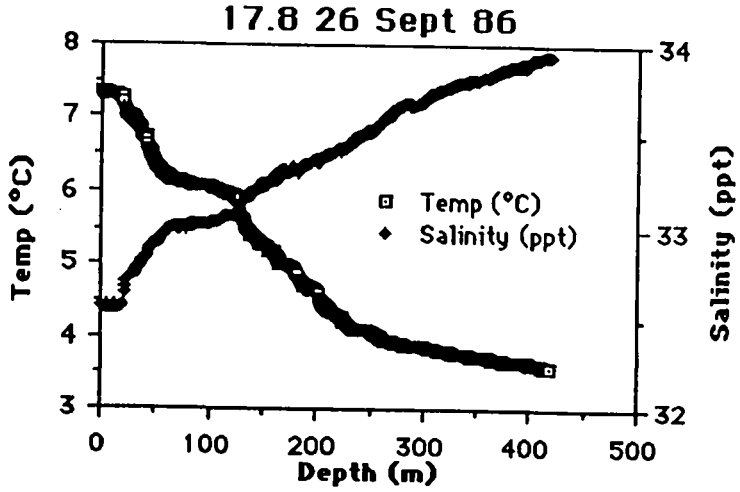

17.4 25 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

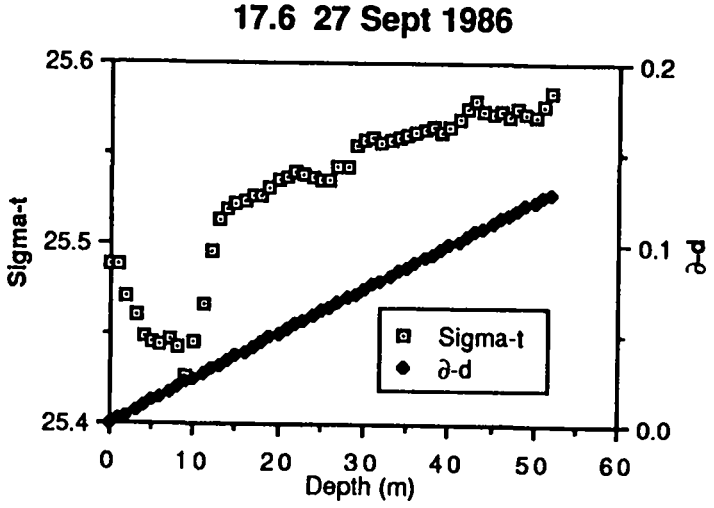

17.5 27 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

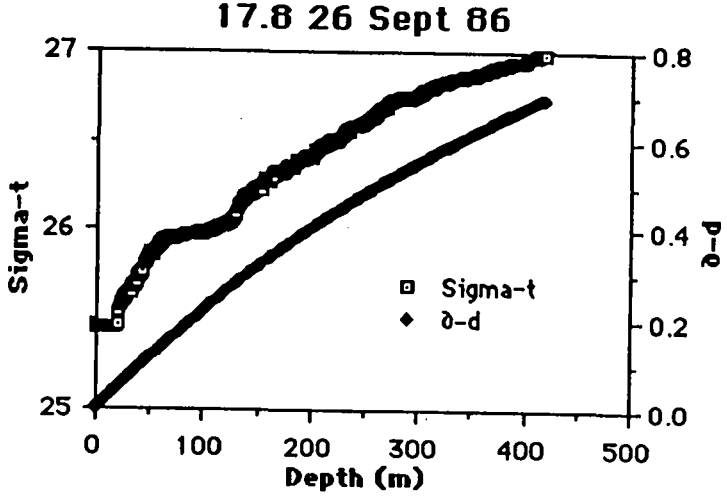

17.4 25 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

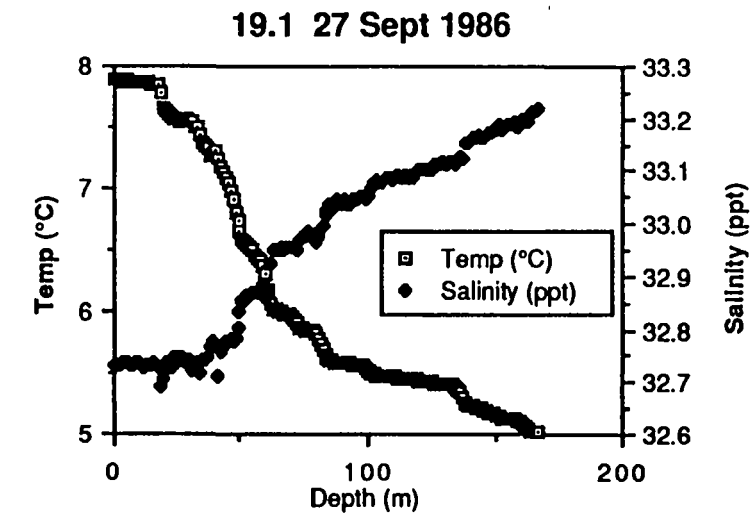

17.5 27 Sept1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

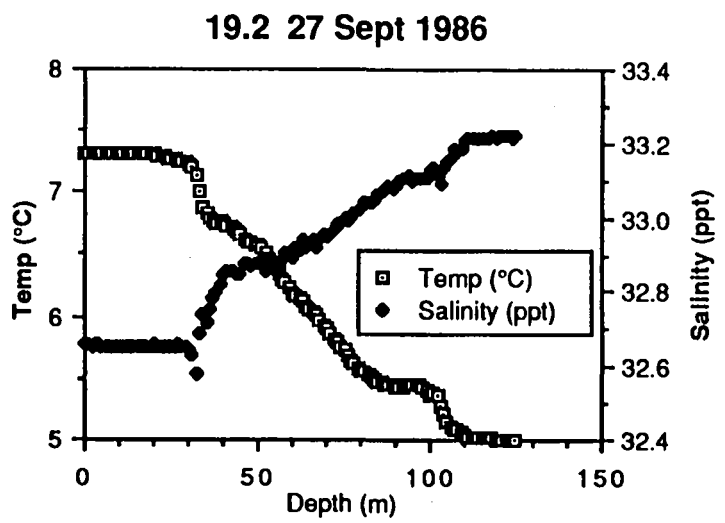

17.6 27 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

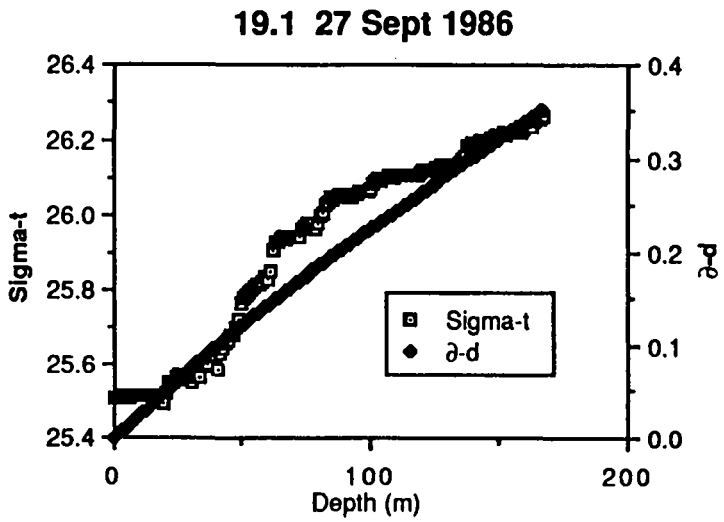

17.8 26 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

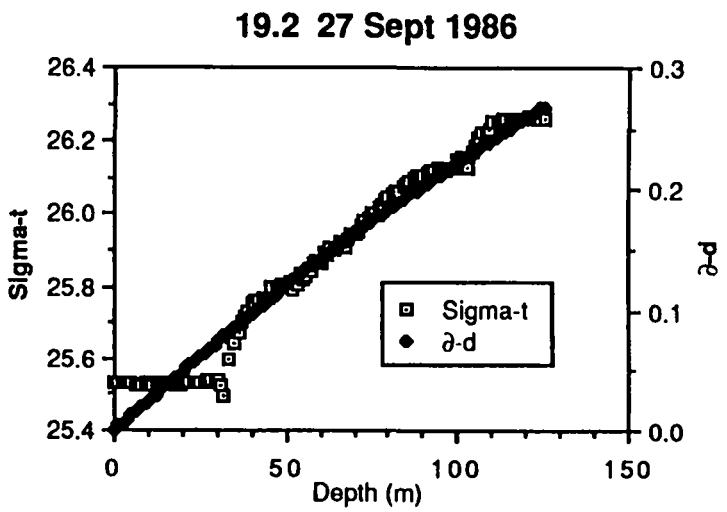

17.6 27 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

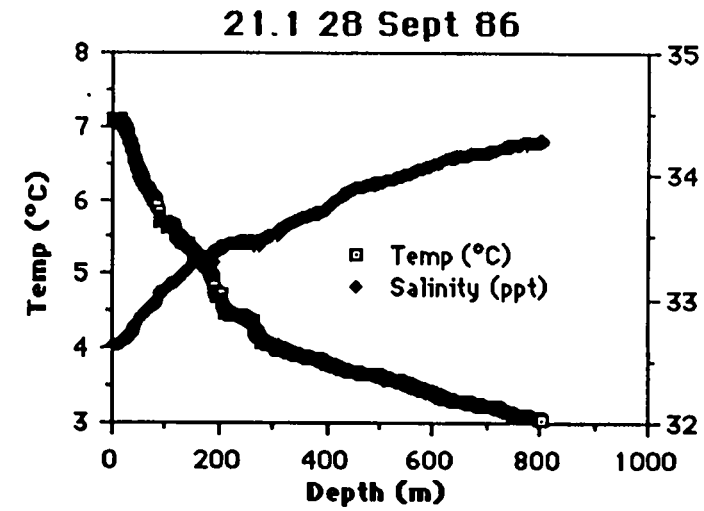

17.8 26 Sept 86
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

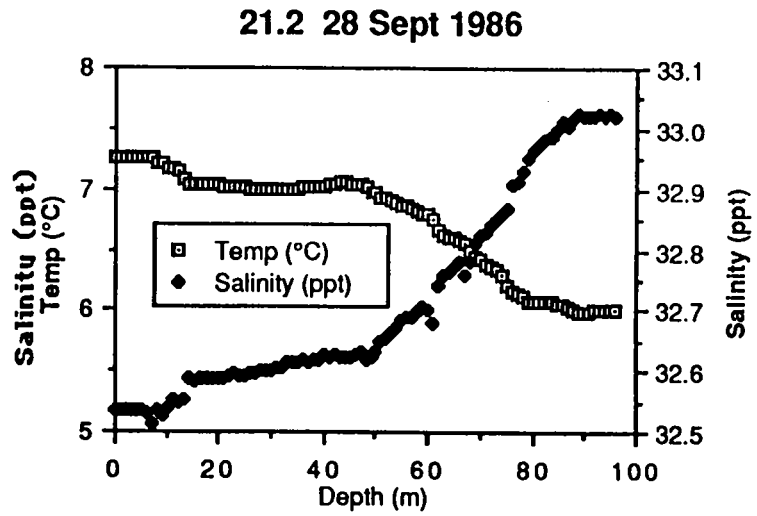

19.1 27 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

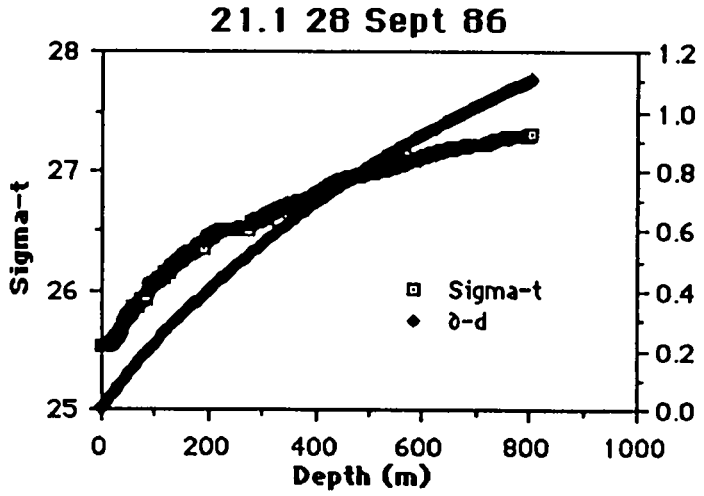

19.2 27 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

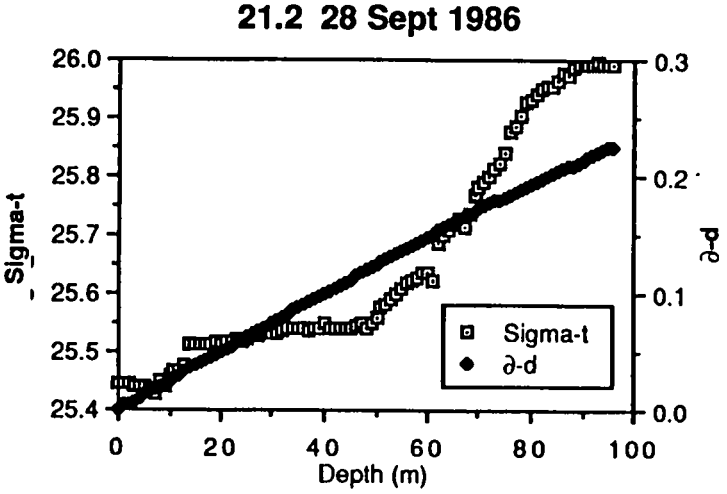

19.1 27 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

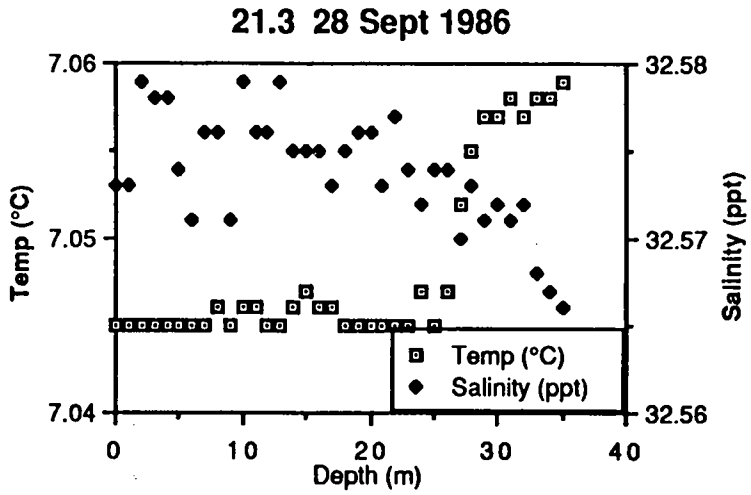

19.2 27 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

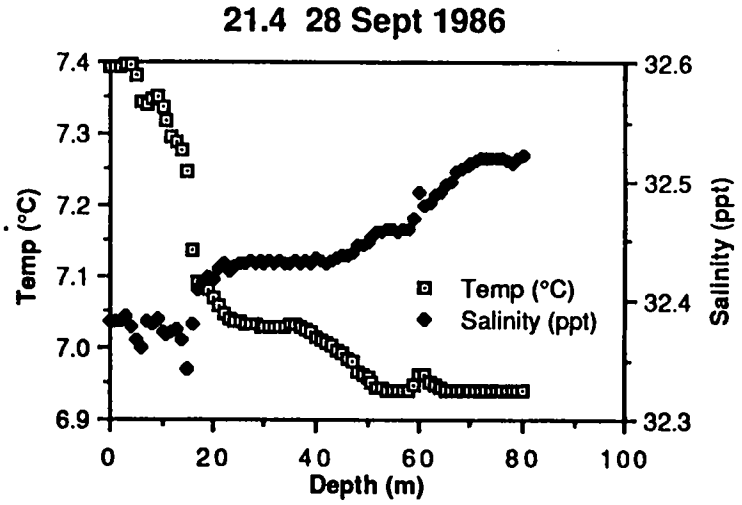

21.1 28 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

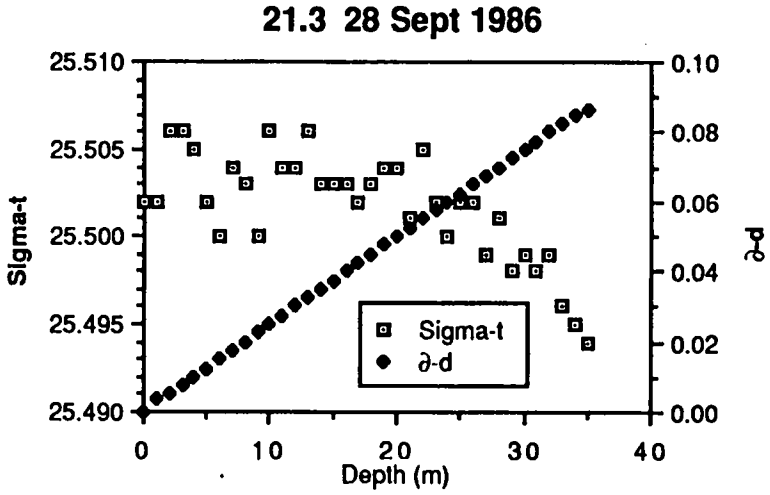

21.2 28 Sept 1986
Salinity (ppt)
Temp (°C)
Depth (m)
Temp (°C)
Salinity (ppt)

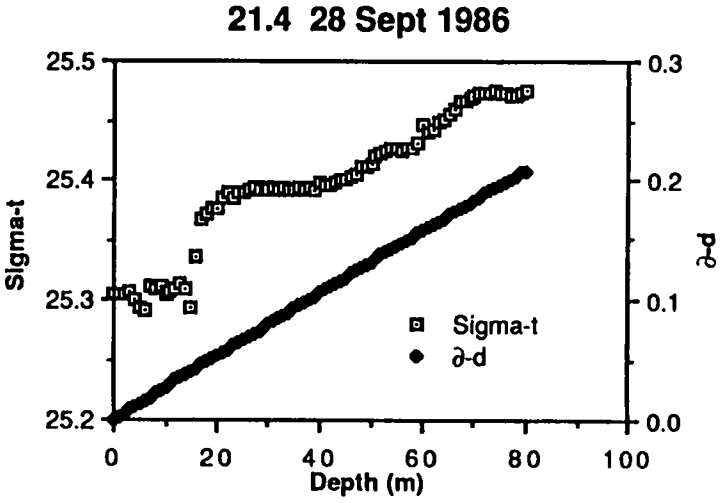

21.1 28 Sept 86
Sigma-t
Depth (m)
Sigma-t
∂-d

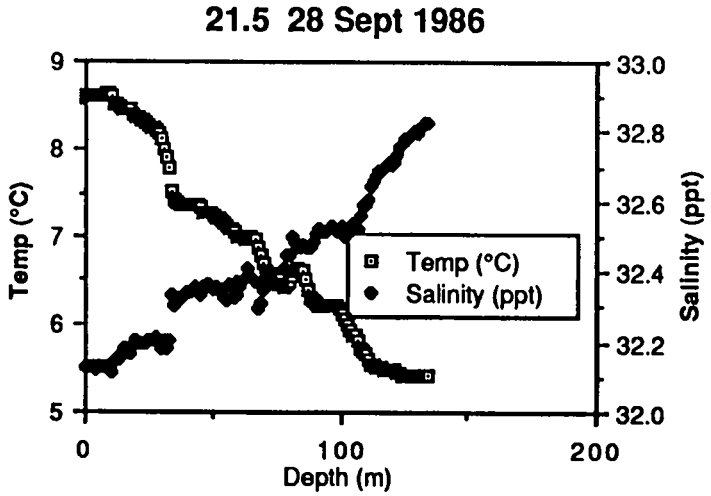

21.2 28 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

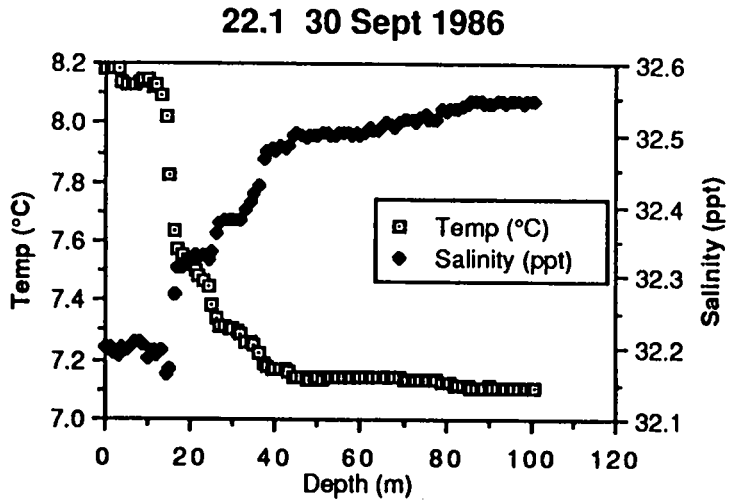

21.3 28 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.06
7.05
7.04
32.58
32.57
32.56
0
10
20
30
40
Temp (°C)
Salinity (ppt)

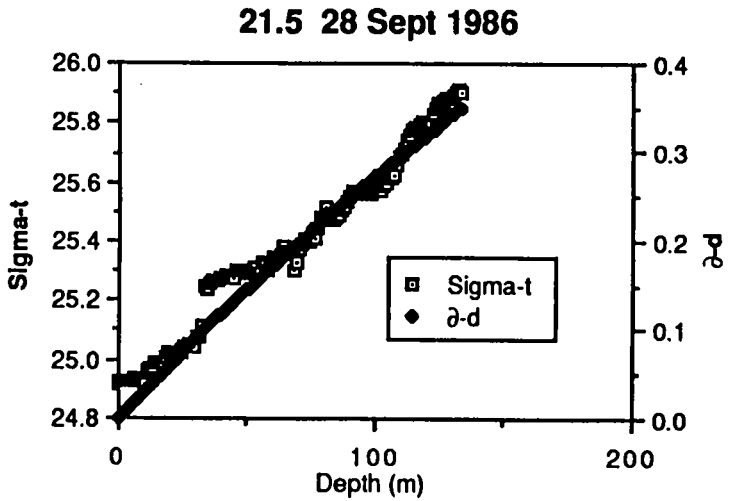

21.4 28 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
7.4
7.3
7.2
7.1
7.0
6.9
32.6
32.5
32.4
32.3
0
20
40
60
80
100
Temp (°C)
Salinity (ppt)

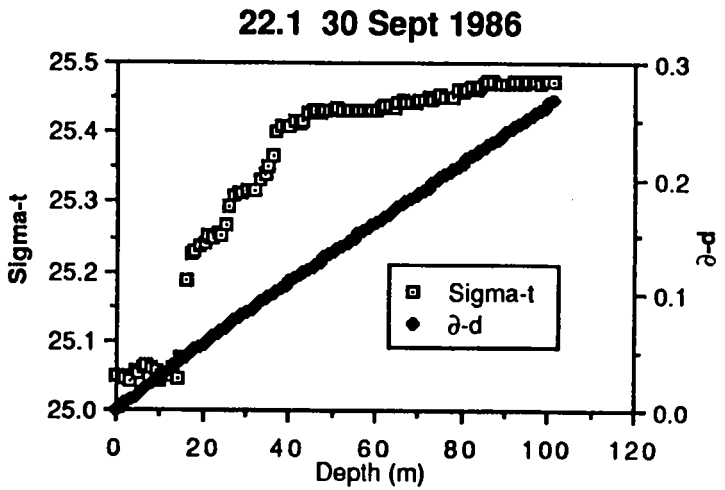

21.3 28 Sept 1986
Sigma-t
∂-d
Depth (m)
25.510
25.505
25.500
25.495
25.490
0.10
0.08
0.06
0.04
0.02
0.00
0
10
20
30
40
Sigma-t
∂-d

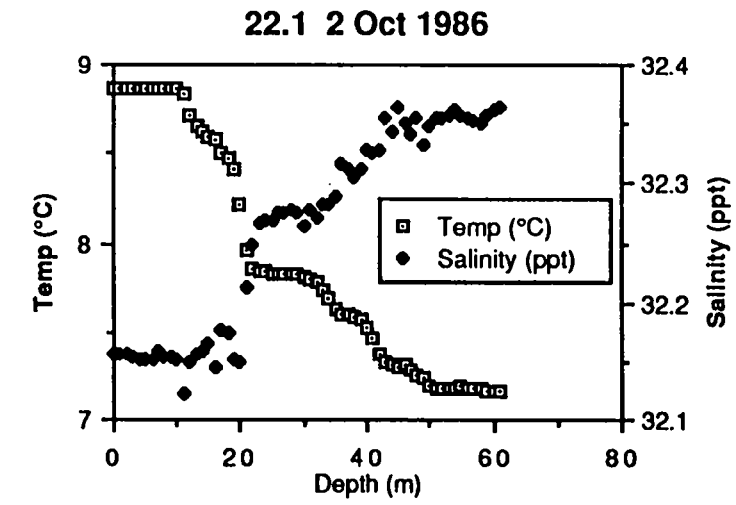

21.4 28 Sept 1986
Sigma-t
∂-d
Depth (m)
25.5
25.4
25.3
25.2
0.3
0.2
0.1
0.0
0
20
40
60
80
100
Sigma-t
∂-d

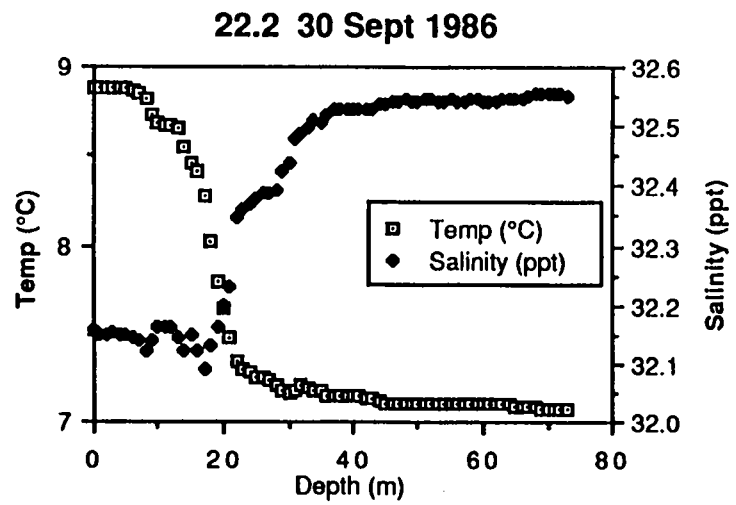

21.5 28 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

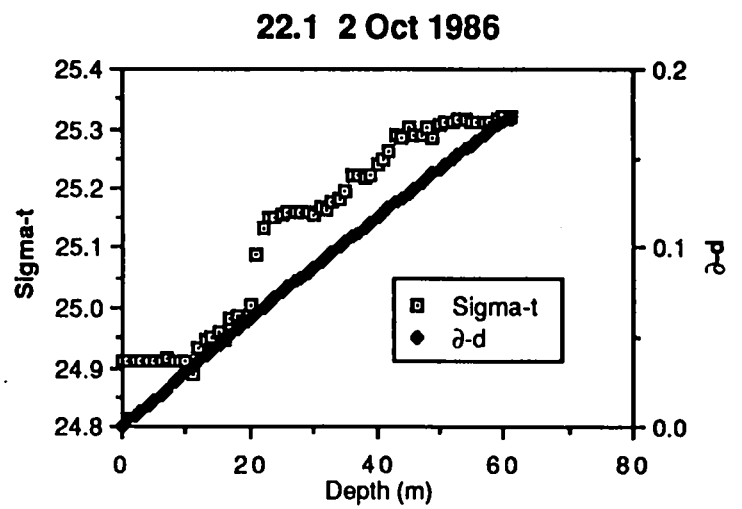

22.1 30 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

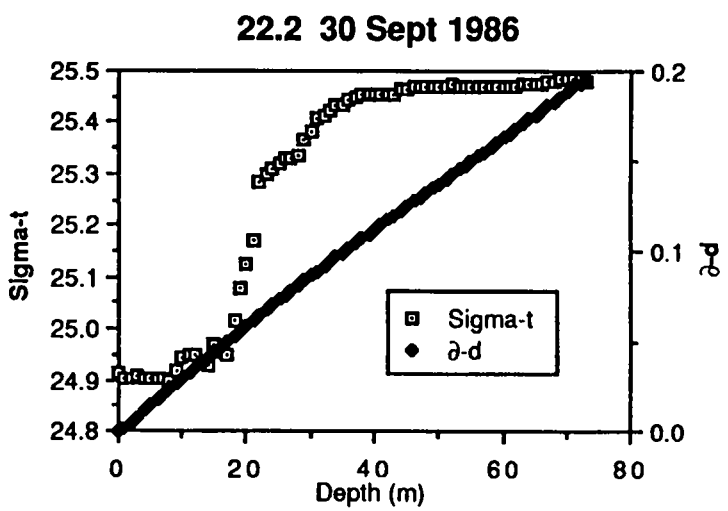

21.5 28 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

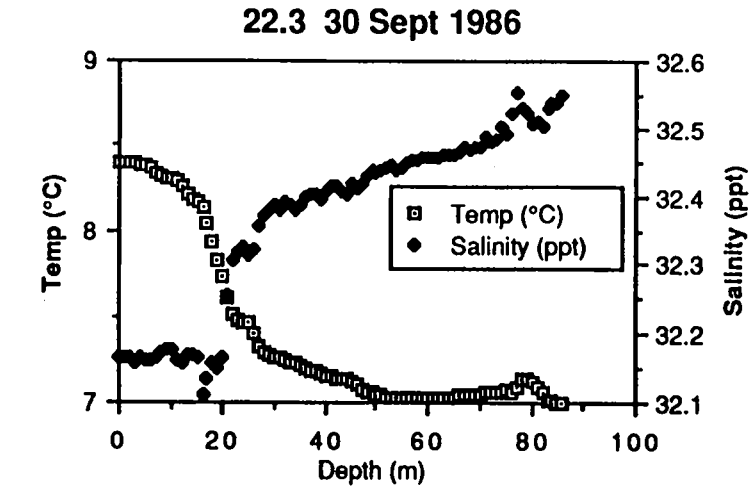

22.1 30 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

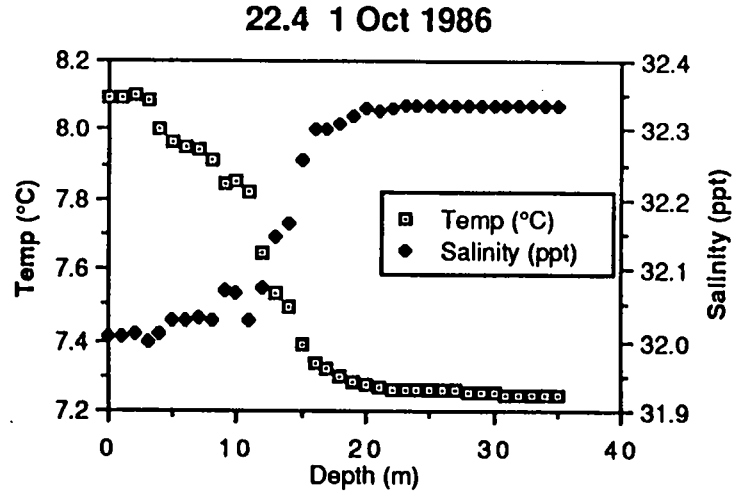

22.1 2 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

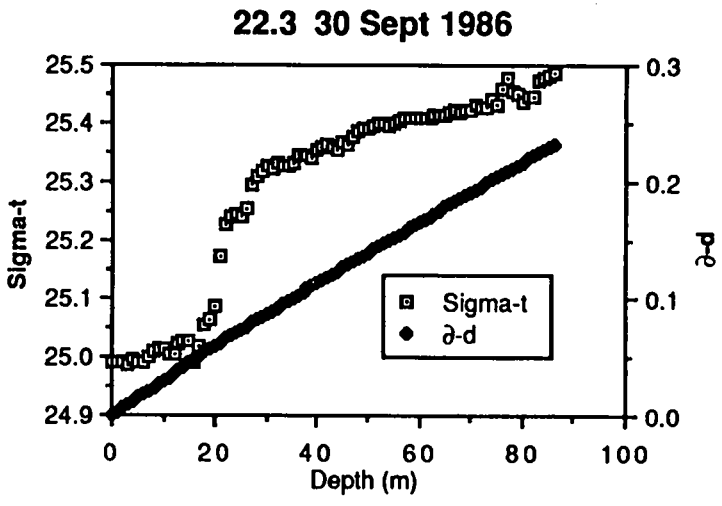

22.2 30 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

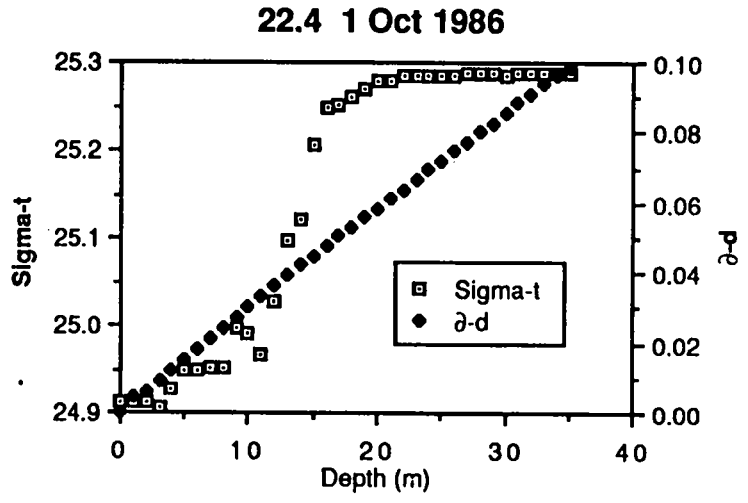

22.1 2 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

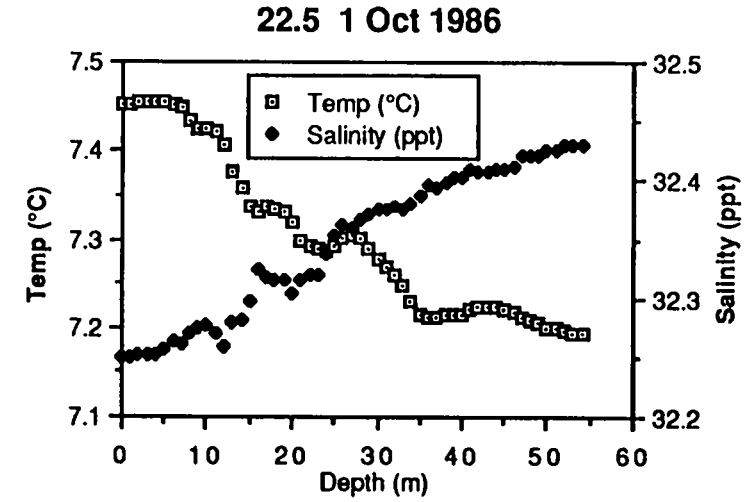

22.2 30 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

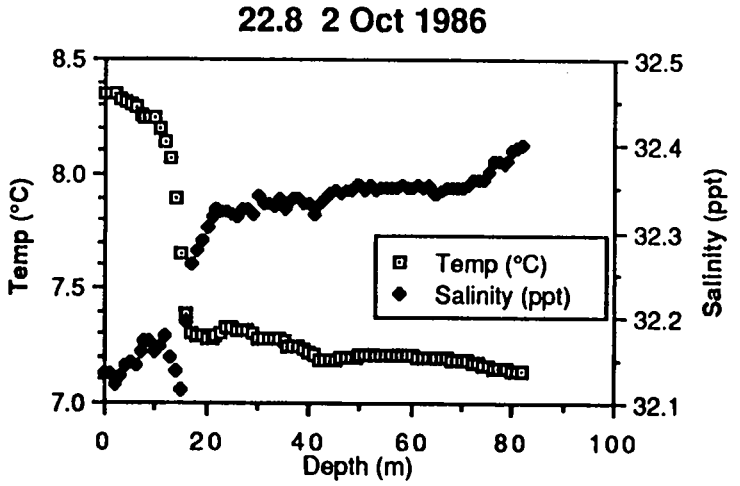

22.3 30 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
9
8
7
32.6
32.5
32.4
32.3
32.2
32.1
0
20
40
60
80
100

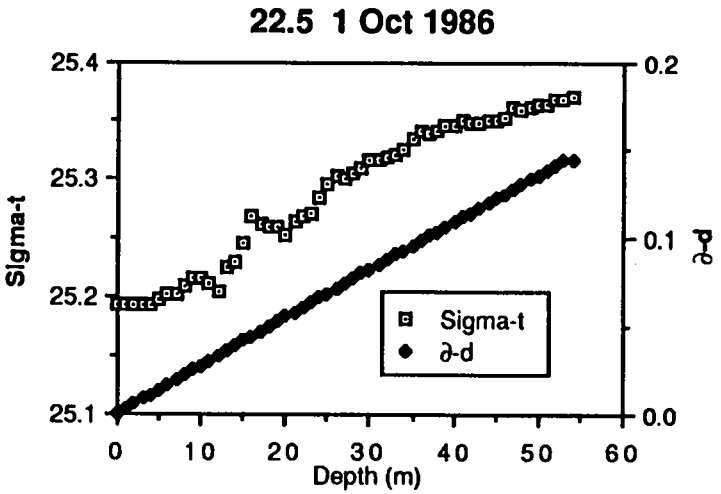

22.4 1 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
8.2
8.0
7.8
7.6
7.4
7.2
32.4
32.3
32.2
32.1
32.0
31.9
0
10
20
30
40

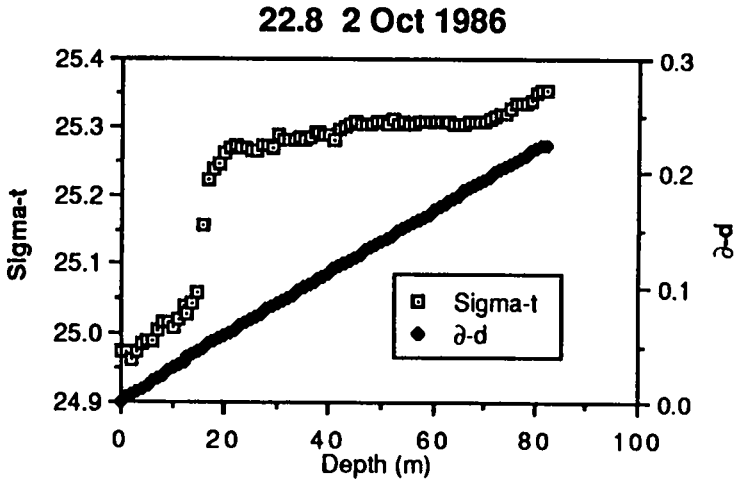

22.3 30 Sept 1986
Sigma-t
∂-d
Depth (m)
25.5
25.4
25.3
25.2
25.1
25.0
24.9
0.3
0.2
0.1
0.0
0
20
40
60
80
100

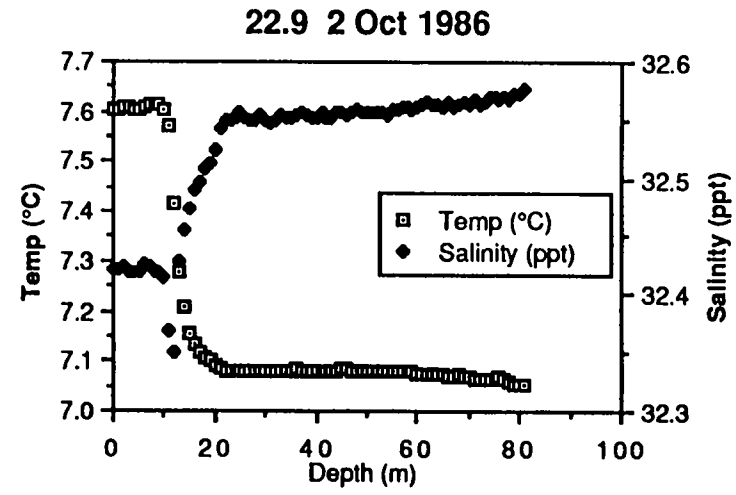

22.4 1 Oct 1986
Sigma-t
∂-d
Depth (m)
25.3
25.2
25.1
25.0
24.9
0.10
0.08
0.06
0.04
0.02
0.00
0
10
20
30
40

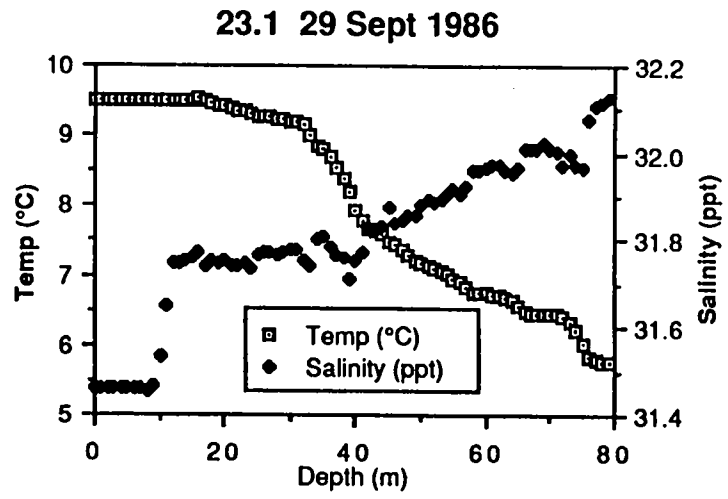

22.5 1 Oct 1986
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
7.5
7.4
7.3
7.2
7.1
32.5
32.4
32.3
32.2
0
10
20
30
40
50
60

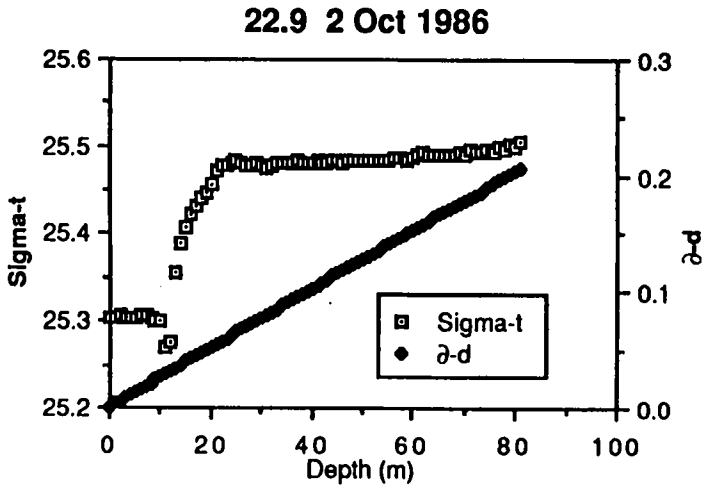

22.8 2 Oct 1986
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
8.5
8.0
7.5
7.0
32.5
32.4
32.3
32.2
32.1
0
20
40
60
80
100

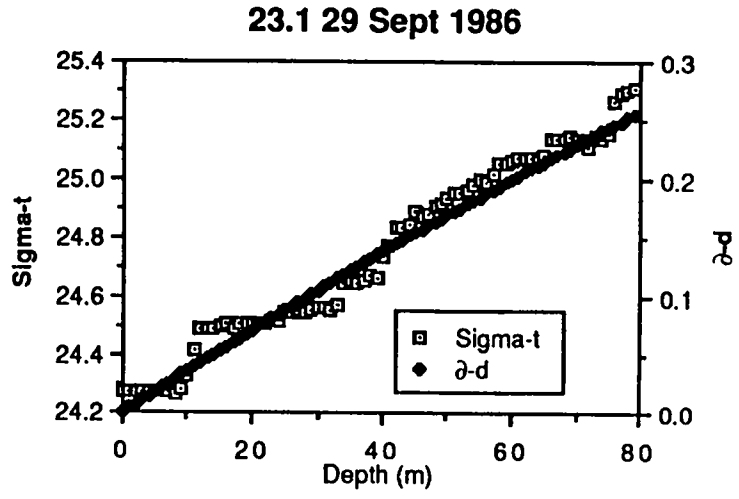

22.5 1 Oct 1986
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.4
25.3
25.2
25.1
0.2
0.1
0.0
0
10
20
30
40
50
60

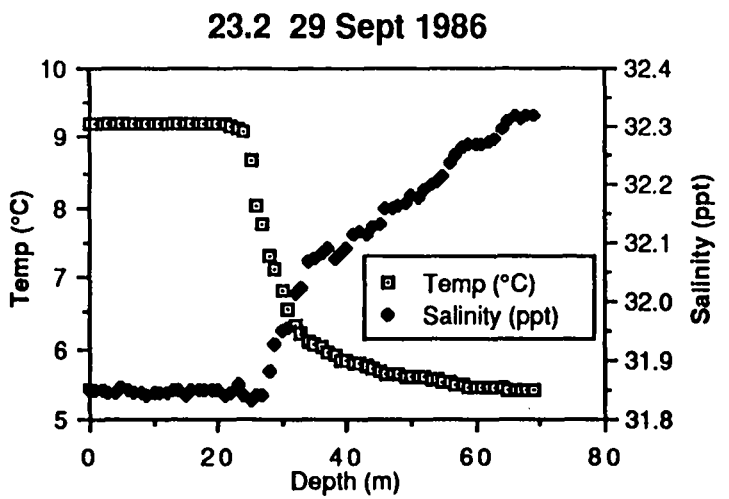

22.8 2 Oct 1986
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.4
25.3
25.2
25.1
25.0
24.9
0.3
0.2
0.1
0.0
0
20
40
60
80
100

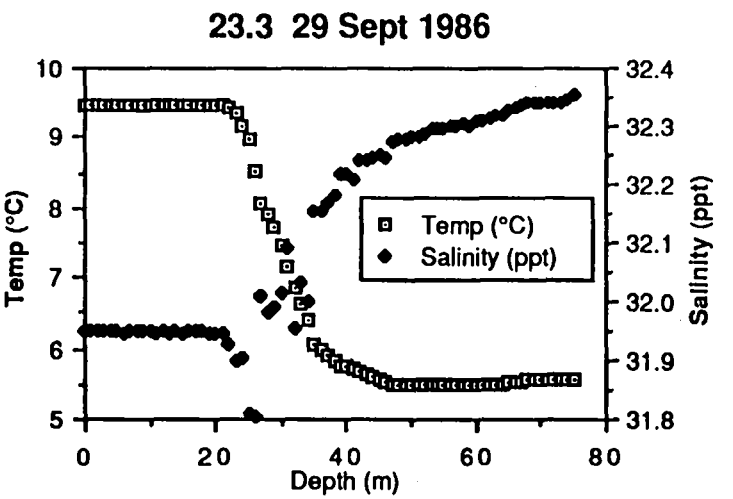

22.9 2 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

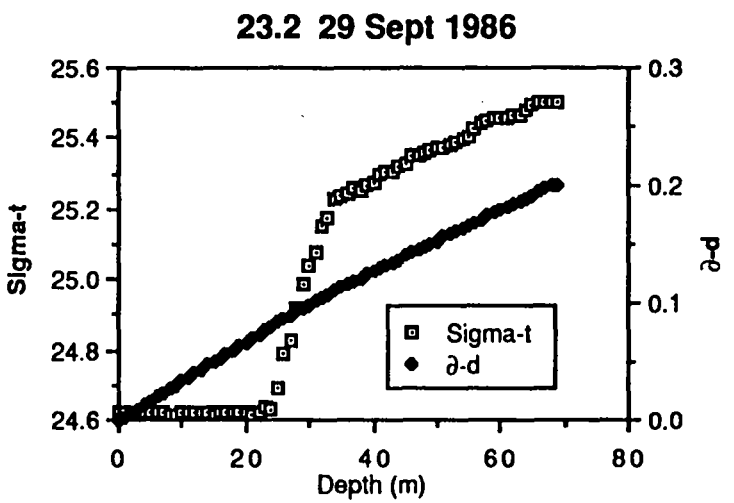

23.1 29 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

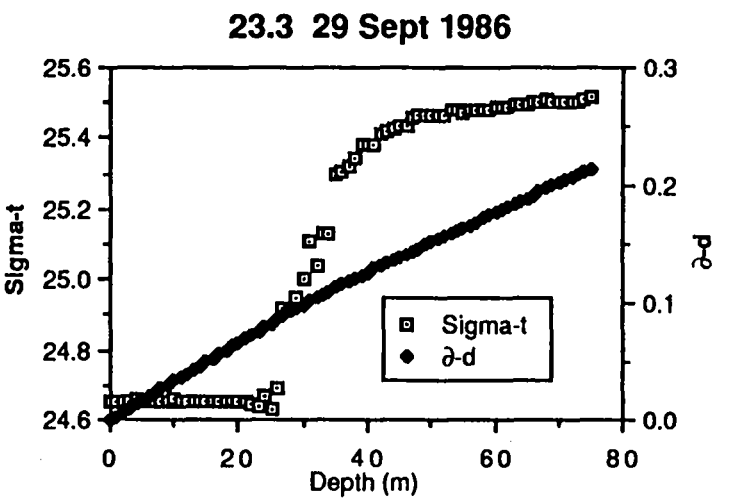

22.9 2 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

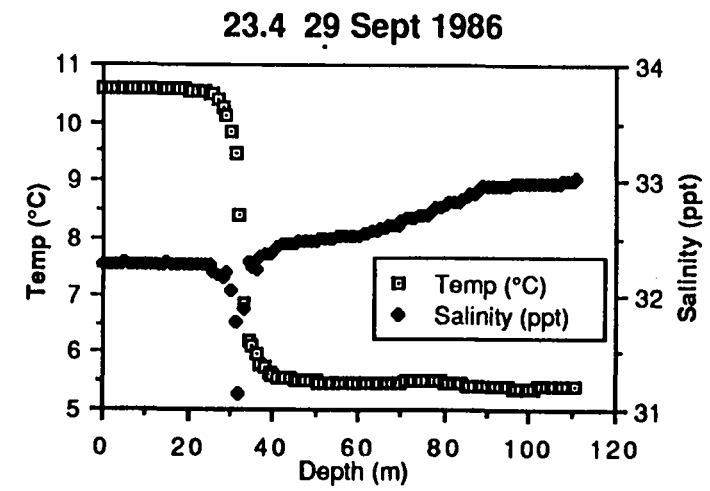

23.1 29 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

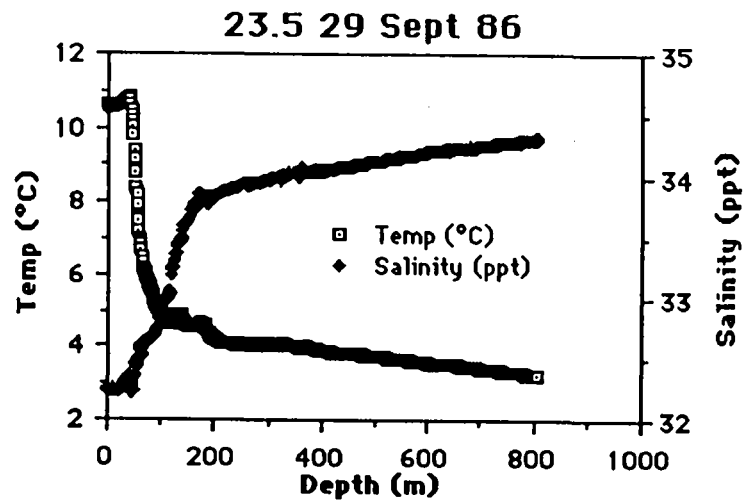

23.2 29 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

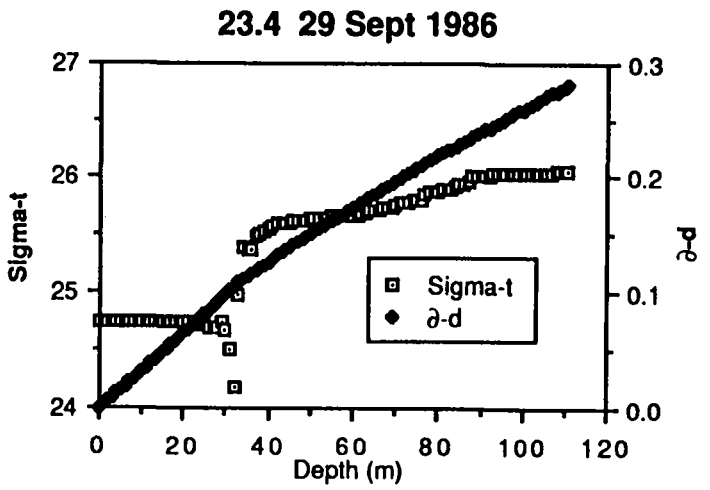

23.3 29 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

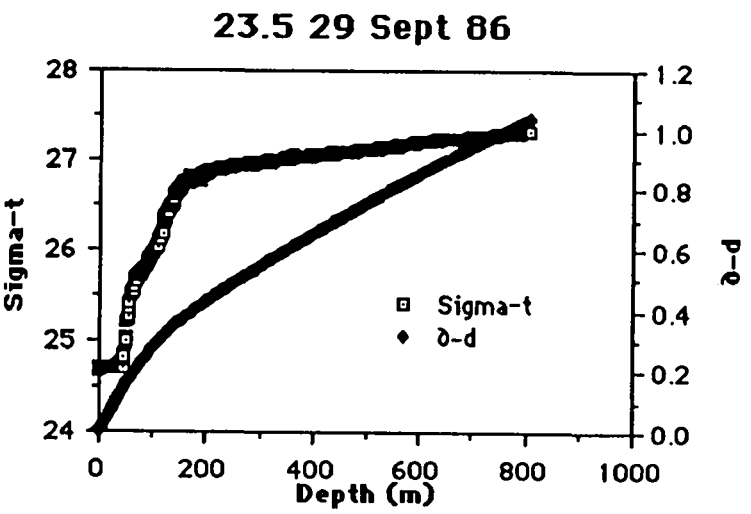

23.2 29 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

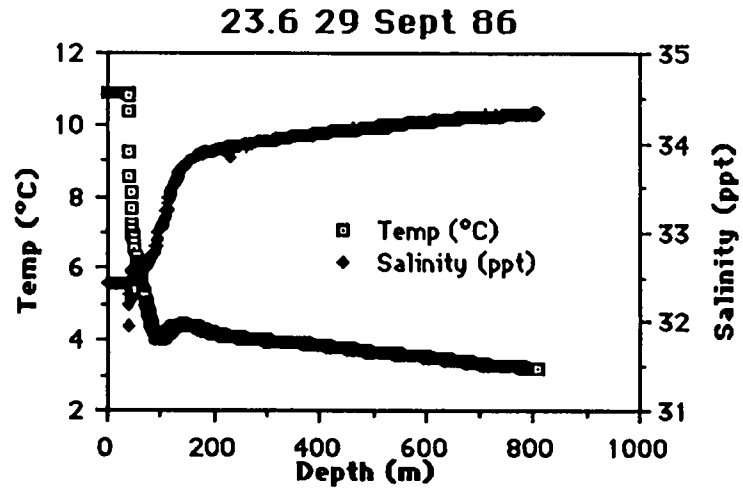

23.3 29 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

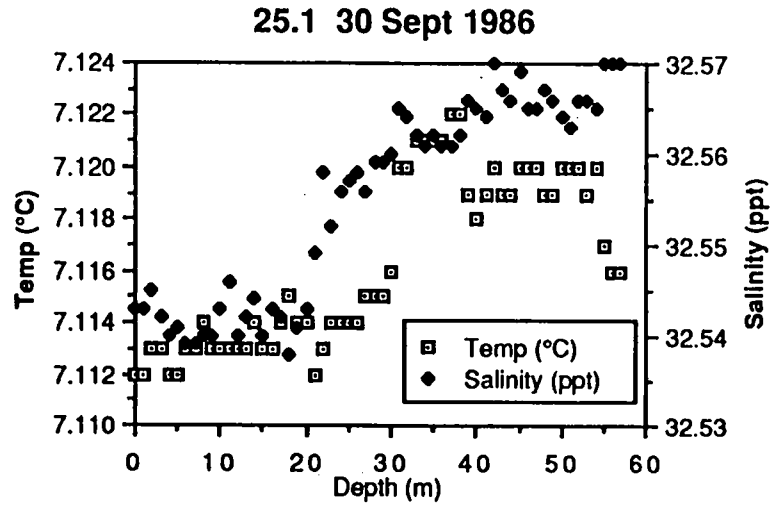

23.4 29 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

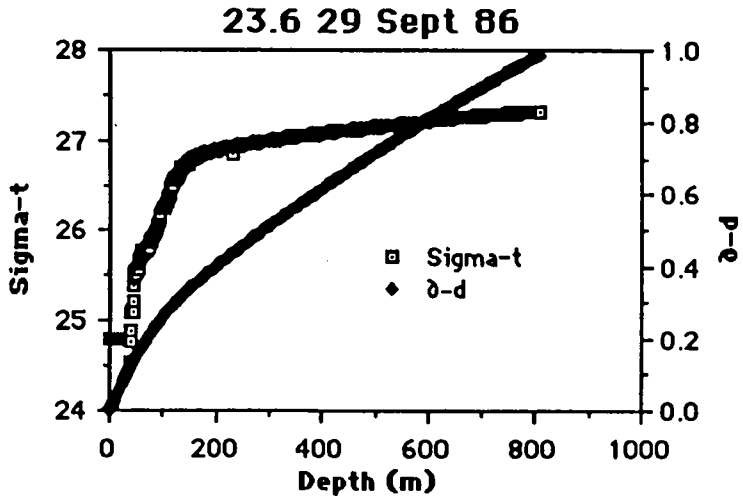

23.5 29 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

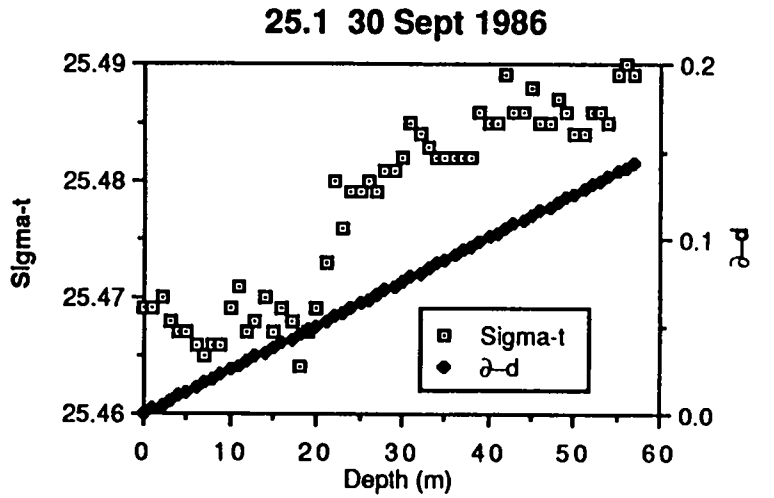

23.4 29 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

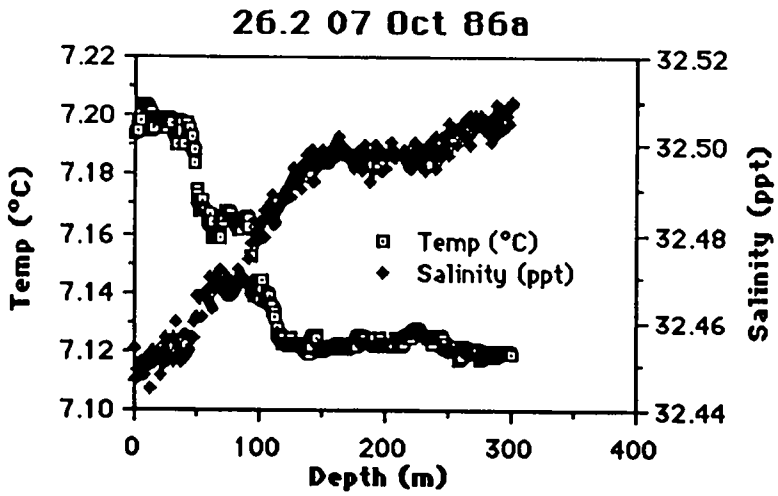

23.5 29 Sept 86
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

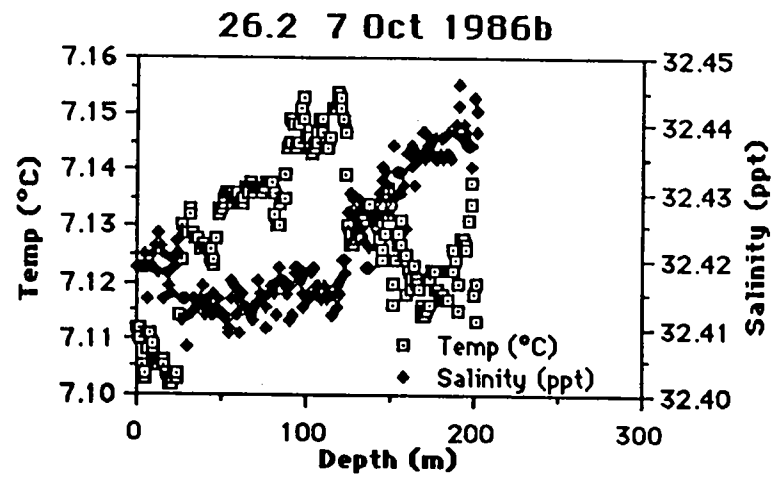

23.6 29 Sept 86
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

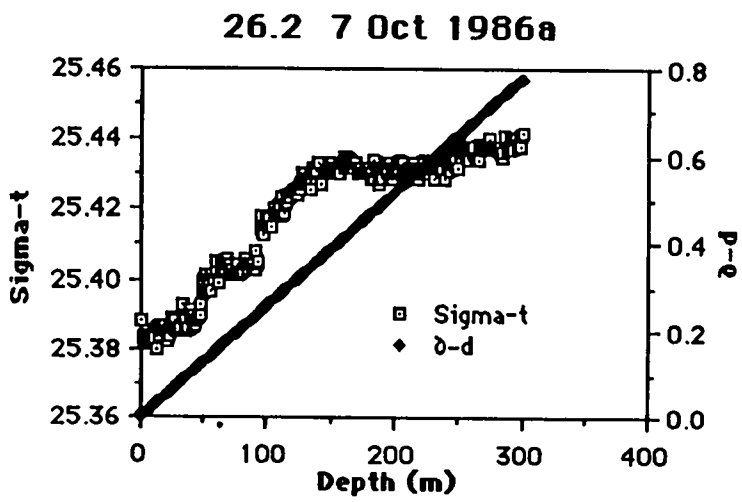

25.1 30 Sept 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

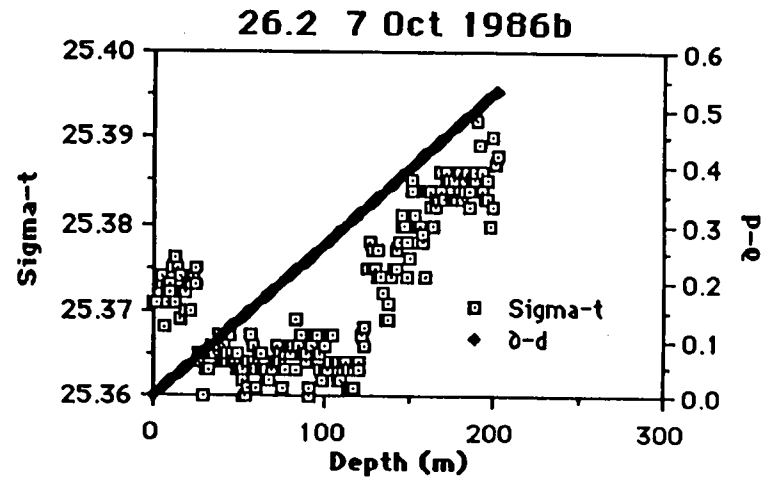

23.6 29 Sept 86
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

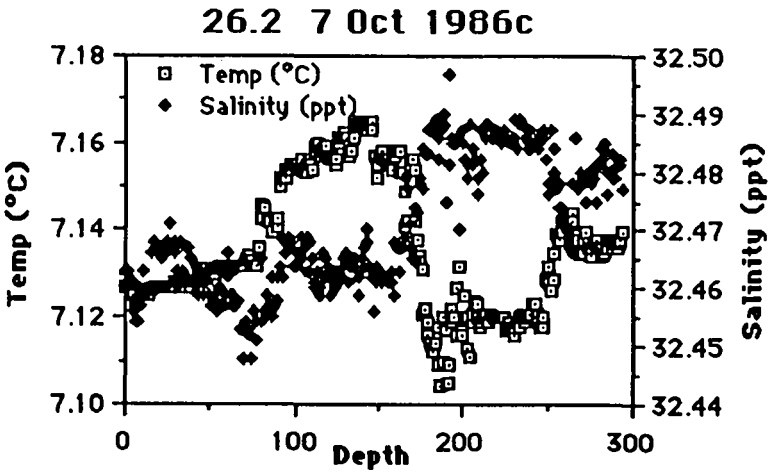

25.1 30 Sept 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

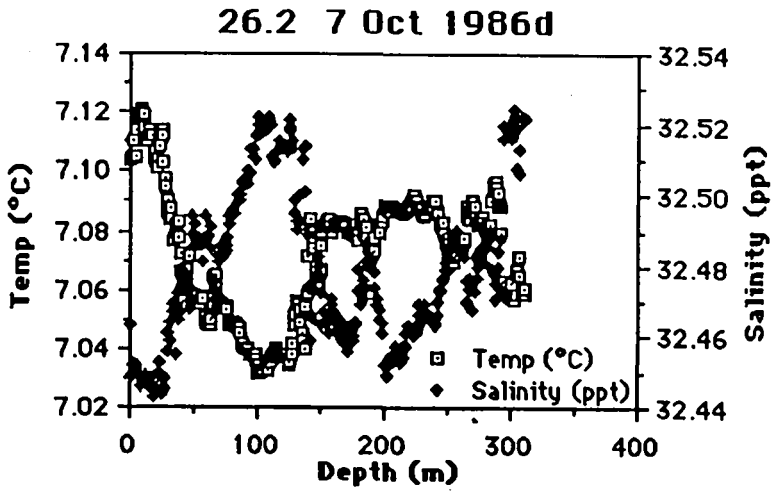

26.2 07 Oct 86a
Temp (°C)
Salinity (ppt)
Depth (m)
7.22
7.20
7.18
7.16
7.14
7.12
7.10
32.52
32.50
32.48
32.46
32.44
0
100
200
300
400

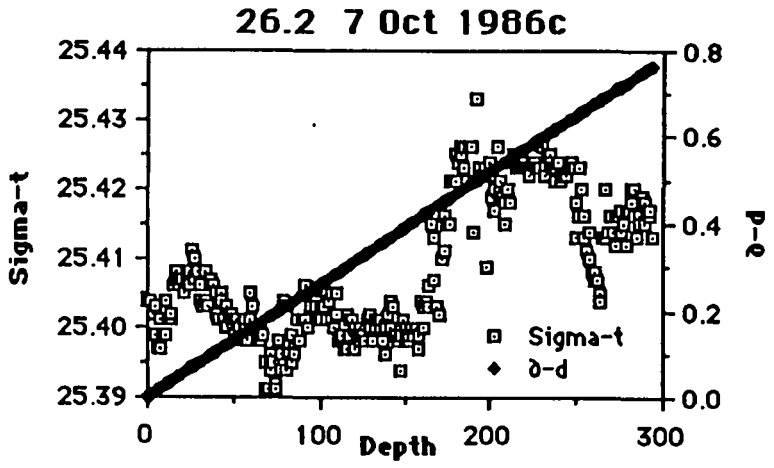

26.2 7 Oct 1986b
Temp (°C)
Salinity (ppt)
Depth (m)
7.16
7.15
7.14
7.13
7.12
7.11
7.10
32.45
32.44
32.43
32.42
32.41
32.40
0
100
200
300

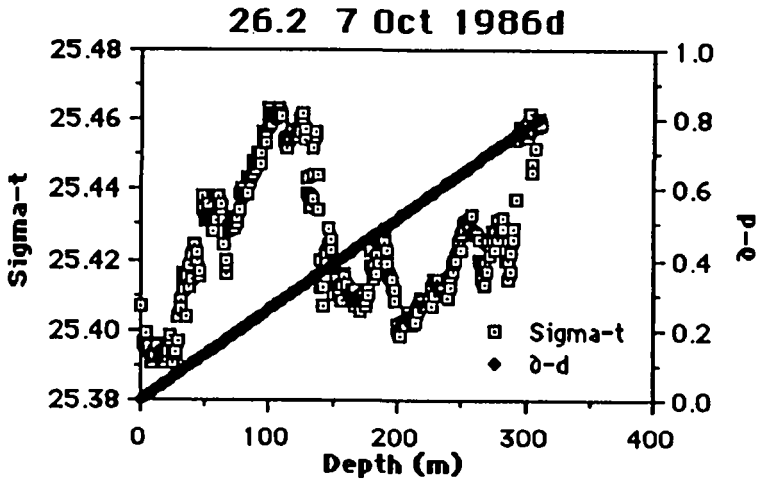

26.2 7 Oct 1986a
Sigma-t
∂-d
Depth (m)
25.46
25.44
25.42
25.40
25.38
25.36
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400

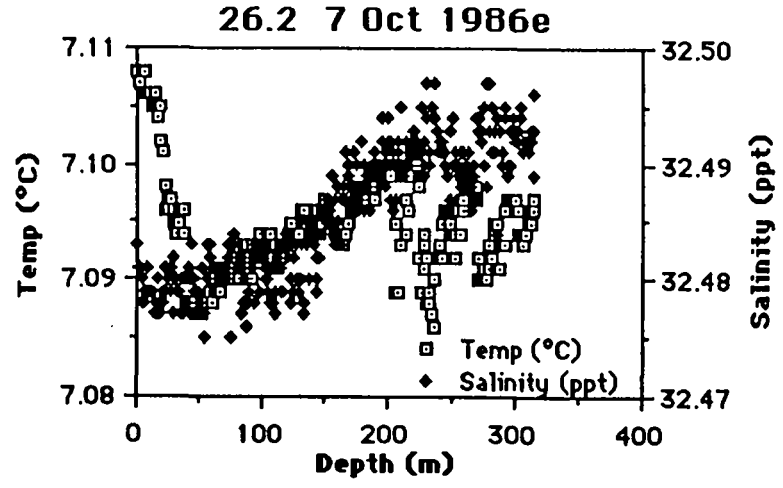

26.2 7 Oct 1986b
Sigma-t
∂-d
Depth (m)
25.40
25.39
25.38
25.37
25.36
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
100
200
300

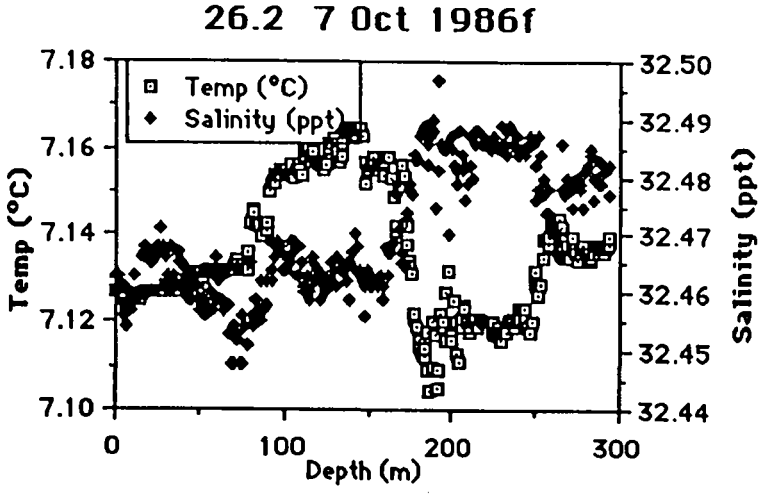

26.2 7 Oct 1986c
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth
7.18
7.16
7.14
7.12
7.10
32.50
32.49
32.48
32.47
32.46
32.45
32.44
0
100
200
300

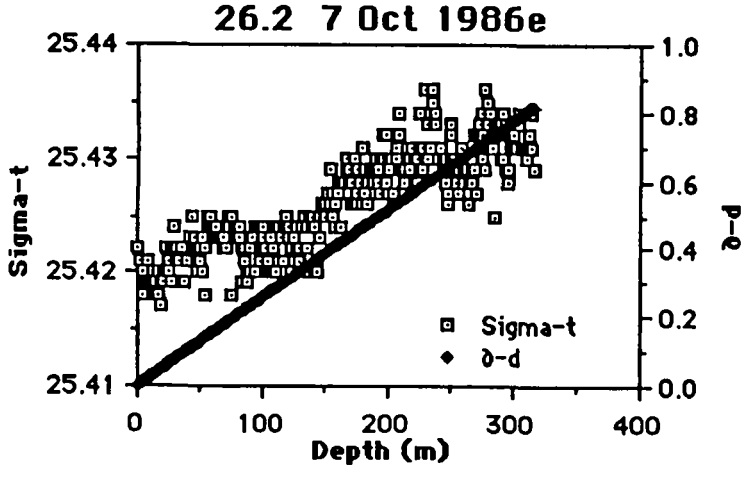

26.2 7 Oct 1986d
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
7.14
7.12
7.10
7.08
7.06
7.04
7.02
32.54
32.52
32.50
32.48
32.46
32.44
0
100
200
300
400

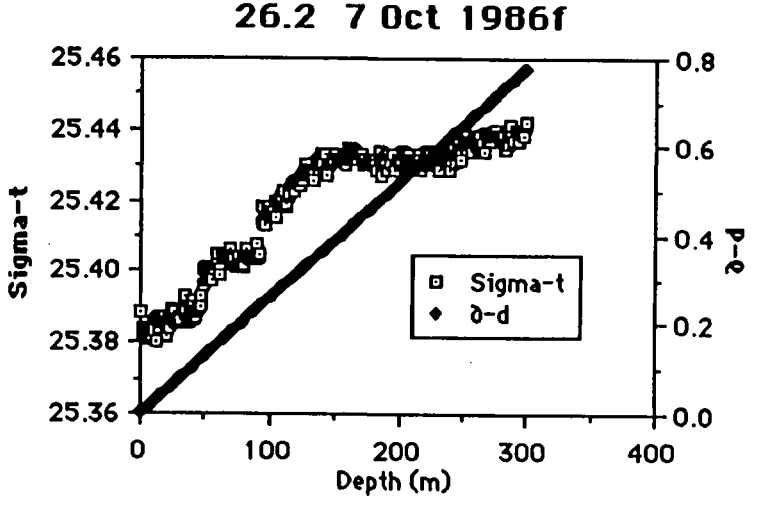

26.2 7 Oct 1986c
Sigma-t
∂-d
Sigma-t
∂-d
Depth
25.44
25.43
25.42
25.41
25.40
25.39
0.8
0.6
0.4
0.2
0.0
0
100
200
300

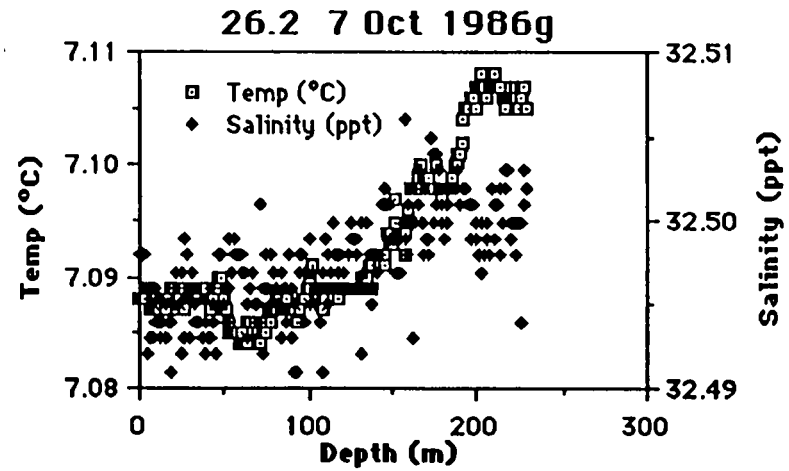

26.2 7 Oct 1986d
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.48
25.46
25.44
25.42
25.40
25.38
1.0
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400

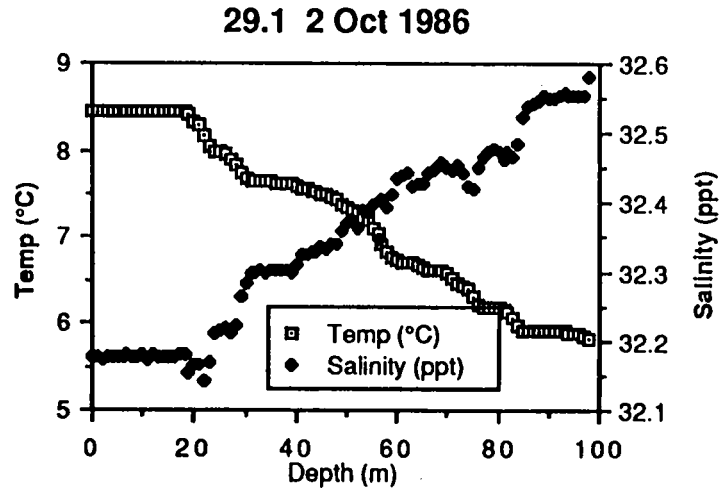

26.2 7 Oct 1986e
Temp (°C)
Salinity (ppt)
Depth (m)
7.11
7.10
7.09
7.08
32.50
32.49
32.48
32.47
0
100
200
300
400

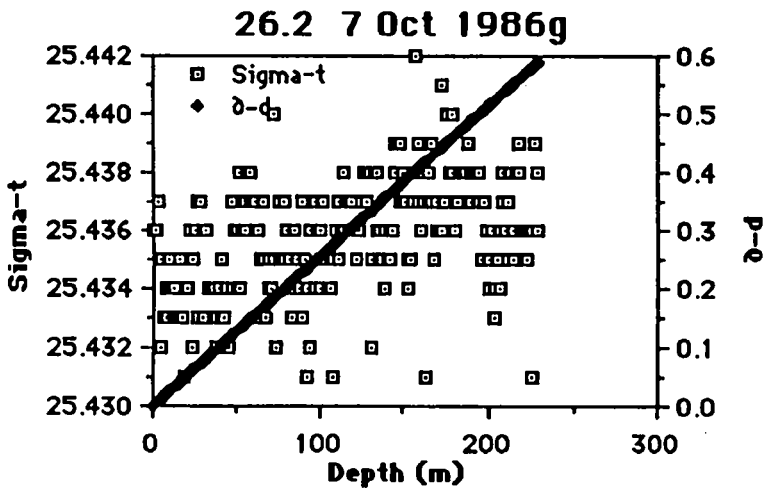

26.2 7 Oct 1986f
Temp (°C)
Salinity (ppt)
Depth (m)
7.18
7.16
7.14
7.12
7.10
32.50
32.49
32.48
32.47
32.46
32.45
32.44
0
100
200
300

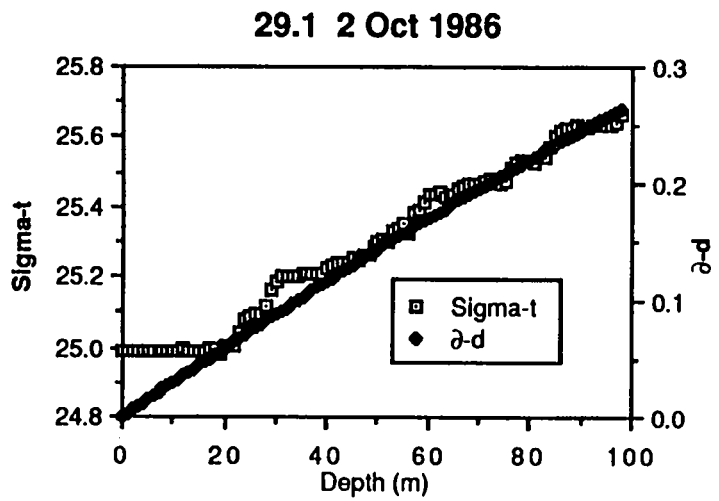

26.2 7 Oct 1986e
Sigma-t
∂-d
Depth (m)
25.44
25.43
25.42
25.41
1.0
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400

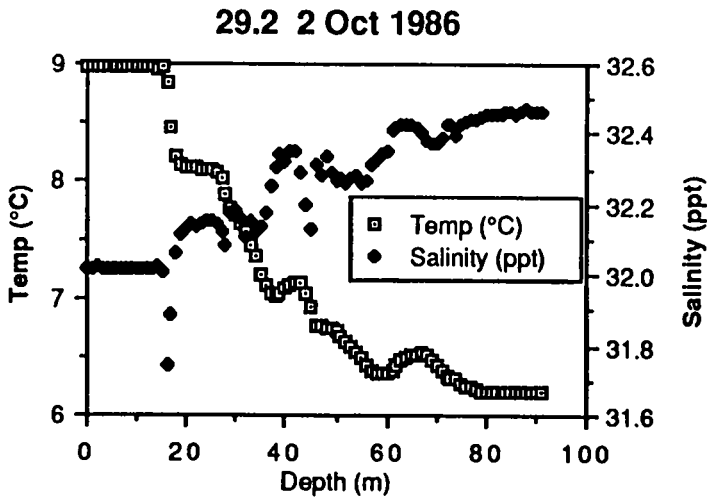

26.2 7 Oct 1986f
Sigma-t
∂-d
Depth (m)
25.46
25.44
25.42
25.40
25.38
25.36
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400

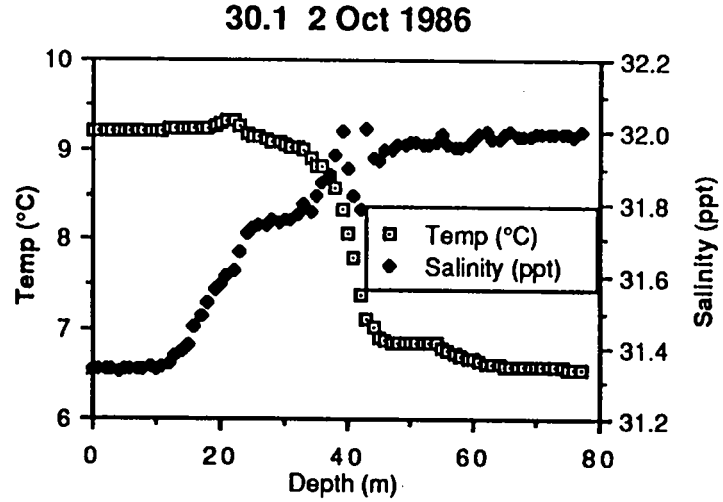

26.2 7 Oct 1986g
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
7.11
7.10
7.09
7.08
32.51
32.50
32.49
0
100
200
300

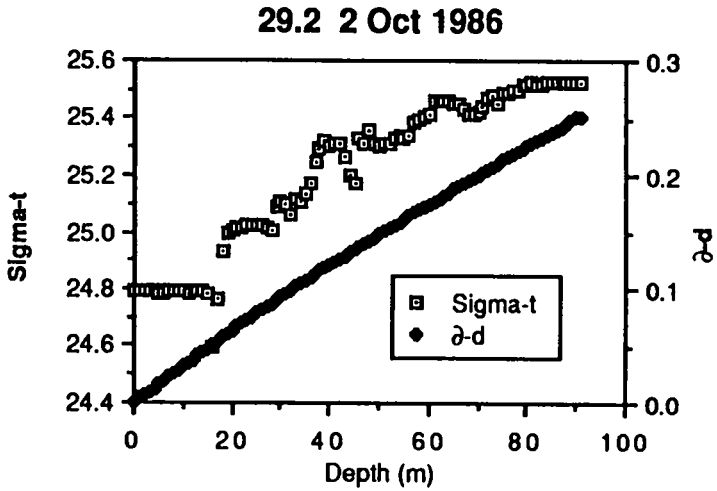

29.1 2 Oct 1986
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
9
8
7
6
5
32.6
32.5
32.4
32.3
32.2
32.1
0
20
40
60
80
100

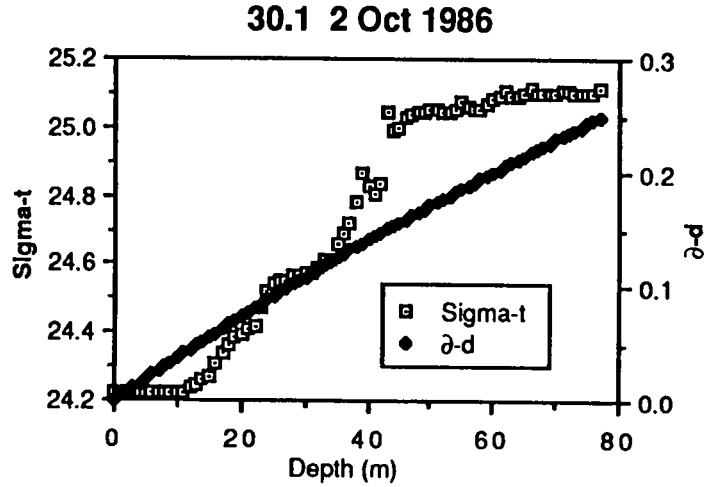

26.2 7 Oct 1986g
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.442
25.440
25.438
25.436
25.434
25.432
25.430
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
100
200
300

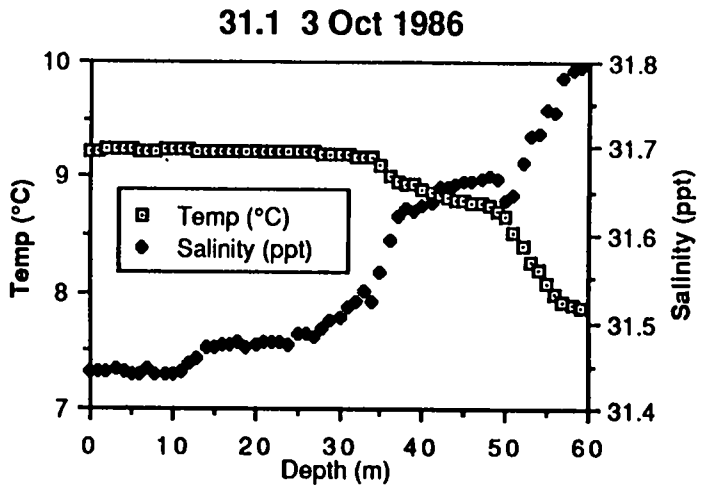

29.1 2 Oct 1986
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.8
25.6
25.4
25.2
25.0
24.8
0.3
0.2
0.1
0.0
0
20
40
60
80
100

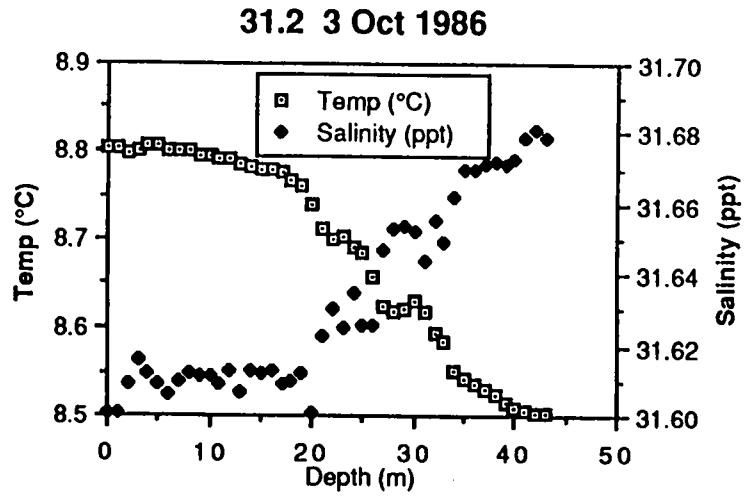

29.2 2 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

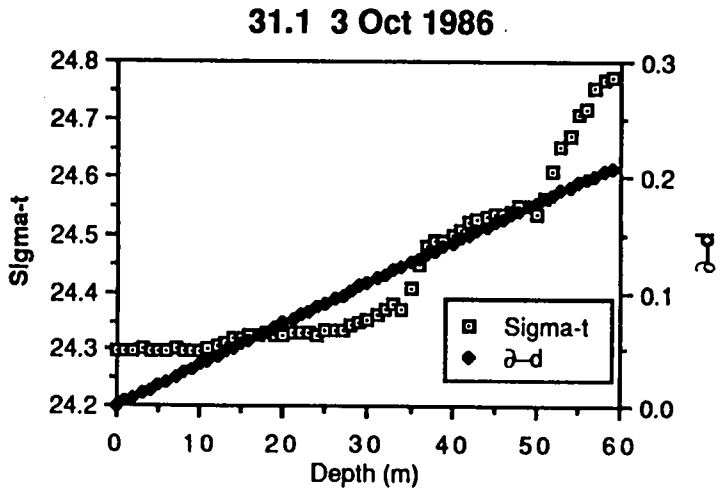

30.1 2 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

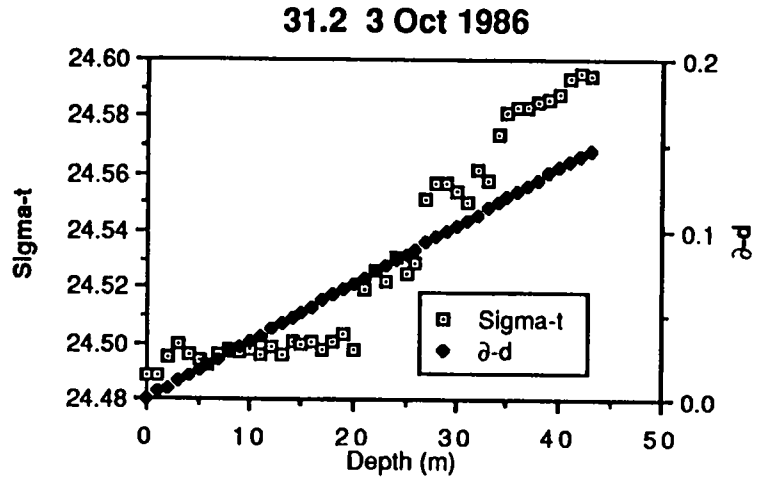

29.2 2 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

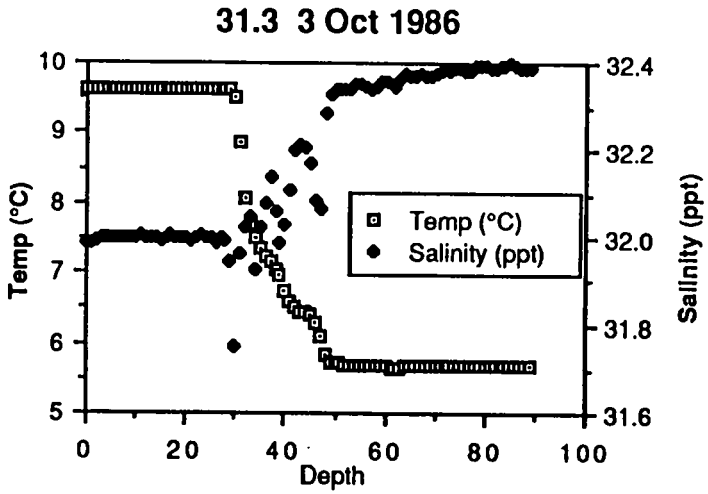

30.1 2 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

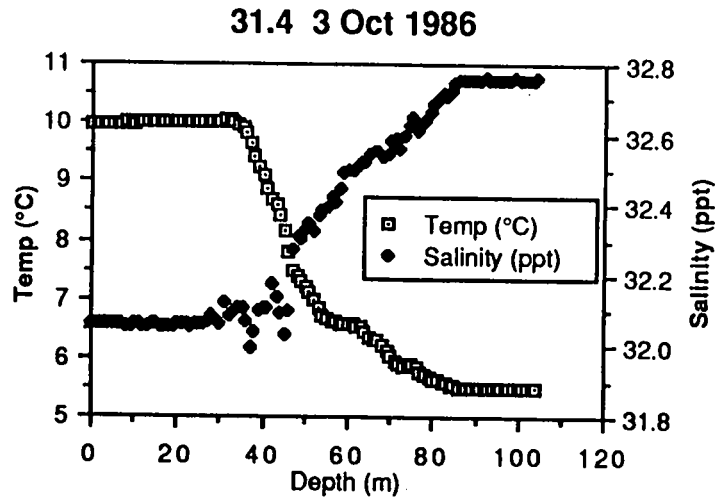

31.1 3 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

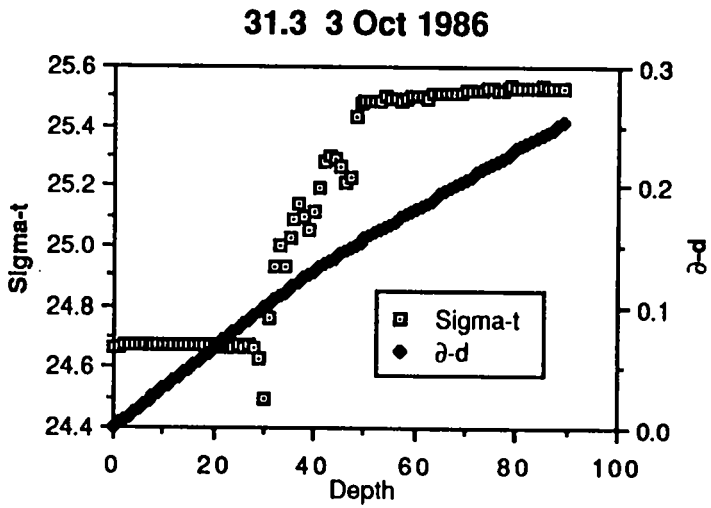

31.2 3 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

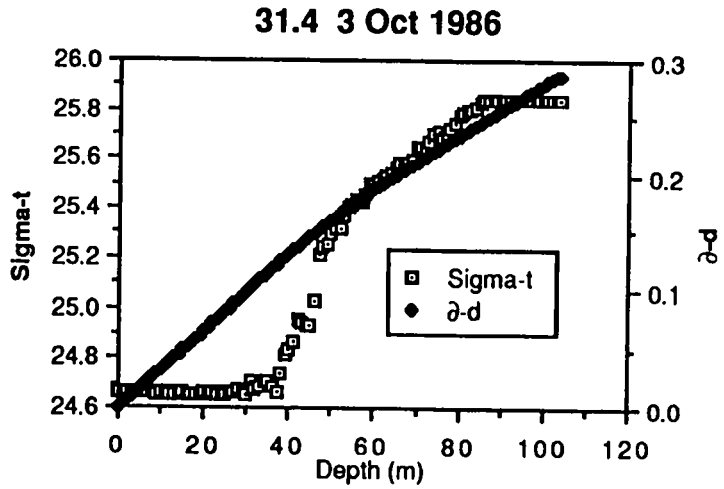

31.1 3 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

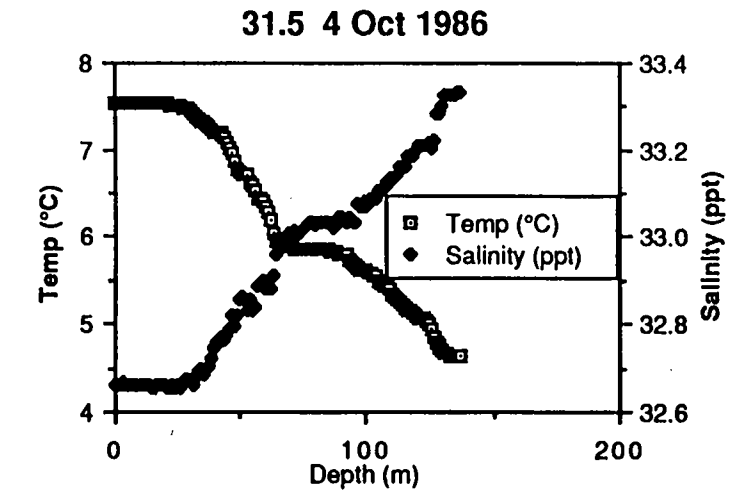

31.2 3 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

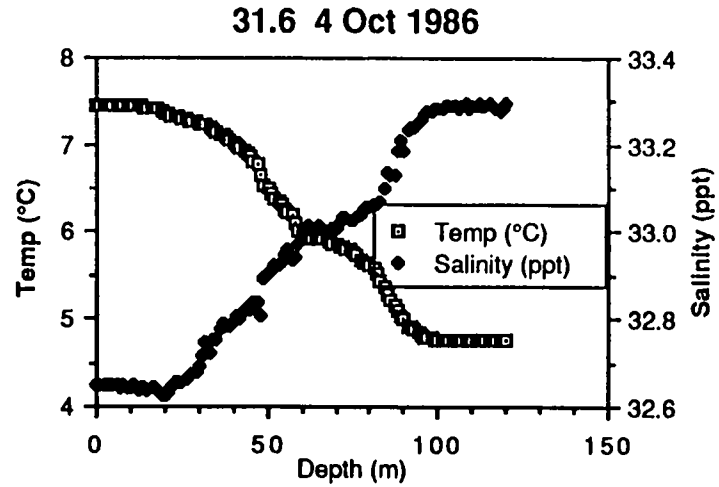

31.3 3 Oct 1986
Temp (°C)
Salinity (ppt)
Depth

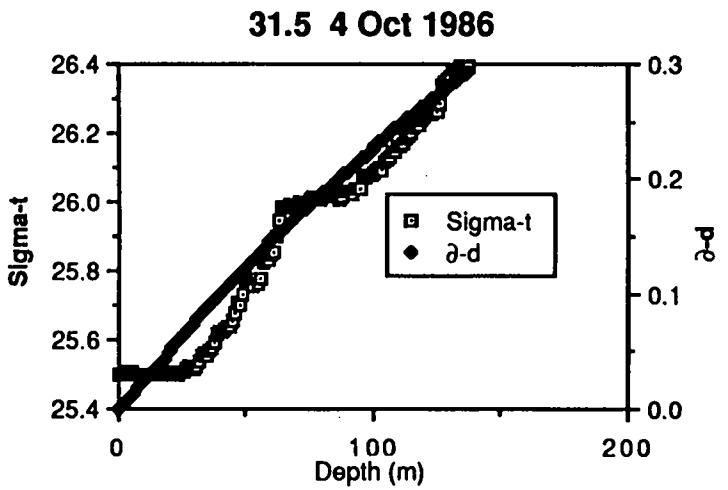

31.4 3 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)

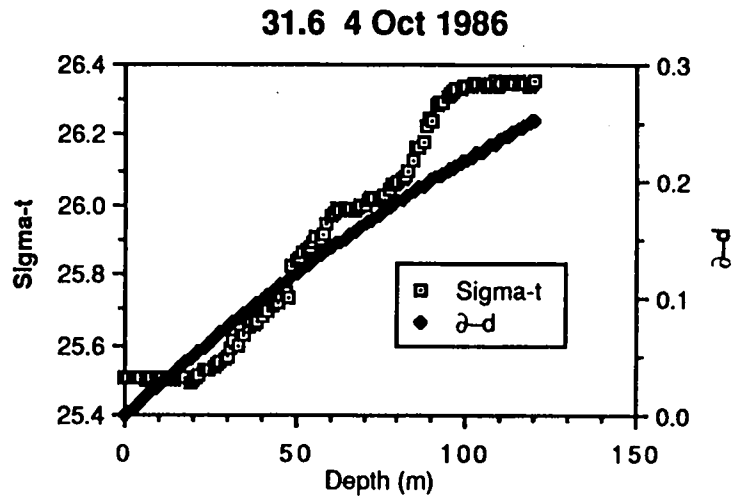

31.3 3 Oct 1986
Sigma-t
∂-d
Depth

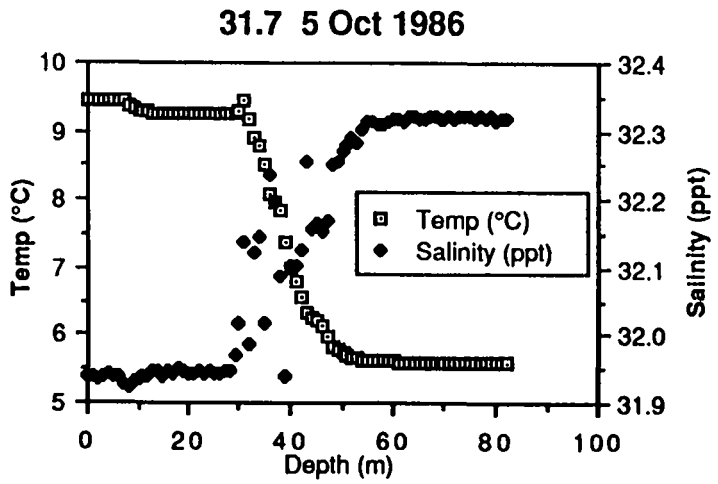

31.4 3 Oct 1986
Sigma-t
∂-d
Depth (m)

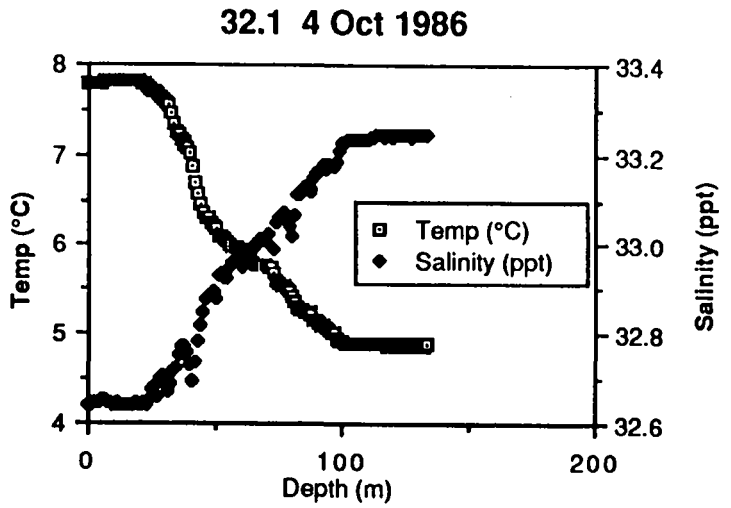

31.5 4 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

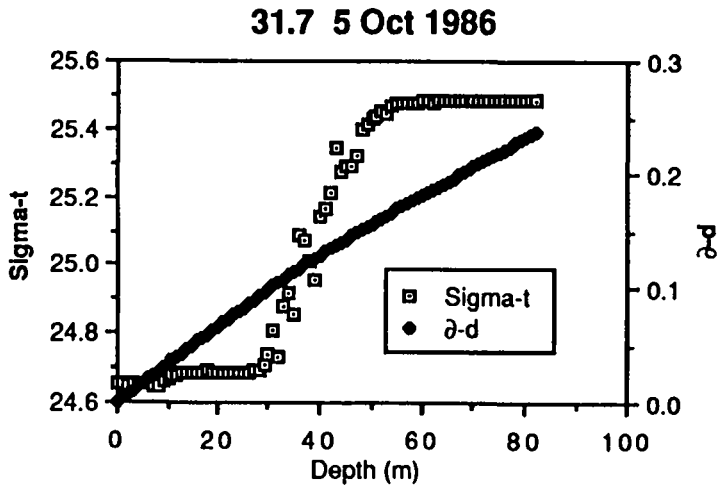

31.6 4 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

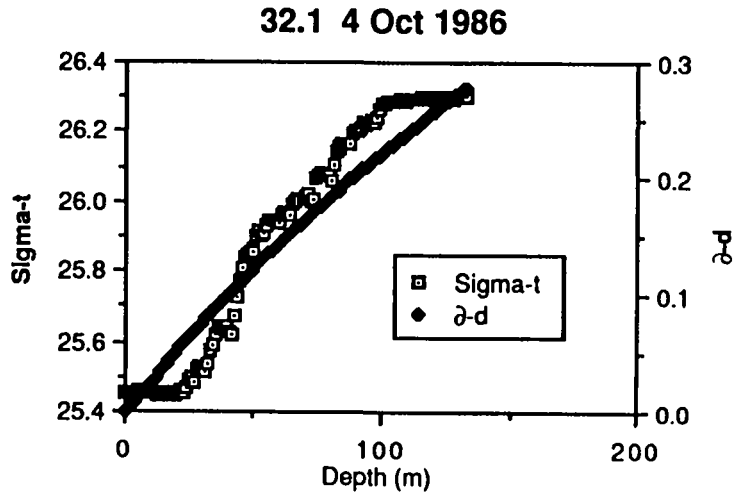

31.5 4 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

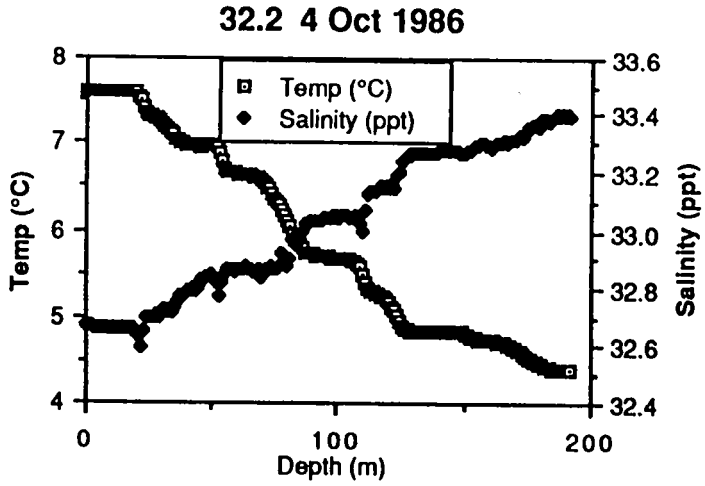

31.6 4 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

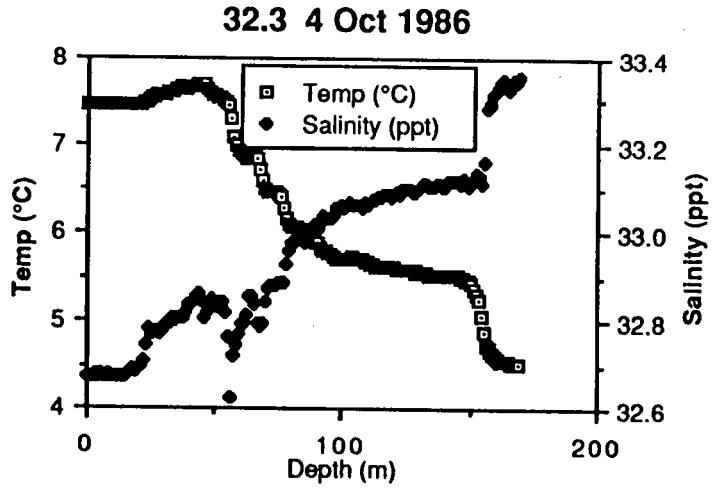

31.7 5 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

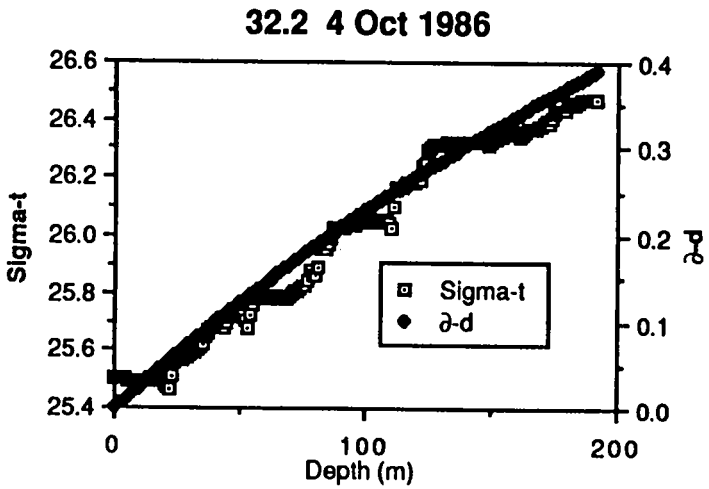

32.1 4 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

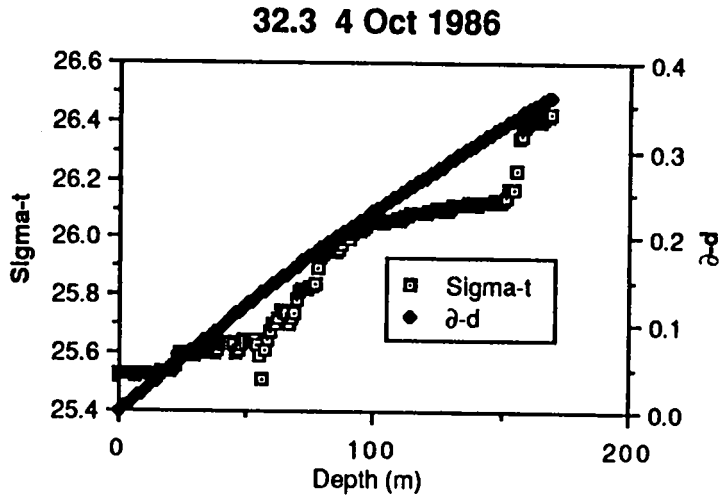

31.7 5 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

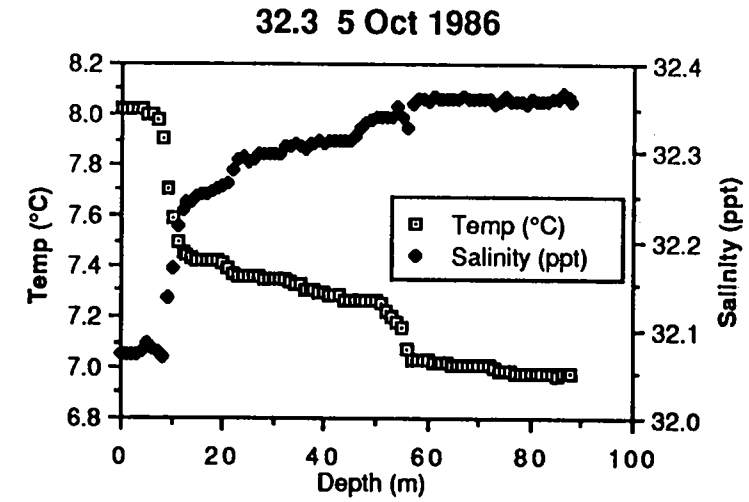

32.1 4 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

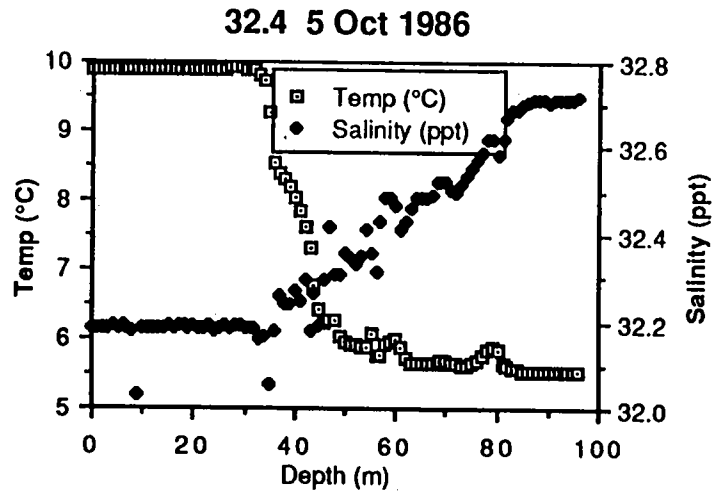

32.2 4 Oct 1986
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
8
7
6
5
4
33.6
33.4
33.2
33.0
32.8
32.6
32.4
0
100
200

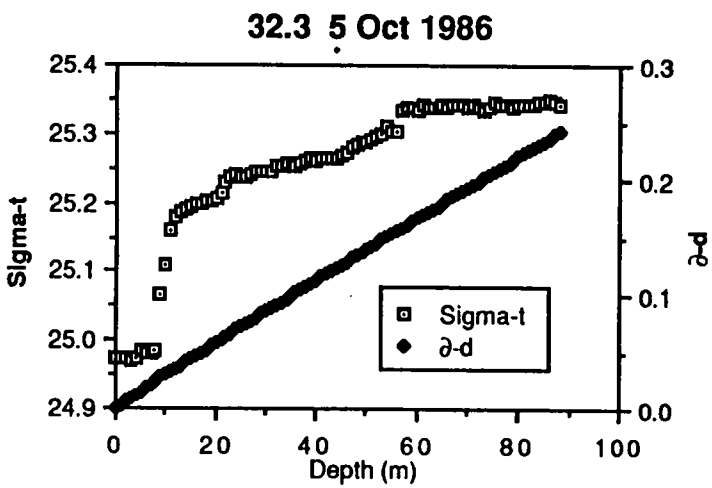

32.3 4 Oct 1986
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
8
7
6
5
4
33.4
33.2
33.0
32.8
32.6
0
100
200

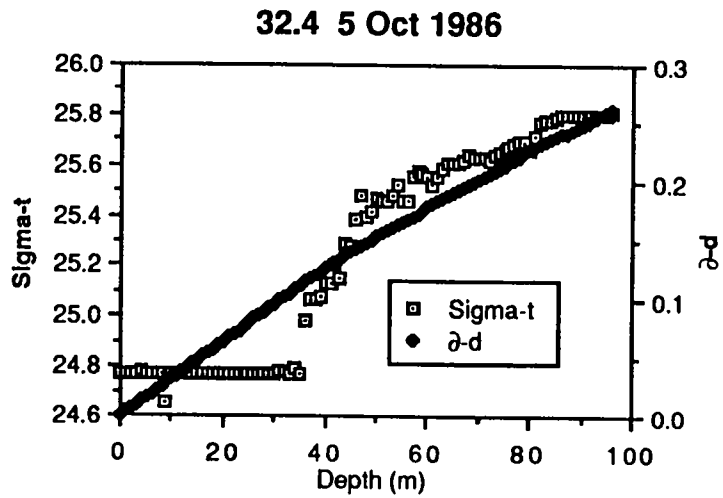

32.2 4 Oct 1986
Sigma-t
Sigma-t
∂-d
∂-d
Depth (m)
26.6
26.4
26.2
26.0
25.8
25.6
25.4
0.4
0.3
0.2
0.1
0.0
0
100
200

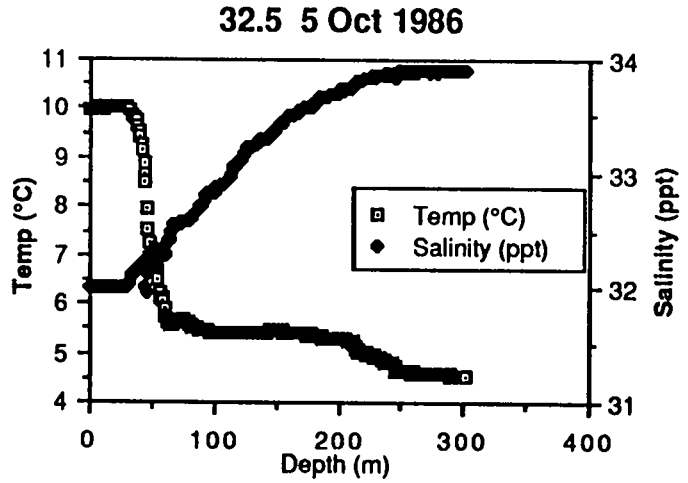

32.3 4 Oct 1986
Sigma-t
Sigma-t
∂-d
∂-d
Depth (m)
26.6
26.4
26.2
26.0
25.8
25.6
25.4
0.4
0.3
0.2
0.1
0.0
0
100
200

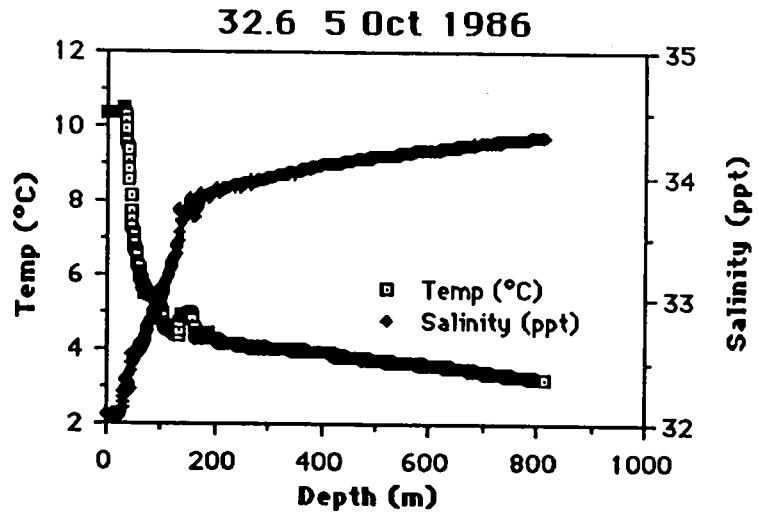

32.3 5 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

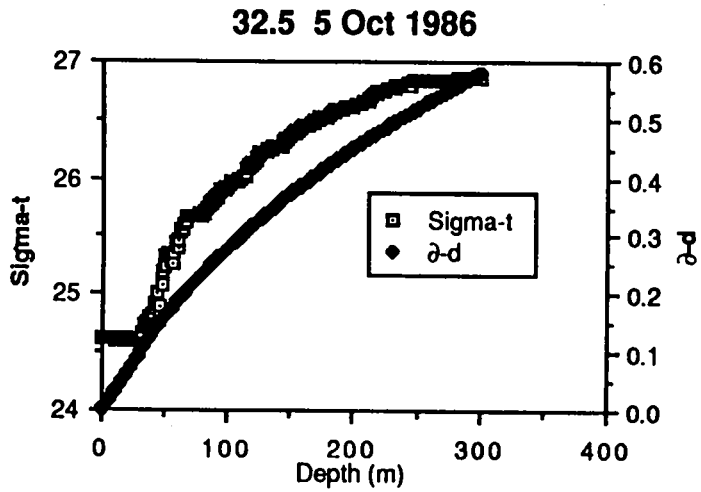

32.4 5 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

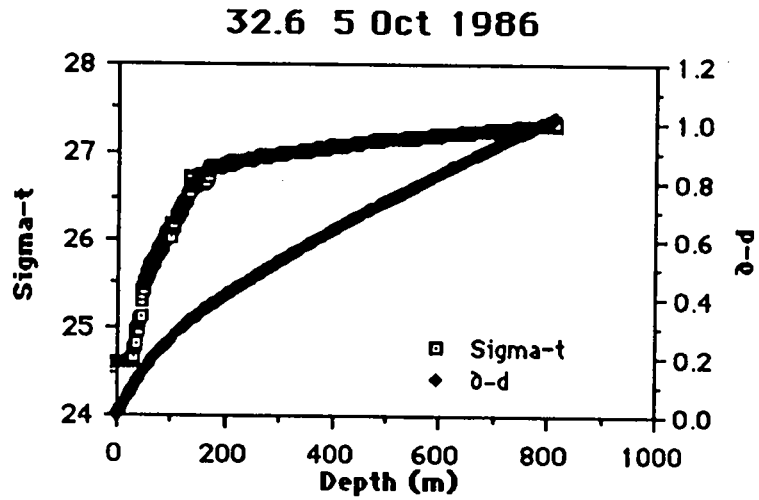

32.3 5 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d


32.4 5 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d


32.5 5 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

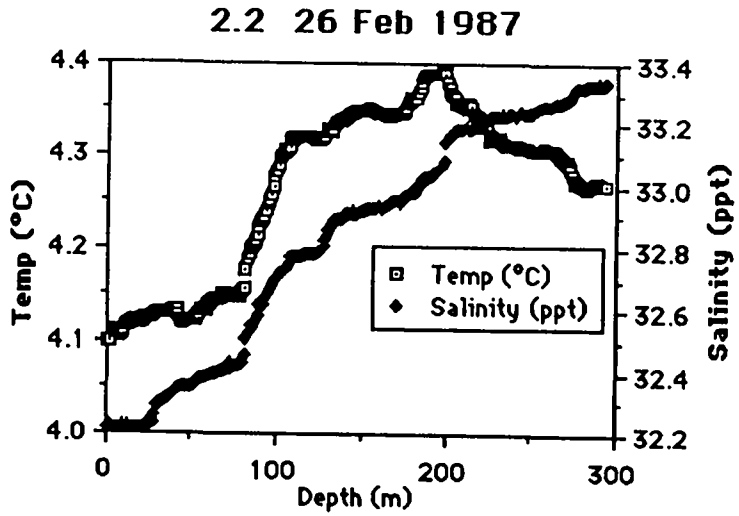

32.6 5 Oct 1986
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

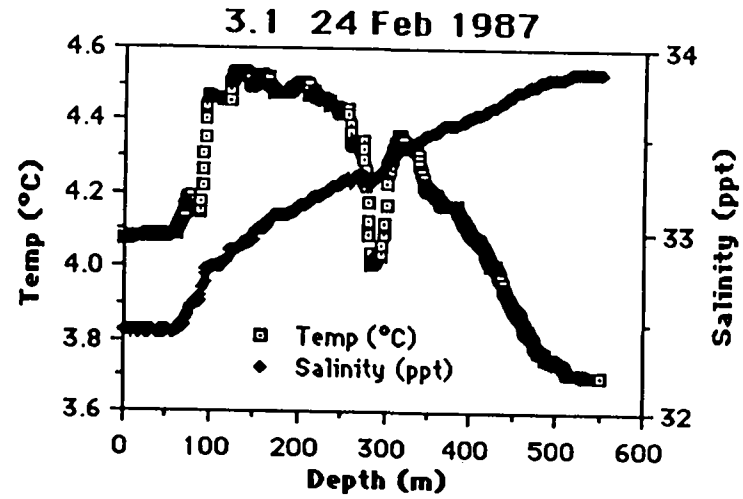

32.5 5 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

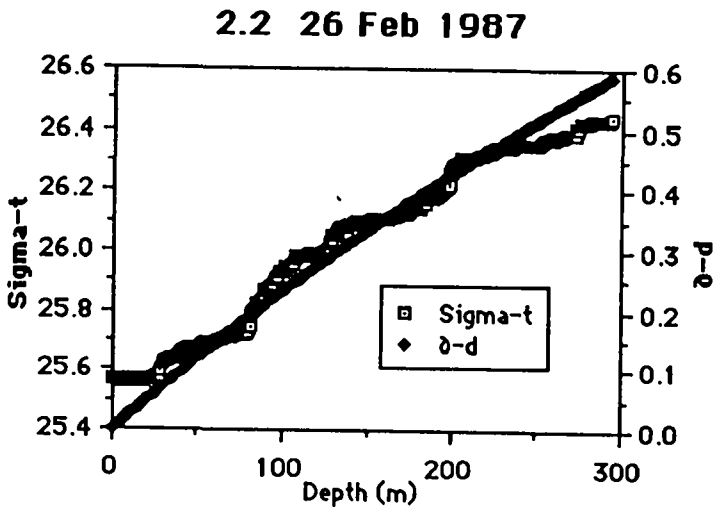

32.6 5 Oct 1986
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

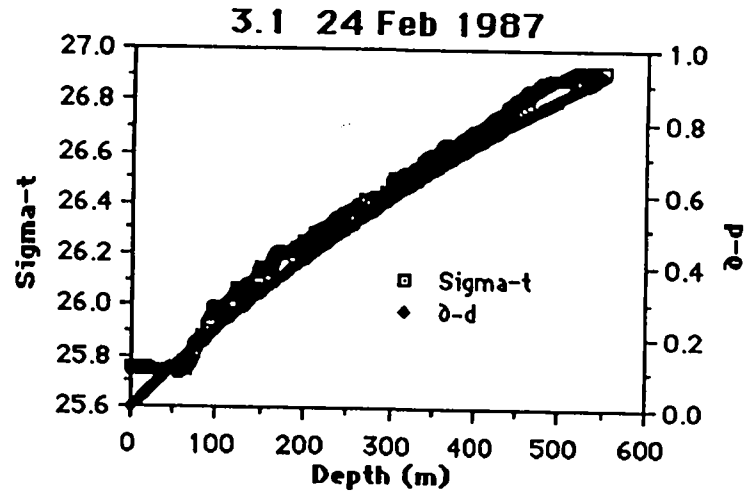
APPENDIX B-2

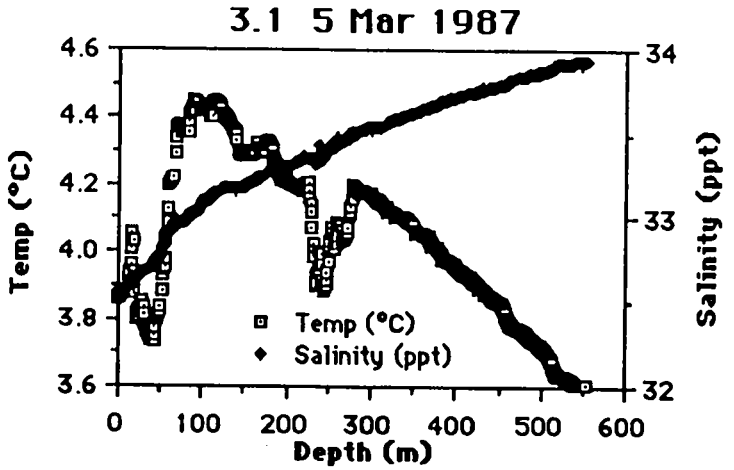
Temperature and salinity vertical profiles as determined by CTD casts at sampling stations in winter 1987 in the Unimak Pass area, Alaska. Sampling station numbers (tops of graphs) can be matched with their locations in Fig. 3 of Appendix E.

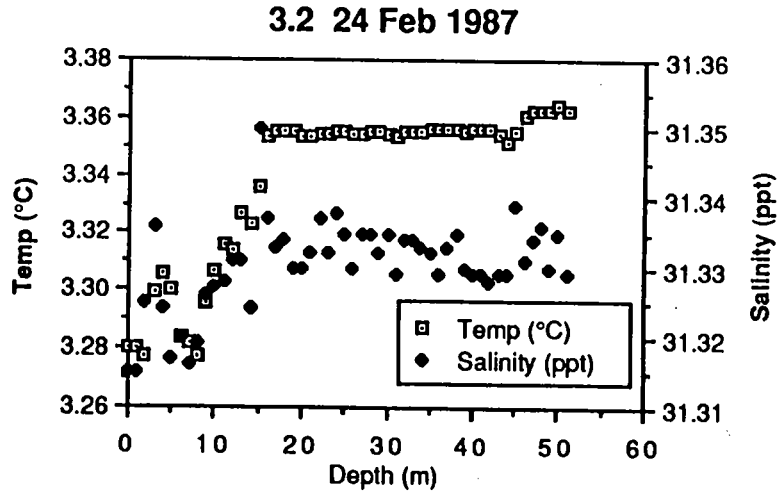

2.2 26 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

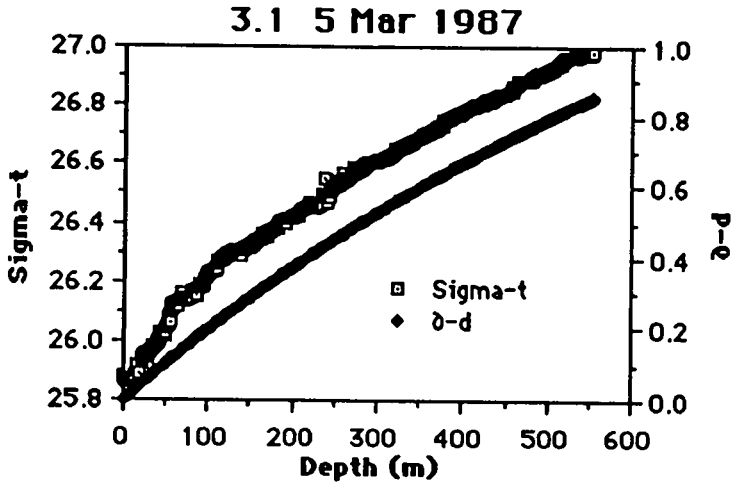

3.1 24 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

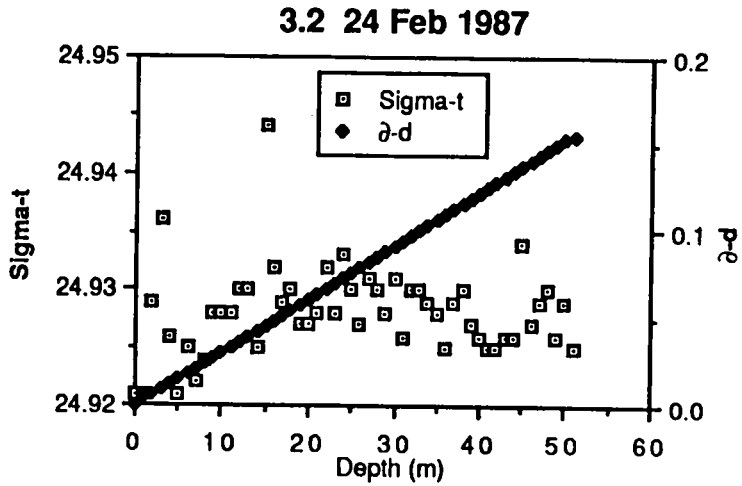

2.2 26 Feb 1987
Sigma-t
δ-d
Depth (m)
Sigma-t
δ-d

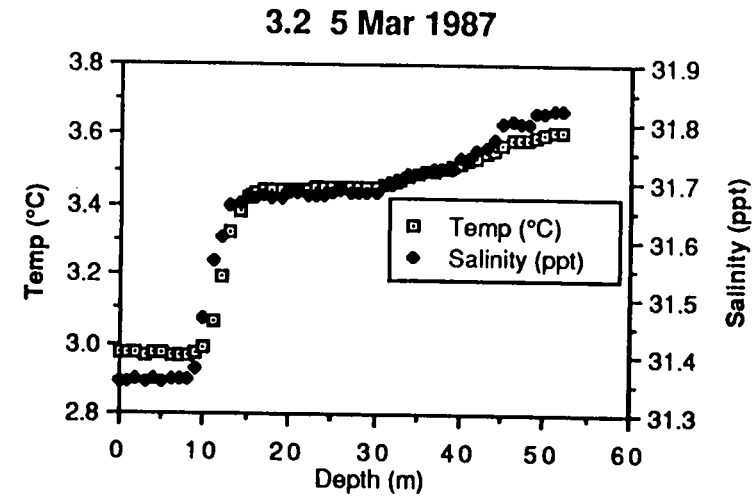

3.1 24 Feb 1987
Sigma-t
δ-d
Depth (m)
Sigma-t
δ-d

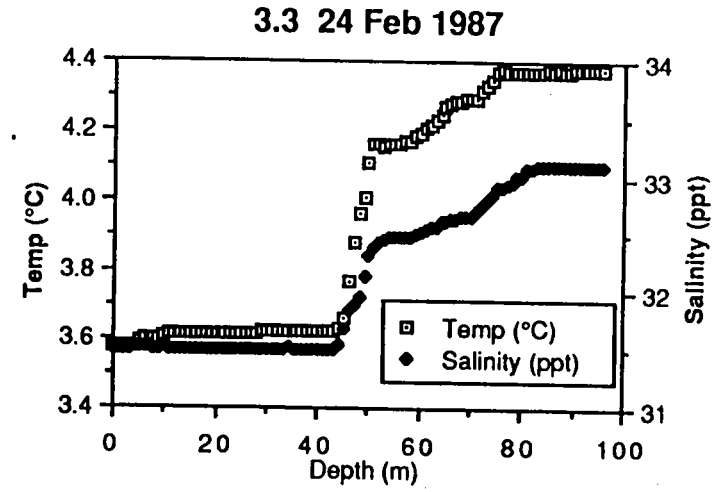

3.1 5 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

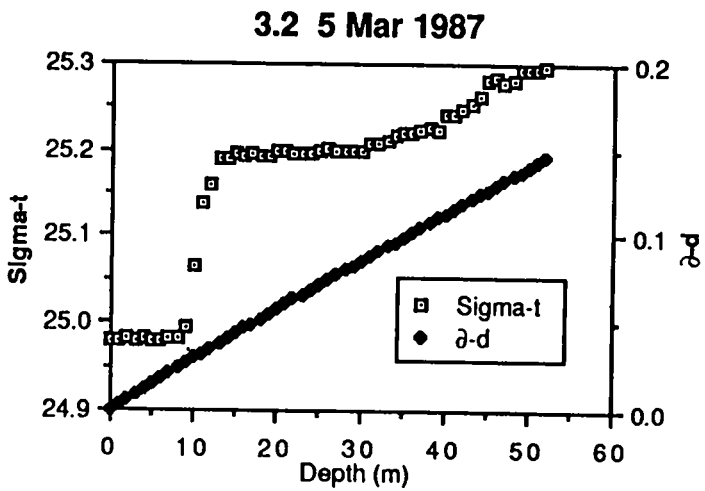

3.2 24 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

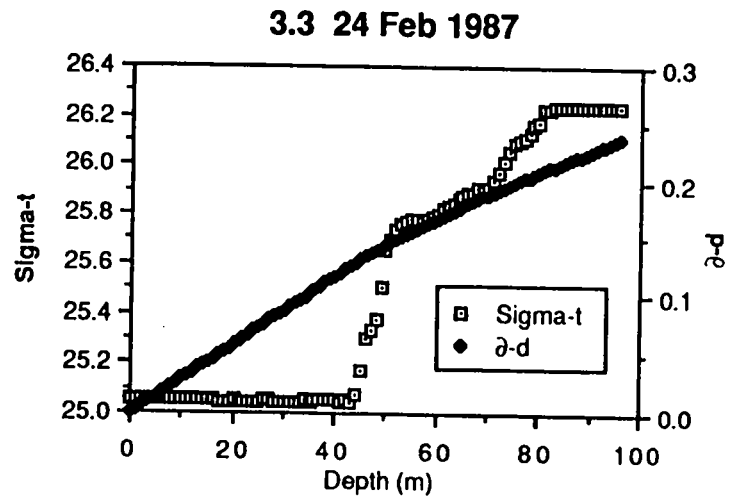

3.1 5 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

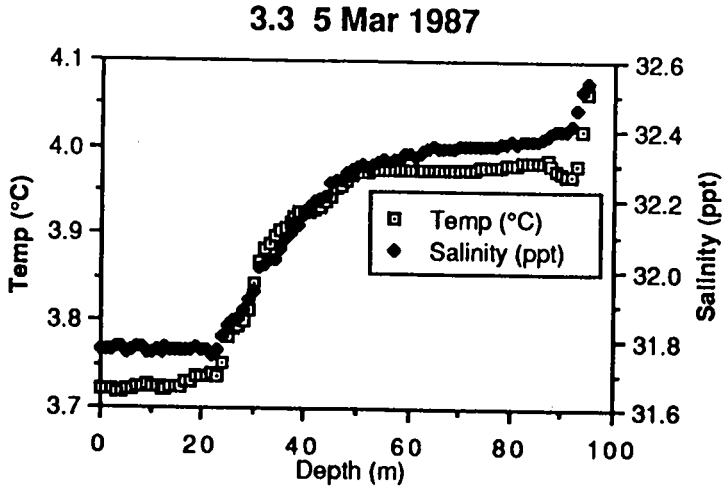

3.2 24 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

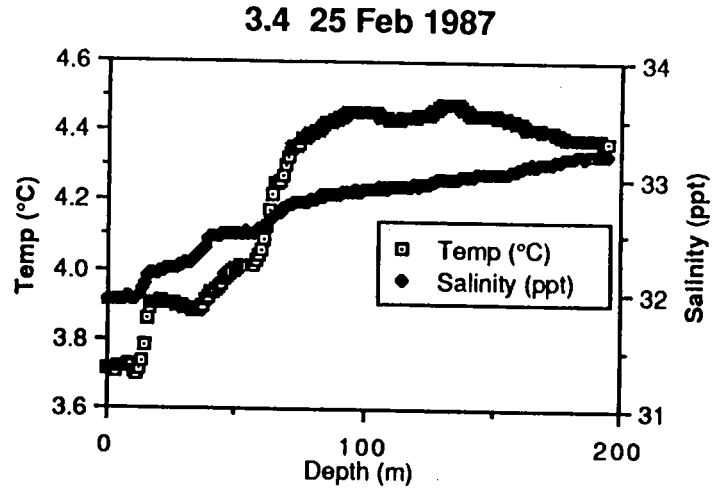

3.2 5 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

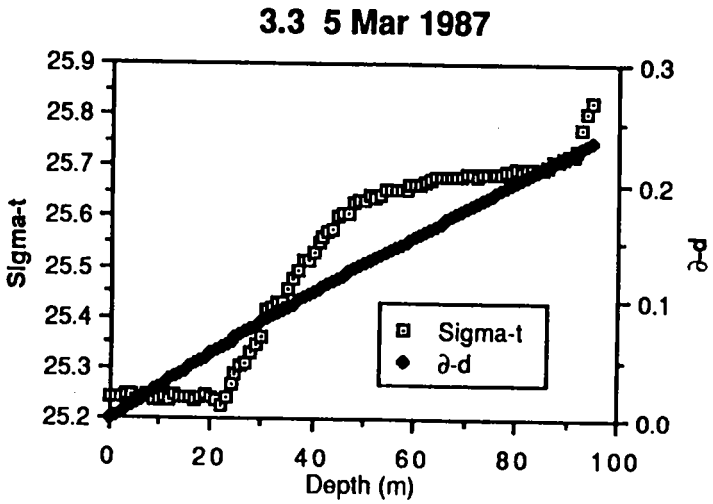

3.3 24 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

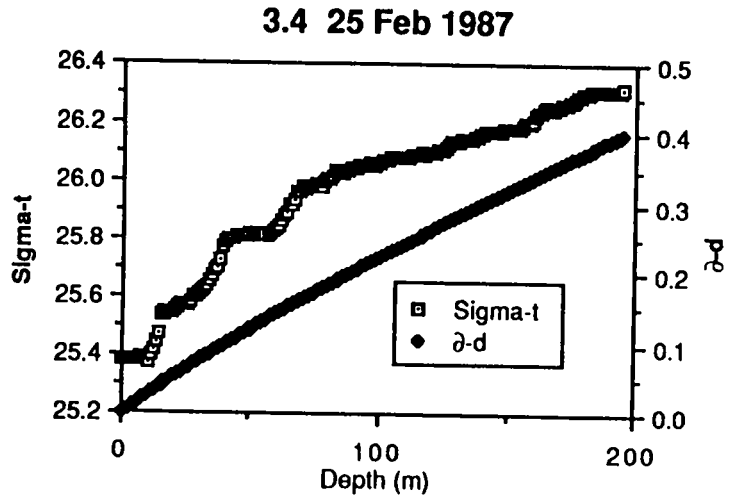

3.2 5 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

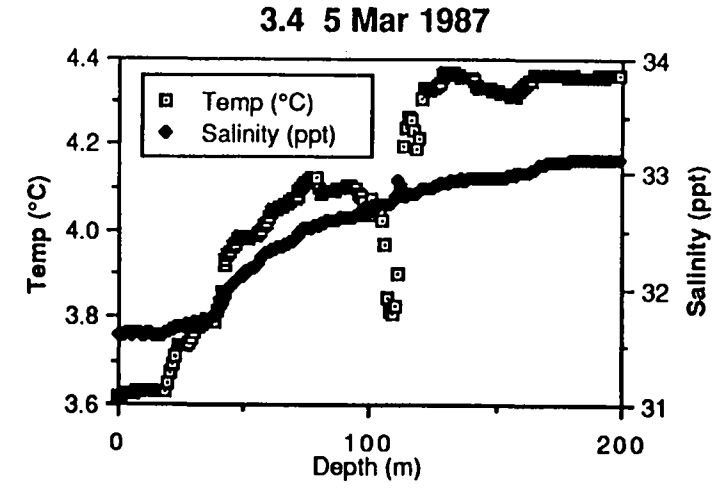

3.3 24 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

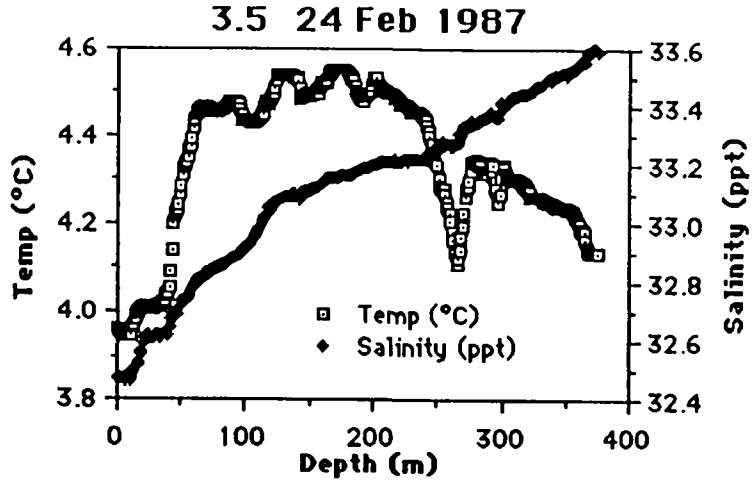

3.3 5 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

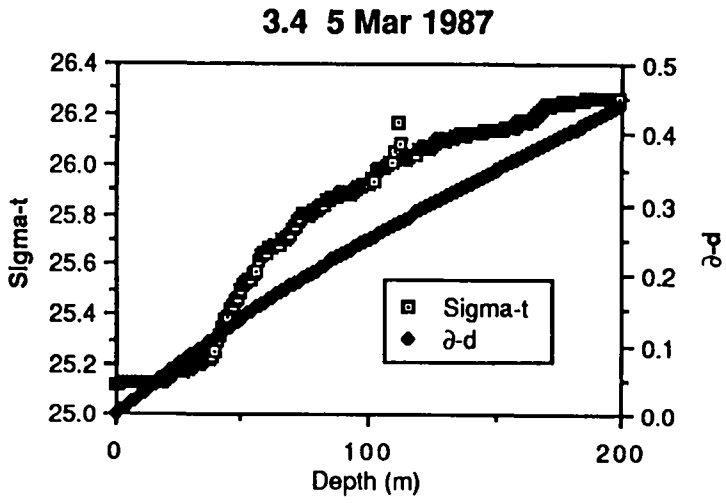

3.4 25 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

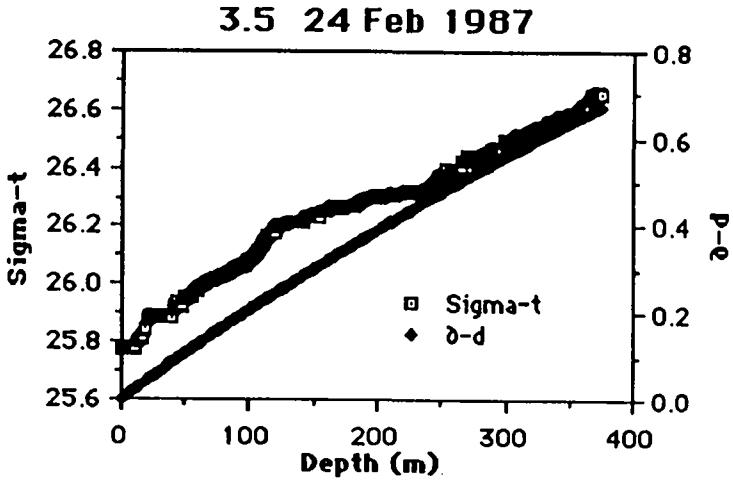

3.3 5 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

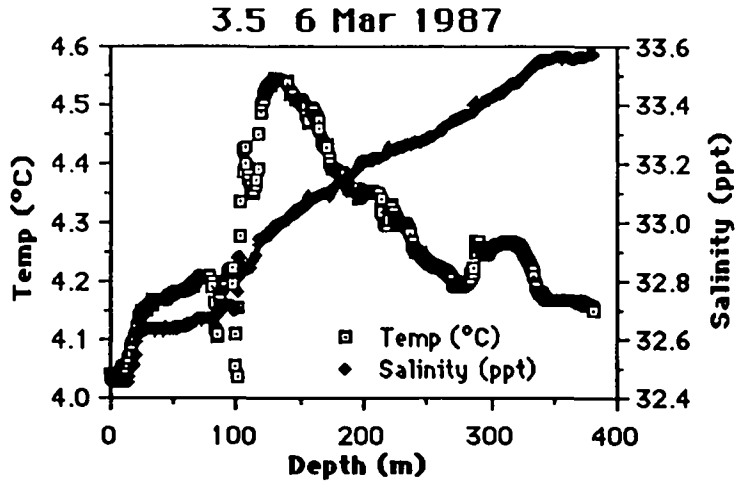

3.4 25 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

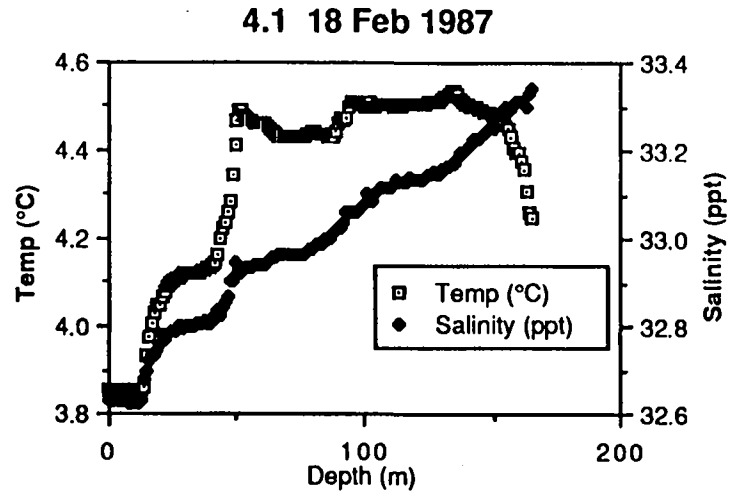

3.4 5 Mar 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.4
4.2
4.0
3.8
3.6
34
33
32
31
0
100
200

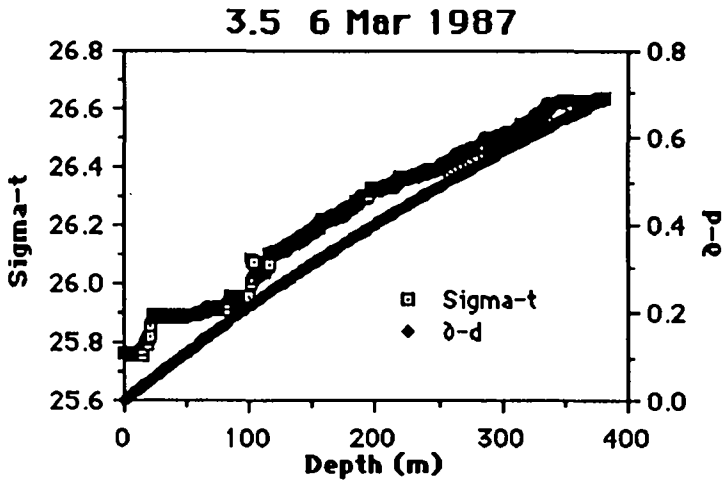

3.5 24 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.6
4.4
4.2
4.0
3.8
33.6
33.4
33.2
33.0
32.8
32.6
32.4
0
100
200
300
400

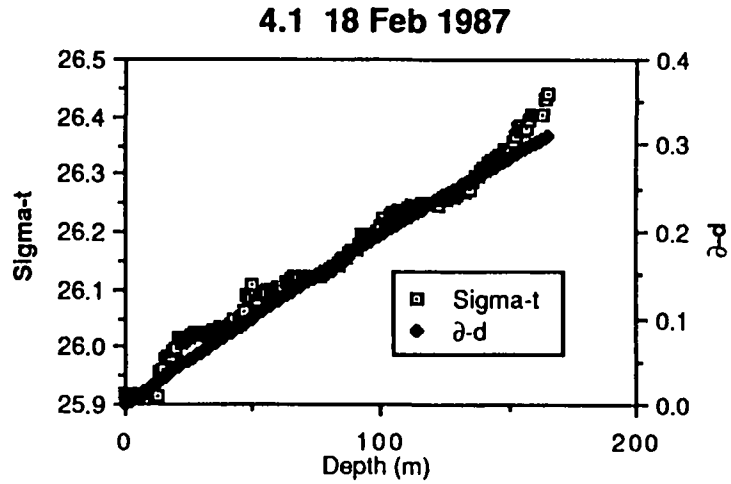

3.4 5 Mar 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.4
26.2
26.0
25.8
25.6
25.4
25.2
25.0
0.5
0.4
0.3
0.2
0.1
0.0
0
100
200

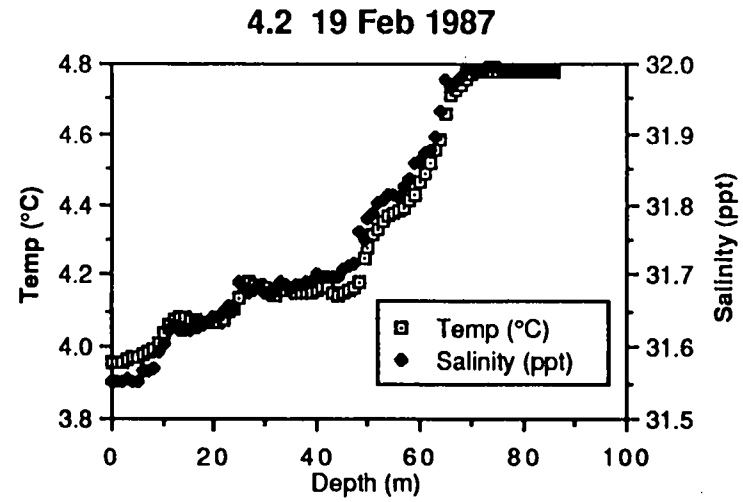

3.5 24 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.8
26.6
26.4
26.2
26.0
25.8
25.6
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400

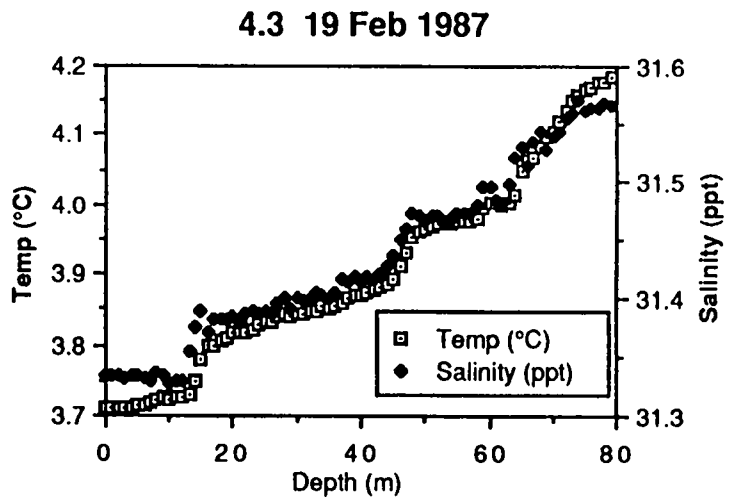

3.5 6 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

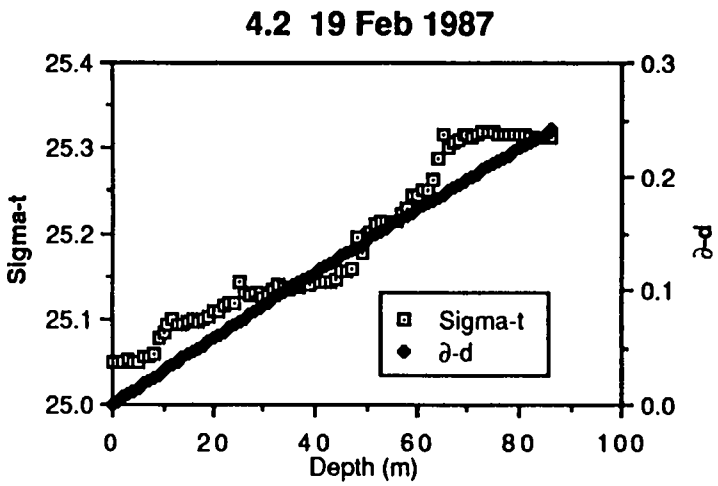

4.1 18 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

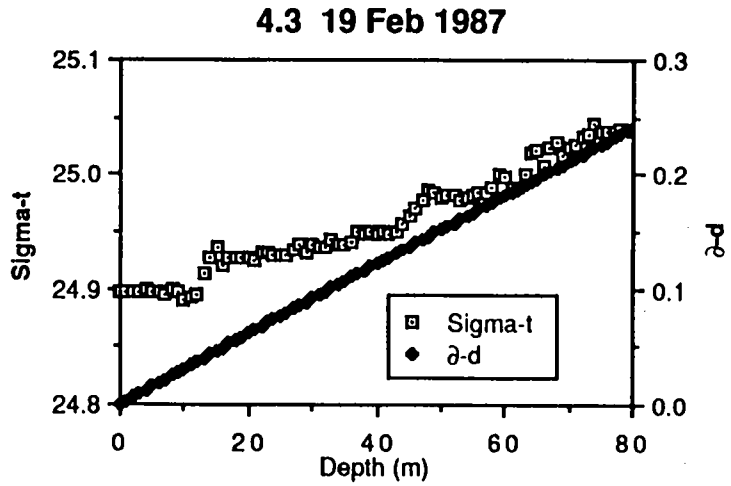

3.5 6 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

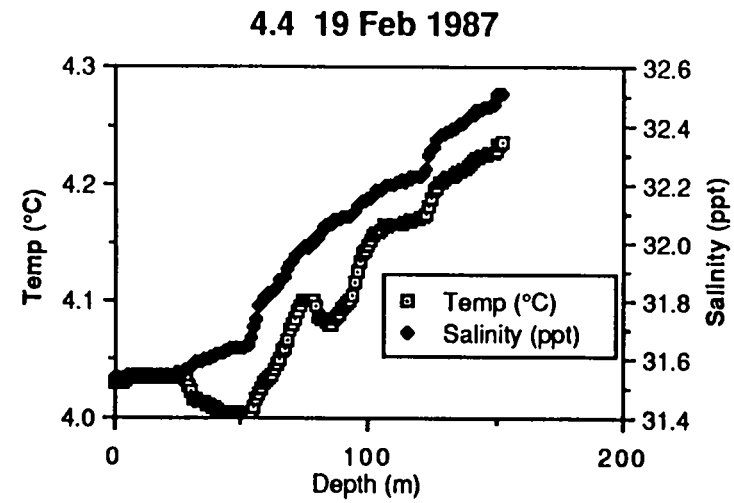

4.1 18 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

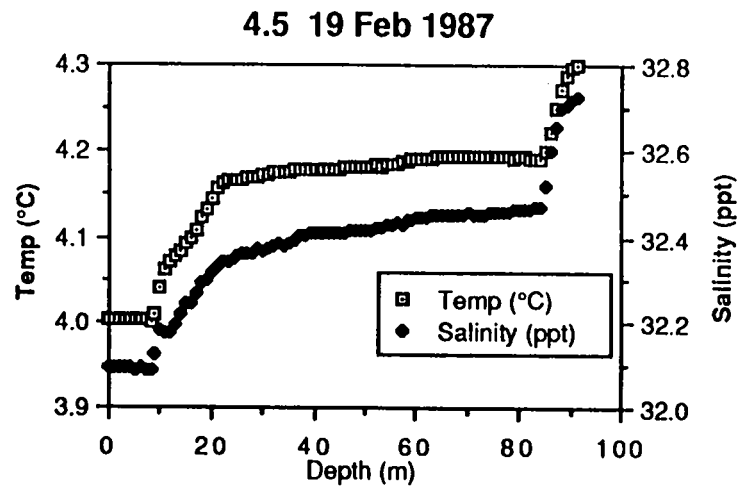

4.2 19 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

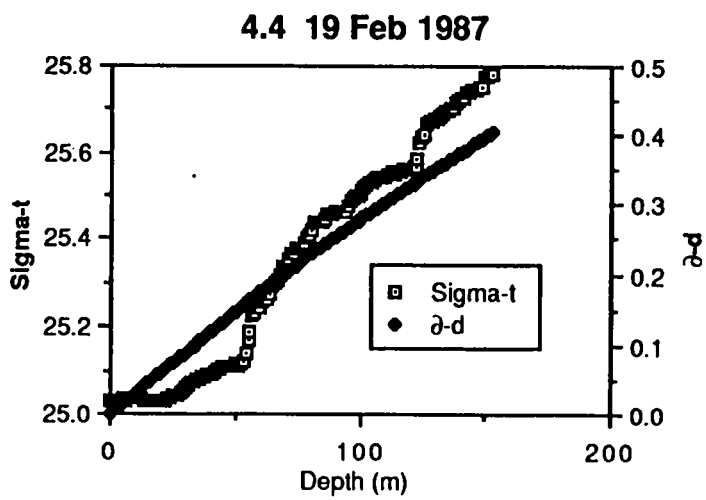

4.3 19 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

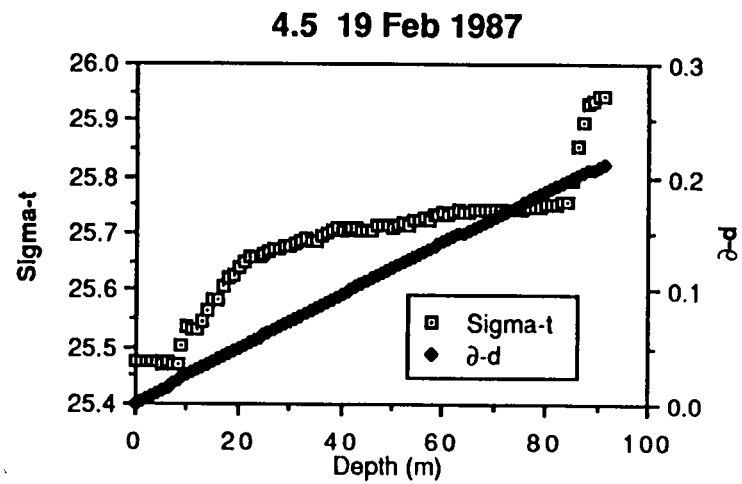

4.2 19 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

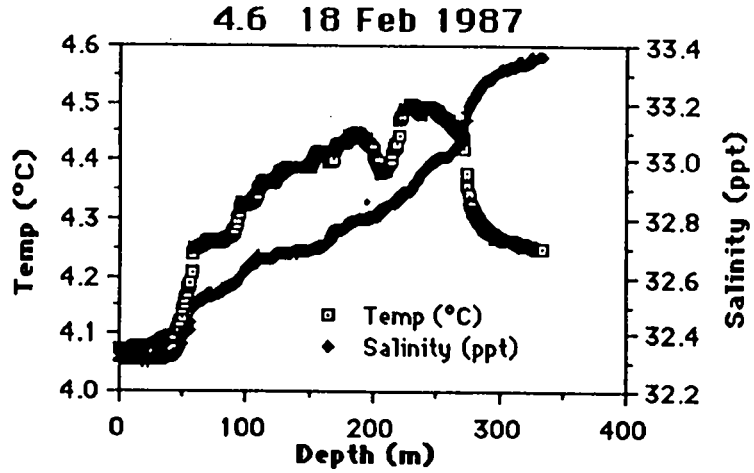

4.3 19 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

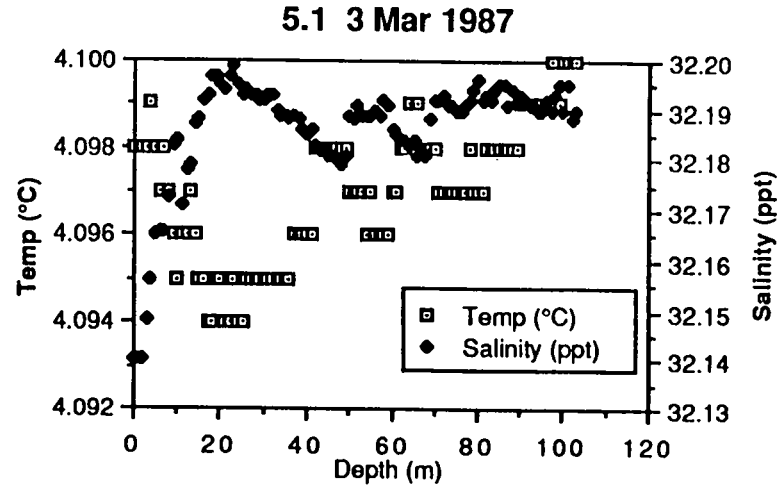

4.4 19 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

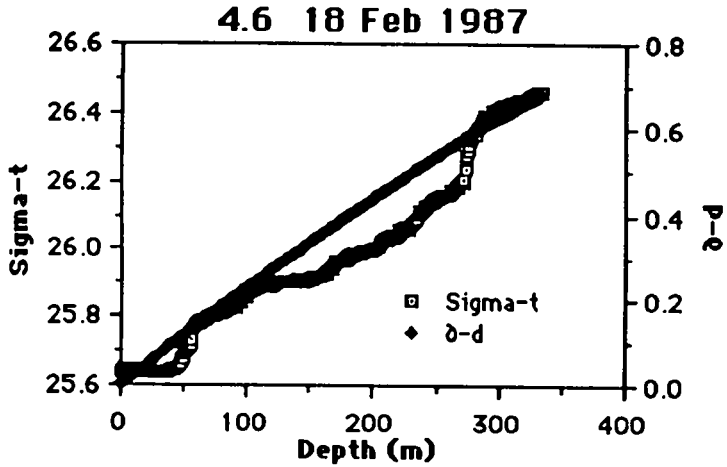

4.5 19 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

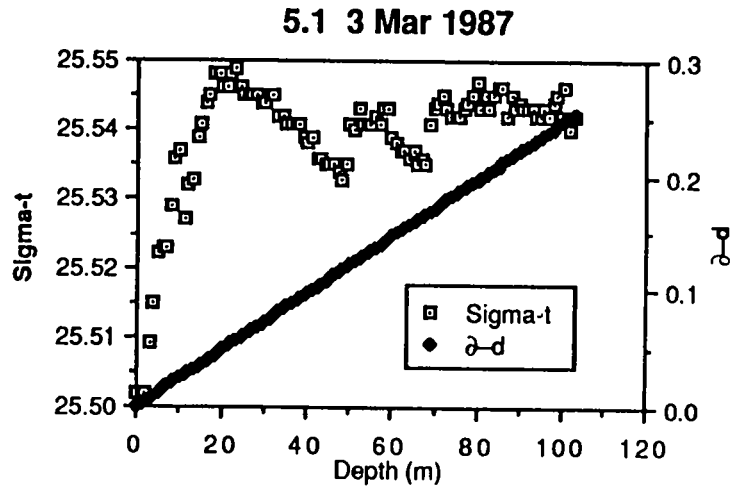

4.4 19 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

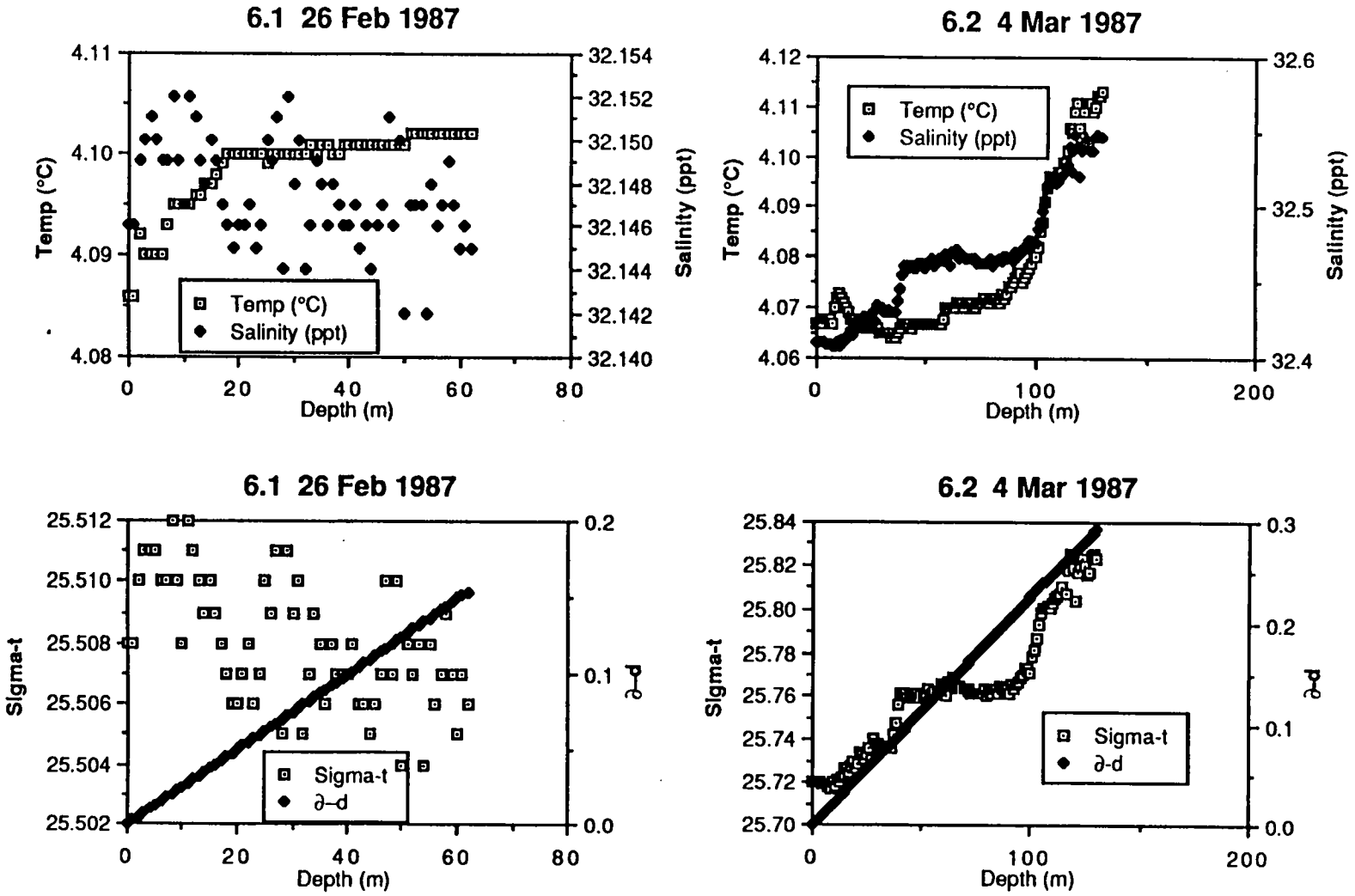

4.5 19 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

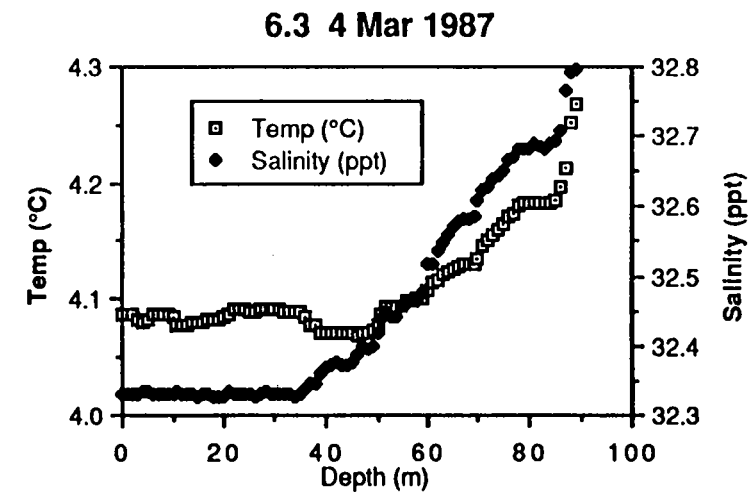

4.6 18 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

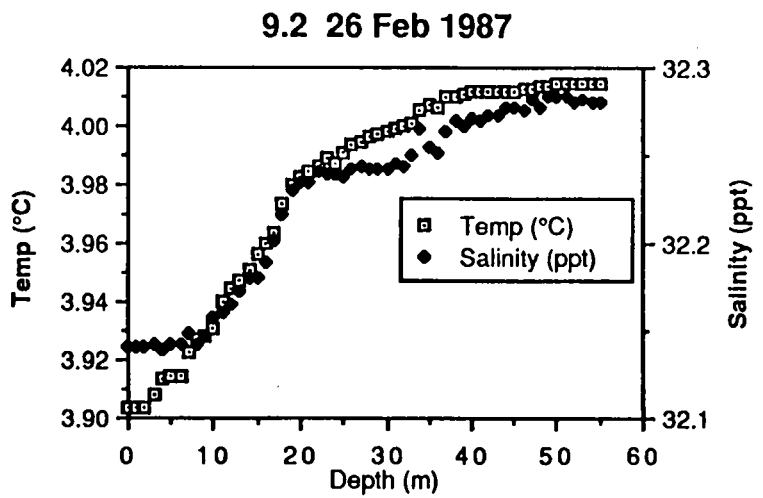

5.1 3 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

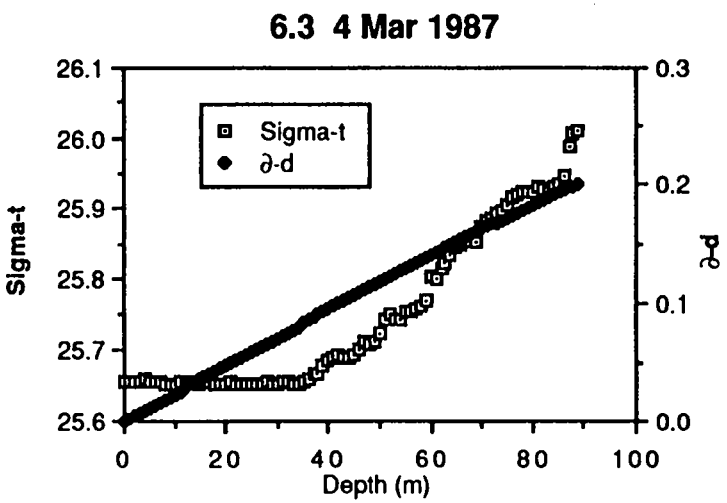

4.6 18 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

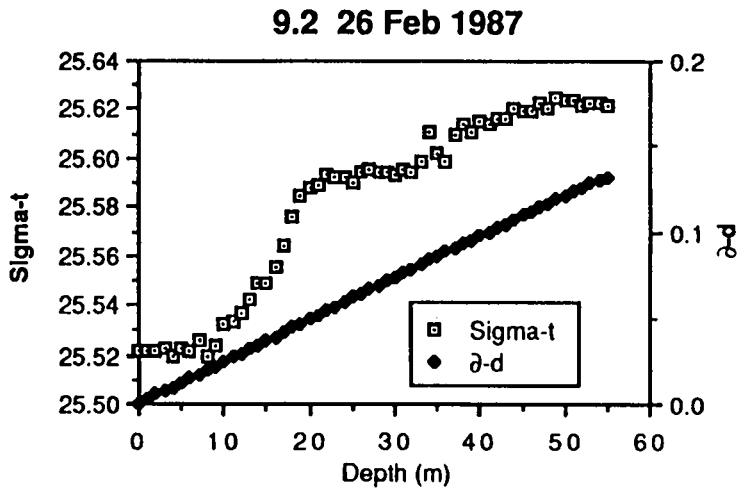

5.1 3 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

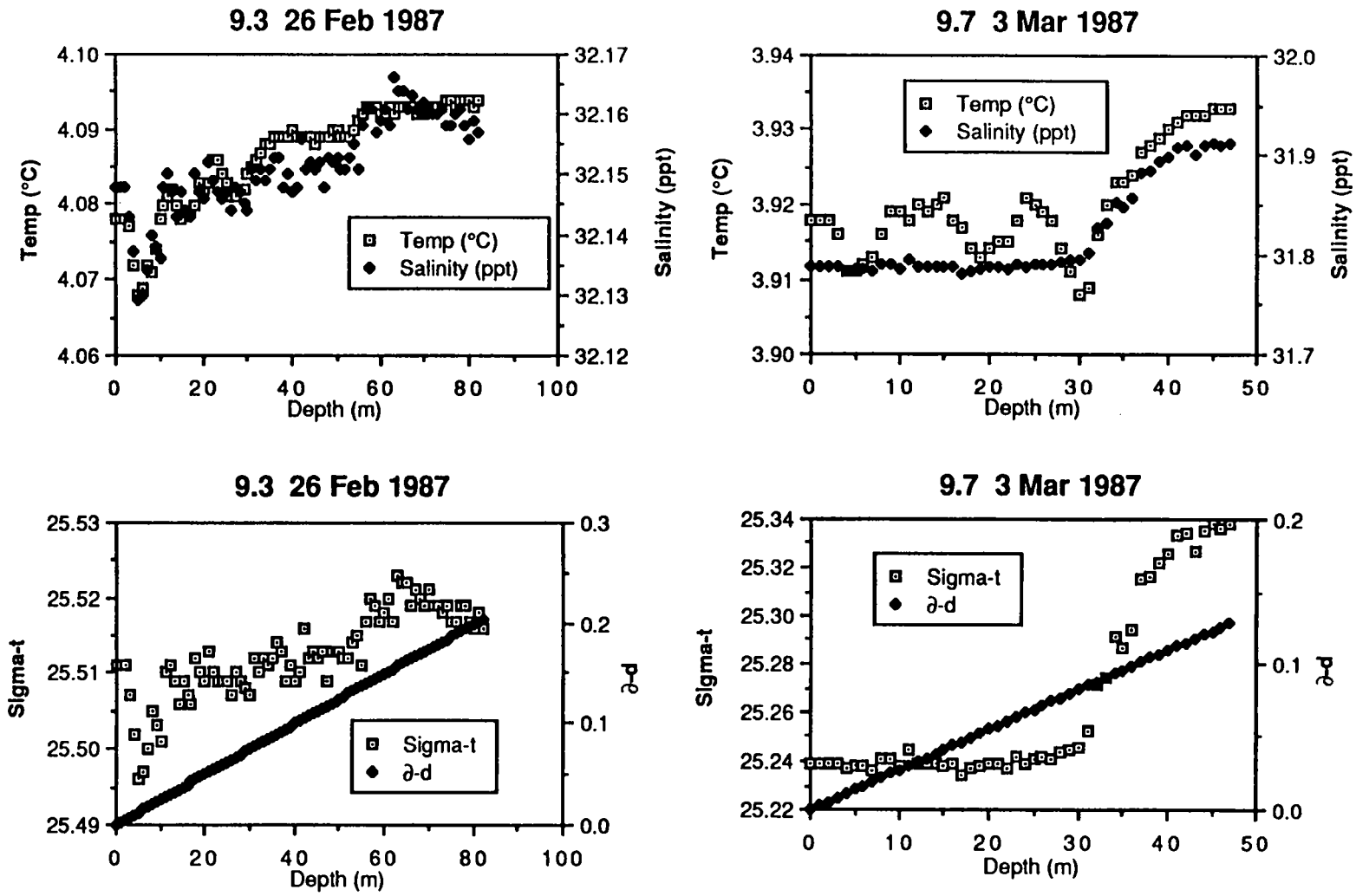

6.1 26 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
6.2 4 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
6.1 26 Feb 1987
Sigma-t
∂-d
Depth (m)
6.2 4 Mar 1987
Sigma-t
∂-d
Depth (m)

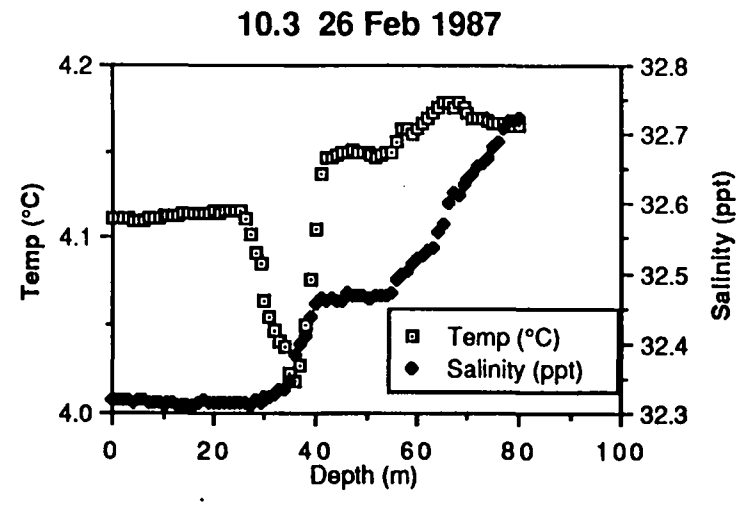

6.3 4 Mar 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.3
4.2
4.1
4.0
32.8
32.7
32.6
32.5
32.4
32.3
0
20
40
60
80
100

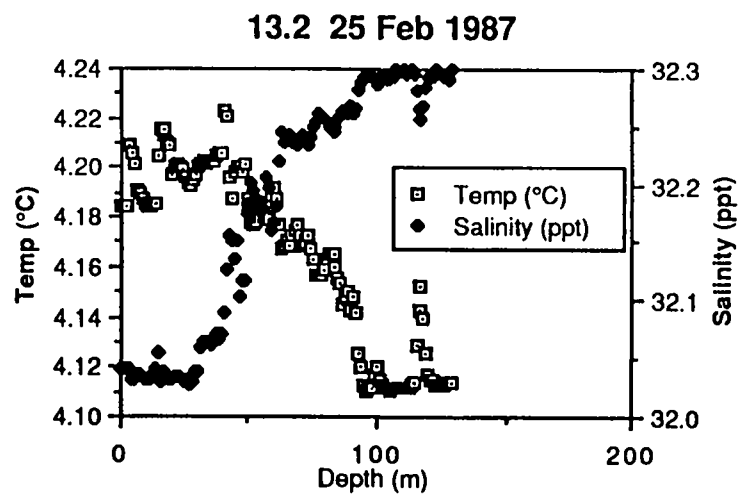

9.2 26 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.02
4.00
3.98
3.96
3.94
3.92
3.90
32.3
32.2
32.1
0
10
20
30
40
50
60

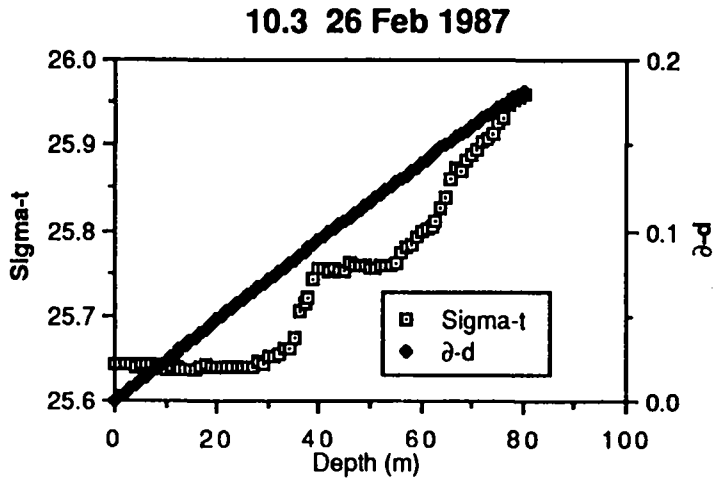

6.3 4 Mar 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.1
26.0
25.9
25.8
25.7
25.6
0.3
0.2
0.1
0.0
0
20
40
60
80
100

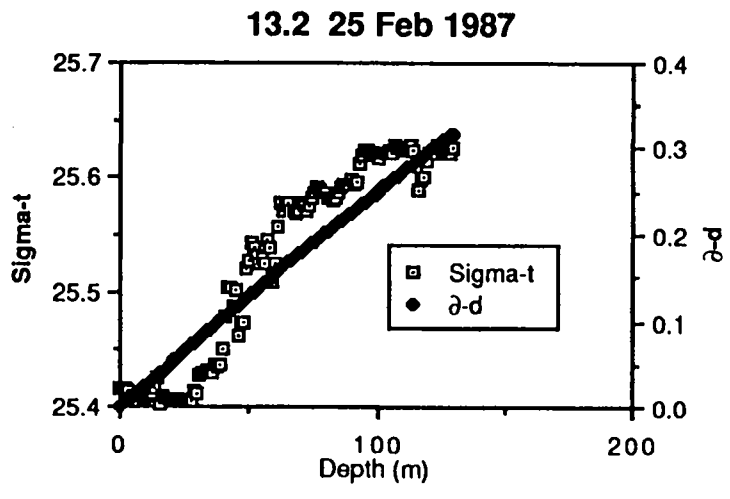

9.2 26 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.64
25.62
25.60
25.58
25.56
25.54
25.52
25.50
0.2
0.1
0.0
0
10
20
30
40
50
60

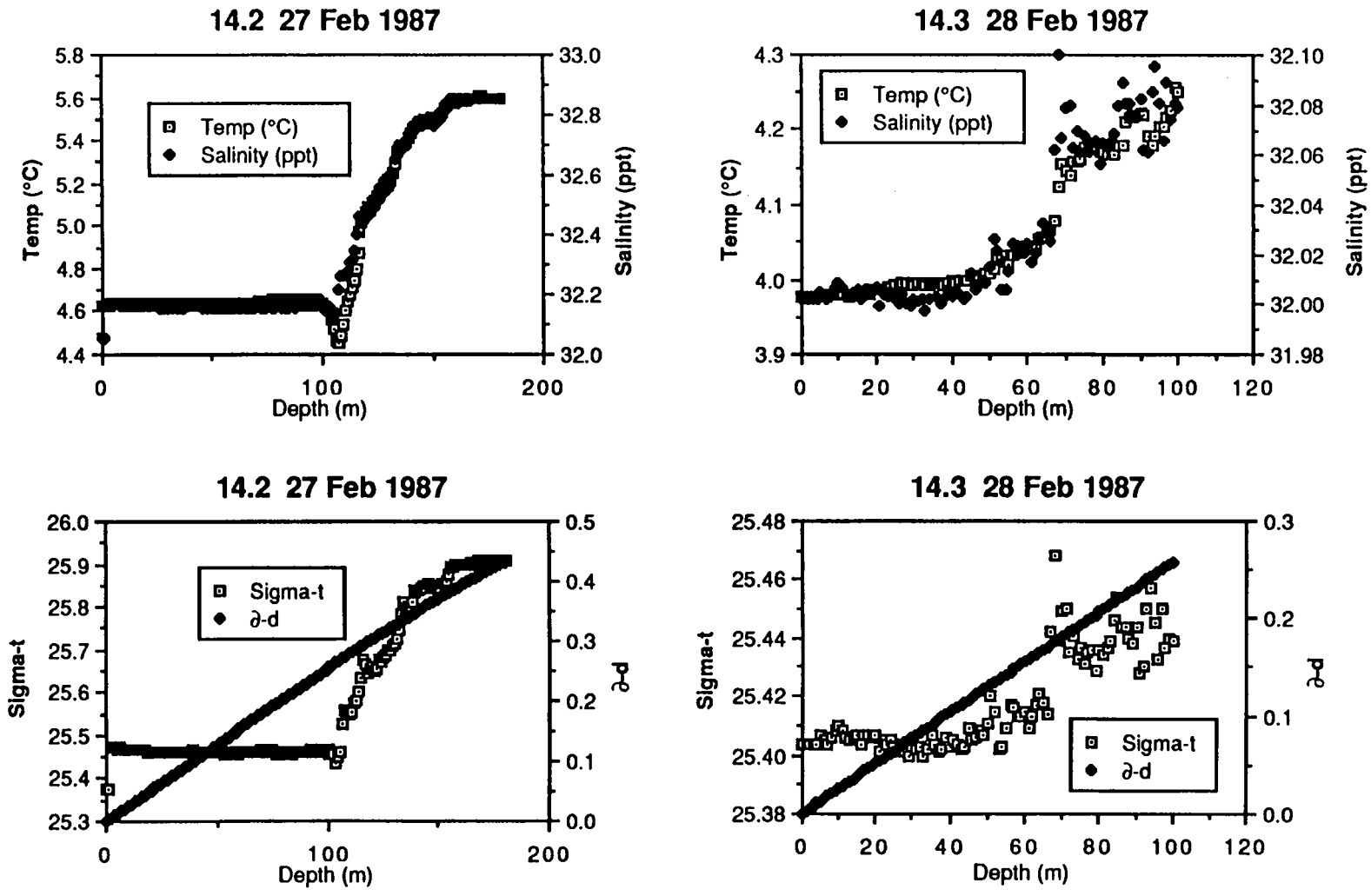

9.3 26 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
9.7 3 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
9.3 26 Feb 1987
Sigma-t
∂-d
Depth (m)
9.7 3 Mar 1987
Sigma-t
∂-d
Depth (m)

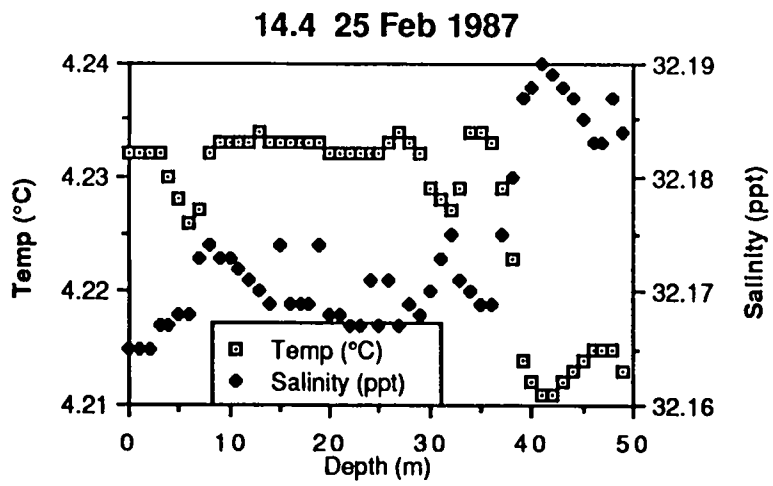

10.3 26 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

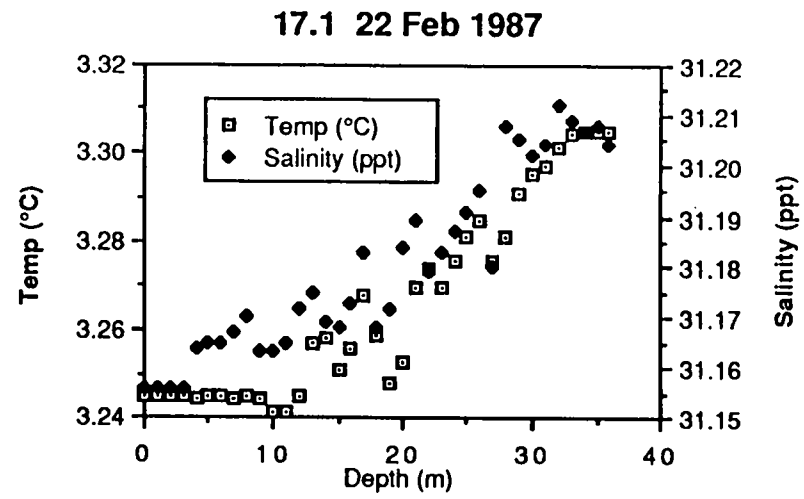

13.2 25 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

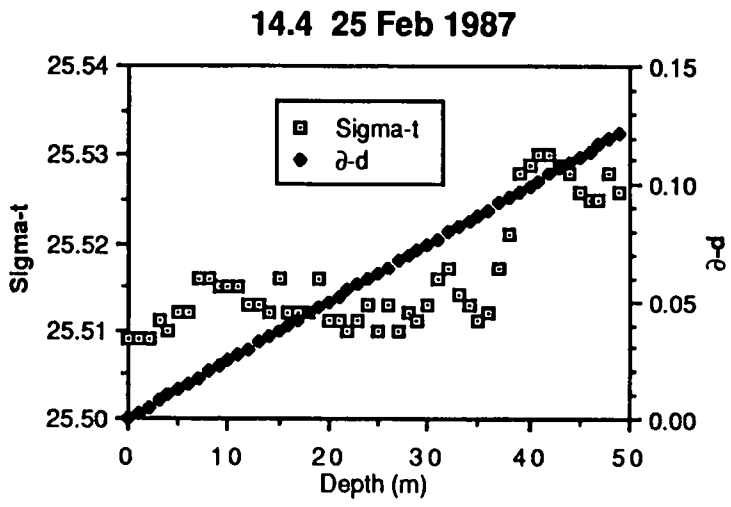

10.3 26 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

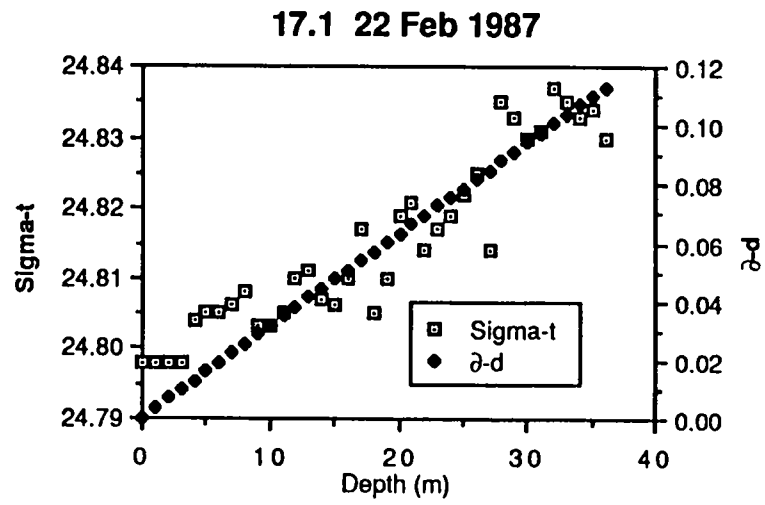

13.2 25 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

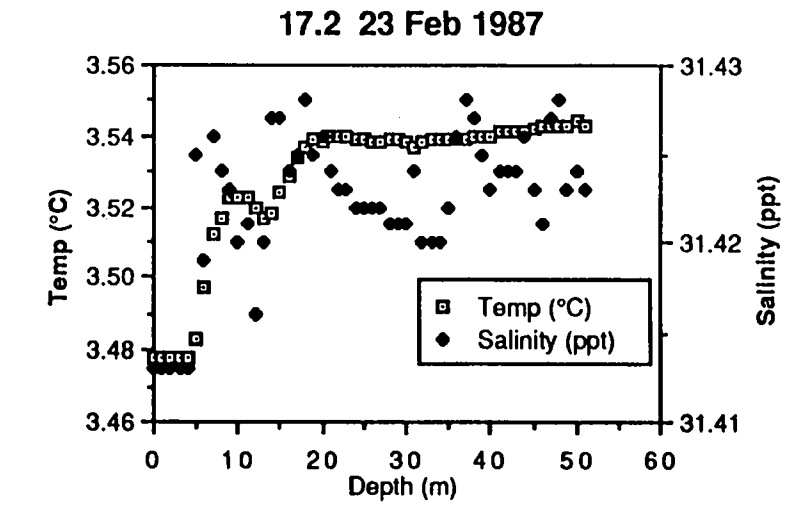

14.2 27 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
14.3 28 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
14.2 27 Feb 1987
Sigma-t
∂-d
Depth (m)
14.3 28 Feb 1987
Sigma-t
∂-d
Depth (m)

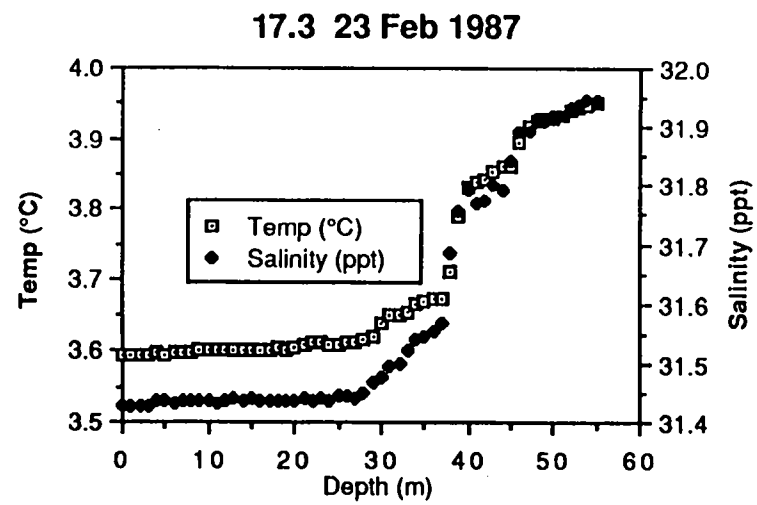

14.4 25 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

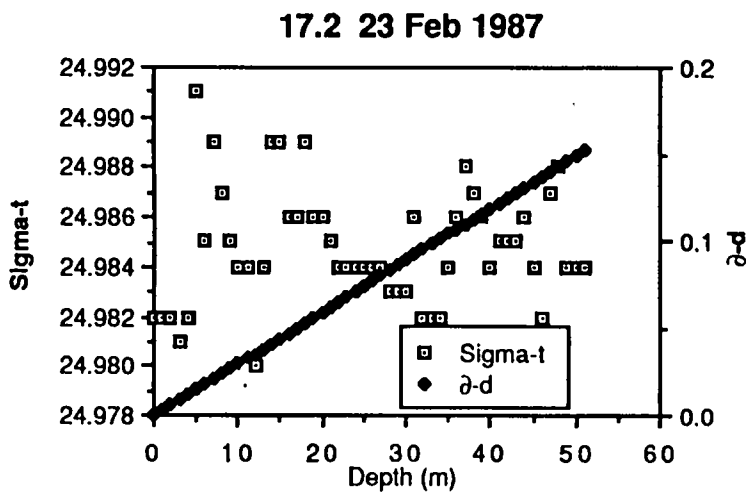

17.1 22 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

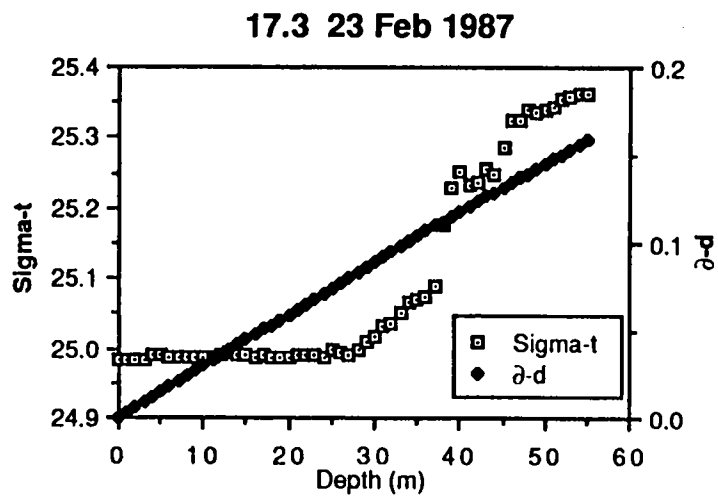

14.4 25 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

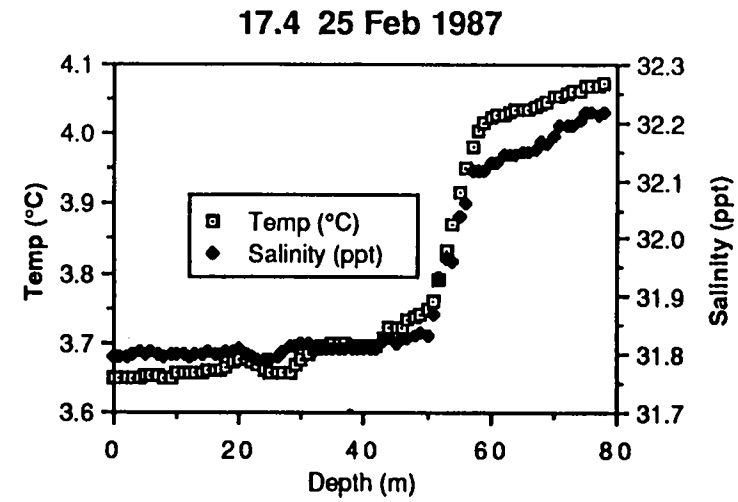

17.1 22 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

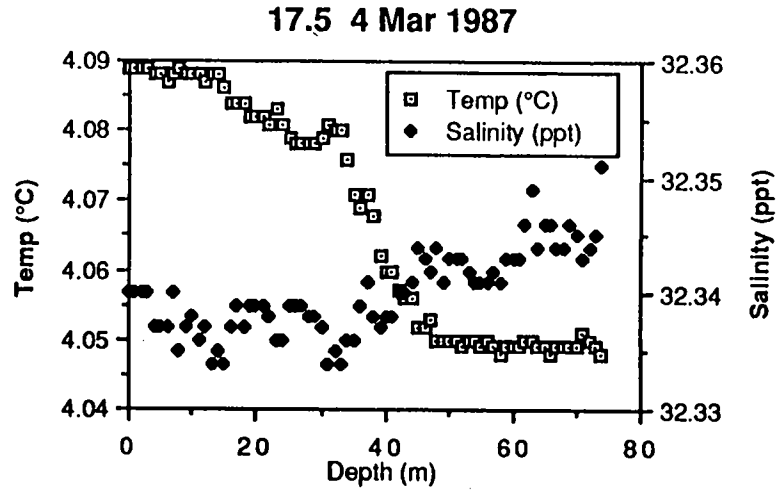

17.2 23 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

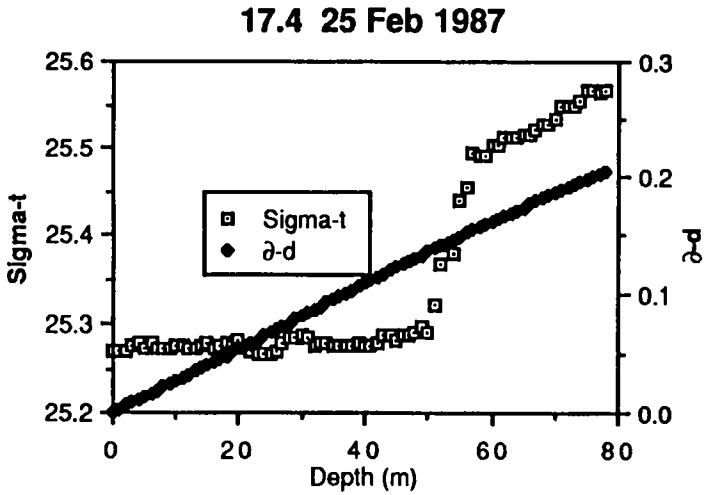

17.3 23 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

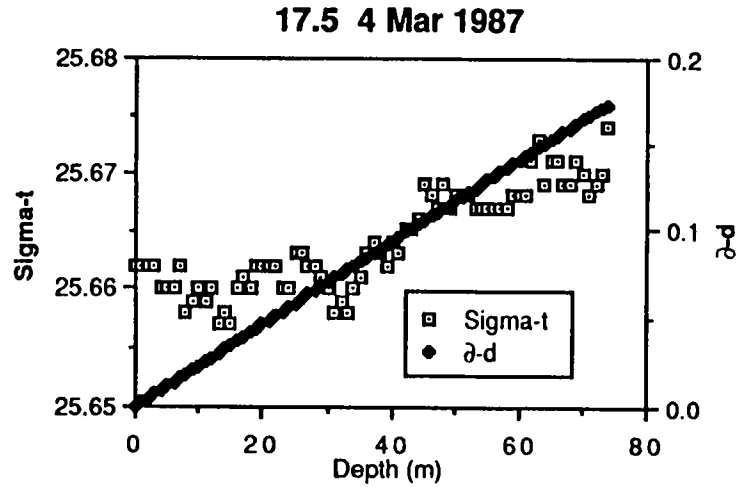

17.2 23 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

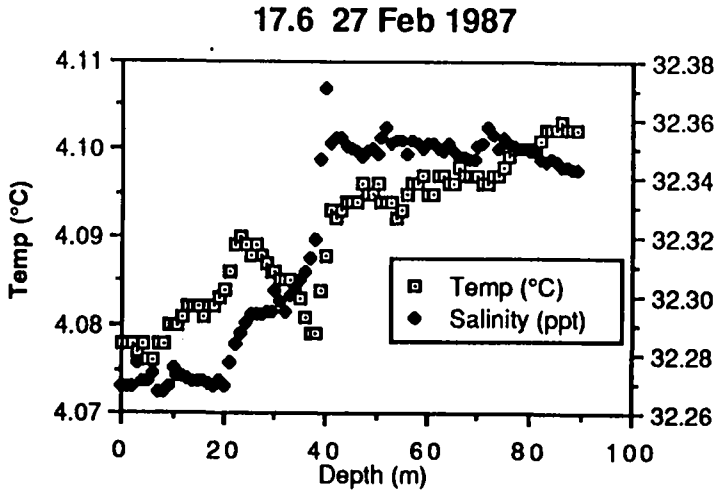

17.3 23 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

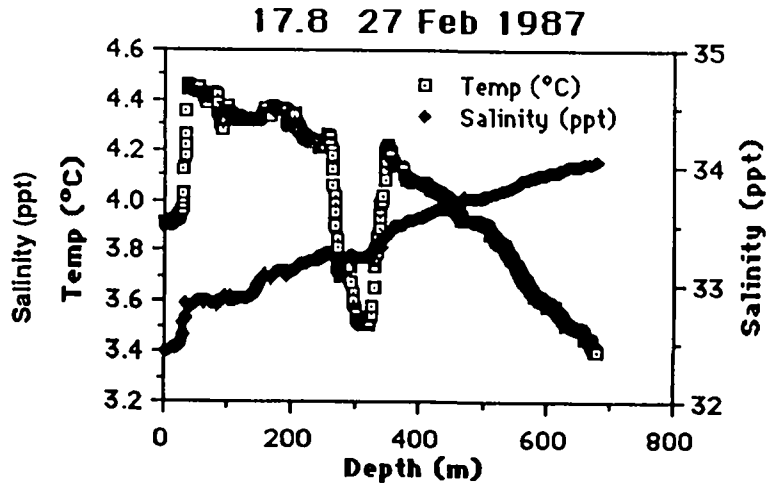

17.4 25 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.1
4.0
3.9
3.8
3.7
3.6
32.3
32.2
32.1
32.0
31.9
31.8
31.7
0
20
40
60
80

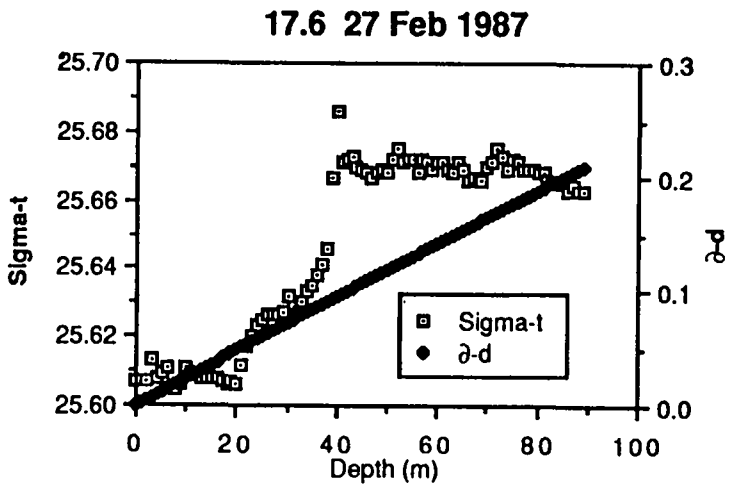

17.5 4 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.09
4.08
4.07
4.06
4.05
4.04
32.36
32.35
32.34
32.33
0
20
40
60
80

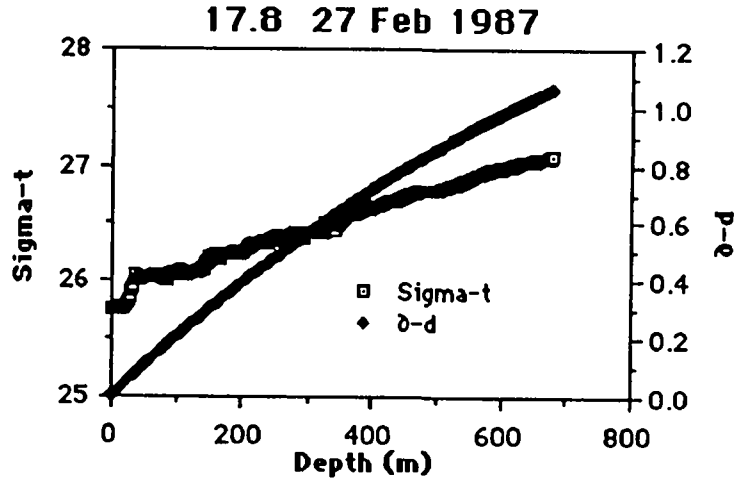

17.4 25 Feb 1987
Sigma-t
∂-d
Depth (m)
25.6
25.5
25.4
25.3
25.2
0.3
0.2
0.1
0.0
0
20
40
60
80

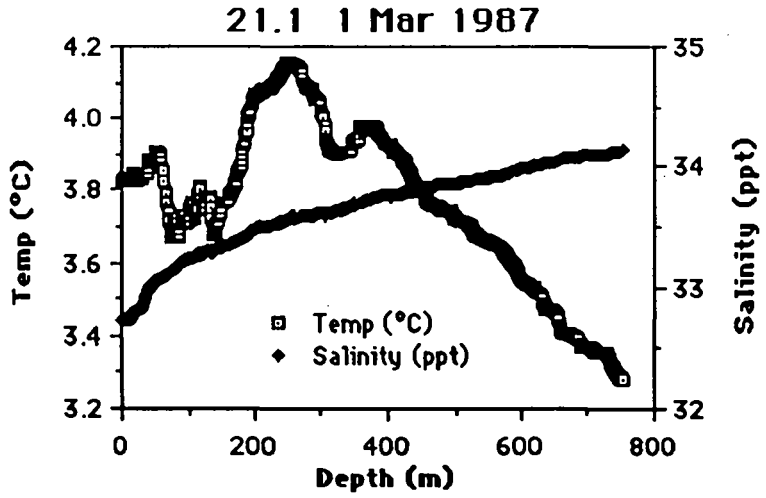

17.5 4 Mar 1987
Sigma-t
∂-d
Depth (m)
25.68
25.67
25.66
25.65
0.2
0.1
0.0
0
20
40
60
80

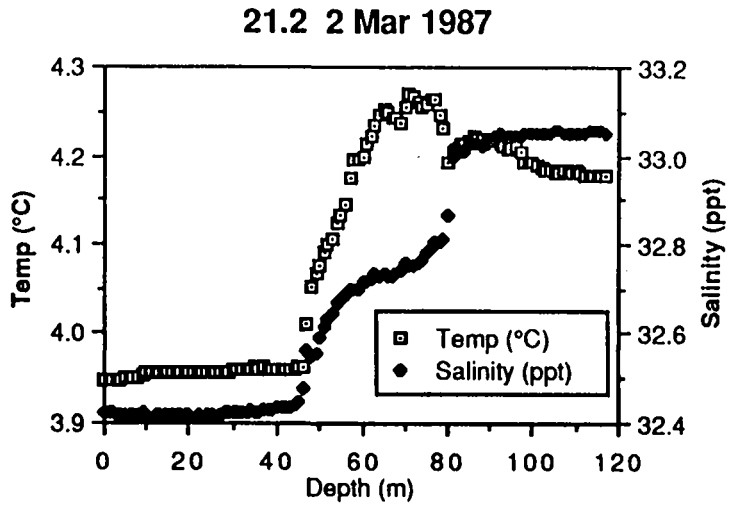

17.6 27 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

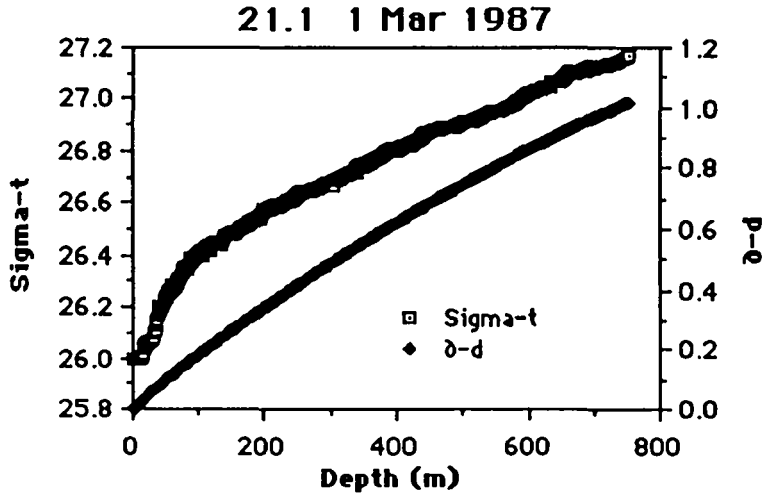

17.8 27 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

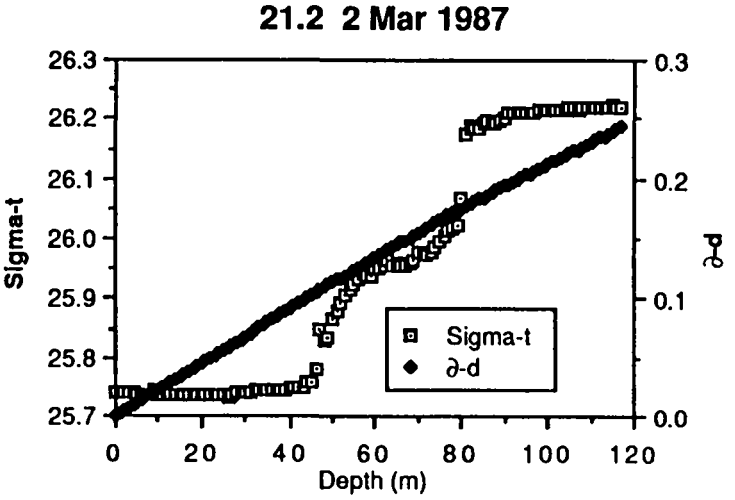

17.6 27 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

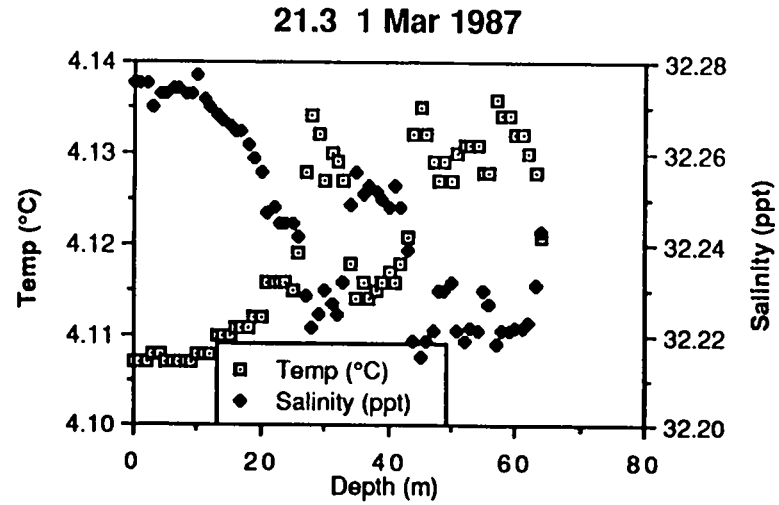

17.8 27 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

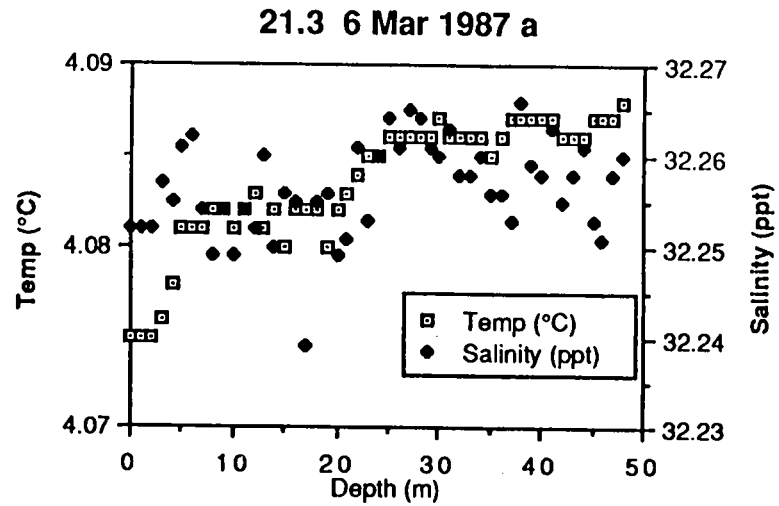

21.1 1 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

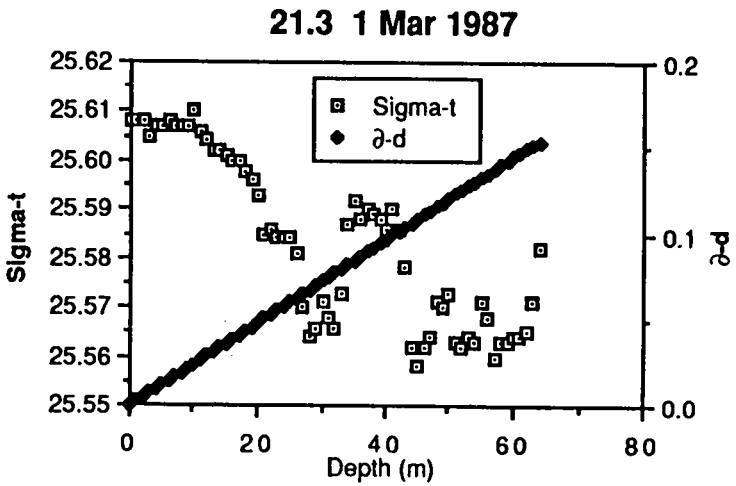

21.2 2 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

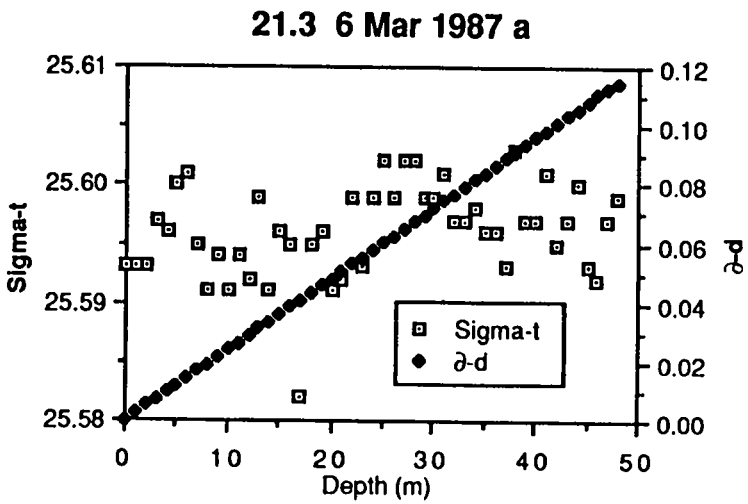

21.1 1 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

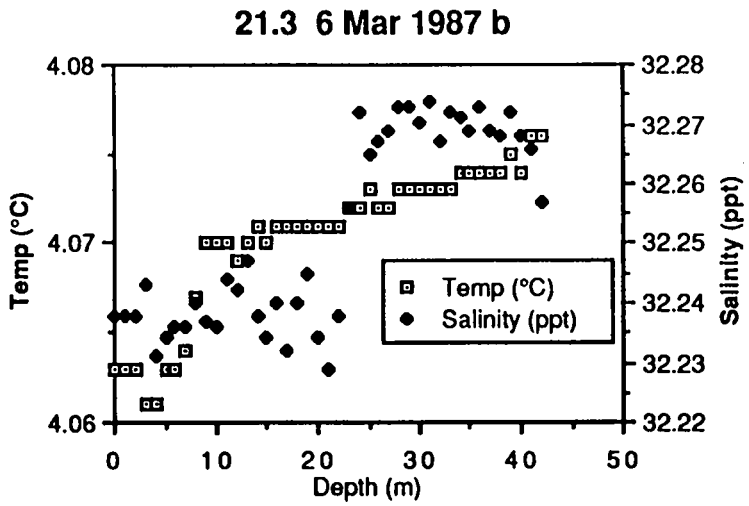

21.2 2 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

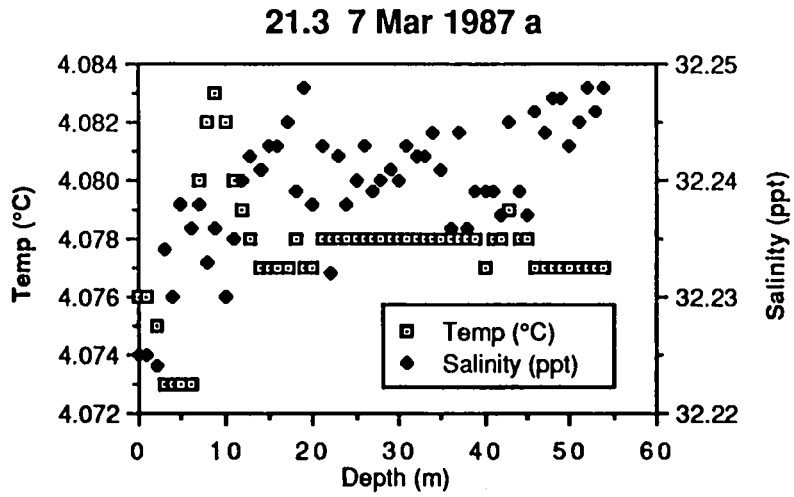

21.3 1 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

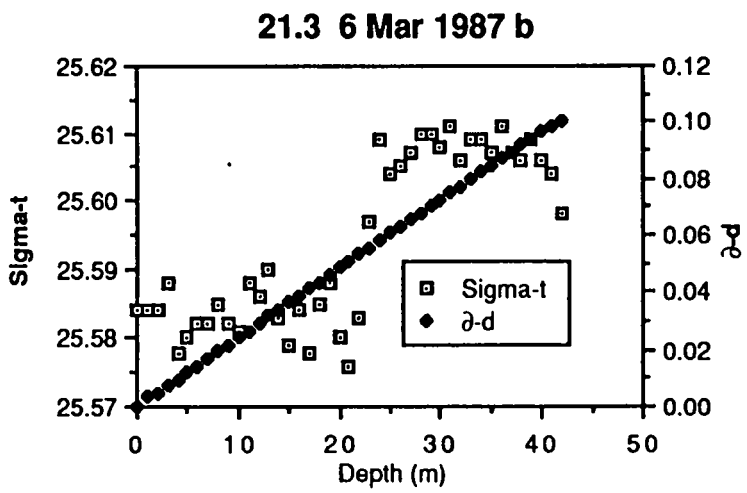

21.3 6 Mar 1987 a
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

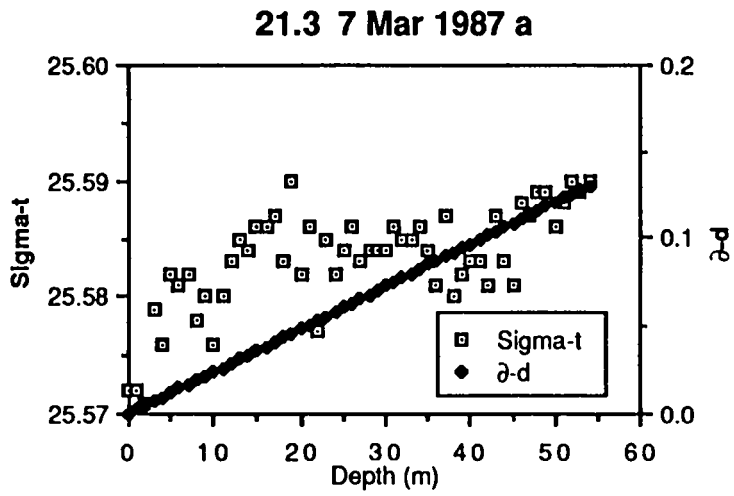

21.3 1 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

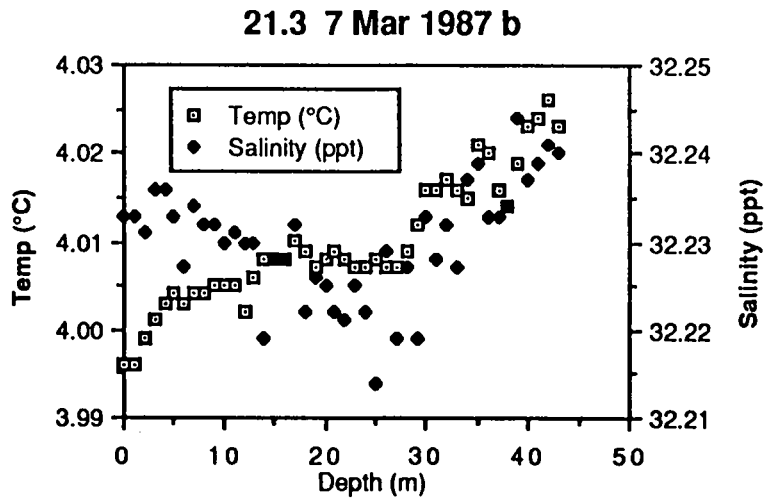

21.3 6 Mar 1987 a
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

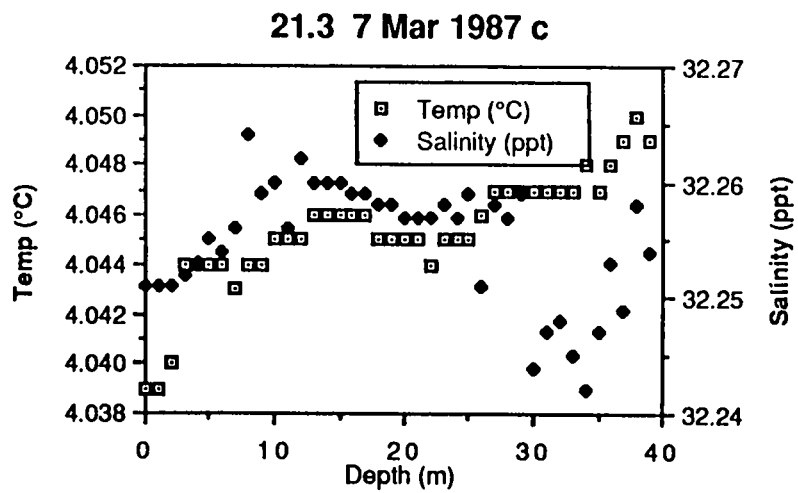

21.3 6 Mar 1987 b
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

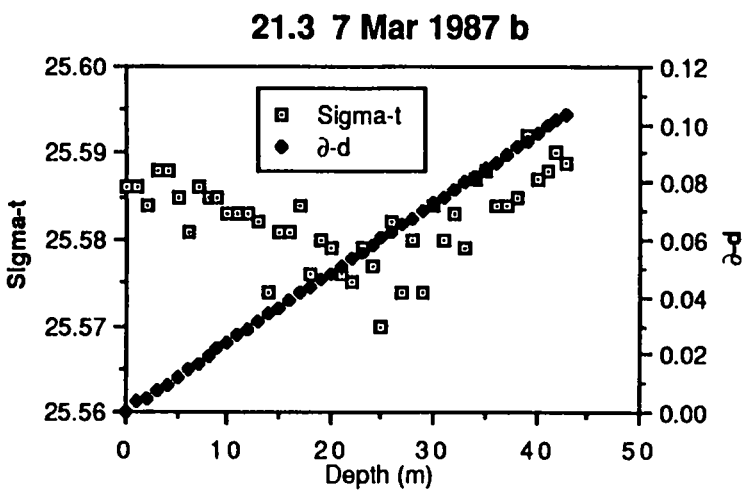

21.3 7 Mar 1987 a
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

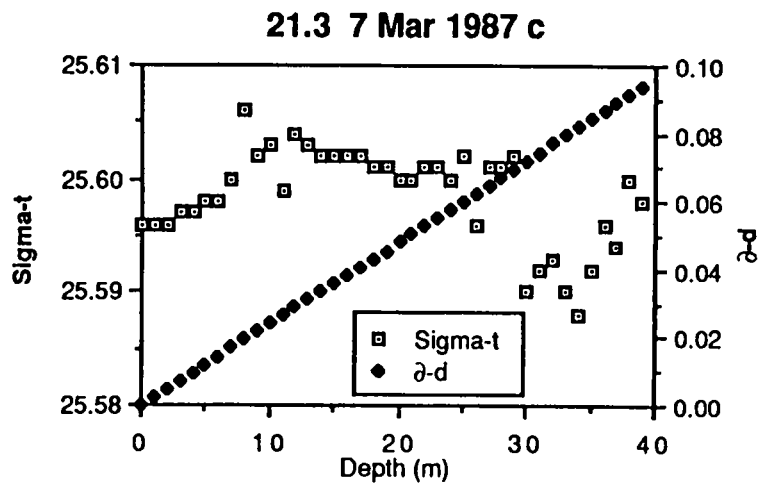

21.3 6 Mar 1987 b
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

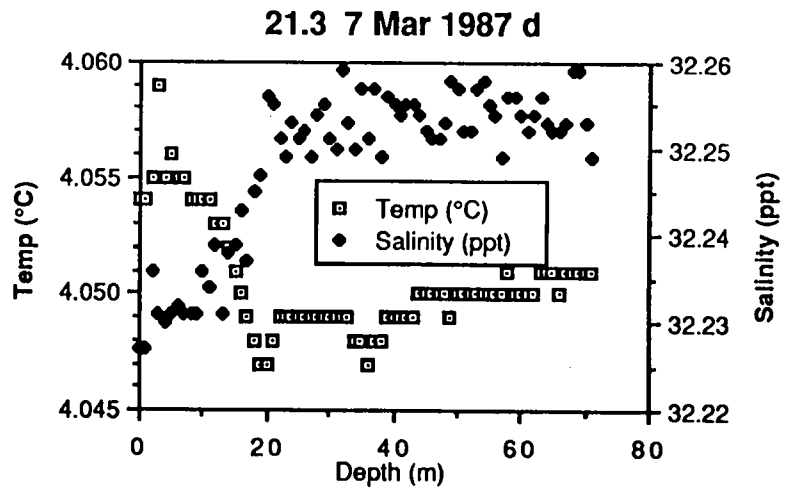

21.3 7 Mar 1987 a
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

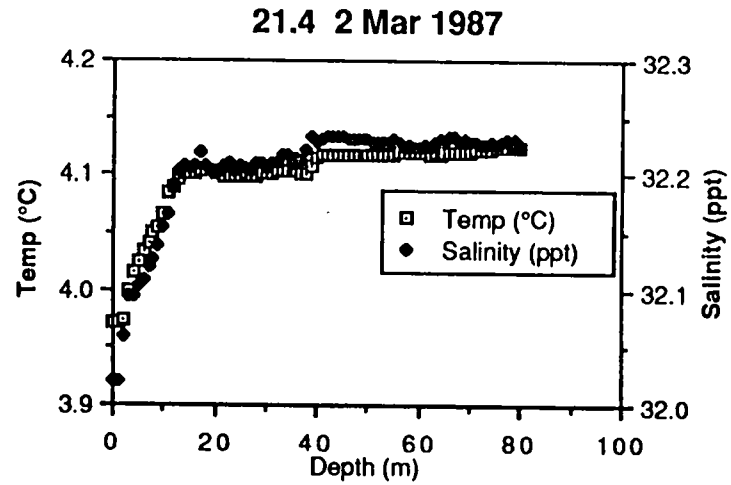

21.3 7 Mar 1987 b
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.03
4.02
4.01
4.00
3.99
32.25
32.24
32.23
32.22
32.21
0
10
20
30
40
50

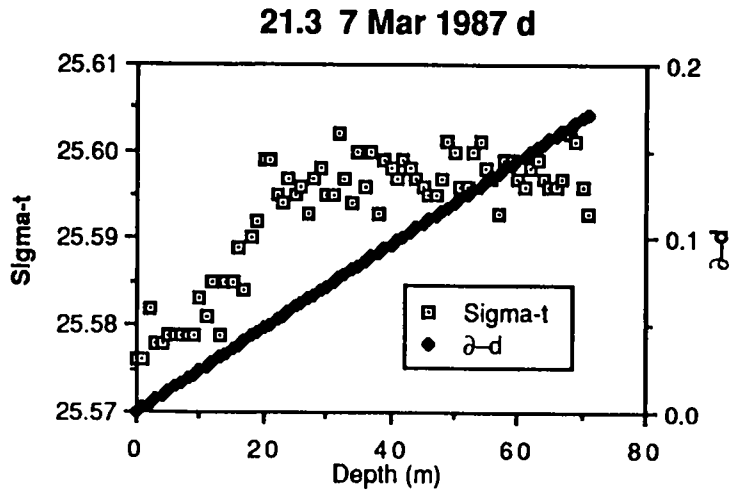

21.3 7 Mar 1987 c
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.052
4.050
4.048
4.046
4.044
4.042
4.040
4.038
32.27
32.26
32.25
32.24
0
10
20
30
40

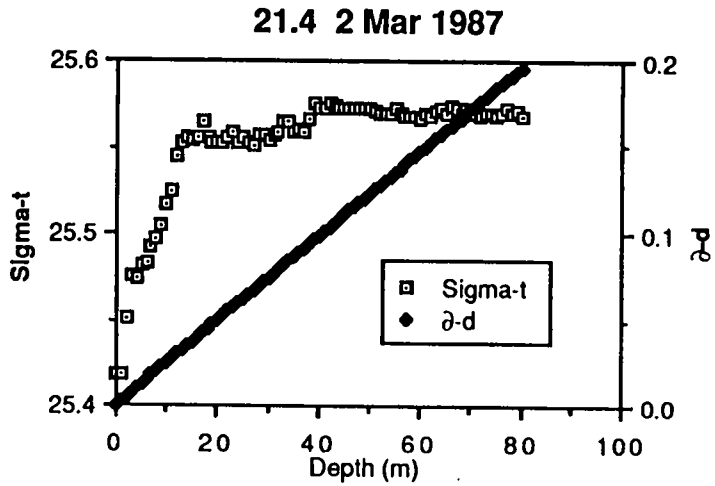

21.3 7 Mar 1987 b
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.60
25.59
25.58
25.57
25.56
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
10
20
30
40
50

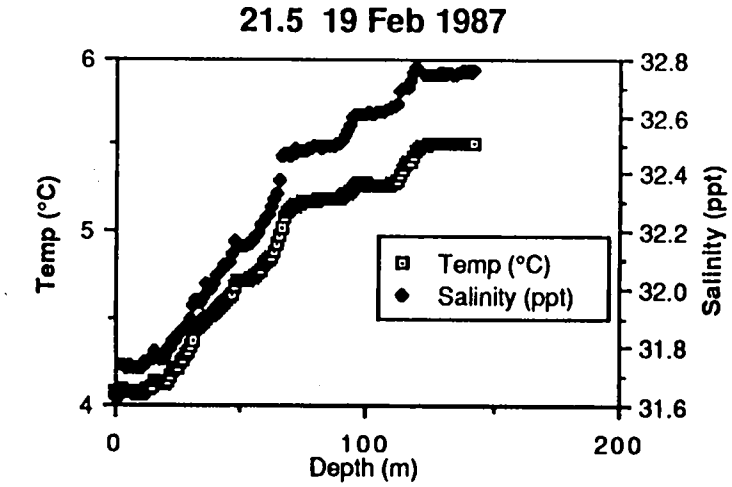

21.3 7 Mar 1987 c
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.61
25.60
25.59
25.58
0.10
0.08
0.06
0.04
0.02
0.00
0
10
20
30
40

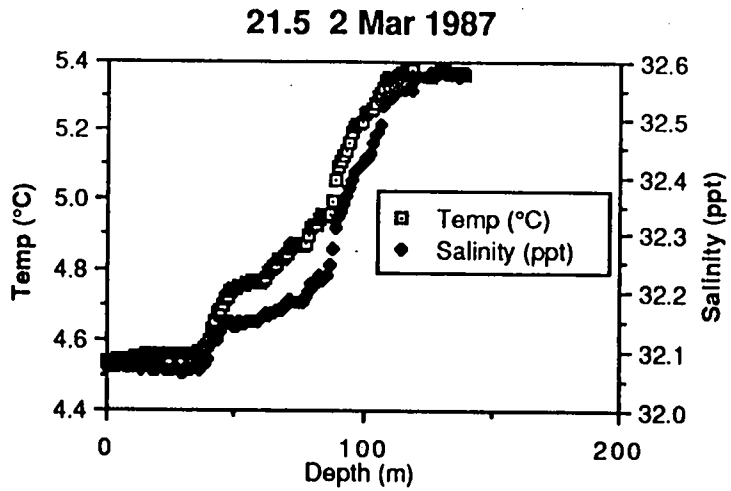

21.3 7 Mar 1987 d
Temp (°C)
Salinity (ppt)
Depth (m)
4.060
4.055
4.050
4.045
32.26
32.25
32.24
32.23
32.22
0
20
40
60
80

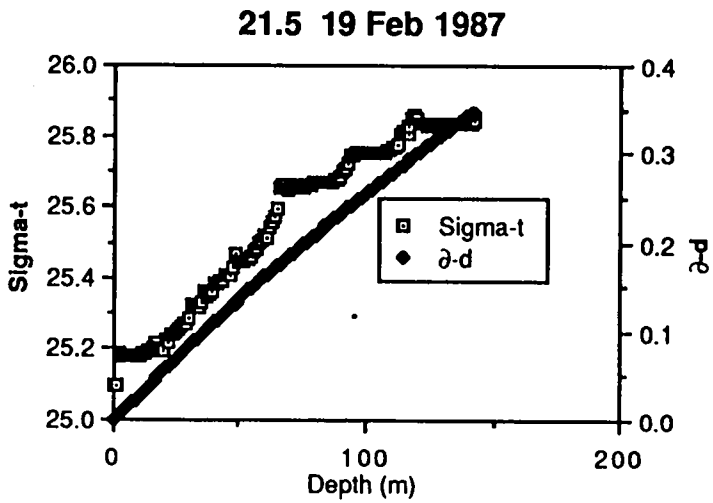

21.4 2 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.2
4.1
4.0
3.9
32.3
32.2
32.1
32.0
0
20
40
60
80
100

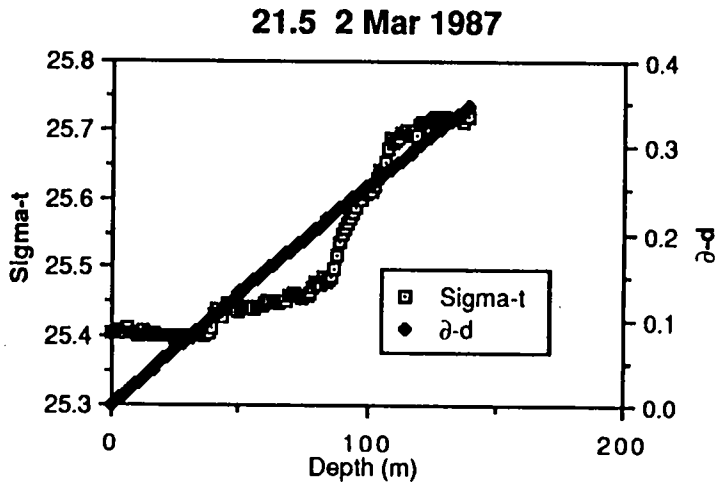

21.3 7 Mar 1987 d
Sigma-t
∂-d
Depth (m)
25.61
25.60
25.59
25.58
25.57
0.2
0.1
0.0
0
20
40
60
80

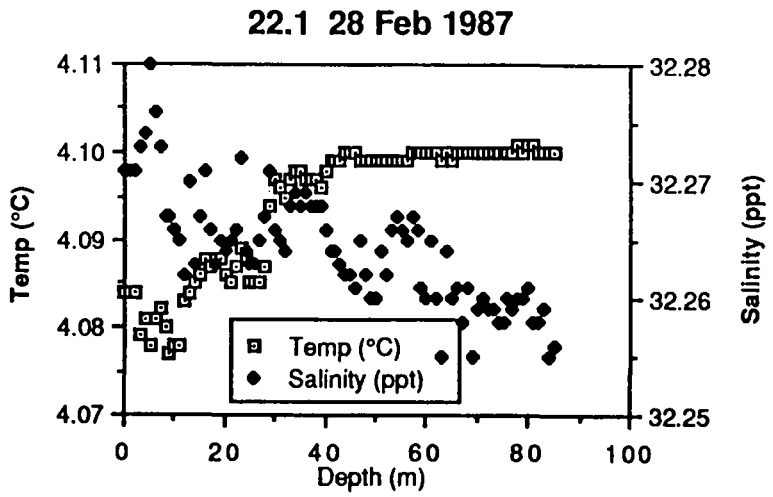

21.4 2 Mar 1987
Sigma-t
∂-d
Depth (m)
25.6
25.5
25.4
0.2
0.1
0.0
0
20
40
60
80
100

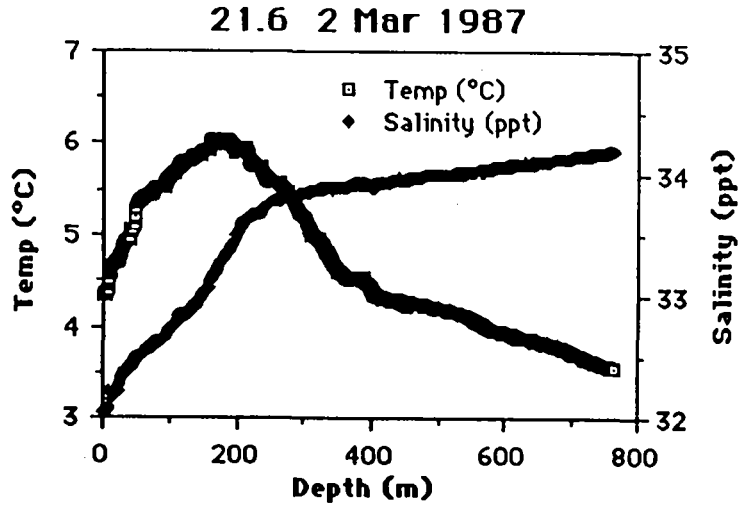

21.5 19 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

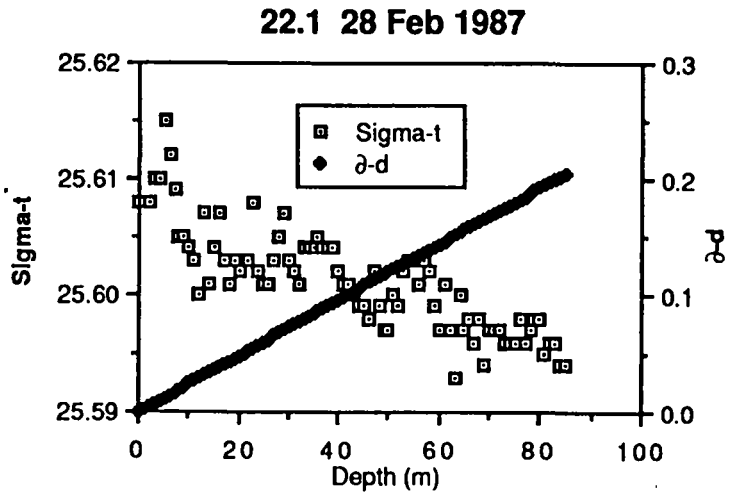

21.5 2 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

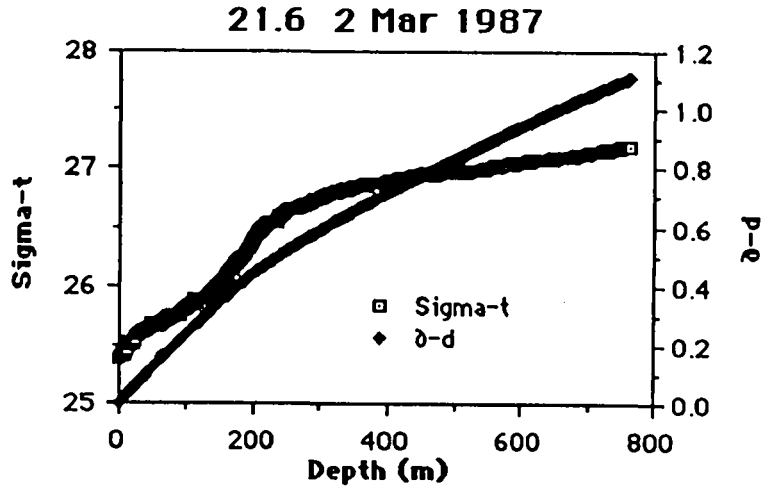

21.5 19 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

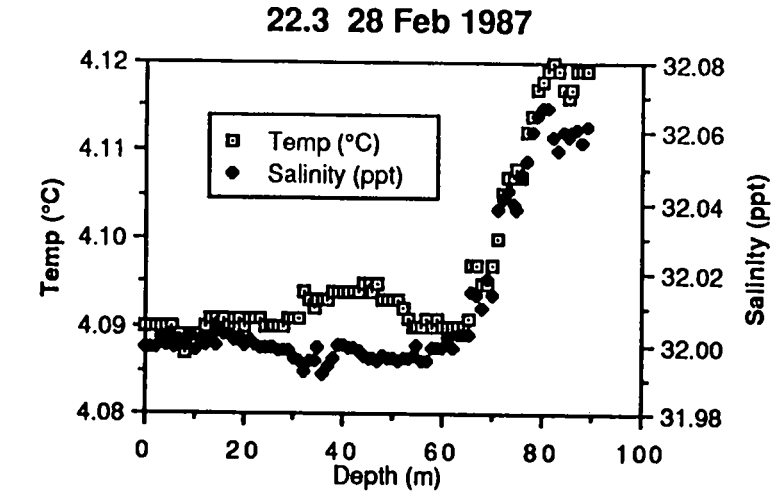

21.5 2 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

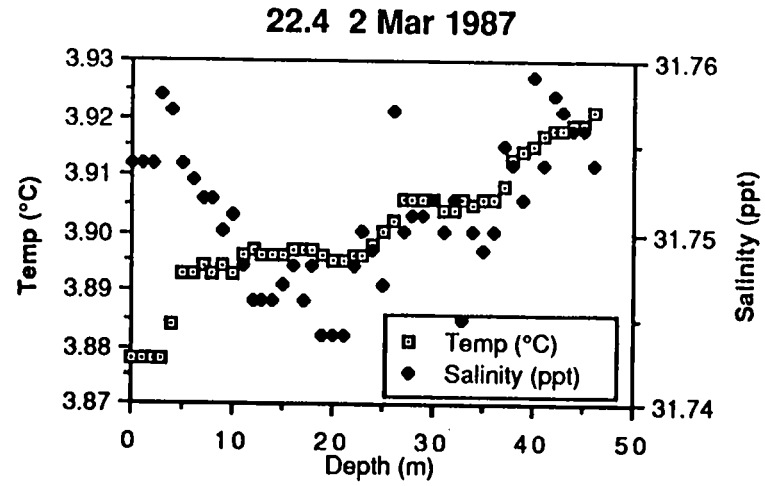

22.1 28 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.11
4.10
4.09
4.08
4.07
32.28
32.27
32.26
32.25
0
20
40
60
80
100

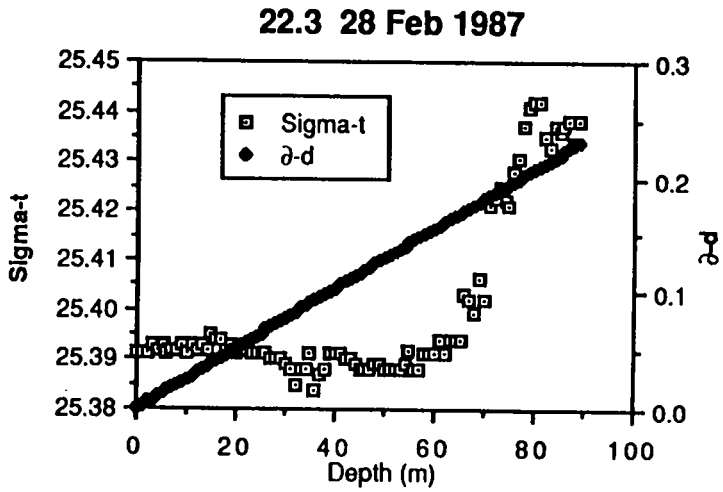

21.6 2 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
7
6
5
4
3
35
34
33
32
0
200
400
600
800

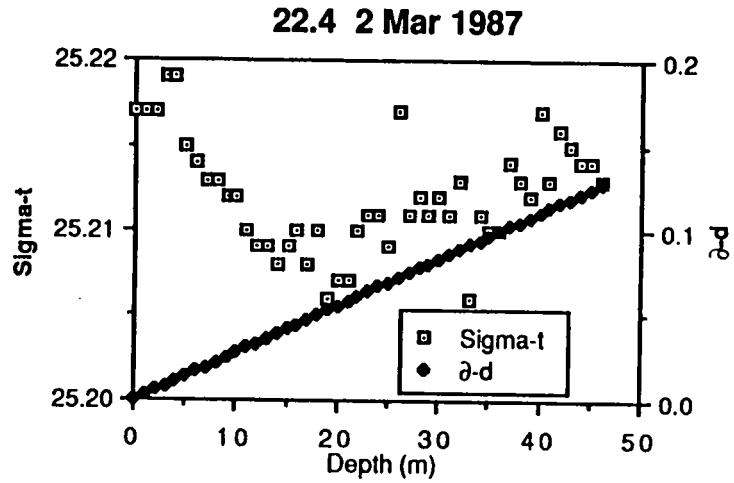

22.1 28 Feb 1987
Sigma-t
∂-d
Depth (m)
25.62
25.61
25.60
25.59
0.3
0.2
0.1
0.0
0
20
40
60
80
100

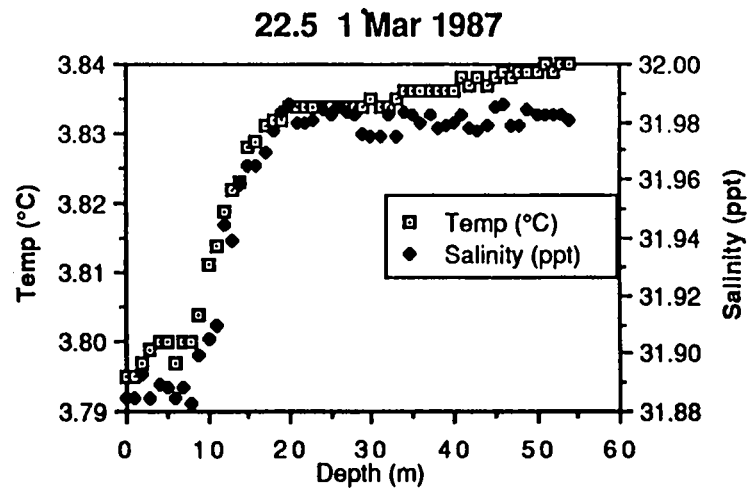

21.6 2 Mar 1987
Sigma-t
∂-d
Depth (m)
28
27
26
25
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
200
400
600
800

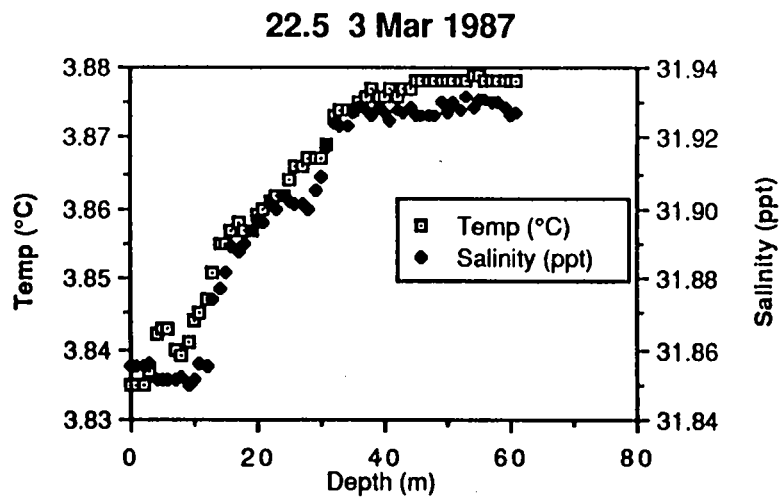

22.3 28 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.12
4.11
4.10
4.09
4.08
32.08
32.06
32.04
32.02
32.00
31.98
0
20
40
60
80
100

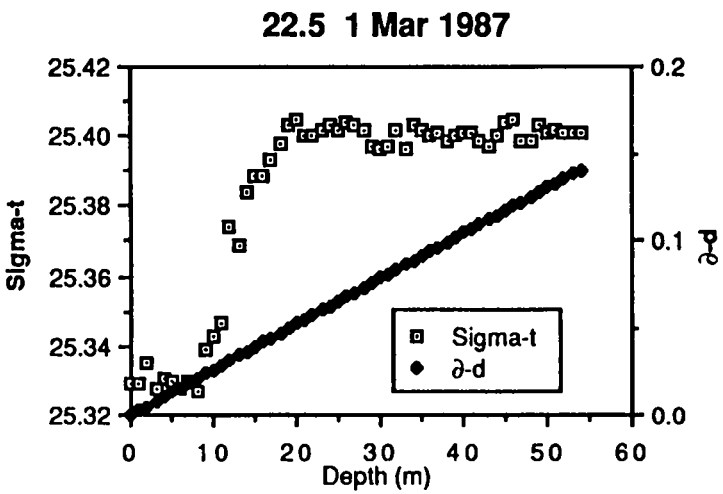

22.4 2 Mar 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
3.93
3.92
3.91
3.90
3.89
3.88
3.87
31.76
31.75
31.74
0
10
20
30
40
50

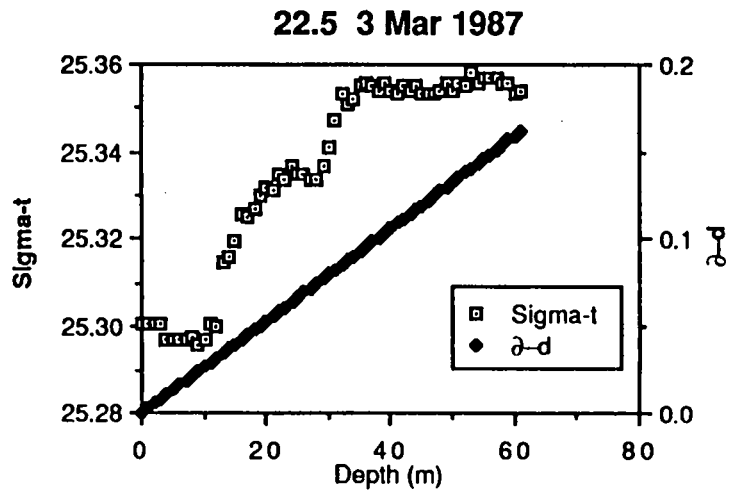

22.3 28 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.45
25.44
25.43
25.42
25.41
25.40
25.39
25.38
0.3
0.2
0.1
0.0
0
20
40
60
80
100

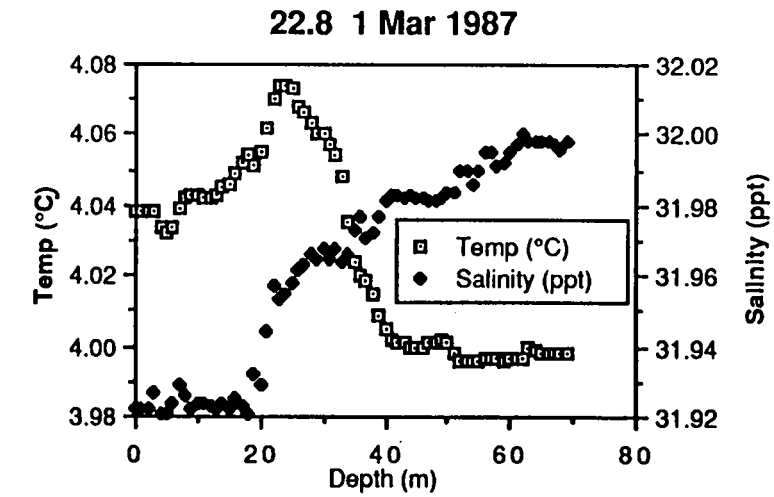

22.4 2 Mar 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.22
25.21
25.20
0.2
0.1
0.0
0
10
20
30
40
50

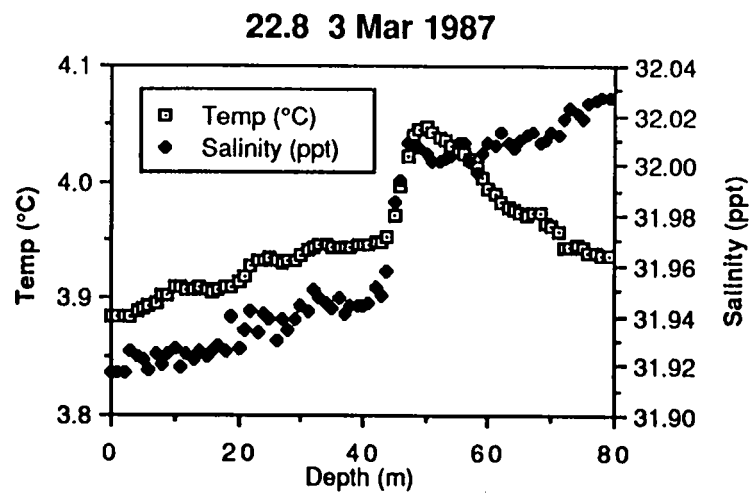

22.5 1 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

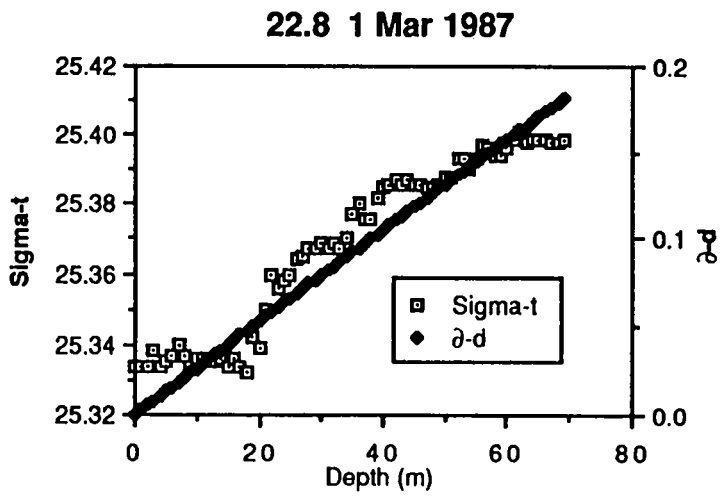

22.5 3 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

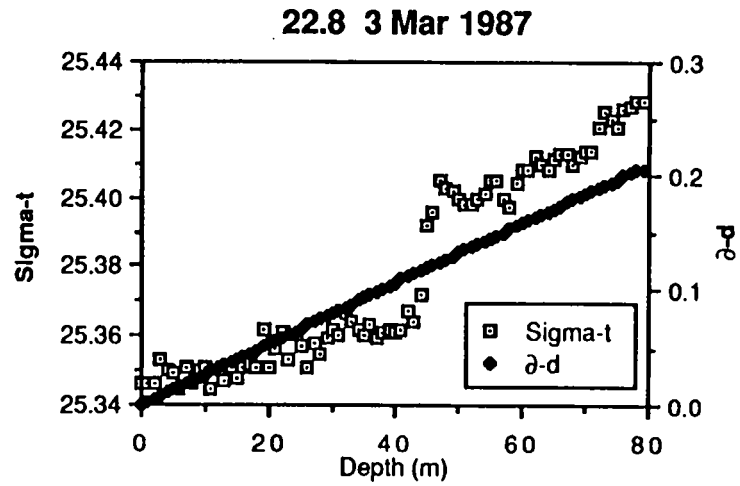

22.5 1 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

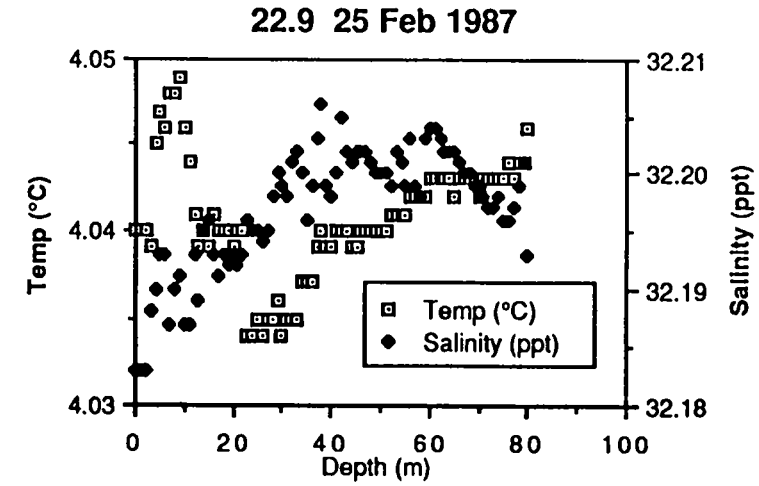

22.5 3 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

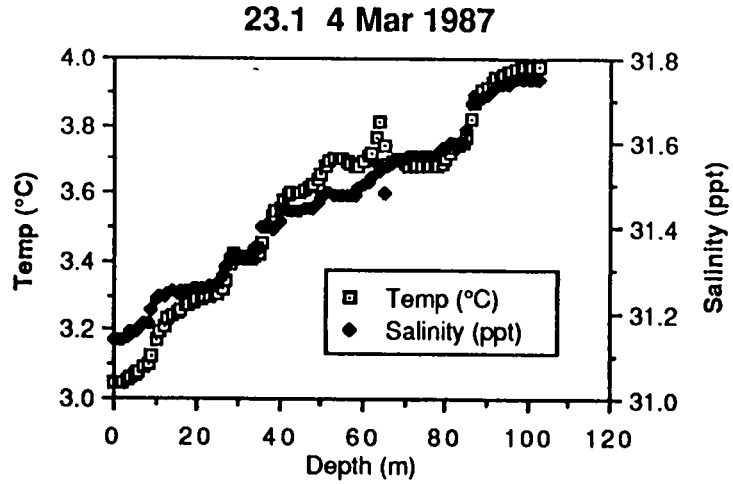

22.8 1 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.08
4.06
4.04
4.02
4.00
3.98
32.02
32.00
31.98
31.96
31.94
31.92
0
20
40
60
80

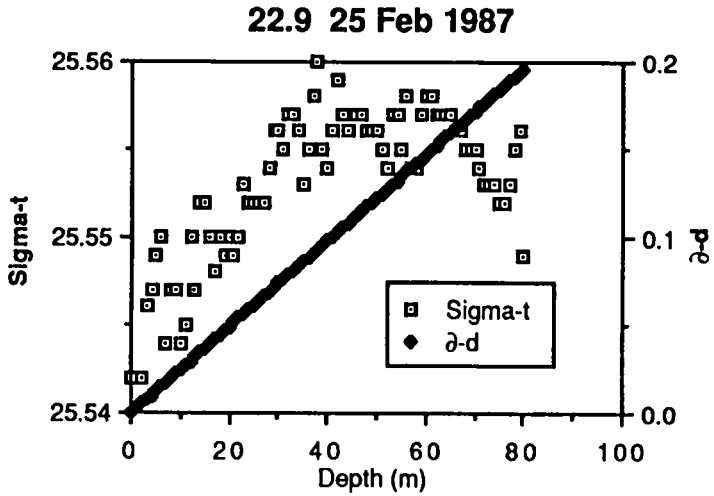

22.8 3 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.1
4.0
3.9
3.8
32.04
32.02
32.00
31.98
31.96
31.94
31.92
31.90
0
20
40
60
80

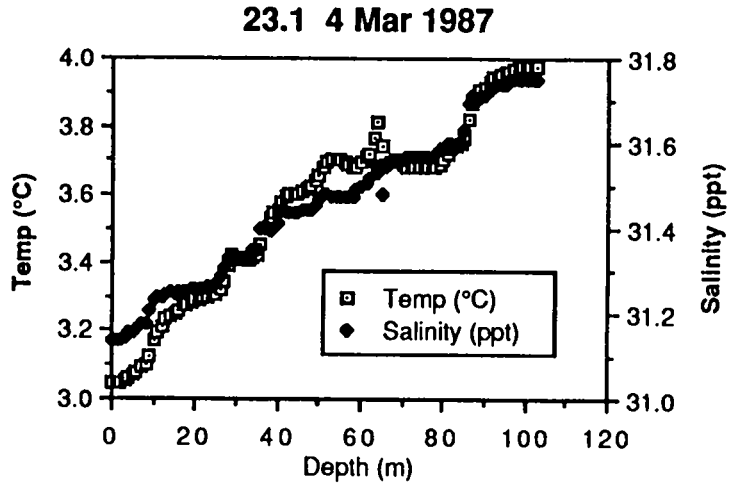

22.8 1 Mar 1987
Sigma-t
∂-d
Depth (m)
25.42
25.40
25.38
25.36
25.34
25.32
0.2
0.1
0.0
0
20
40
60
80

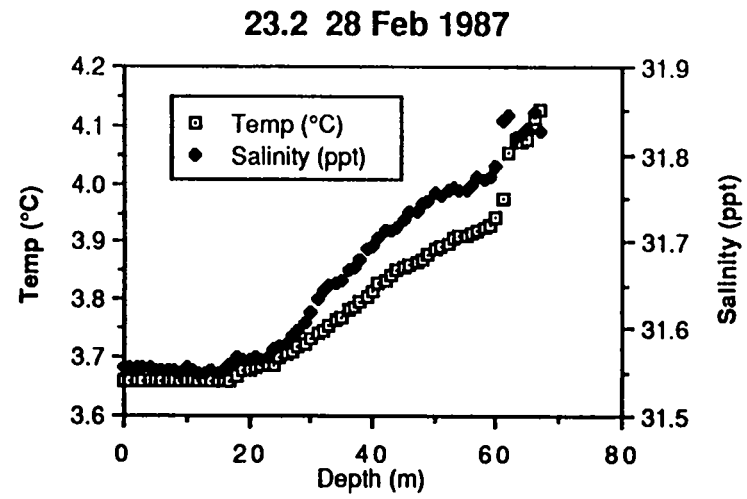

22.8 3 Mar 1987
Sigma-t
∂-d
Depth (m)
25.44
25.42
25.40
25.38
25.36
25.34
0.3
0.2
0.1
0.0
0
20
40
60
80

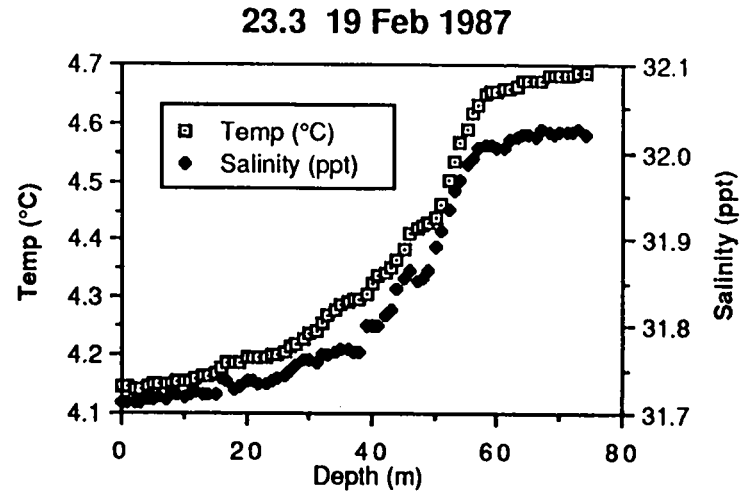

22.9 25 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

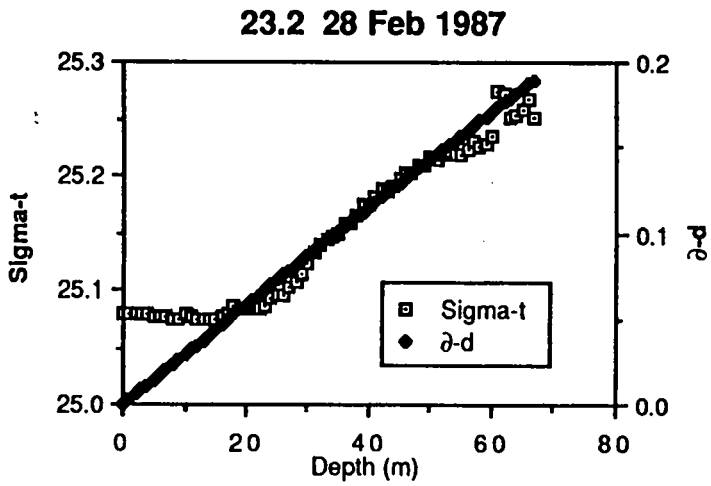

23.1 4 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

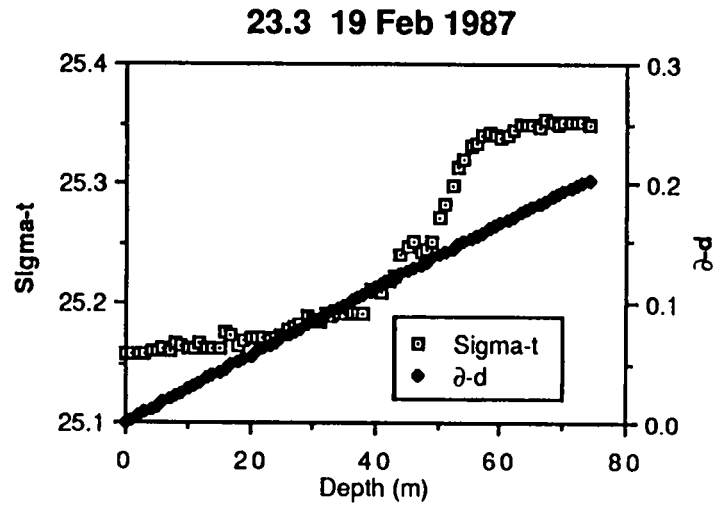

22.9 25 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

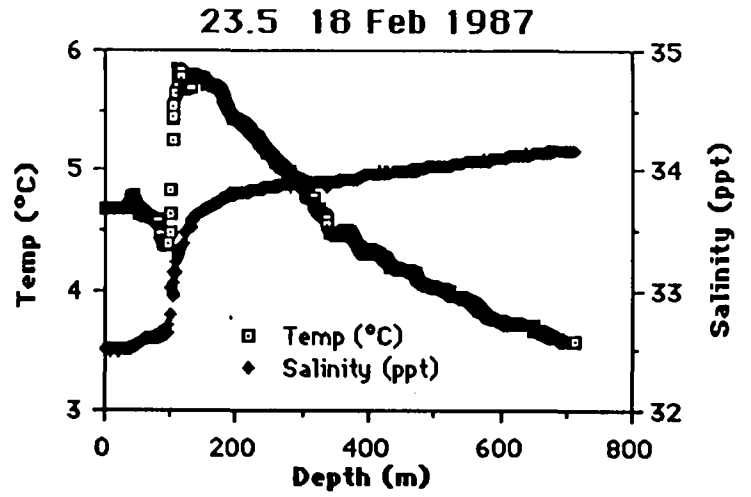

23.1 4 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

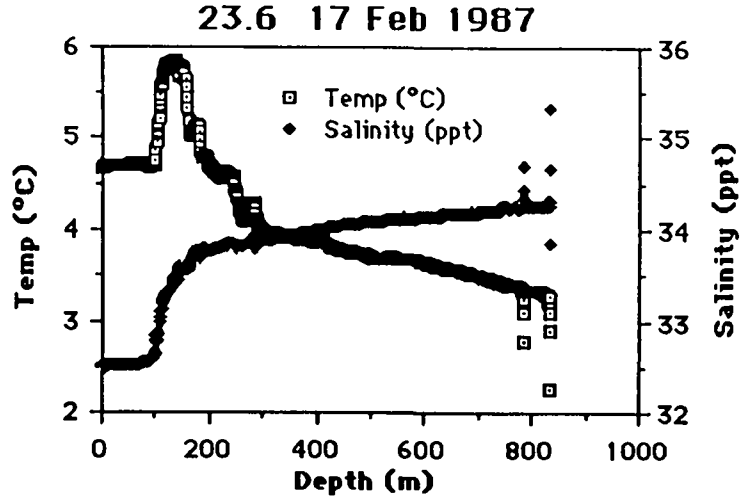

23.2 28 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.2
4.1
4.0
3.9
3.8
3.7
3.6
31.9
31.8
31.7
31.6
31.5
0
20
40
60
80

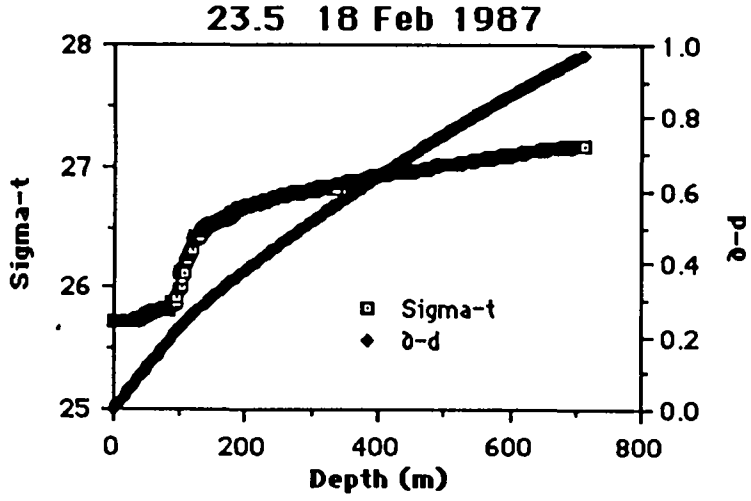

23.3 19 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.7
4.6
4.5
4.4
4.3
4.2
4.1
32.1
32.0
31.9
31.8
31.7
0
20
40
60
80

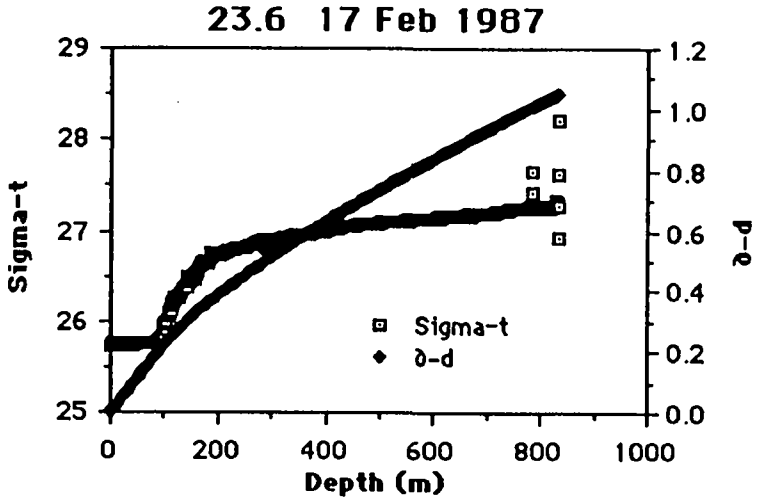

23.2 28 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.3
25.2
25.1
25.0
0.2
0.1
0.0
0
20
40
60
80

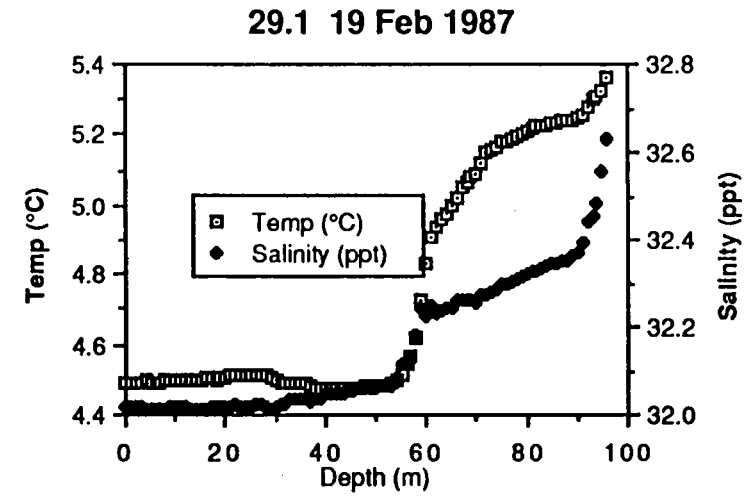

23.3 19 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.4
25.3
25.2
25.1
0.3
0.2
0.1
0.0
0
20
40
60
80

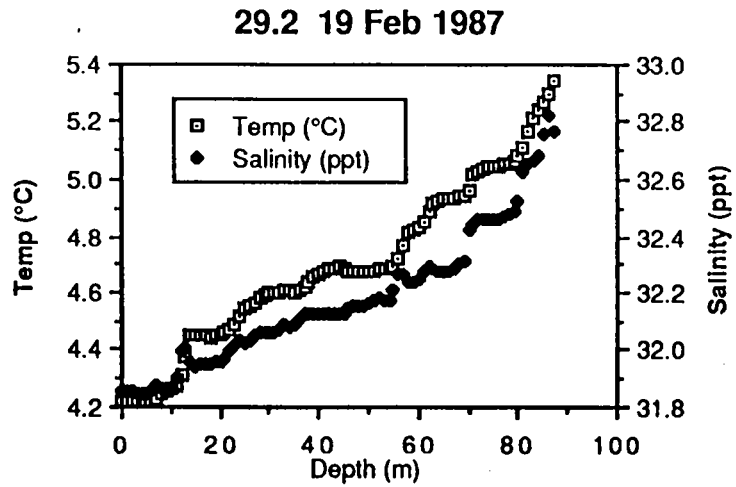

23.5 18 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

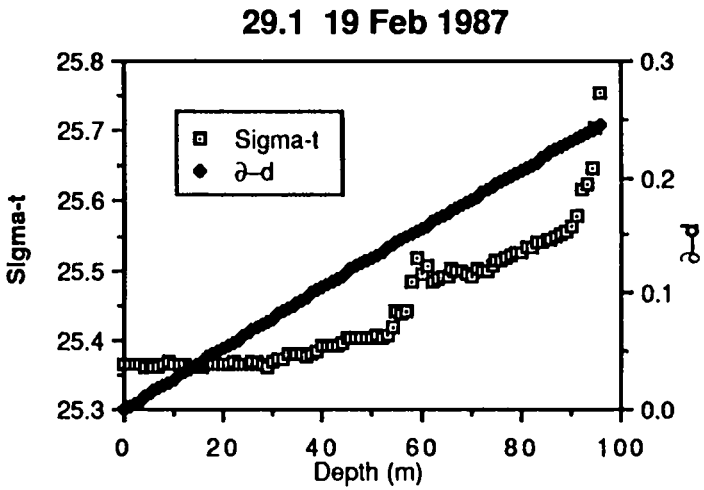

23.6 17 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

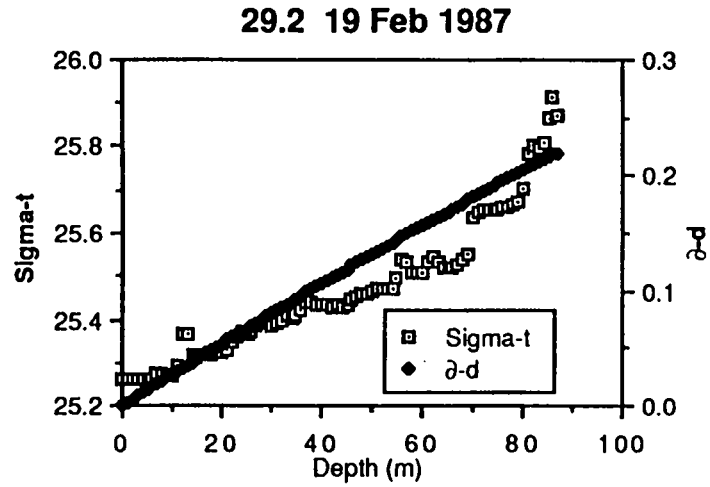

23.5 18 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

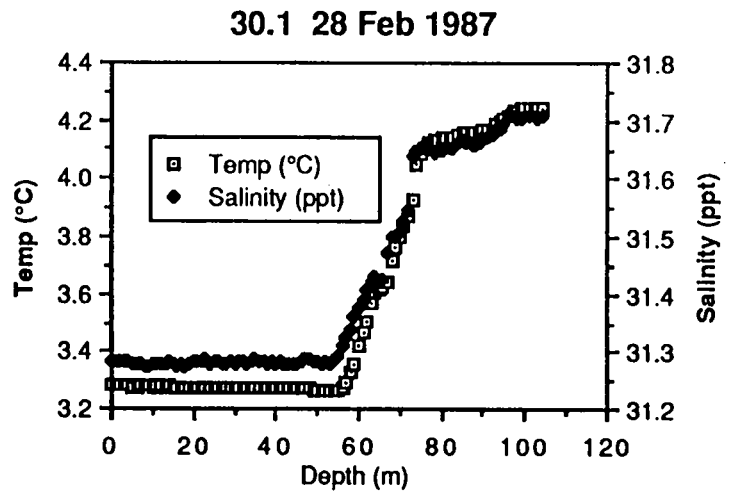

23.6 17 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

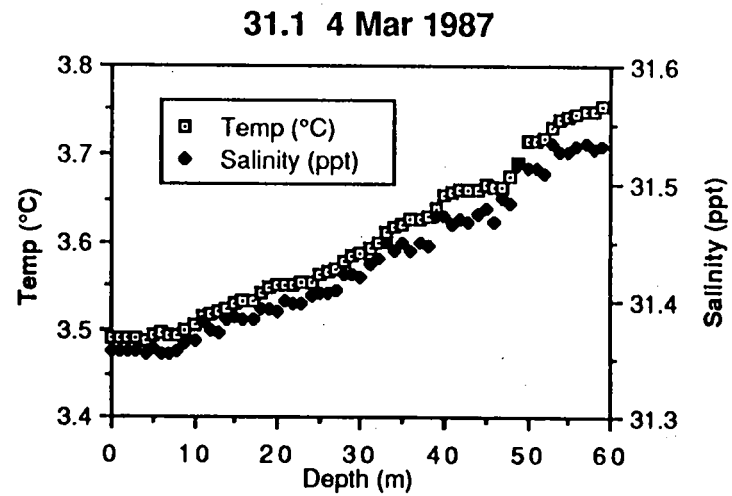

29.1 19 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
5.4
5.2
5.0
4.8
4.6
4.4
32.8
32.6
32.4
32.2
32.0
0
20
40
60
80
100

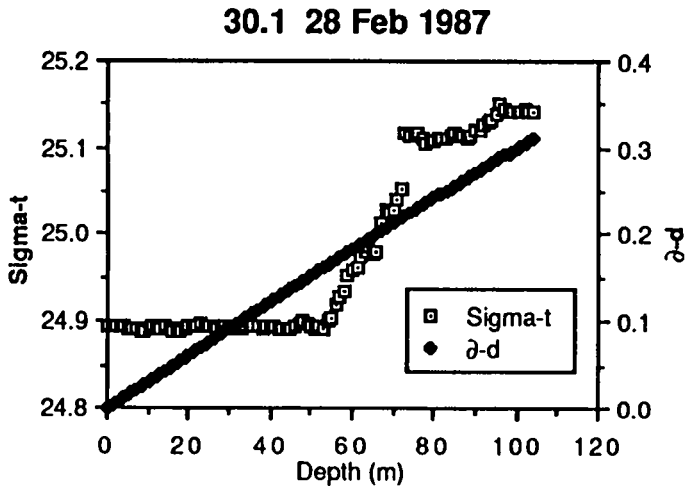

29.2 19 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
5.4
5.2
5.0
4.8
4.6
4.4
4.2
33.0
32.8
32.6
32.4
32.2
32.0
31.8
0
20
40
60
80
100

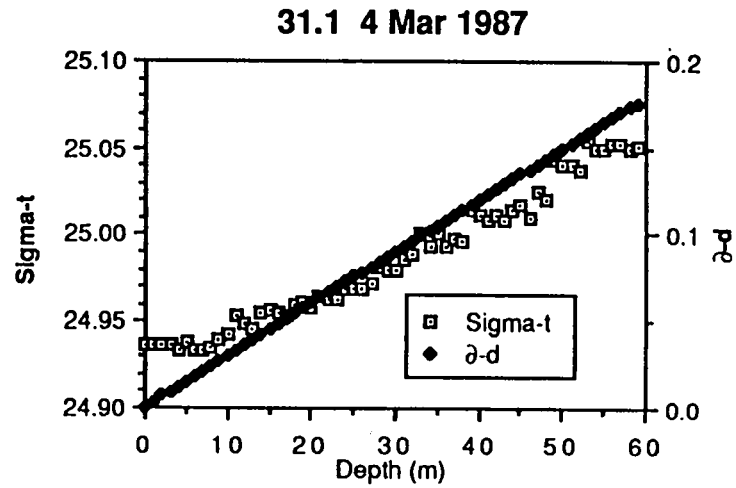

29.1 19 Feb 1987
Sigma-t
∂-d
Depth (m)
25.8
25.7
25.6
25.5
25.4
25.3
0.3
0.2
0.1
0.0
0
20
40
60
80
100

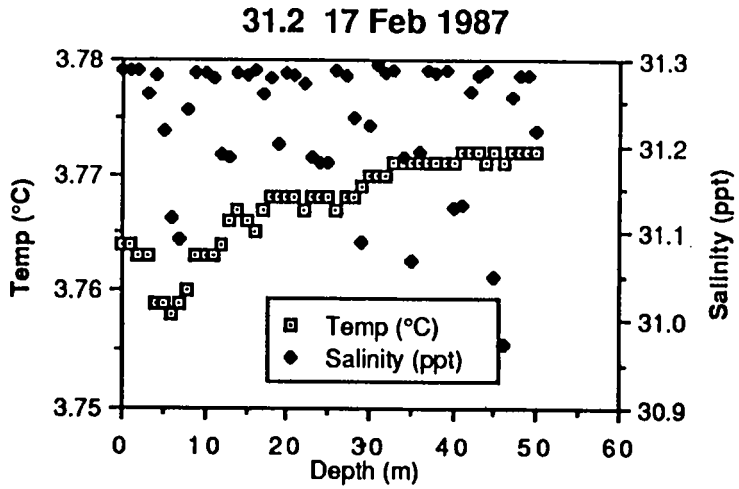

29.2 19 Feb 1987
Sigma-t
∂-d
Depth (m)
26.0
25.8
25.6
25.4
25.2
0.3
0.2
0.1
0.0
0
20
40
60
80
100

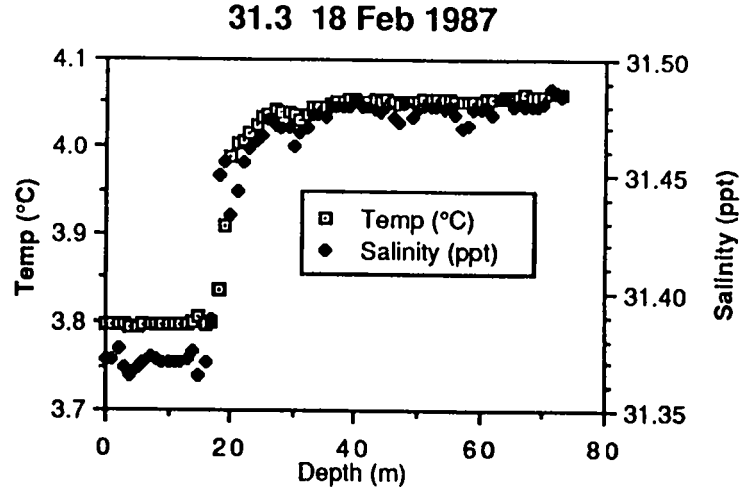

30.1 28 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.4
4.2
4.0
3.8
3.6
3.4
3.2
31.8
31.7
31.6
31.5
31.4
31.3
31.2
0
20
40
60
80
100
120

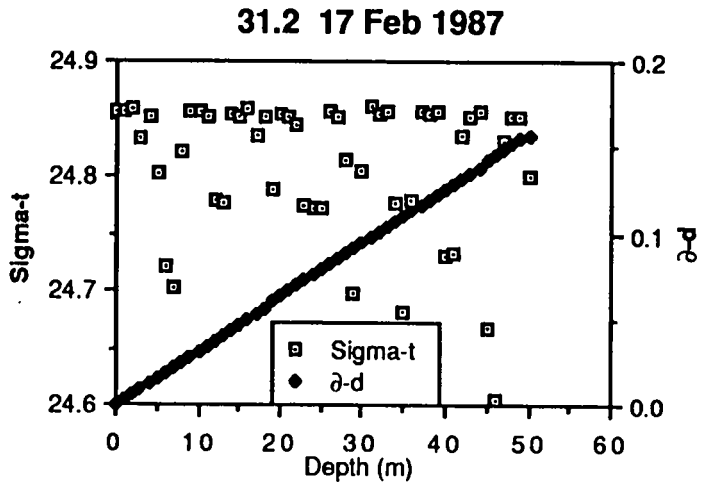

31.1 4 Mar 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
3.8
3.7
3.6
3.5
3.4
31.6
31.5
31.4
31.3
0
10
20
30
40
50
60

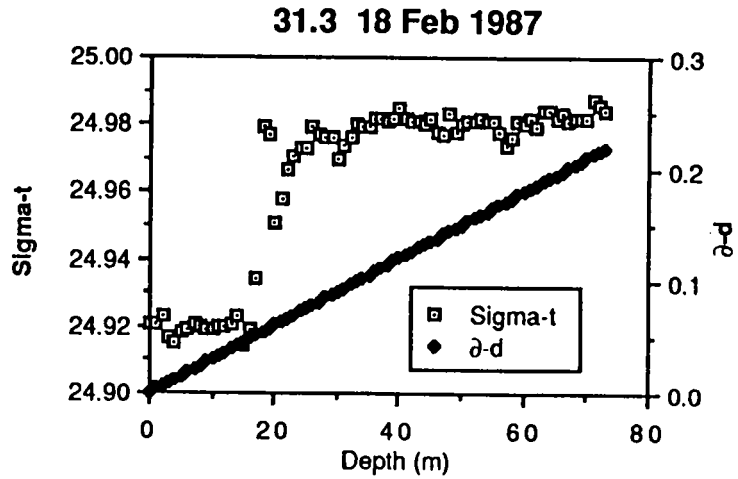

30.1 28 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.2
25.1
25.0
24.9
24.8
0.4
0.3
0.2
0.1
0.0
0
20
40
60
80
100
120

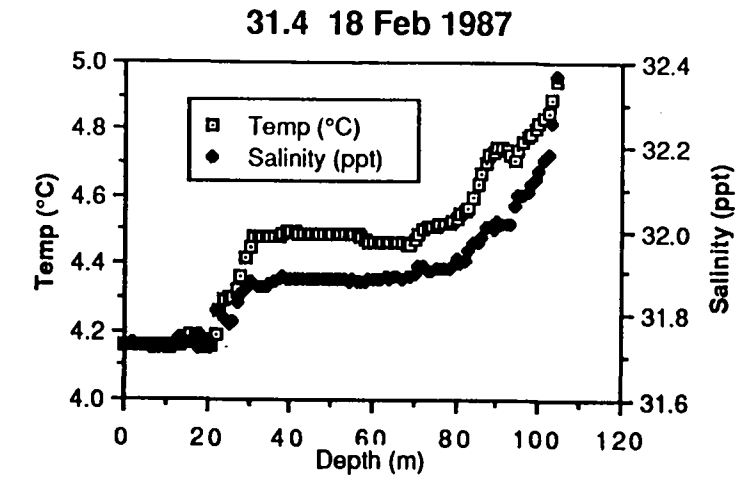

31.1 4 Mar 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.10
25.05
25.00
24.95
24.90
0.2
0.1
0.0
0
10
20
30
40
50
60

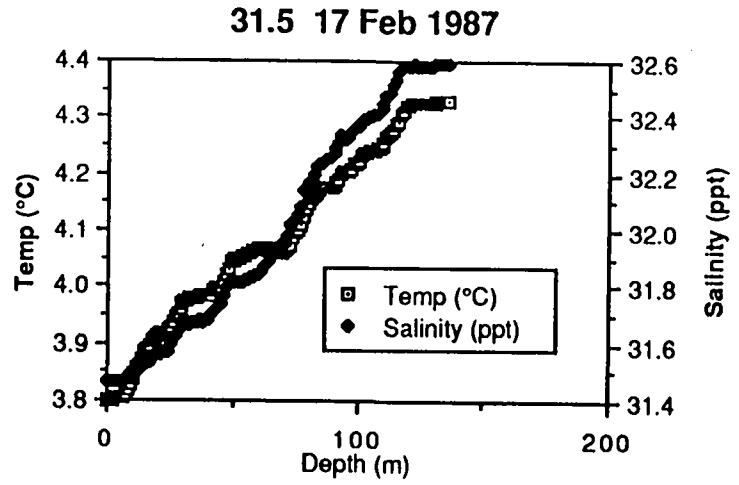

31.2 17 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

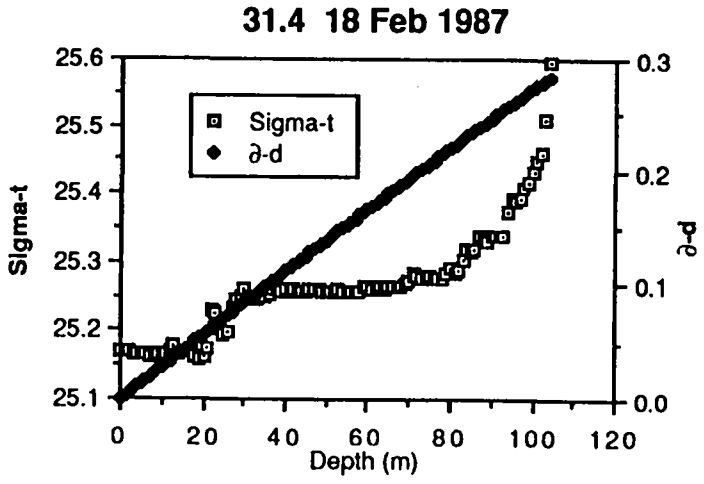

31.3 18 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

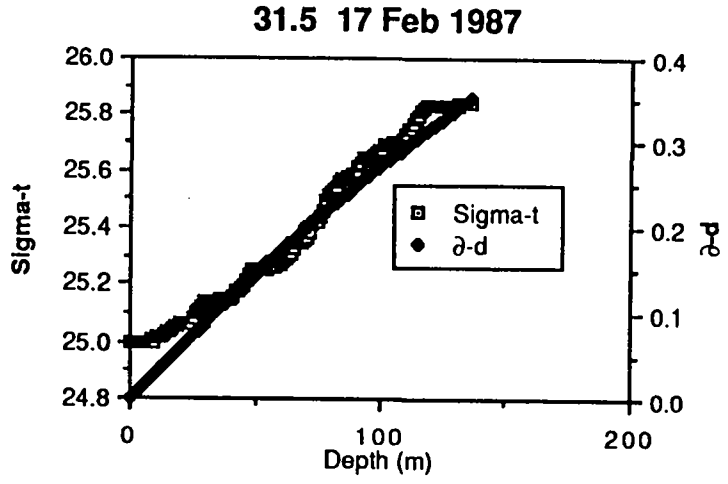

31.2 17 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

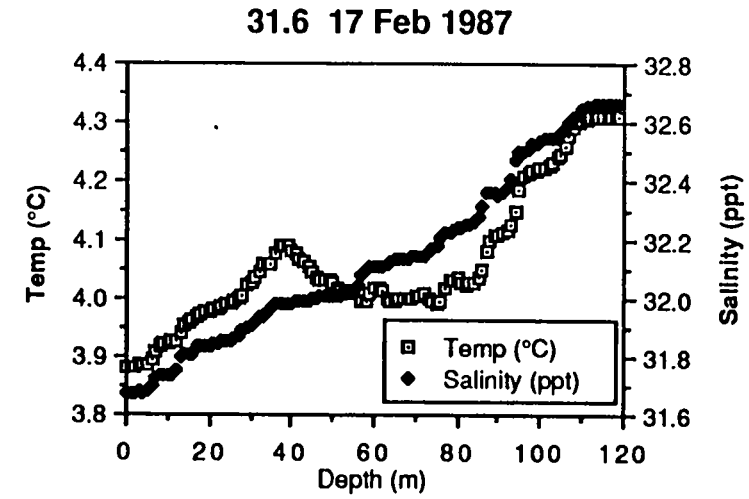

31.3 18 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

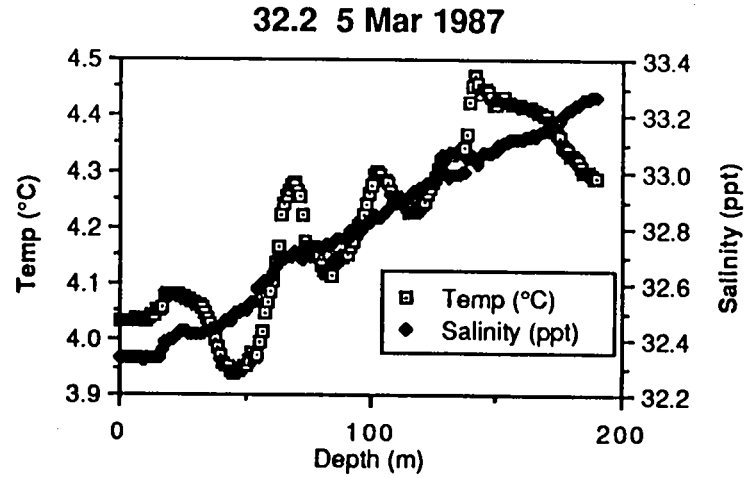

31.4 18 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
5.0
4.8
4.6
4.4
4.2
4.0
32.4
32.2
32.0
31.8
31.6
0
20
40
60
80
100
120

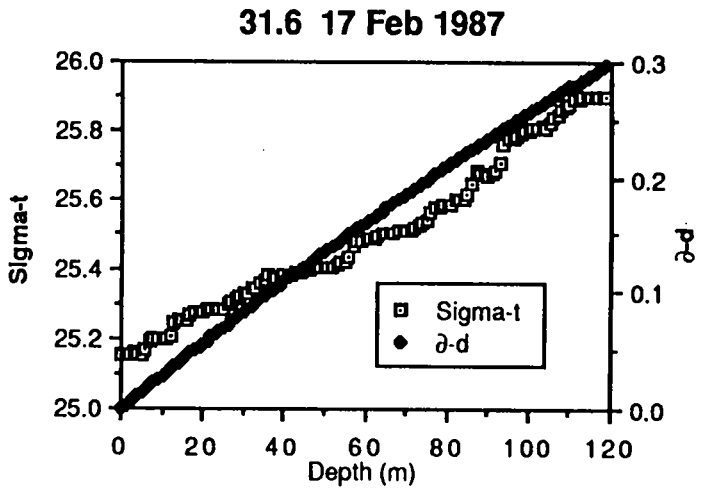

31.5 17 Feb 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.4
4.3
4.2
4.1
4.0
3.9
3.8
32.6
32.4
32.2
32.0
31.8
31.6
31.4
0
100
200

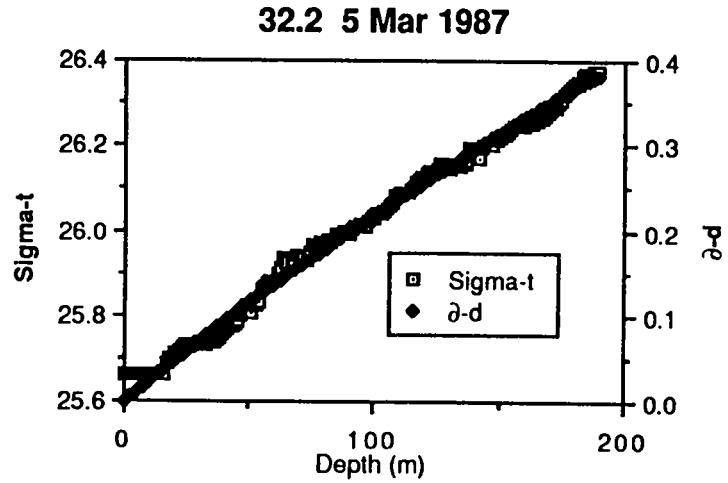

31.4 18 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.6
25.5
25.4
25.3
25.2
25.1
0.3
0.2
0.1
0.0
0
20
40
60
80
100
120

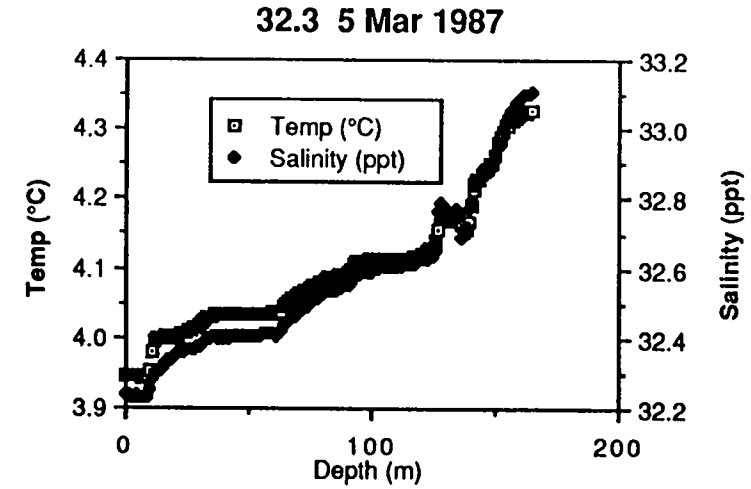

31.5 17 Feb 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.0
25.8
25.6
25.4
25.2
25.0
24.8
0.4
0.3
0.2
0.1
0.0
0
100
200

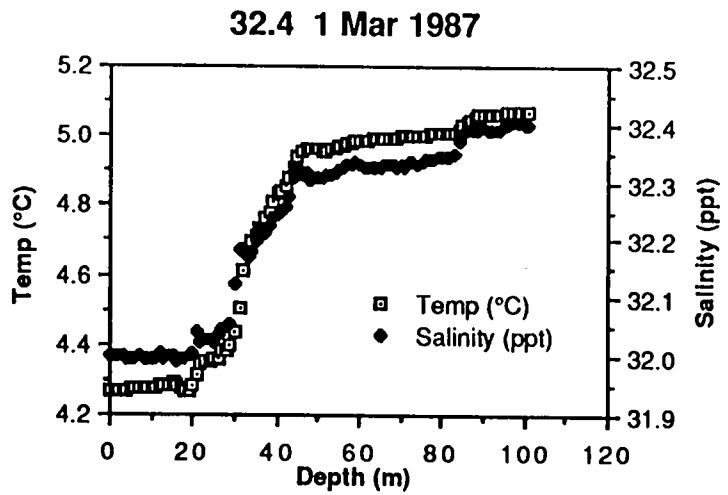

31.6 17 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

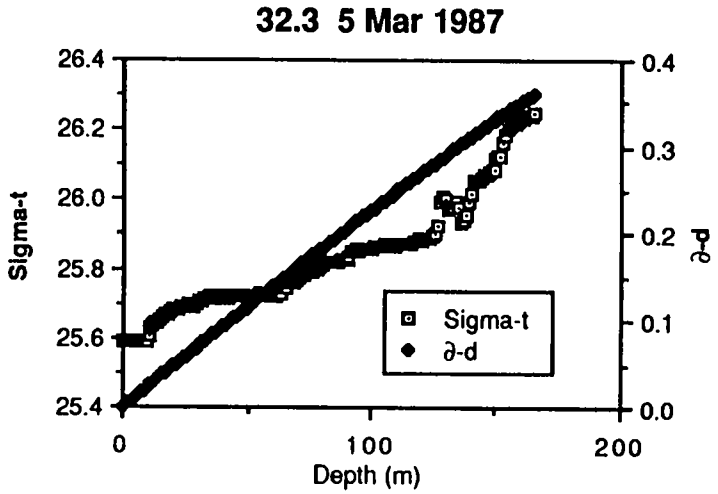

32.2 5 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

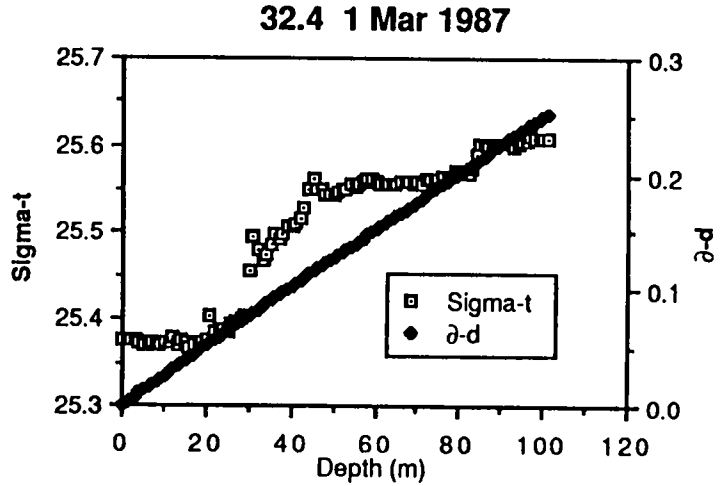

31.6 17 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

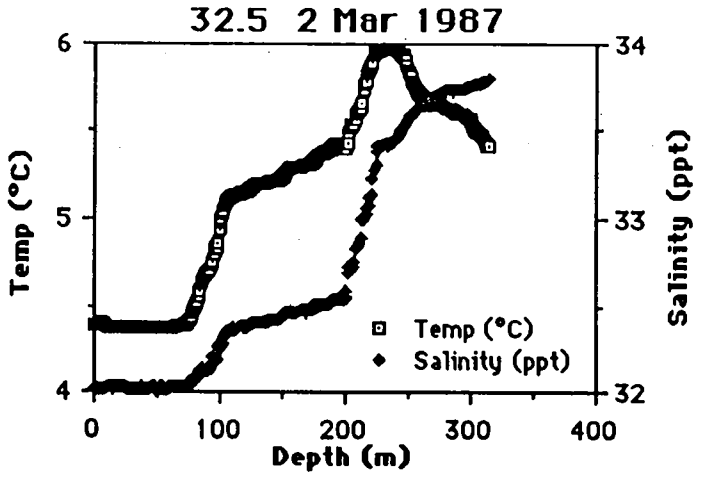

32.2 5 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

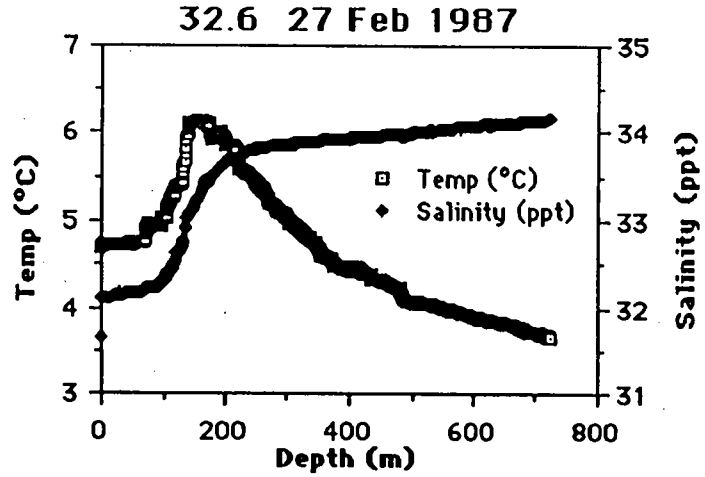

32.3 5 Mar 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.4
4.3
4.2
4.1
4.0
3.9
33.2
33.0
32.8
32.6
32.4
32.2
0
100
200

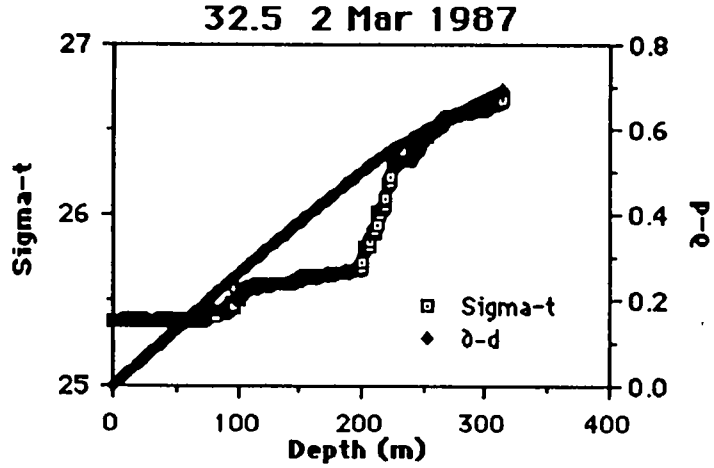

32.4 1 Mar 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
5.2
5.0
4.8
4.6
4.4
4.2
32.5
32.4
32.3
32.2
32.1
32.0
31.9
0
20
40
60
80
100
120

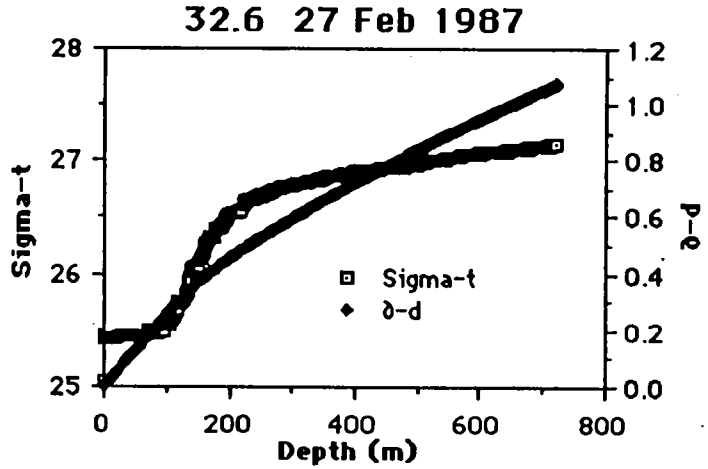

32.3 5 Mar 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.4
26.2
26.0
25.8
25.6
25.4
0.4
0.3
0.2
0.1
0.0
0
100
200


32.4 1 Mar 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.7
25.6
25.5
25.4
25.3
0.3
0.2
0.1
0.0
0
20
40
60
80
100
120


32.5 2 Mar 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

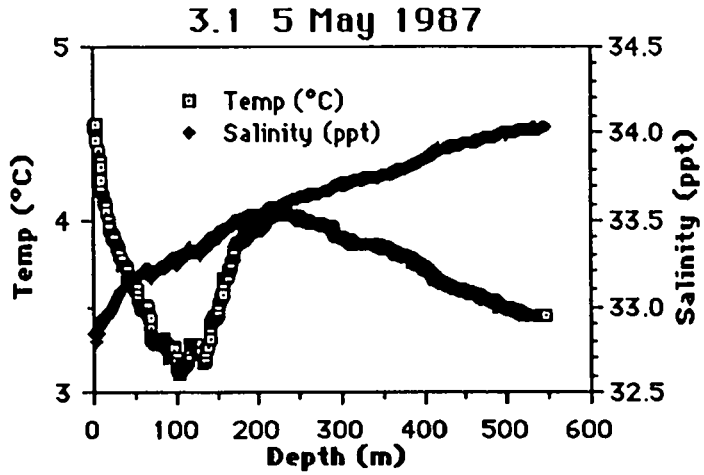

32.6 27 Feb 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

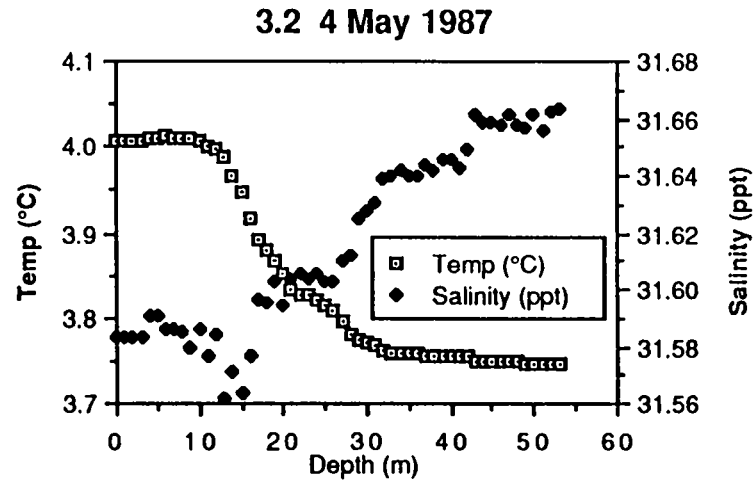

32.5 2 Mar 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

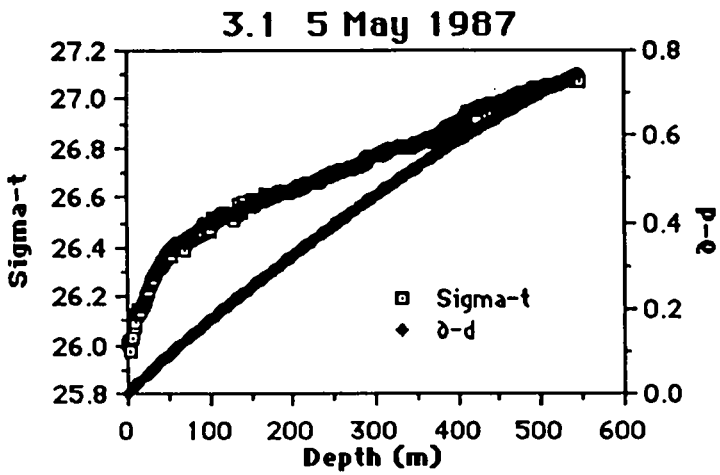

32.6 27 Feb 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

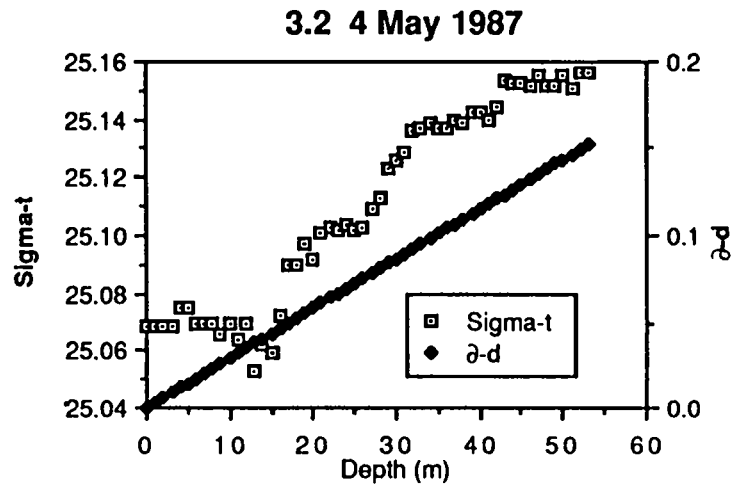
APPENDIX B-3

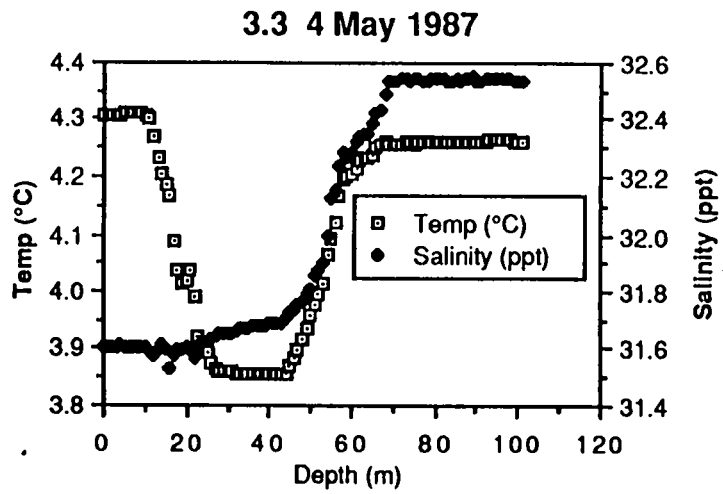
Temperature and salinity vertical profiles as determined by CTD casts at sampling stations in spring 1987 in the Unimak Pass area, Alaska. Sampling station numbers (tops of graphs) can be matched with their locations in Fig. 4 of Appendix E.

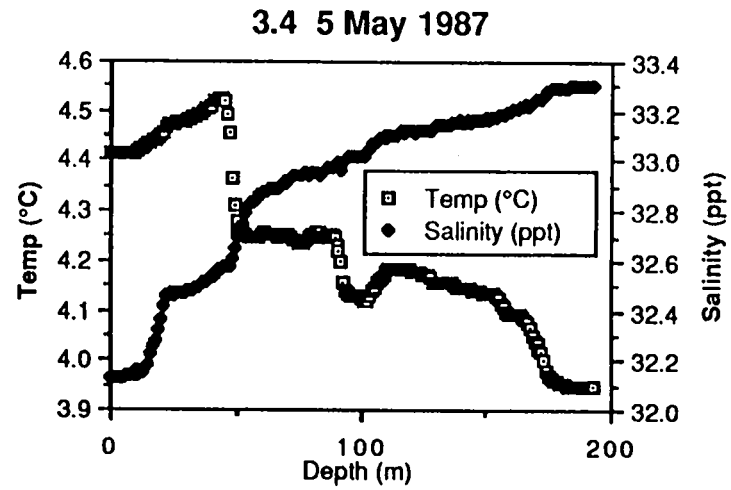

3.1 5 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)

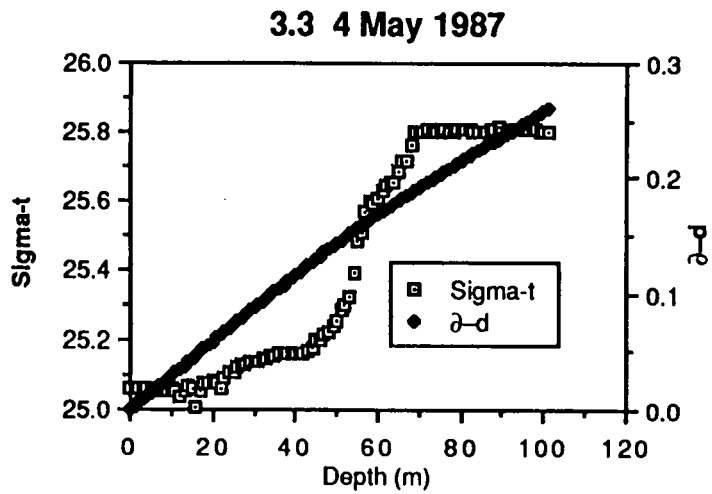

3.2 4 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)

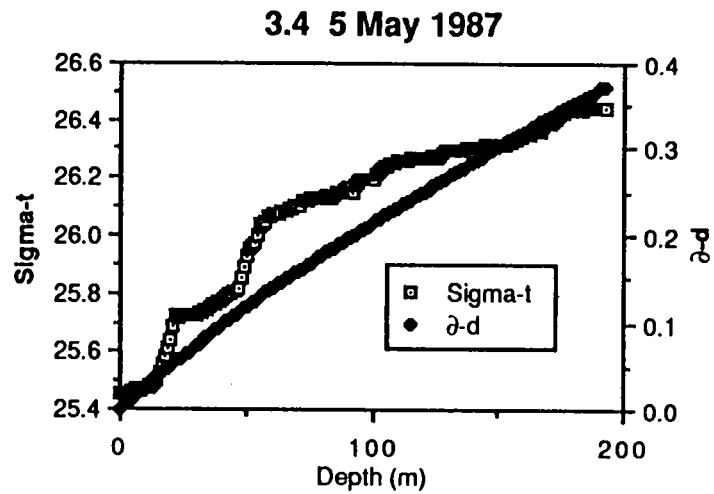

3.1 5 May 1987
Sigma-t
∂-d
Depth (m)

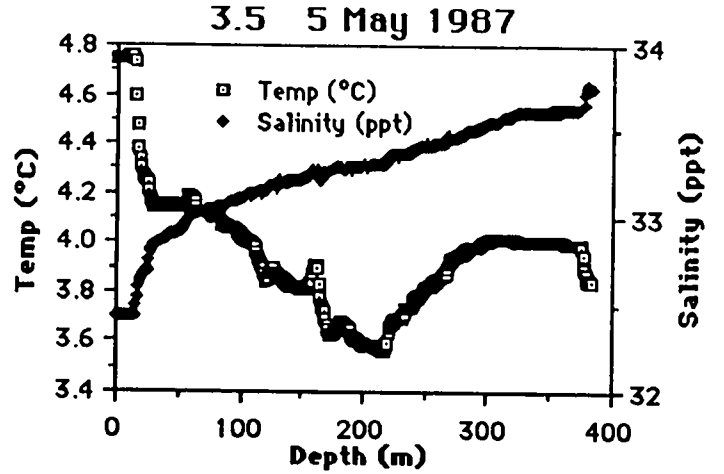

3.2 4 May 1987
Sigma-t
∂-d
Depth (m)

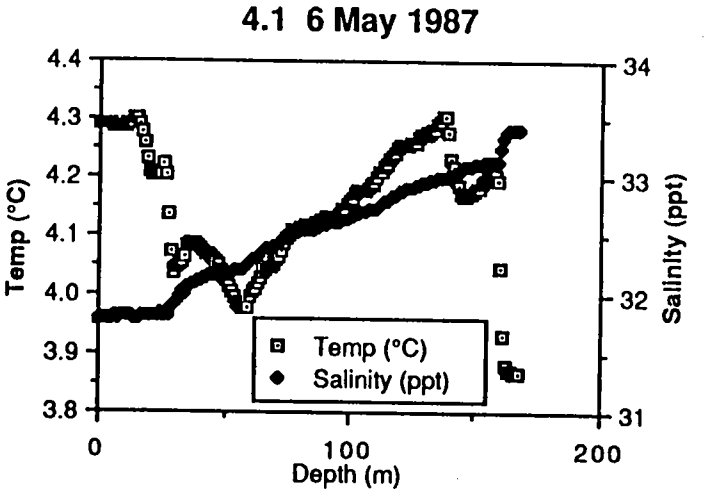

3.3 4 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

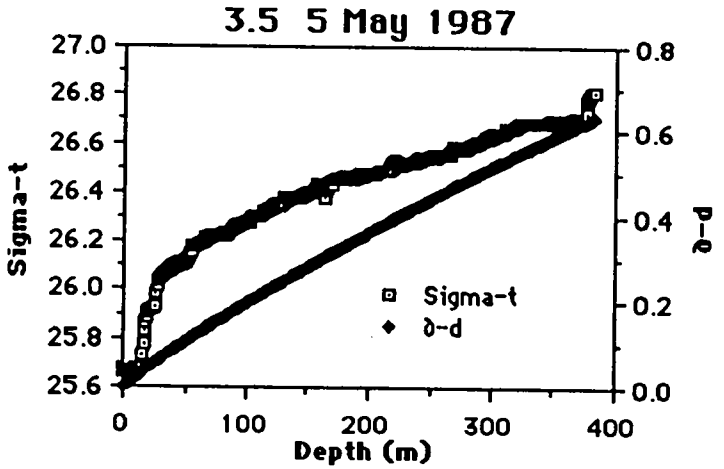

3.4 5 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

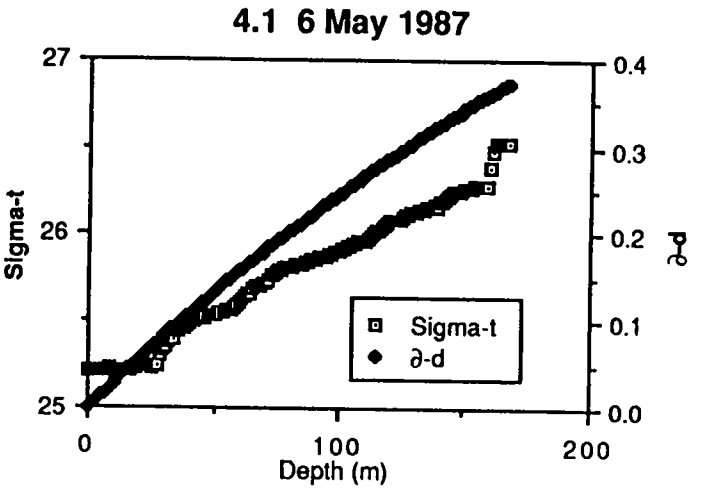

3.3 4 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

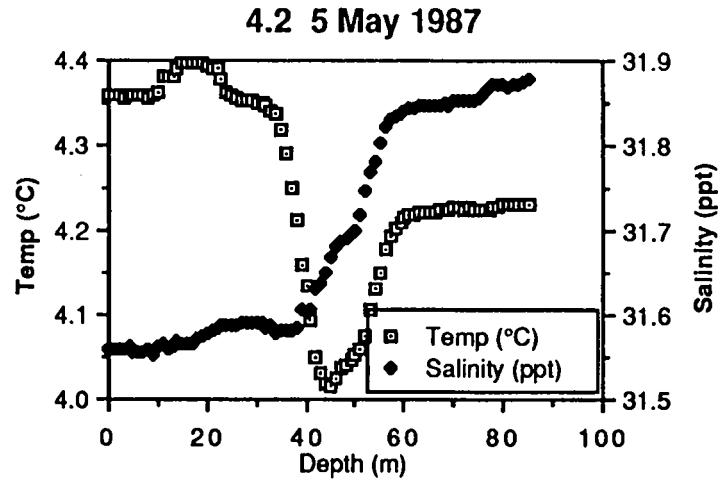

3.4 5 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

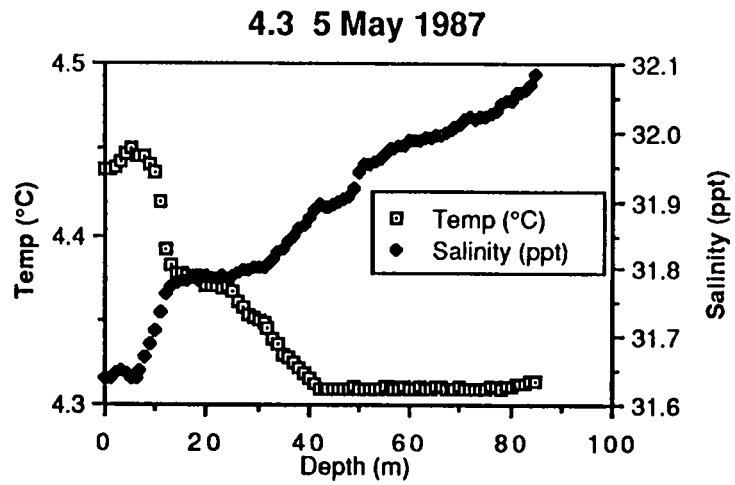

3.5 5 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)

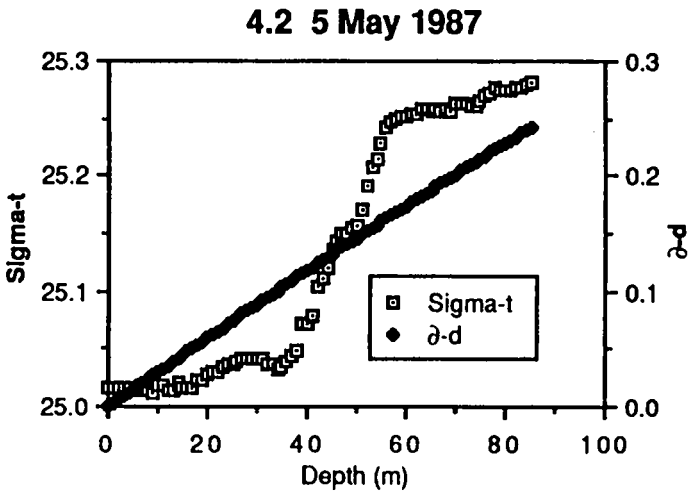

4.1 6 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)

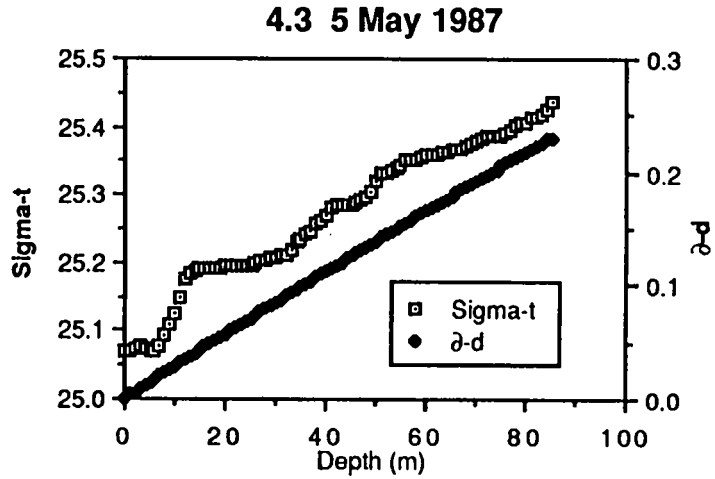

3.5 5 May 1987
Sigma-t
∂-d
Depth (m)

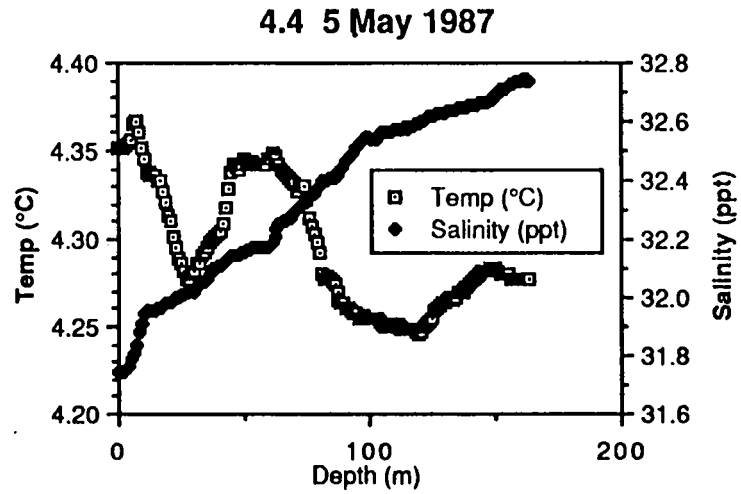

4.1 6 May 1987
Sigma-t
∂-d
Depth (m)

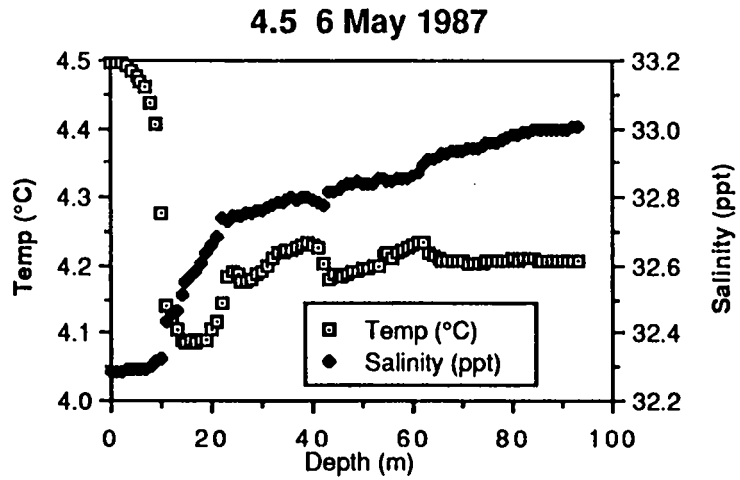

4.2 5 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

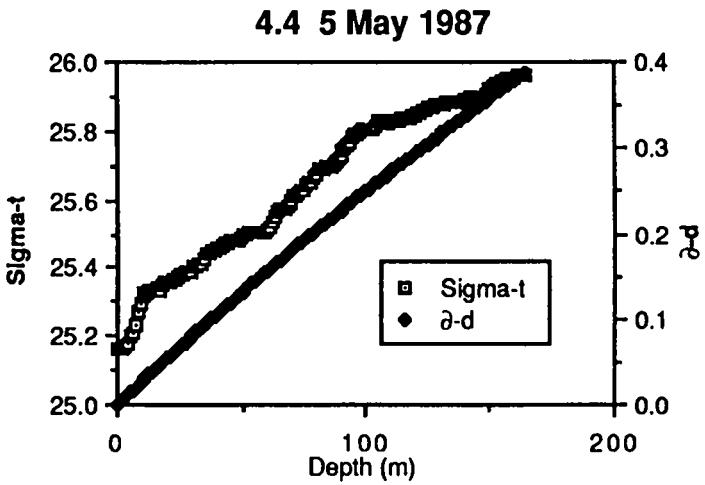

4.3 5 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

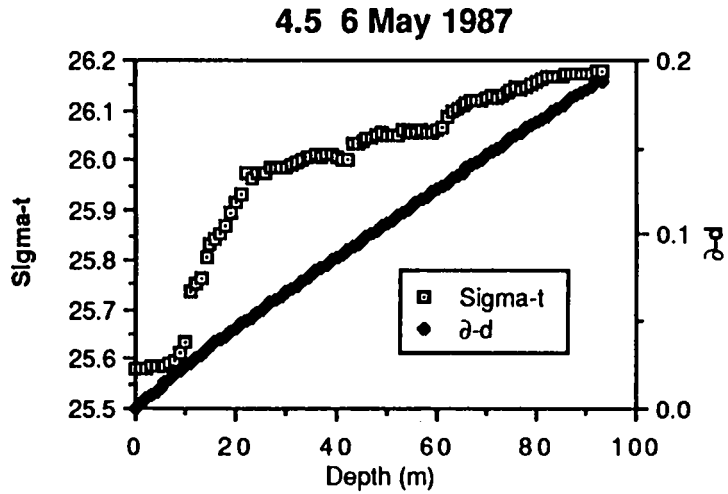

4.2 5 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

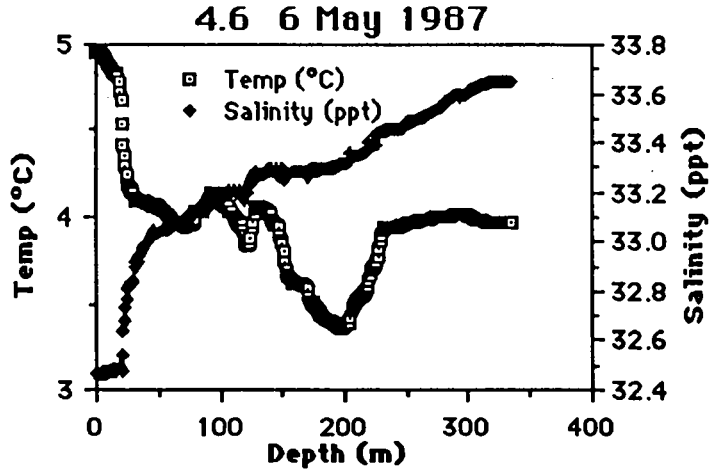

4.3 5 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

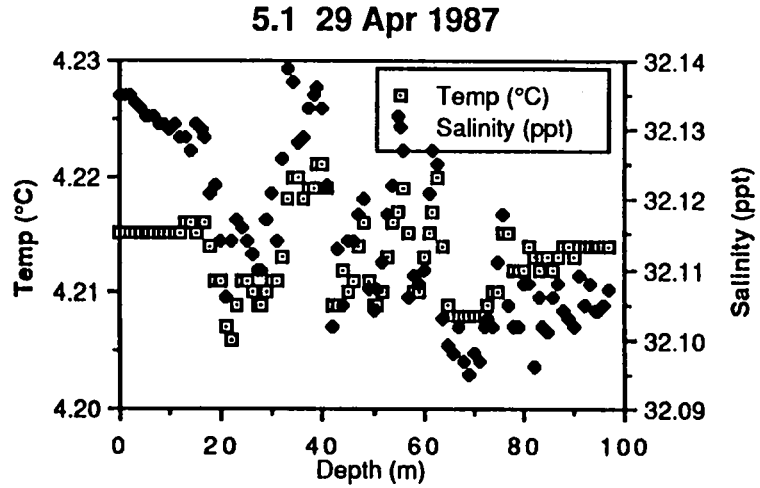

4.4 5 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

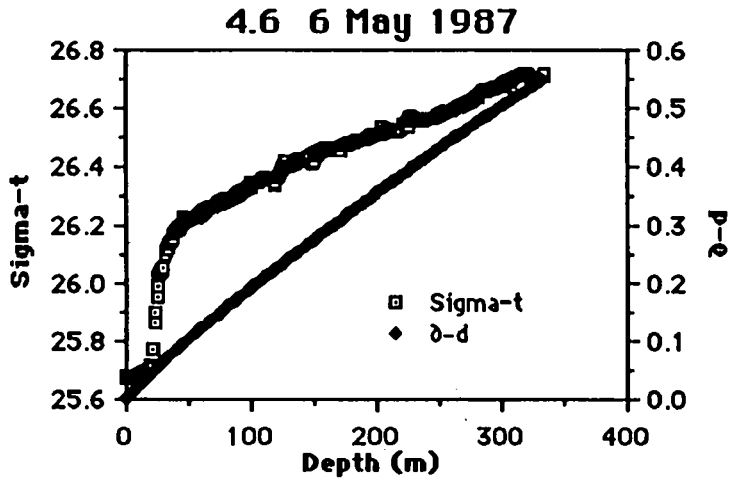

4.5 6 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

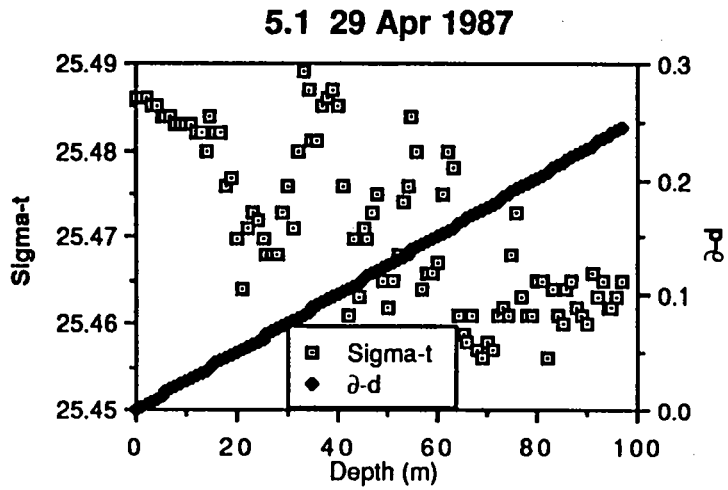

4.4 5 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

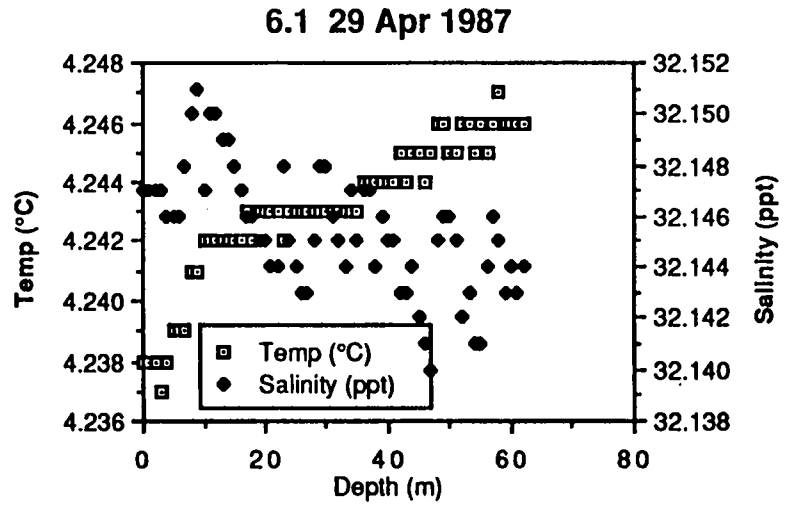

4.5 6 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

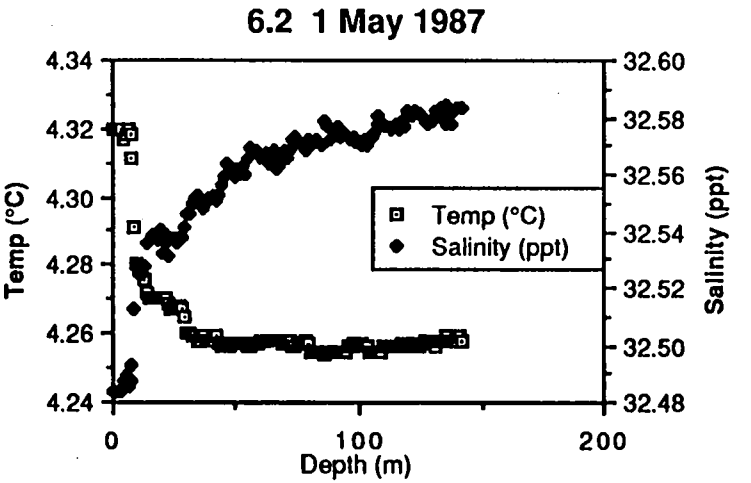

4.6 6 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
5
4
3
33.8
33.6
33.4
33.2
33.0
32.8
32.6
32.4
0
100
200
300
400

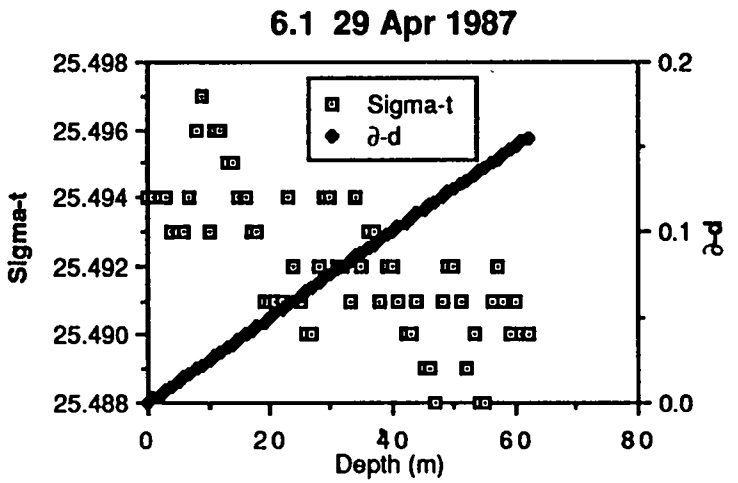

5.1 29 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.23
4.22
4.21
4.20
32.14
32.13
32.12
32.11
32.10
32.09
0
20
40
60
80
100

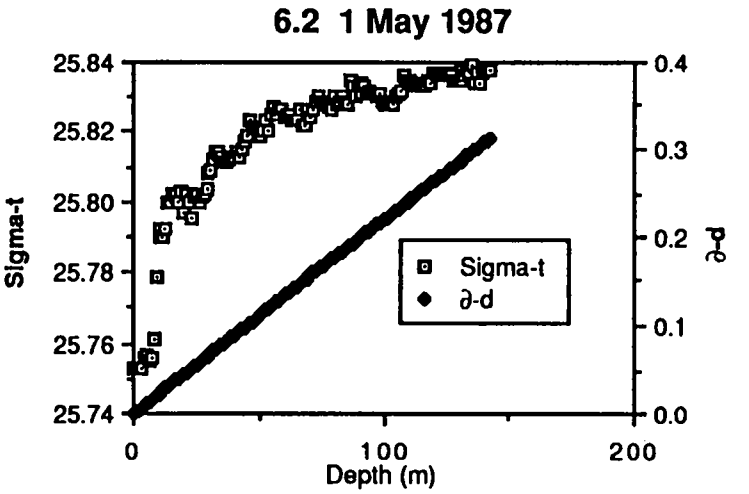

4.6 6 May 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.8
26.6
26.4
26.2
26.0
25.8
25.6
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
100
200
300
400

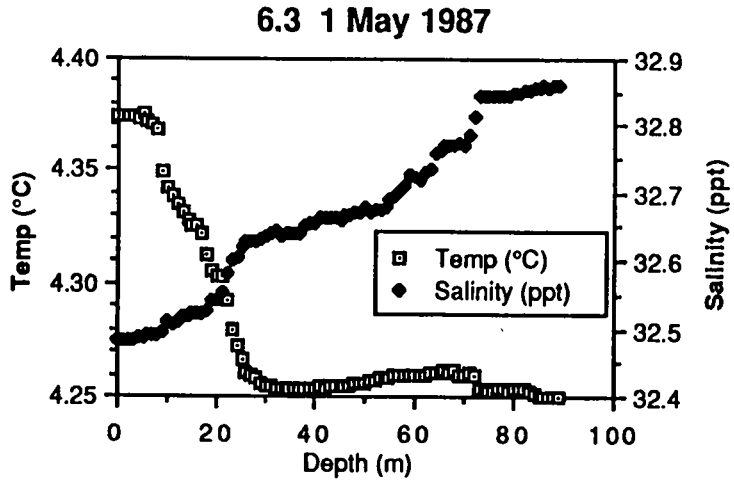

5.1 29 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.49
25.48
25.47
25.46
25.45
0.3
0.2
0.1
0.0
0
20
40
60
80
100

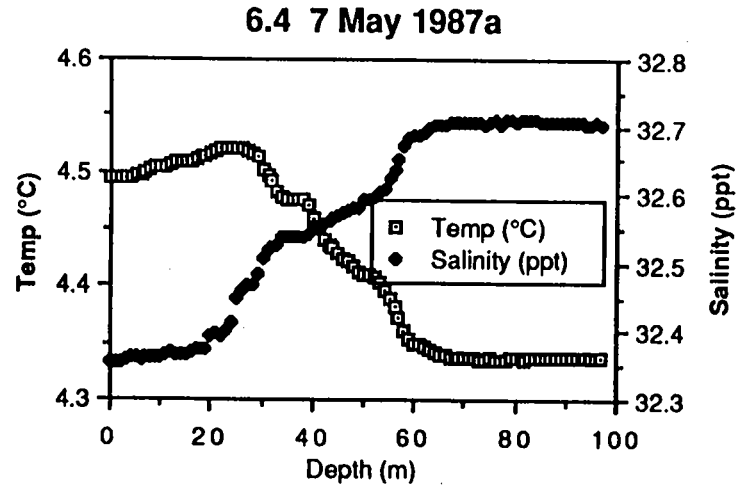

6.1 29 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

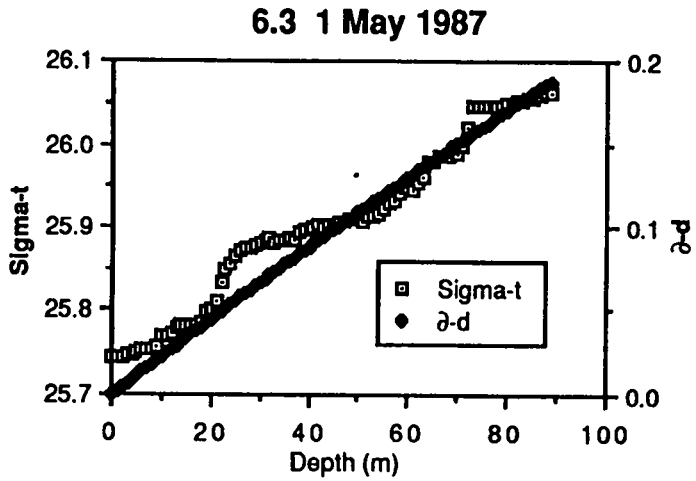

6.2 1 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

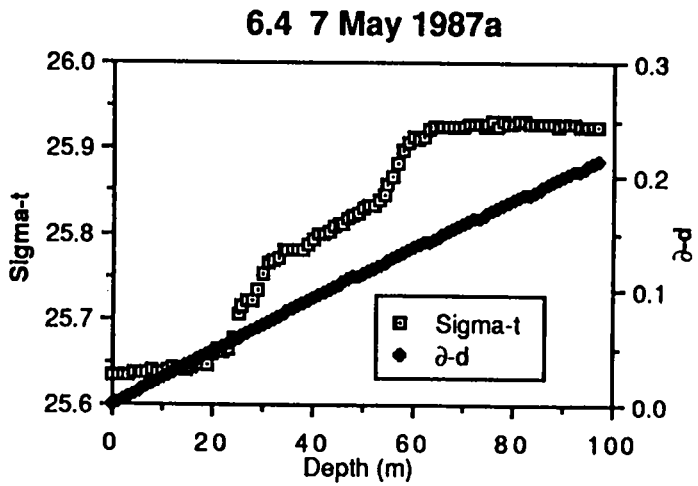

6.1 29 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
Sigma-t
∂-d

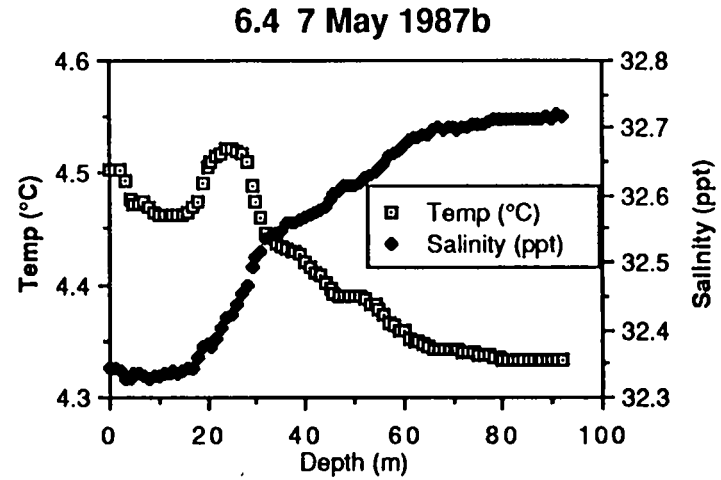

6.2 1 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
Sigma-t
∂-d

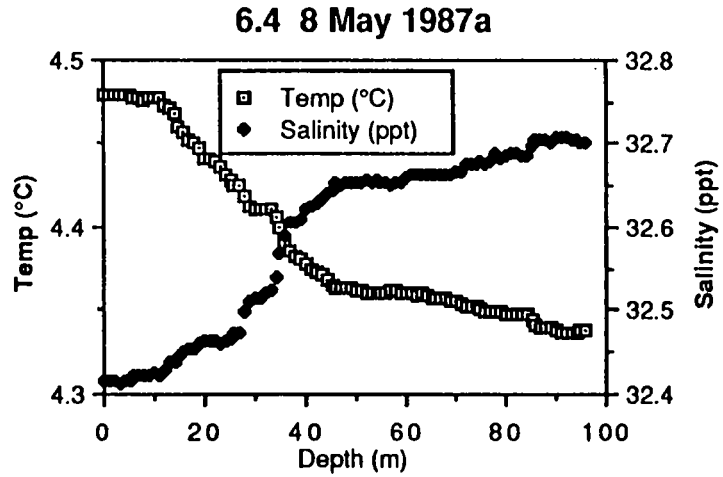

6.3 1 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

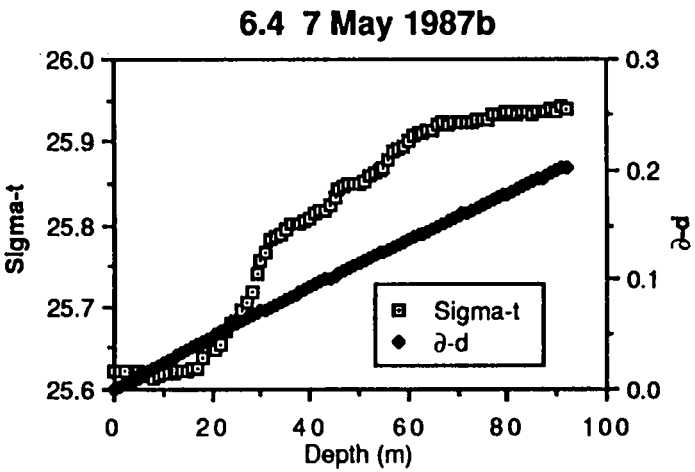

6.4 7 May 1987a
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

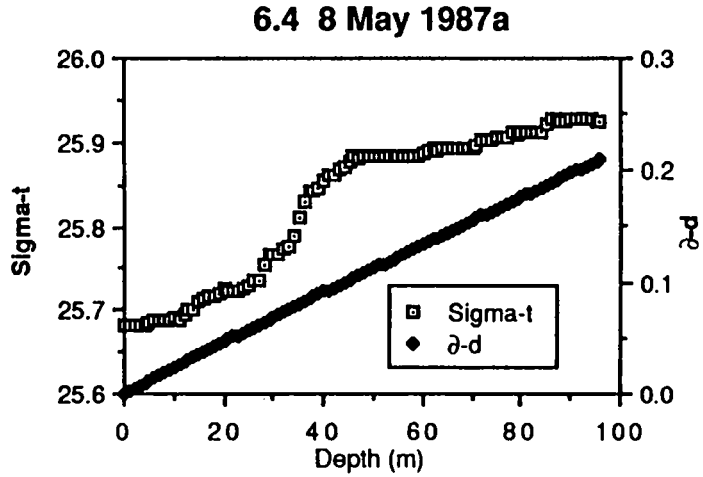

6.3 1 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

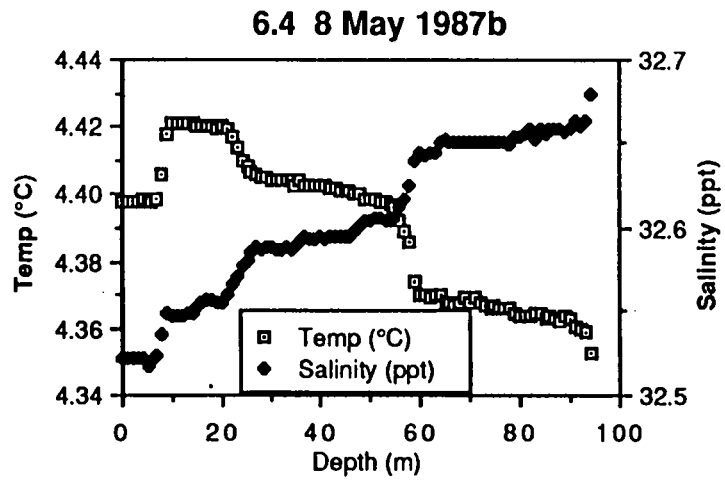

6.4 7 May 1987a
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

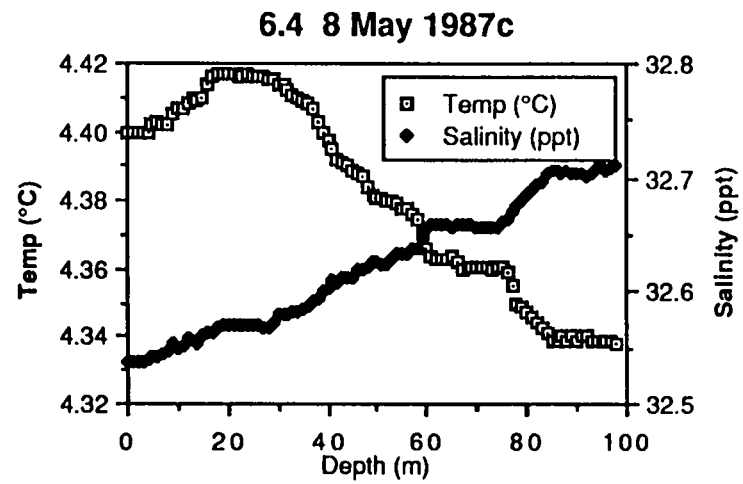

6.4 7 May 1987b
Temp (°C)
Salinity (ppt)
Depth (m)
4.6
4.5
4.4
4.3
32.8
32.7
32.6
32.5
32.4
32.3
0
20
40
60
80
100

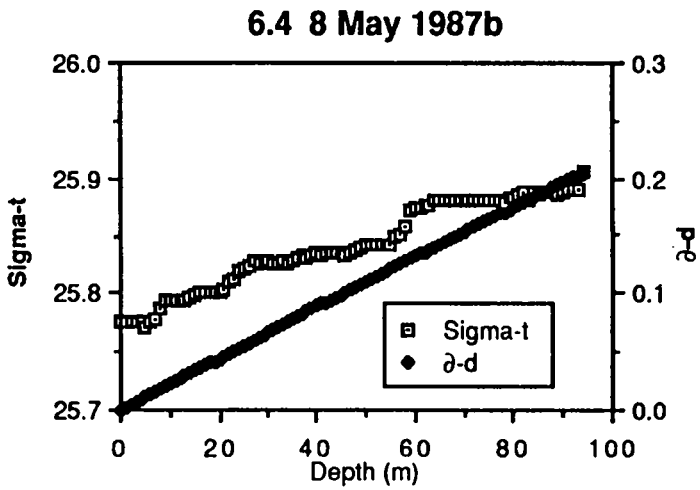

6.4 8 May 1987a
Temp (°C)
Salinity (ppt)
Depth (m)
4.5
4.4
4.3
32.8
32.7
32.6
32.5
32.4
0
20
40
60
80
100

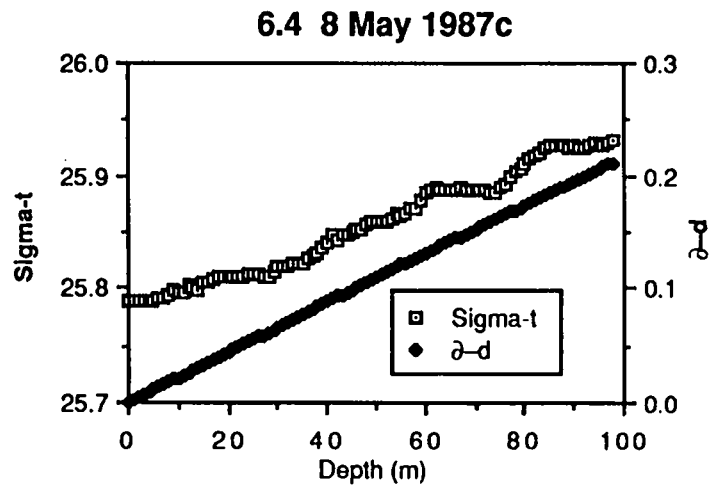

6.4 7 May 1987b
Sigma-t
∂-d
Depth (m)
26.0
25.9
25.8
25.7
25.6
0.3
0.2
0.1
0.0
0
20
40
60
80
100

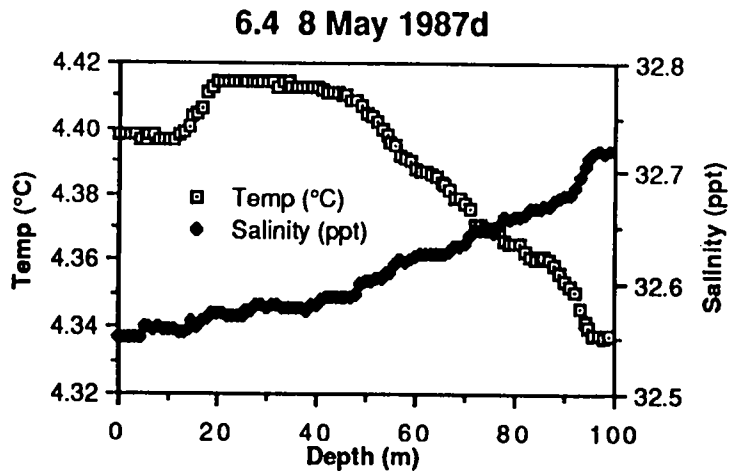

6.4 8 May 1987a
Sigma-t
∂-d
Depth (m)
26.0
25.9
25.8
25.7
25.6
0.3
0.2
0.1
0.0
0
20
40
60
80
100

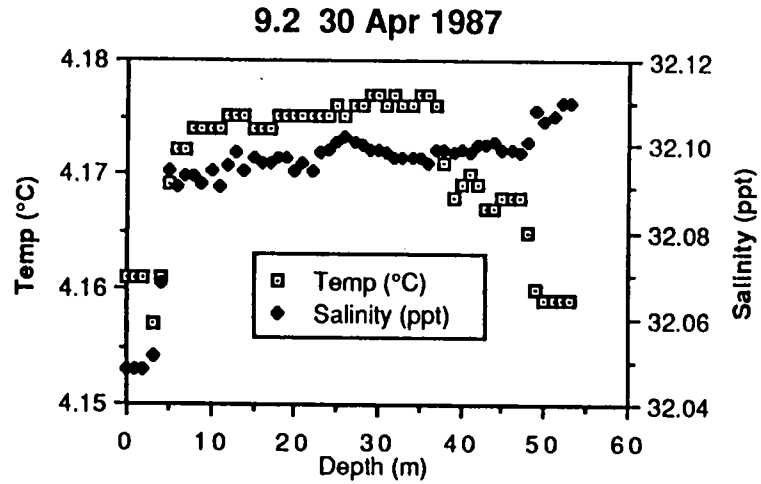

6.4 8 May 1987b
Temp (°C)
Salinity (ppt)
Depth (m)
4.44
4.42
4.40
4.38
4.36
4.34
32.7
32.6
32.5
0
20
40
60
80
100

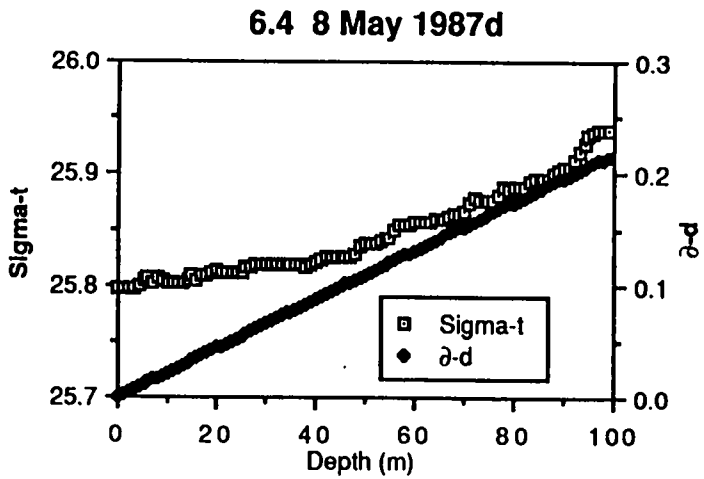

6.4 8 May 1987c
Temp (°C)
Salinity (ppt)
Depth (m)
4.42
4.40
4.38
4.36
4.34
4.32
32.8
32.7
32.6
32.5
0
20
40
60
80
100

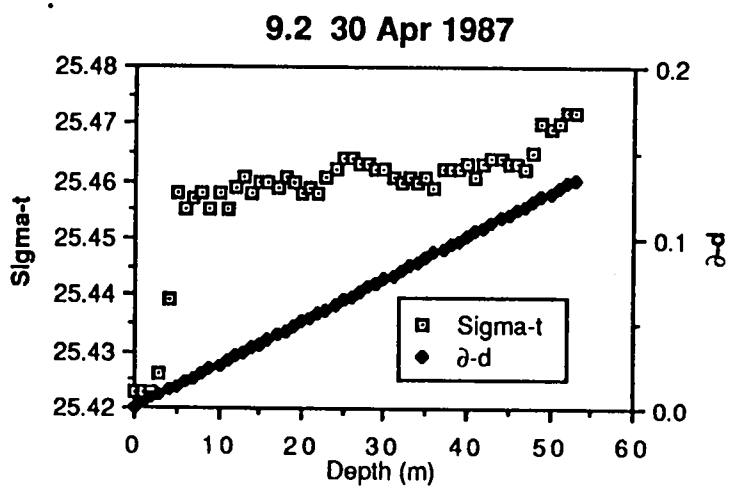

6.4 8 May 1987b
Sigma-t
∂-d
Depth (m)
26.0
25.9
25.8
25.7
0.3
0.2
0.1
0.0
0
20
40
60
80
100

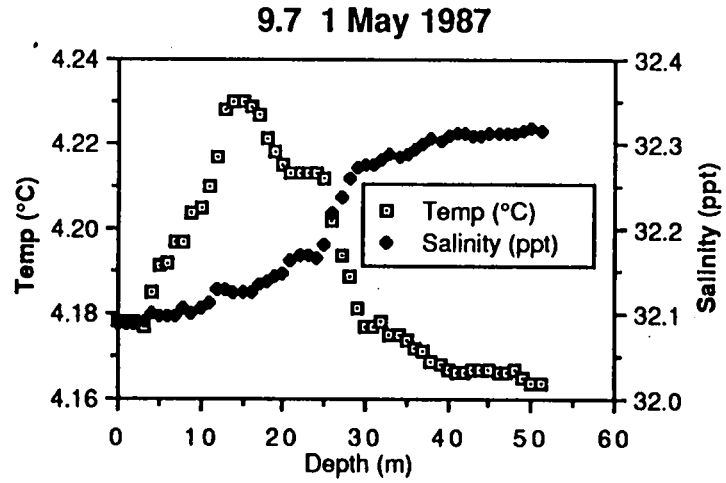

6.4 8 May 1987c
Sigma-t
∂-d
Depth (m)
26.0
25.9
25.8
25.7
0.3
0.2
0.1
0.0
0
20
40
60
80
100

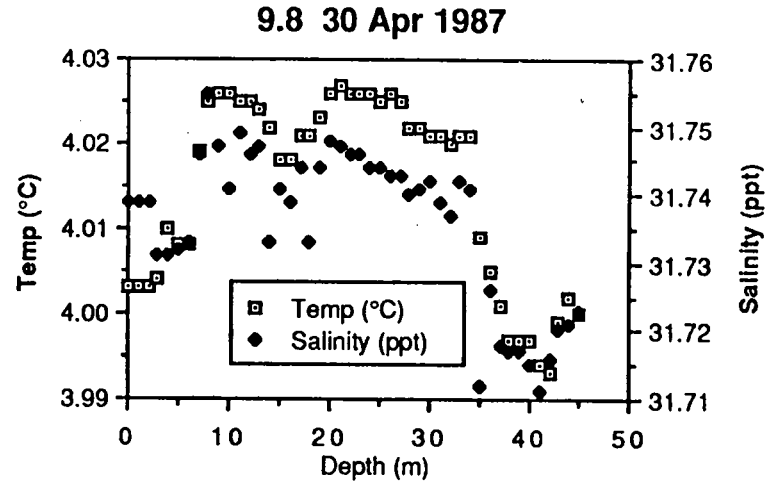

6.4 8 May 1987d
Temp (°C)
Salinity (ppt)
Depth (m)
4.42
4.40
4.38
4.36
4.34
4.32
32.8
32.7
32.6
32.5
0
20
40
60
80
100

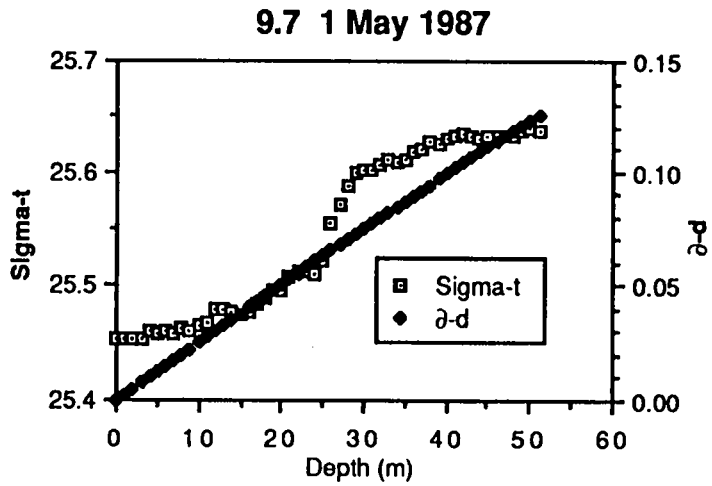

9.2 30 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.18
4.17
4.16
4.15
32.12
32.10
32.08
32.06
32.04
0
10
20
30
40
50
60

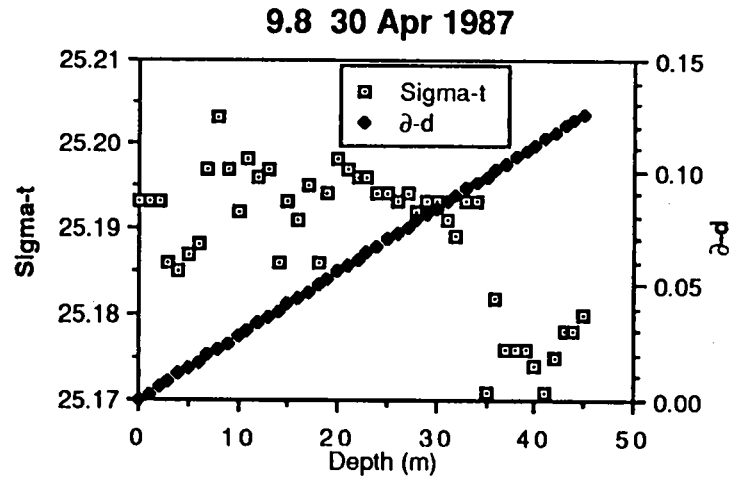

6.4 8 May 1987d
Sigma-t
∂-d
Depth (m)
26.0
25.9
25.8
25.7
0.3
0.2
0.1
0.0
0
20
40
60
80
100

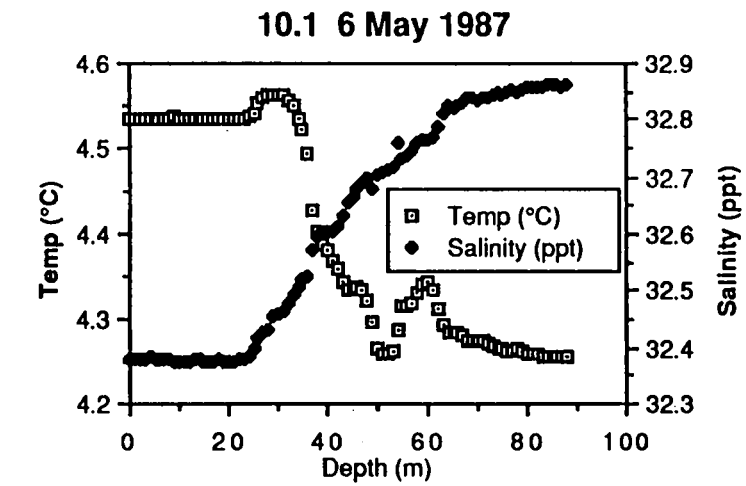

9.2 30 Apr 1987
Sigma-t
∂-d
Depth (m)
25.48
25.47
25.46
25.45
25.44
25.43
25.42
0.2
0.1
0.0
0
10
20
30
40
50
60

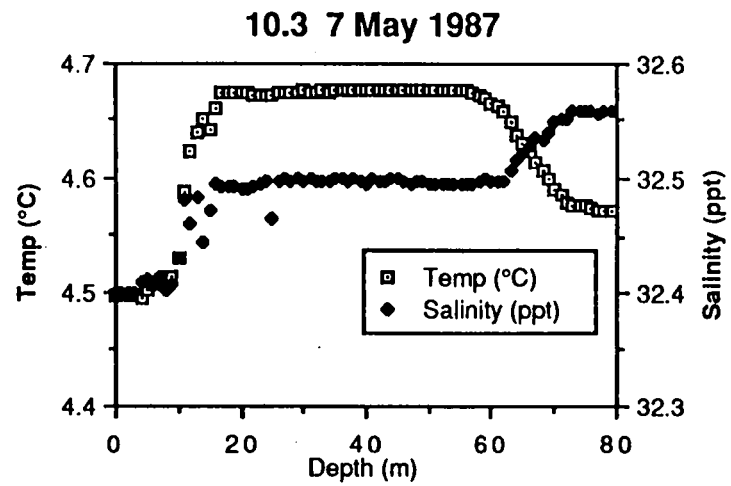

9.7 1 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

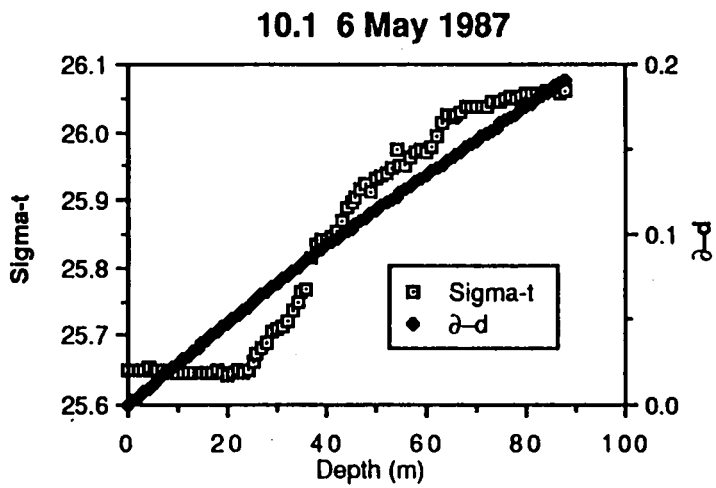

9.8 30 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

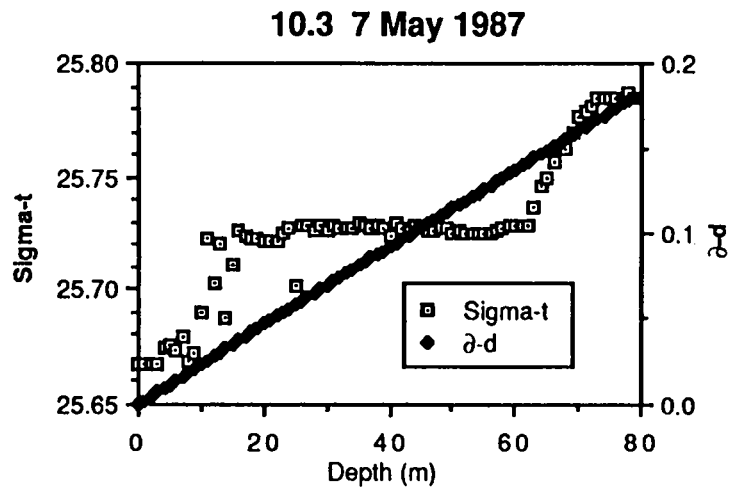

9.7 1 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

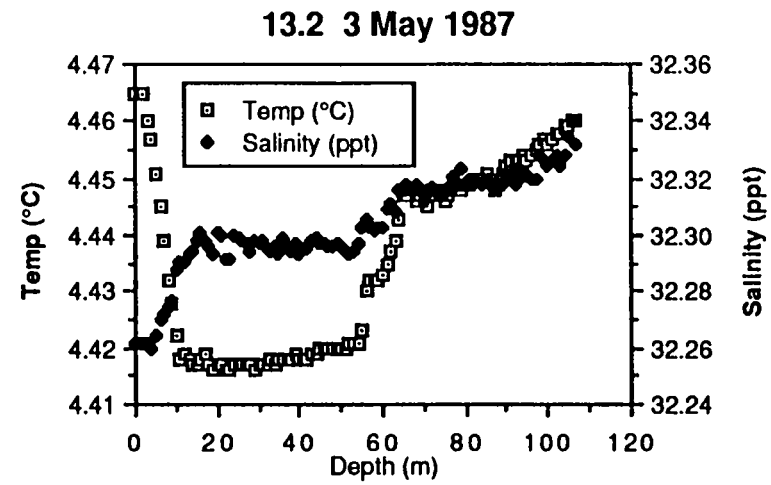

9.8 30 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

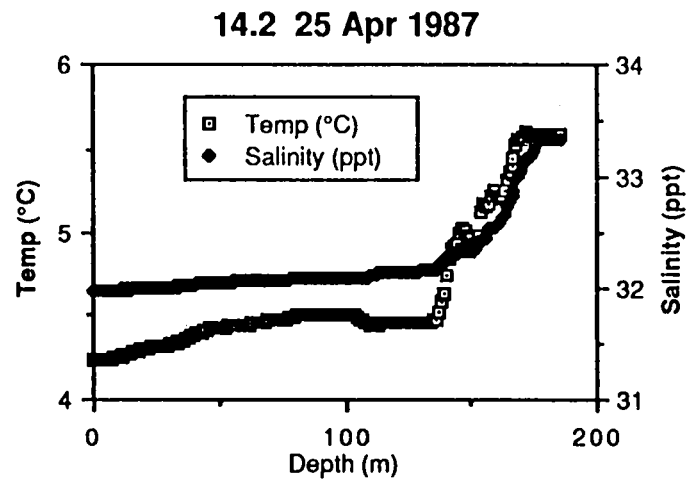

10.1 6 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

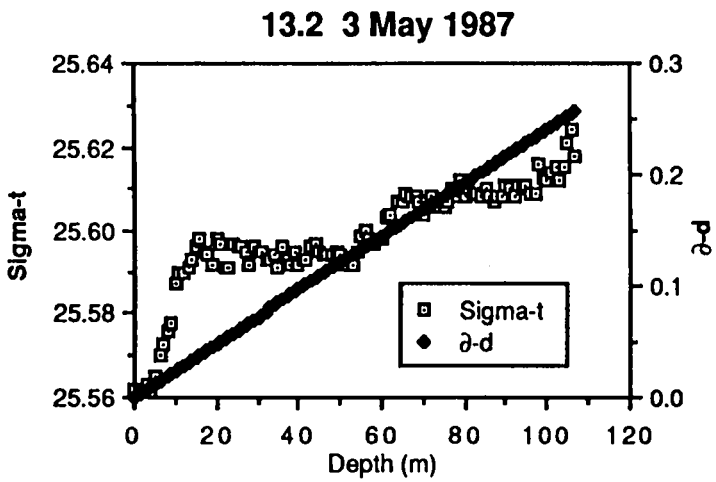

10.3 7 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

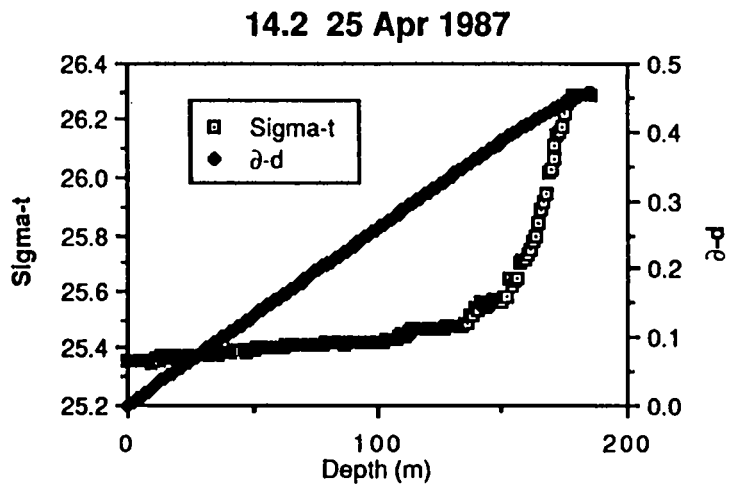

10.1 6 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

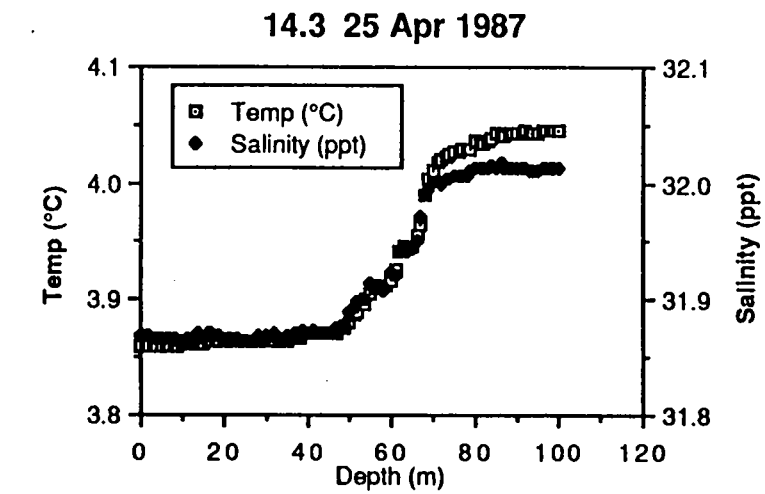

10.3 7 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

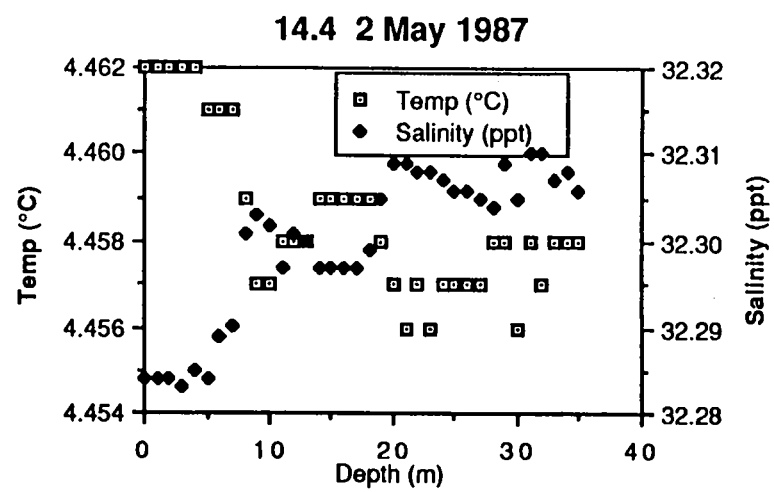

13.2 3 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.47
4.46
4.45
4.44
4.43
4.42
4.41
32.36
32.34
32.32
32.30
32.28
32.26
32.24
0
20
40
60
80
100
120

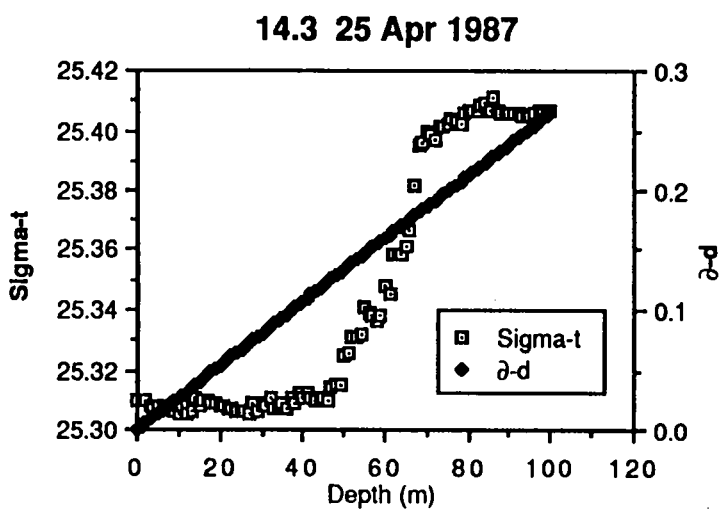

14.2 25 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
6
5
4
34
33
32
31
0
100
200

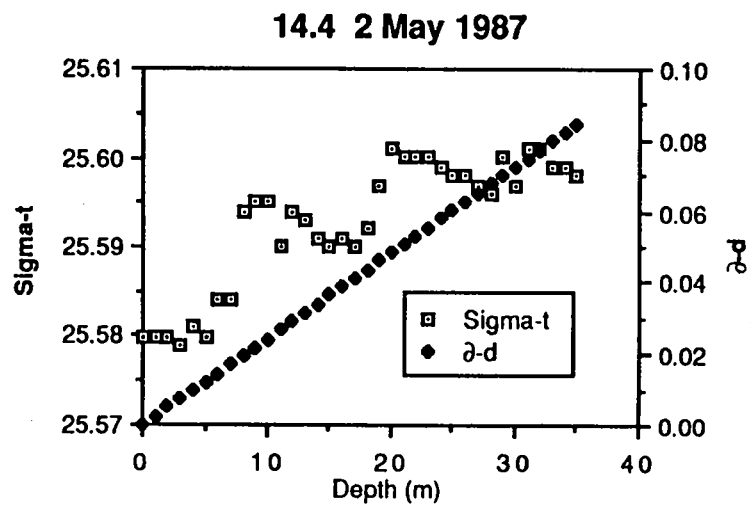

13.2 3 May 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.64
25.62
25.60
25.58
25.56
0.3
0.2
0.1
0.0
0
20
40
60
80
100
120

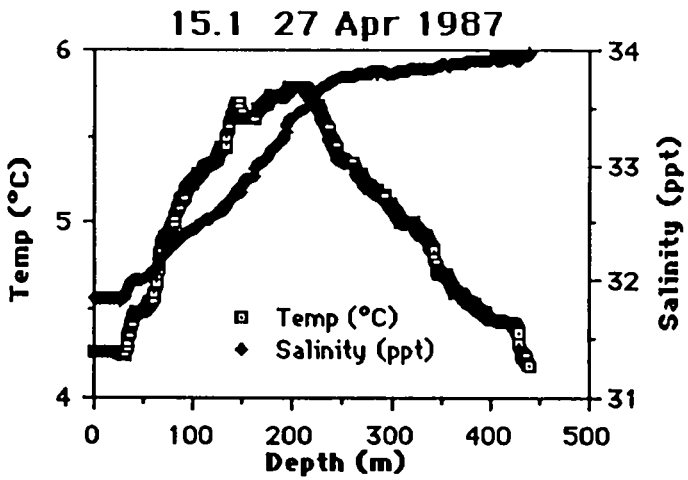

14.2 25 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.4
26.2
26.0
25.8
25.6
25.4
25.2
0.5
0.4
0.3
0.2
0.1
0.0
0
100
200

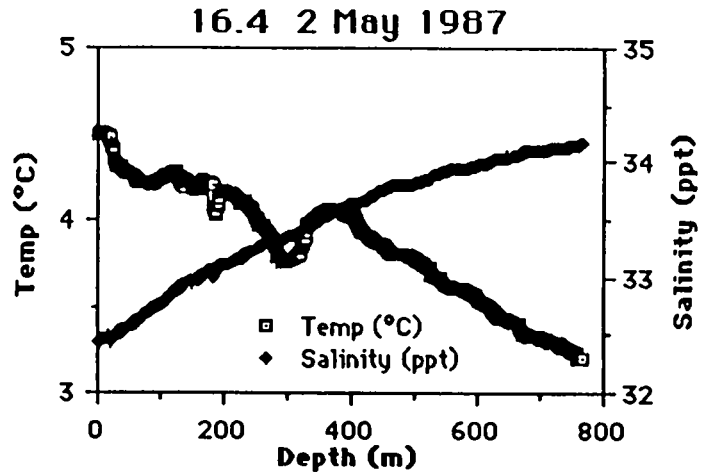

14.3 25 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.1
4.0
3.9
3.8
32.1
32.0
31.9
31.8
0
20
40
60
80
100
120

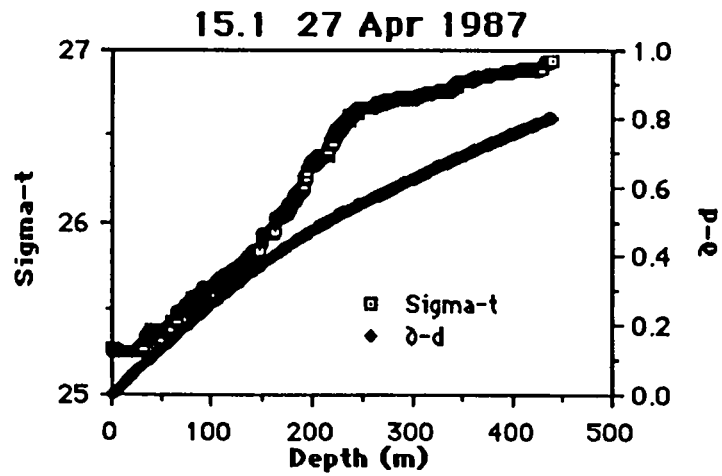

14.4 2 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.462
4.460
4.458
4.456
4.454
32.32
32.31
32.30
32.29
32.28
0
10
20
30
40

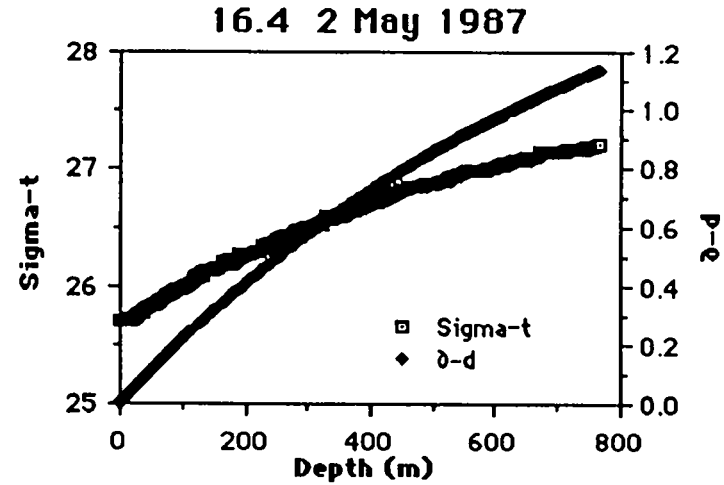

14.3 25 Apr 1987
Sigma-t
∂-d
Depth (m)
25.42
25.40
25.38
25.36
25.34
25.32
25.30
0.3
0.2
0.1
0.0
0
20
40
60
80
100
120

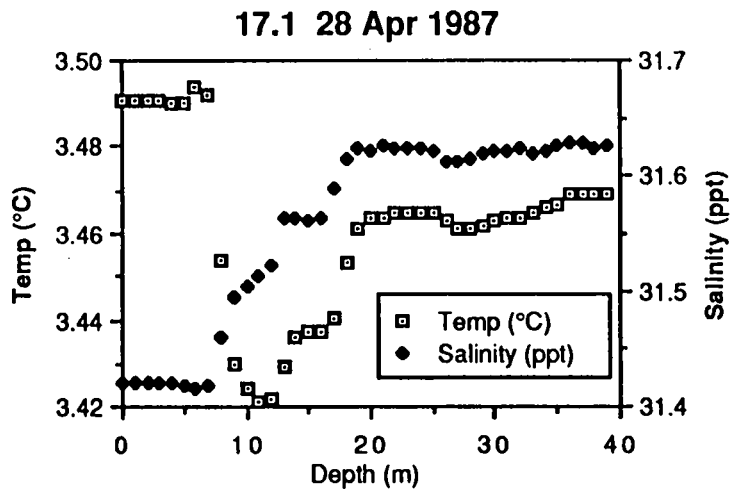

14.4 2 May 1987
Sigma-t
∂-d
Depth (m)
25.61
25.60
25.59
25.58
25.57
0.10
0.08
0.06
0.04
0.02
0.00
0
10
20
30
40

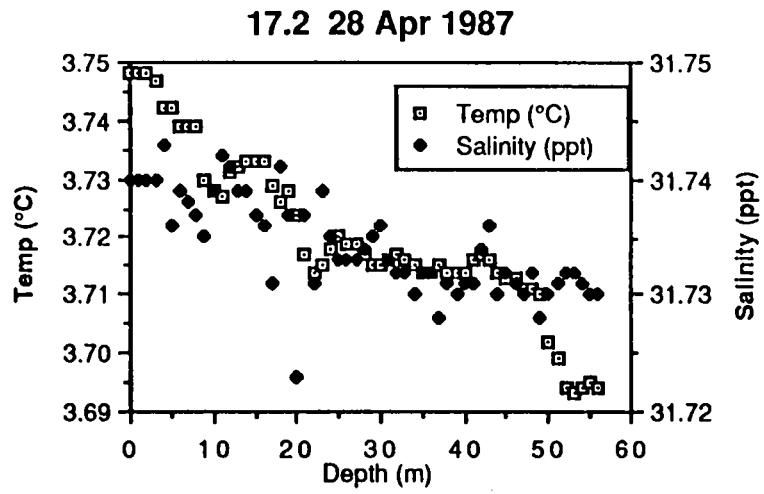

15.1 27 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

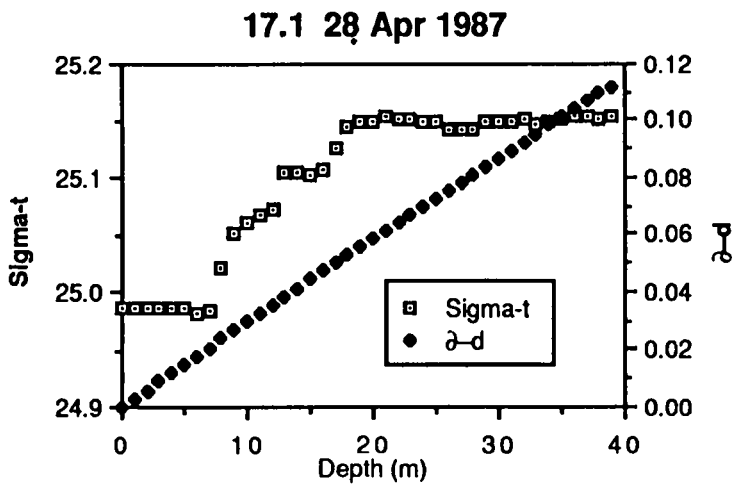

16.4 2 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

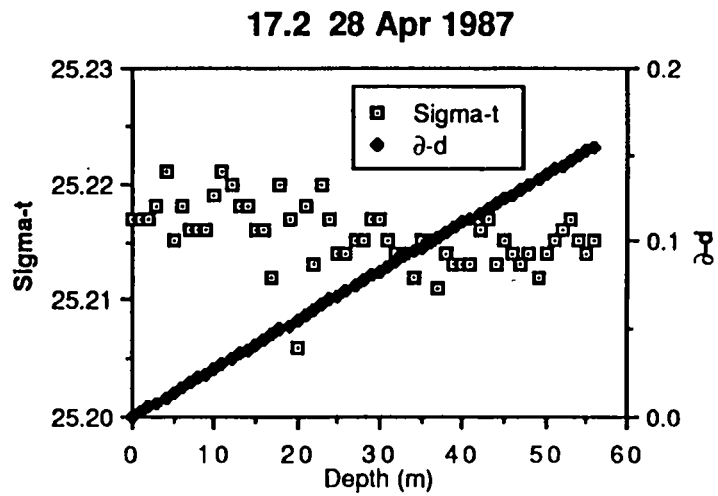

15.1 27 Apr 1987
Sigma-t
δ-d
Depth (m)
Sigma-t
δ-d

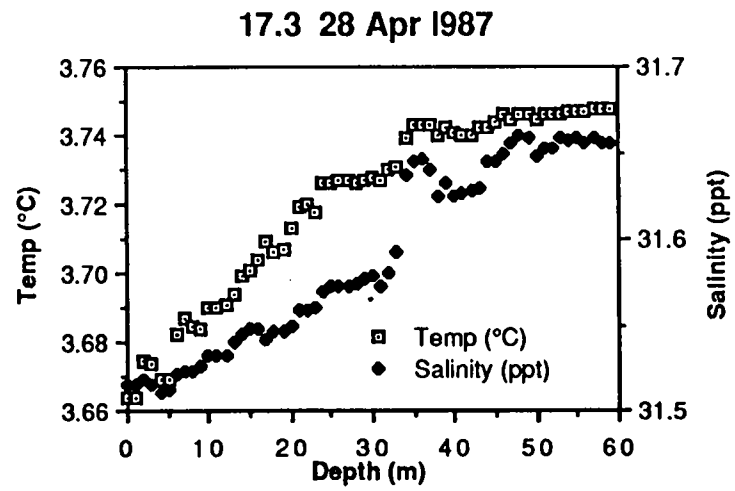

16.4 2 May 1987
Sigma-t
δ-d
Depth (m)
Sigma-t
δ-d

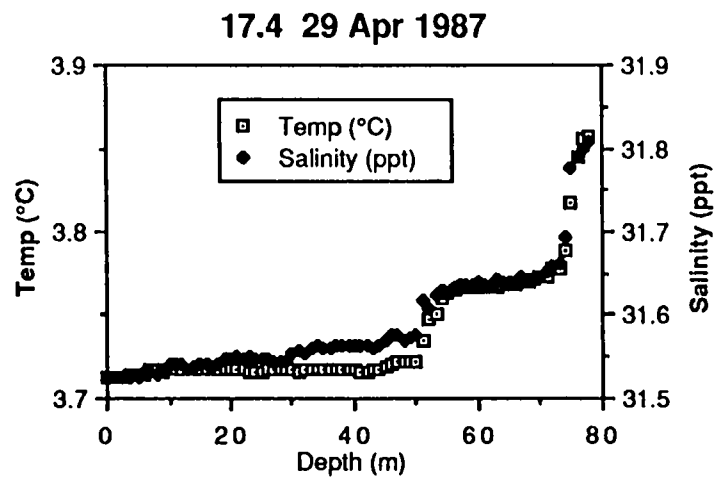

17.1 28 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
3.50
3.48
3.46
3.44
3.42
31.7
31.6
31.5
31.4
0
10
20
30
40

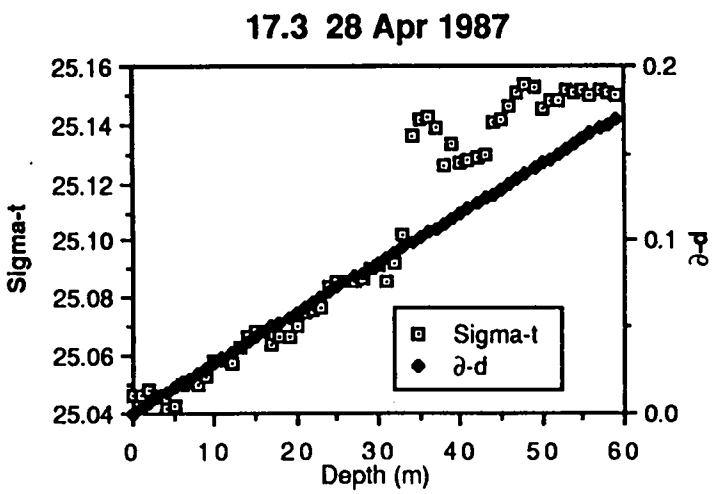

17.2 28 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
3.75
3.74
3.73
3.72
3.71
3.70
3.69
31.75
31.74
31.73
31.72
0
10
20
30
40
50
60

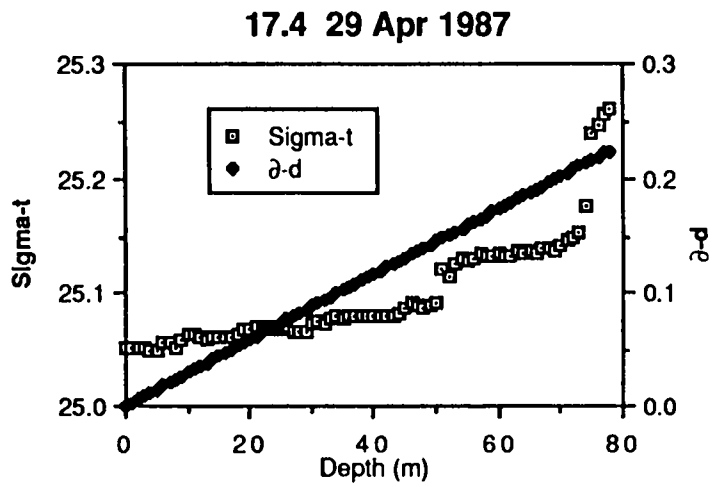

17.1 28 Apr 1987
Sigma-t
∂-d
Depth (m)
25.2
25.1
25.0
24.9
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
10
20
30
40

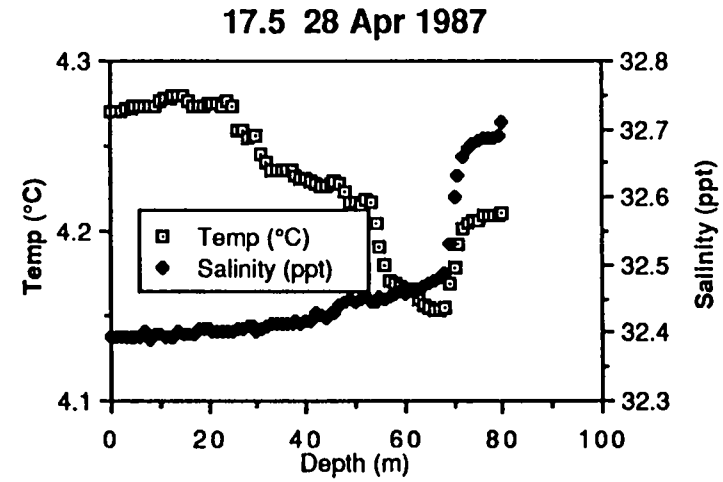

17.2 28 Apr 1987
Sigma-t
∂-d
Depth (m)
25.23
25.22
25.21
25.20
0.2
0.1
0.0
0
10
20
30
40
50
60

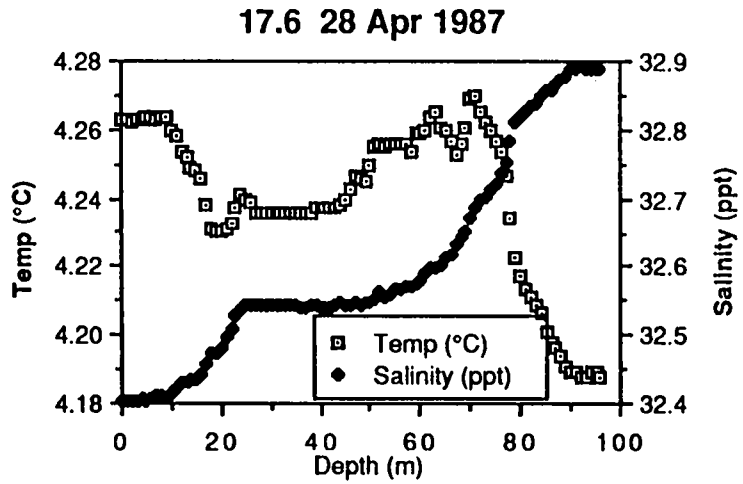

17.3 28 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

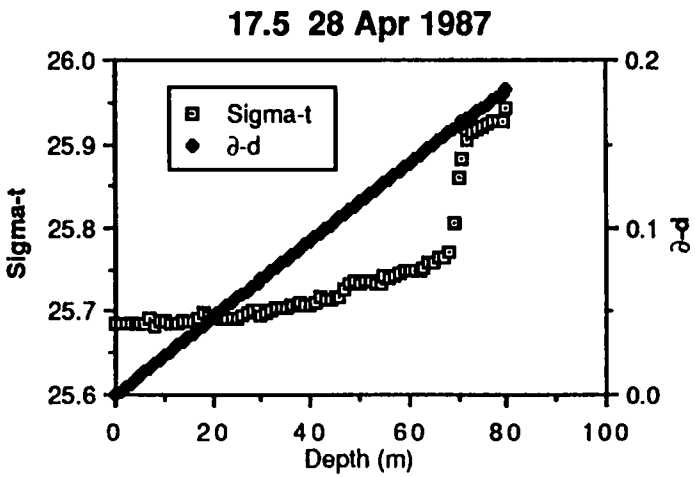

17.4 29 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

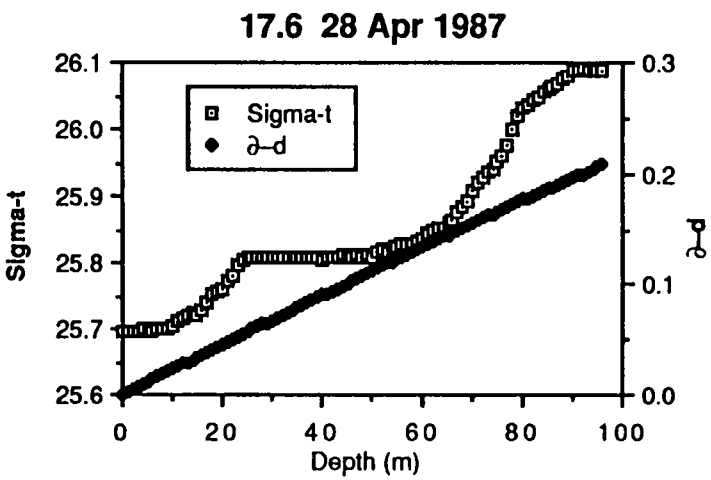

17.3 28 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

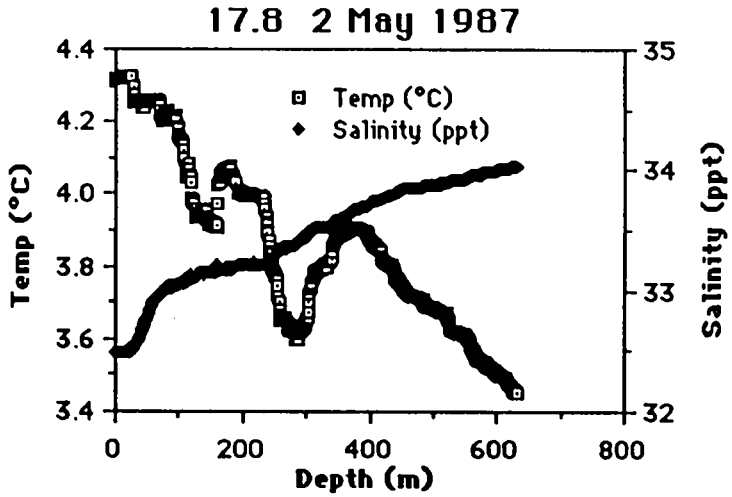

17.4 29 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

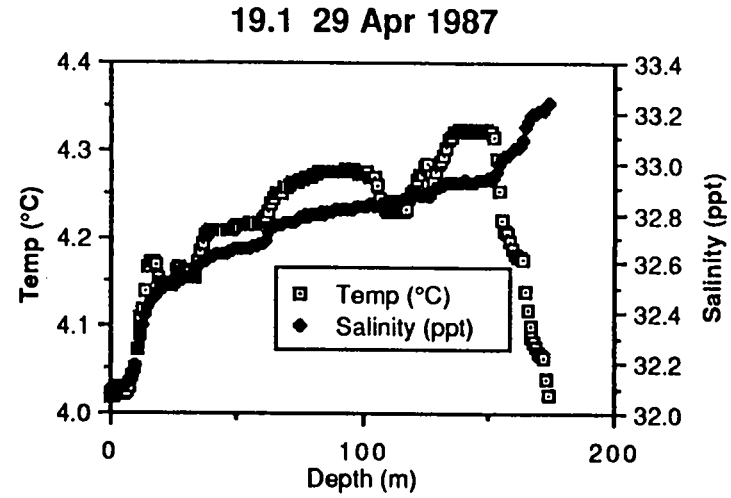

17.5 28 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.3
4.2
4.1
32.8
32.7
32.6
32.5
32.4
32.3
0
20
40
60
80
100

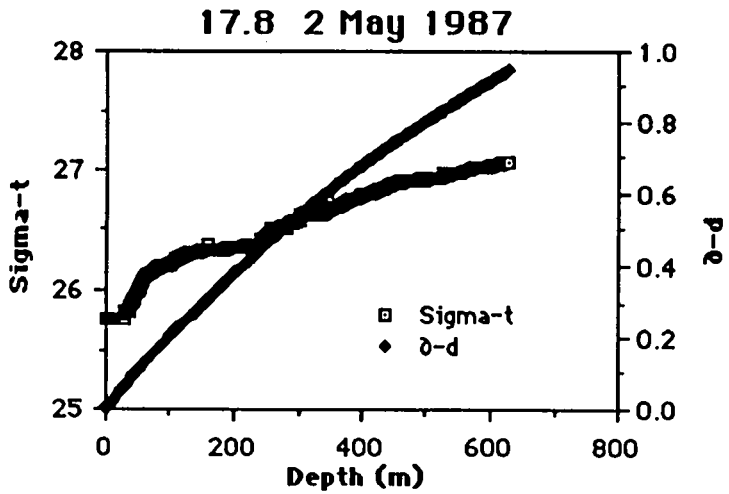

17.6 28 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.28
4.26
4.24
4.22
4.20
4.18
32.9
32.8
32.7
32.6
32.5
32.4
0
20
40
60
80
100

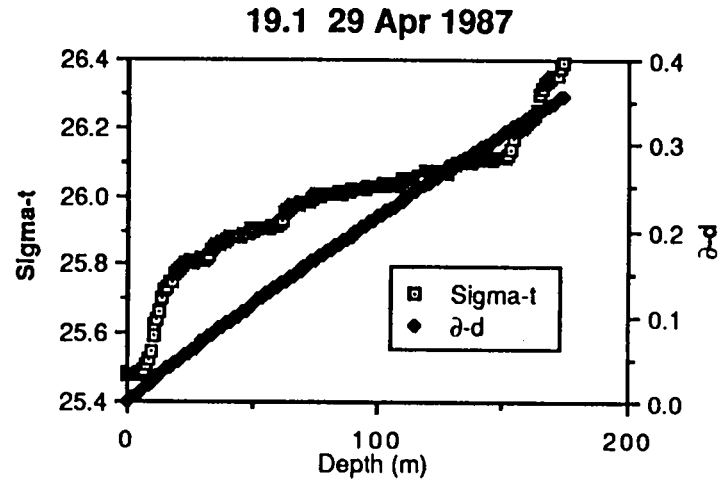

17.5 28 Apr 1987
Sigma-t
∂-d
Depth (m)
26.0
25.9
25.8
25.7
25.6
0.2
0.1
0.0
0
20
40
60
80
100

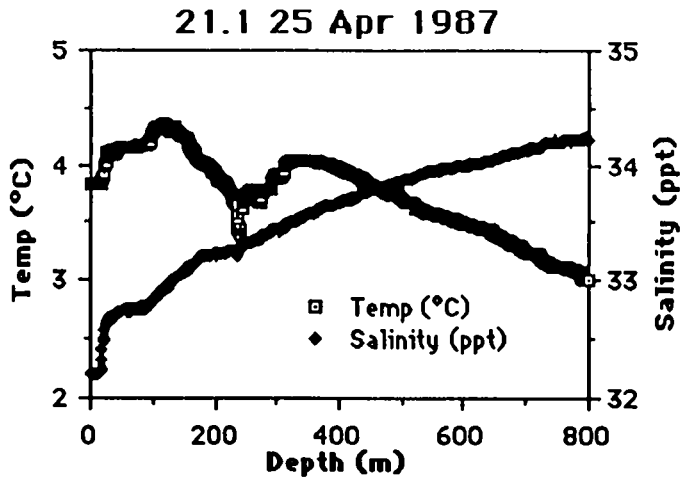

17.6 28 Apr 1987
Sigma-t
∂-d
Depth (m)
26.1
26.0
25.9
25.8
25.7
25.6
0.3
0.2
0.1
0.0
0
20
40
60
80
100

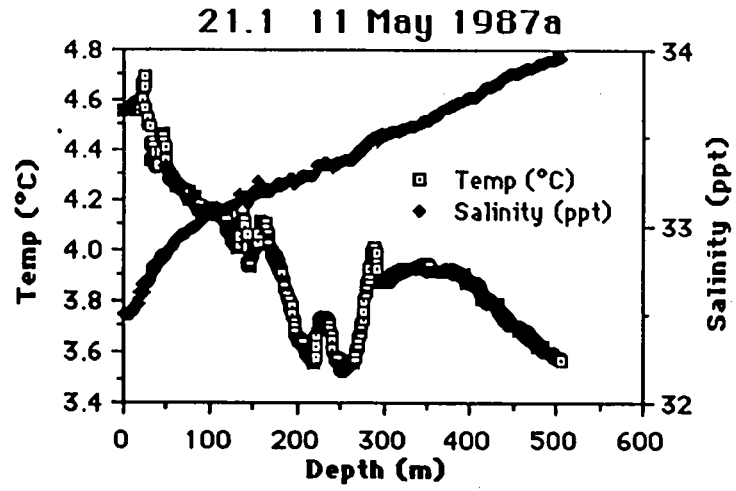

17.8 2 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.4
4.2
4.0
3.8
3.6
3.4
35
34
33
32
0
200
400
600
800

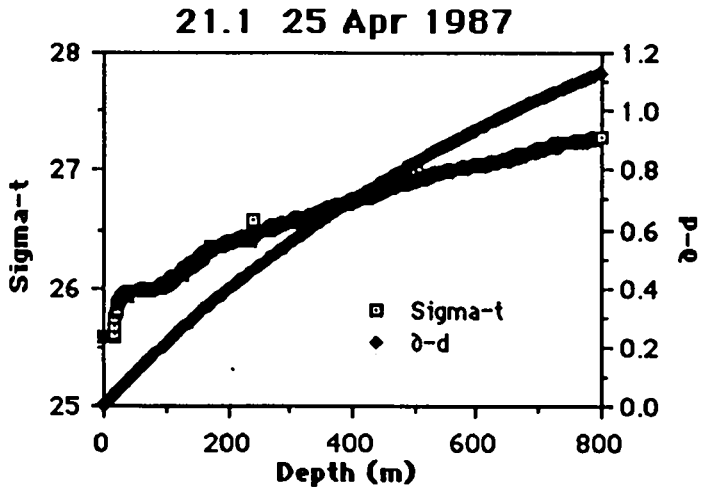

19.1 29 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.4
4.3
4.2
4.1
4.0
33.4
33.2
33.0
32.8
32.6
32.4
32.2
32.0
0
100
200

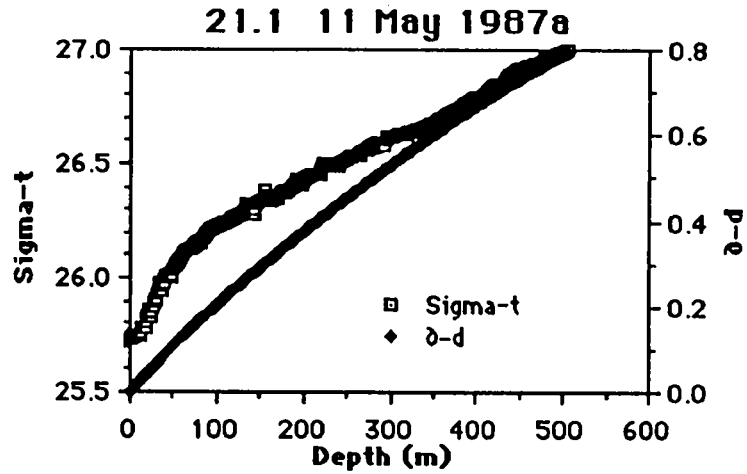

17.8 2 May 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
28
27
26
25
1.0
0.8
0.6
0.4
0.2
0.0
0
200
400
600
800

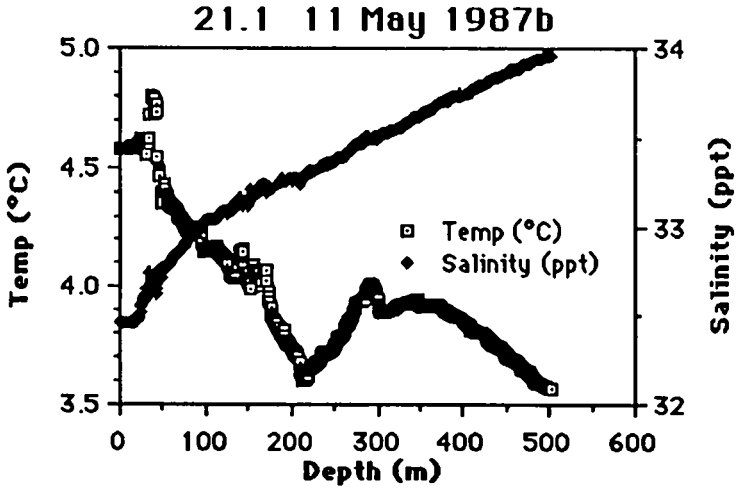

19.1 29 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.4
26.2
26.0
25.8
25.6
25.4
0.4
0.3
0.2
0.1
0.0
0
100
200

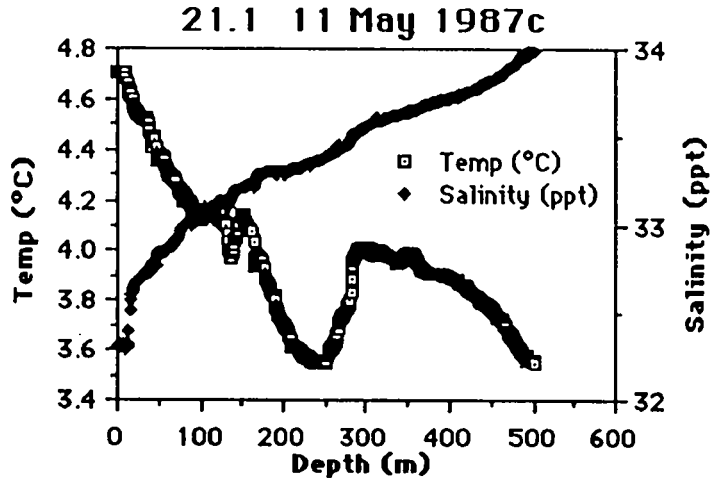

21.1 25 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

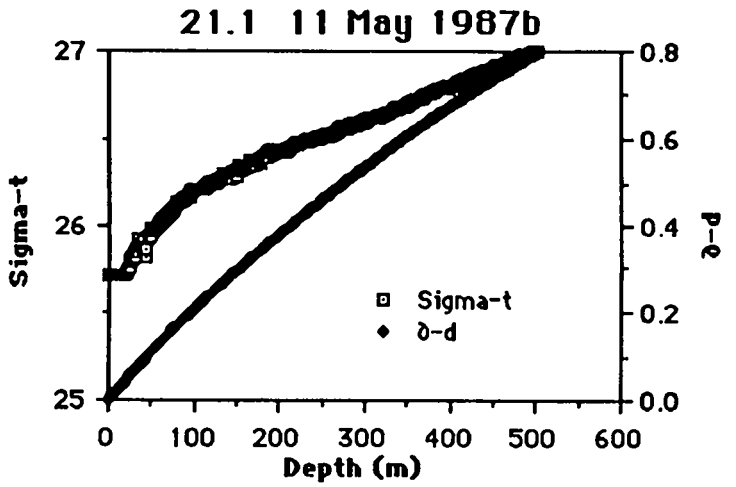

21.1 11 May 1987a
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

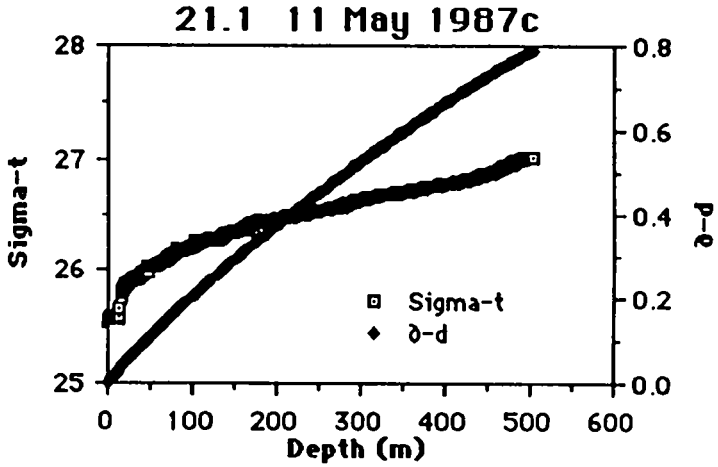

21.1 25 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

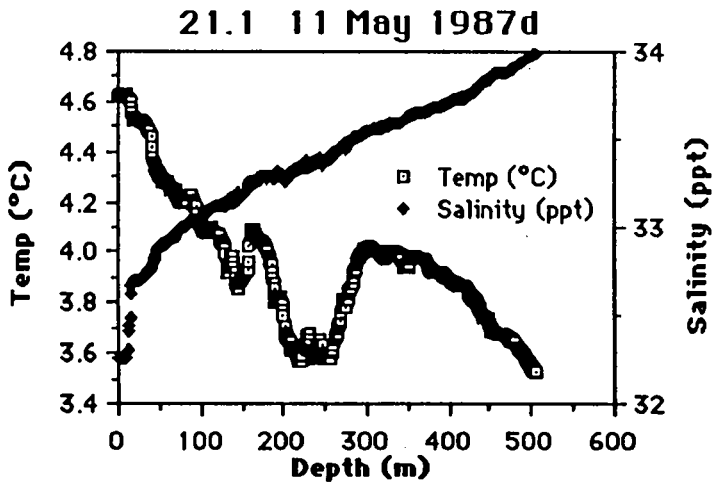

21.1 11 May 1987a
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

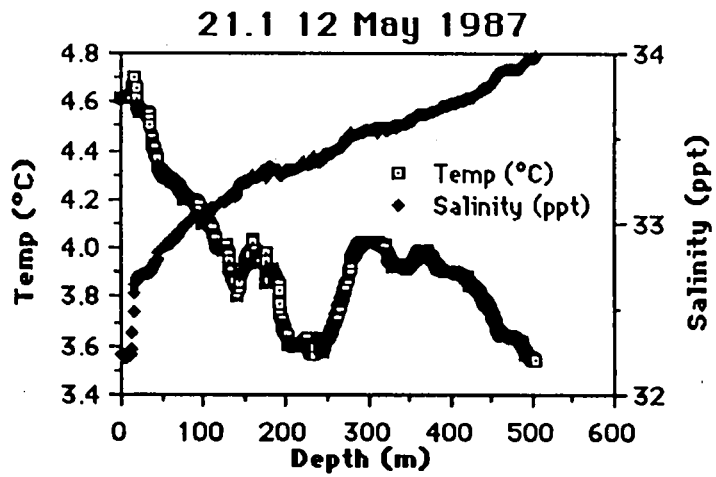

21.1 11 May 1987b
Temp (°C)
Salinity (ppt)
Depth (m)
5.0
4.5
4.0
3.5
34
33
32
0
100
200
300
400
500
600

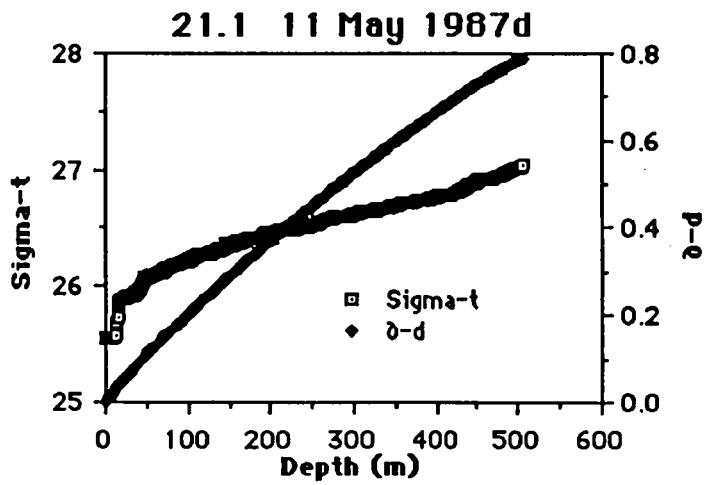

21.1 11 May 1987c
Temp (°C)
Salinity (ppt)
Depth (m)
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
34
33
32
0
100
200
300
400
500
600

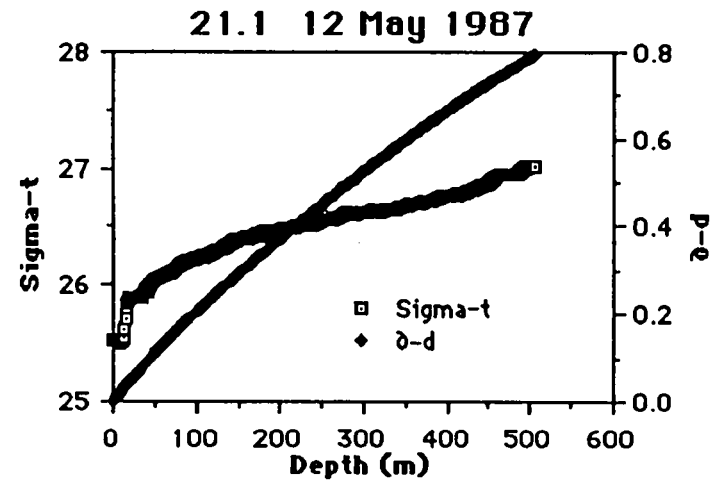

21.1 11 May 1987b
Sigma-t
∂-d
Depth (m)
27
26
25
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400
500
600

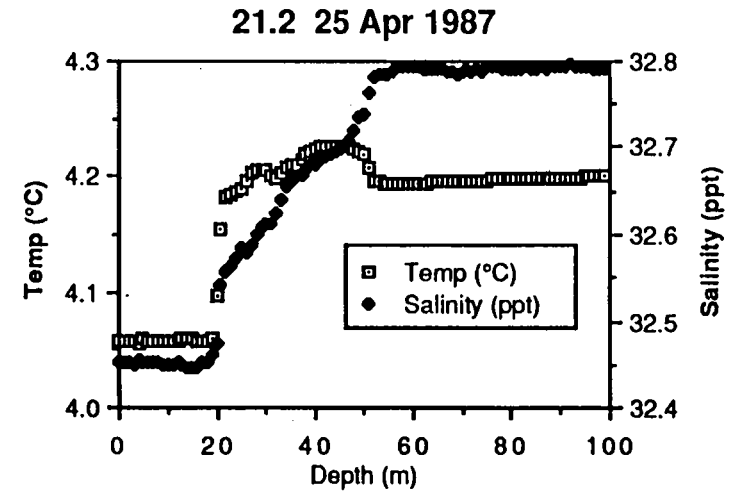

21.1 11 May 1987c
Sigma-t
∂-d
Depth (m)
28
27
26
25
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400
500
600

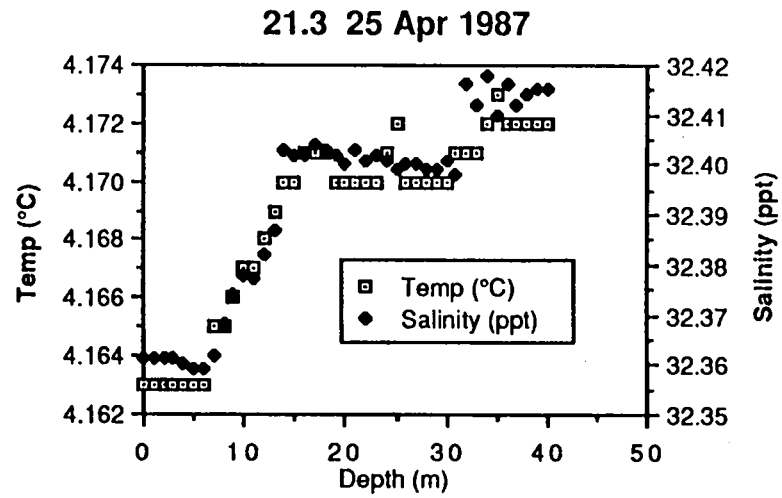

21.1 11 May 1987d
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

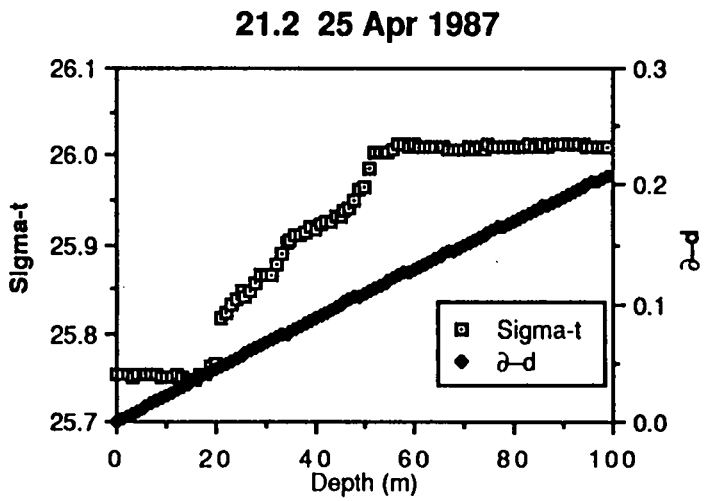

21.1 12 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

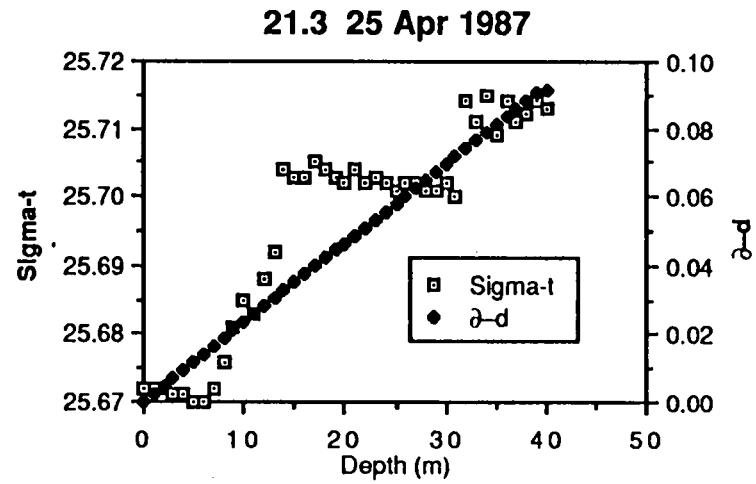

21.1 11 May 1987d
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

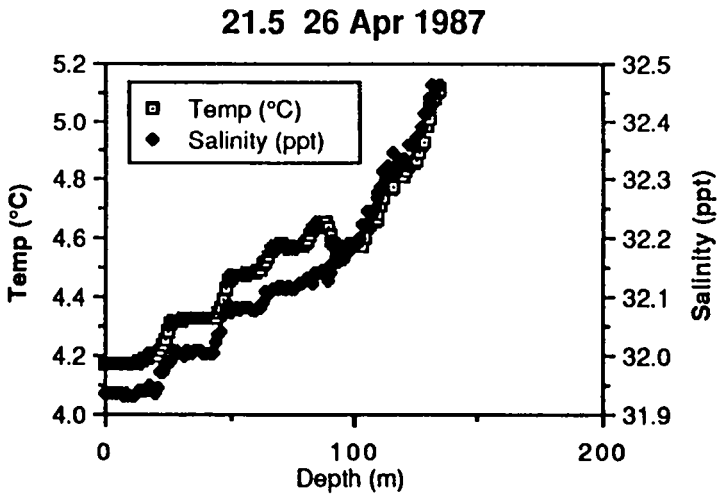

21.1 12 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

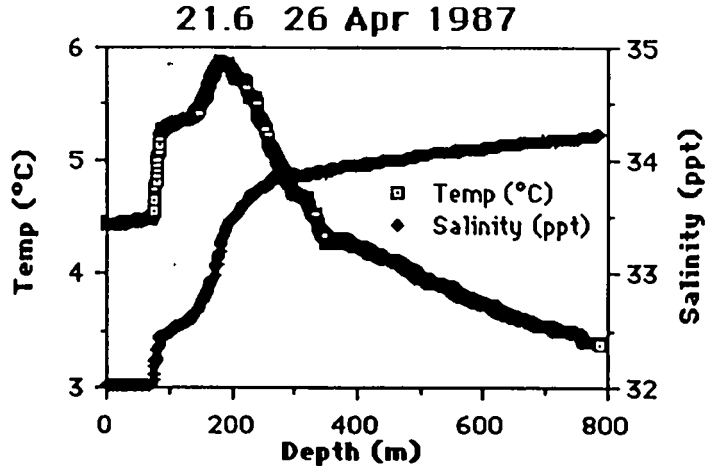

21.2 25 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

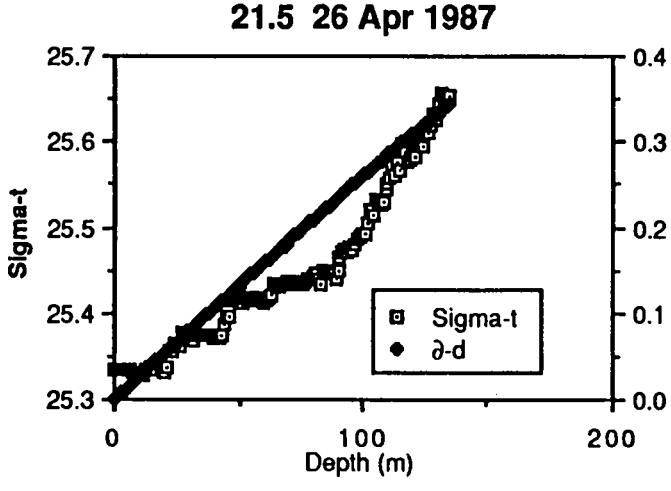

21.3 25 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

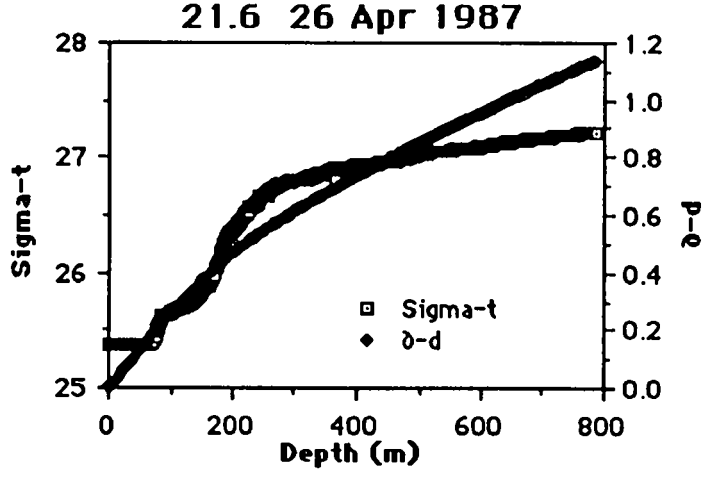

21.2 25 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

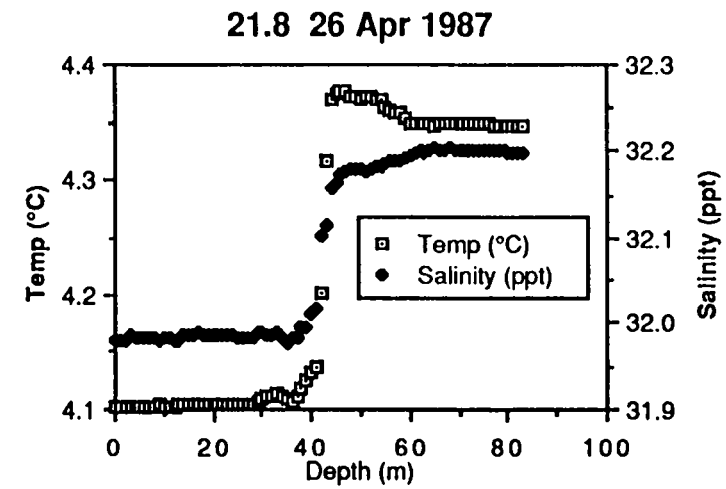

21.3 25 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

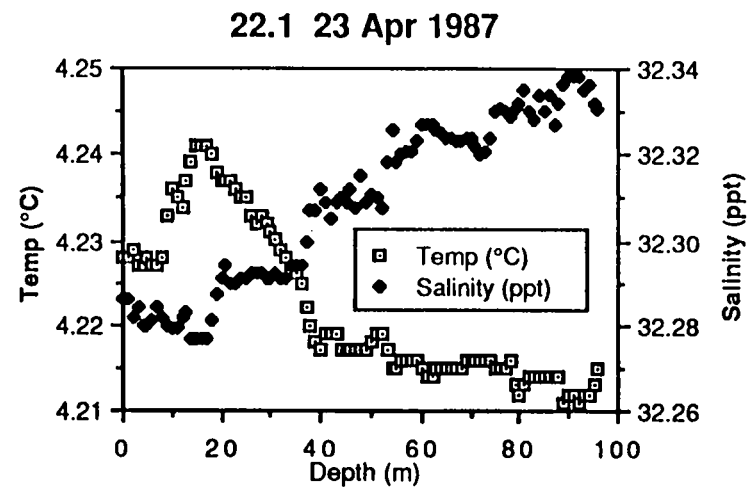

21.5 26 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
5.2
5.0
4.8
4.6
4.4
4.2
4.0
32.5
32.4
32.3
32.2
32.1
32.0
31.9
0
100
200

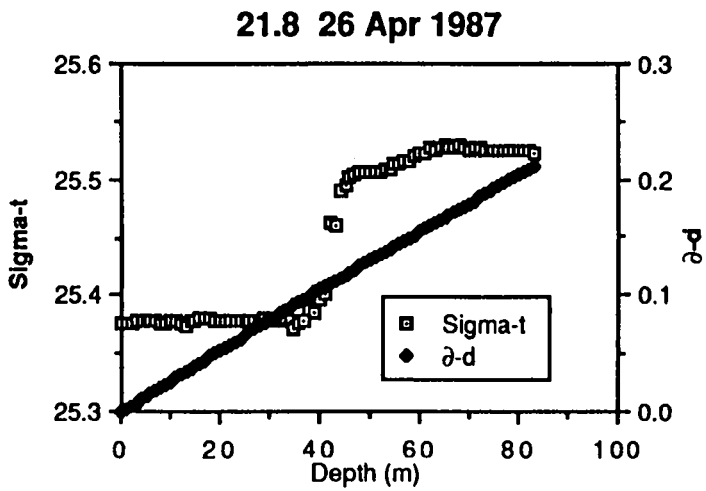

21.6 26 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
6
5
4
3
35
34
33
32
0
200
400
600
800

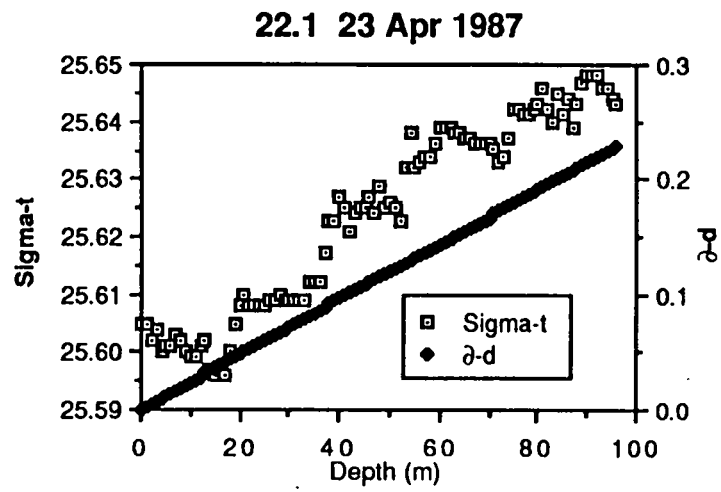

21.5 26 Apr 1987
Sigma-t
∂-d
Sigma-t
Depth (m)
25.7
25.6
25.5
25.4
25.3
0.4
0.3
0.2
0.1
0.0
0
100
200

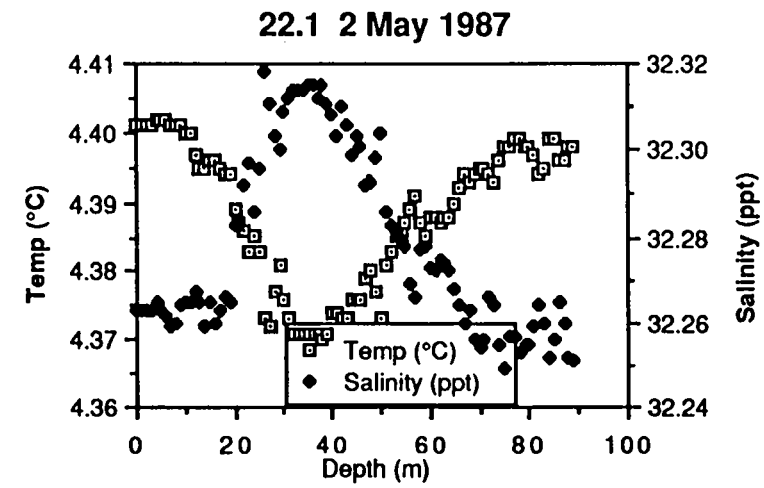

21.6 26 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
28
27
26
25
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
200
400
600
800

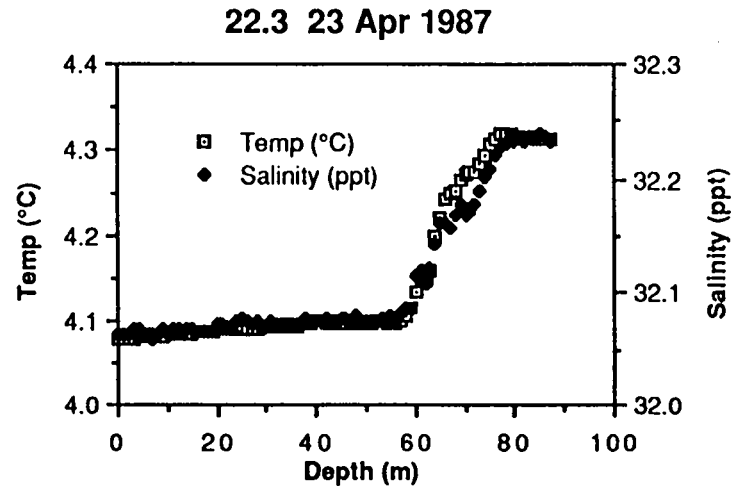

21.8 26 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

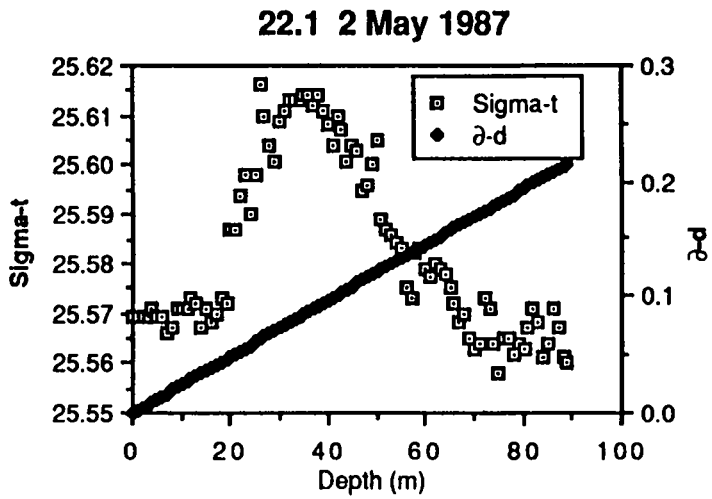

22.1 23 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

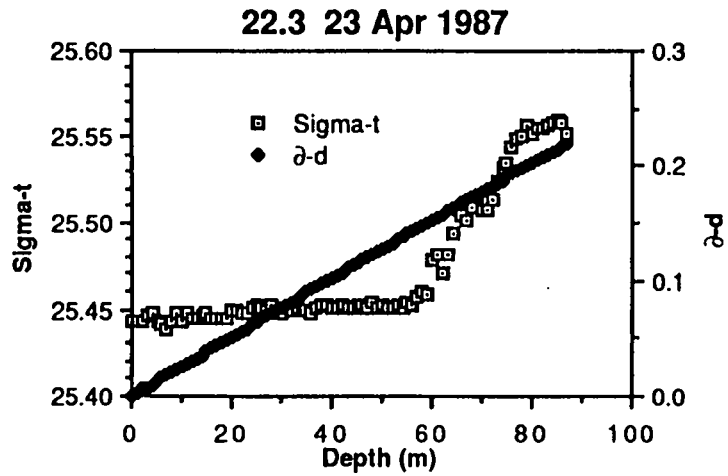

21.8 26 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

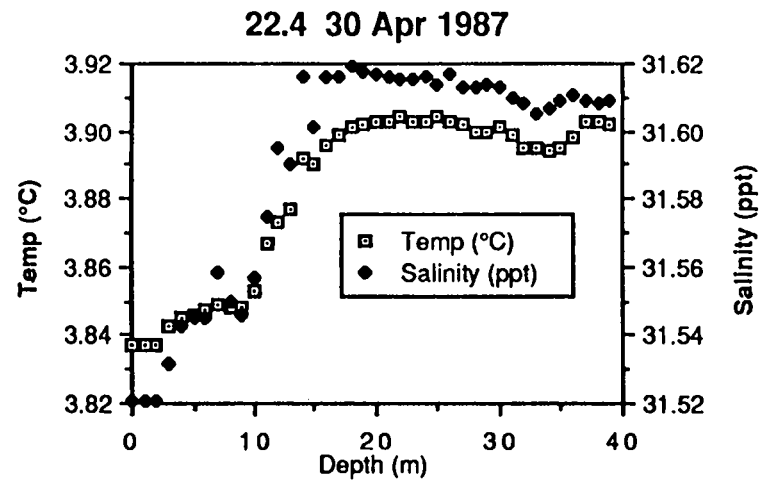

22.1 23 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

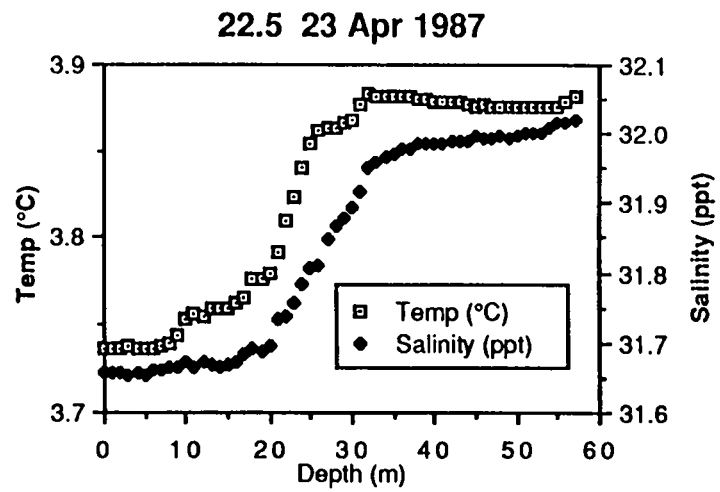

22.1 2 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

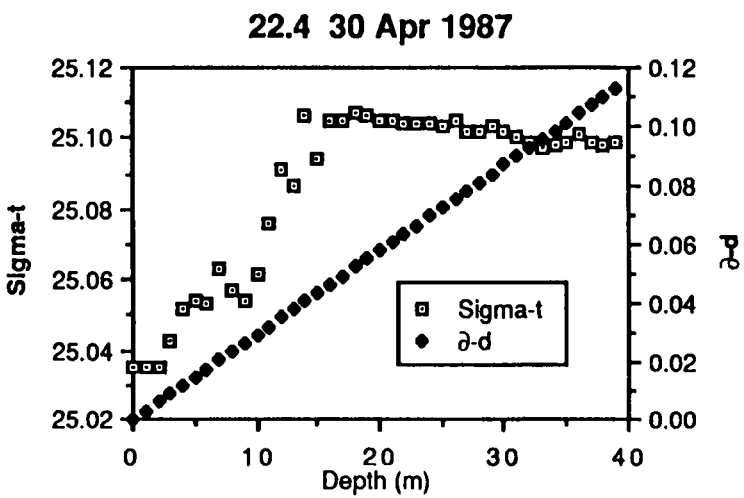

22.3 23 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

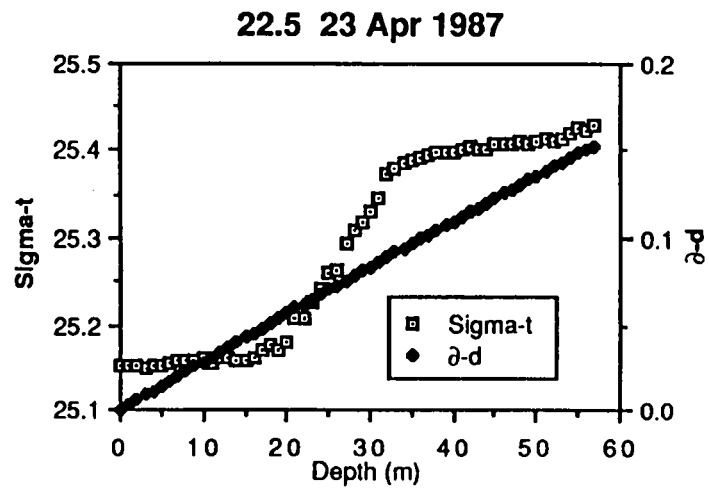

22.1 2 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
Sigma-t
∂-d

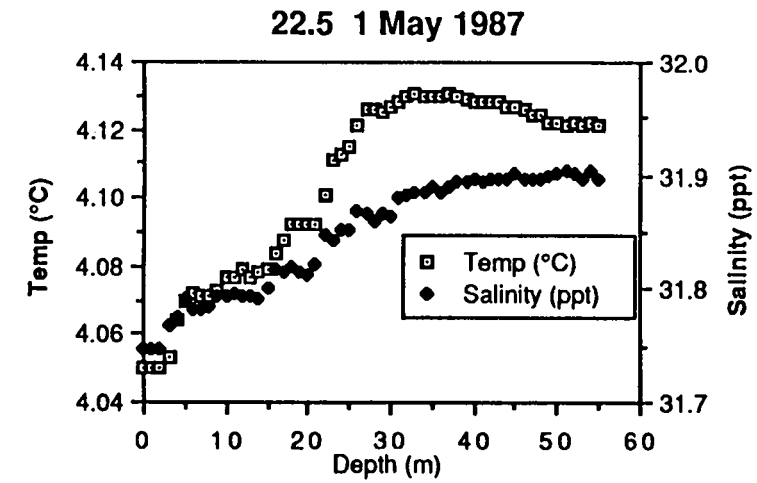

22.3 23 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

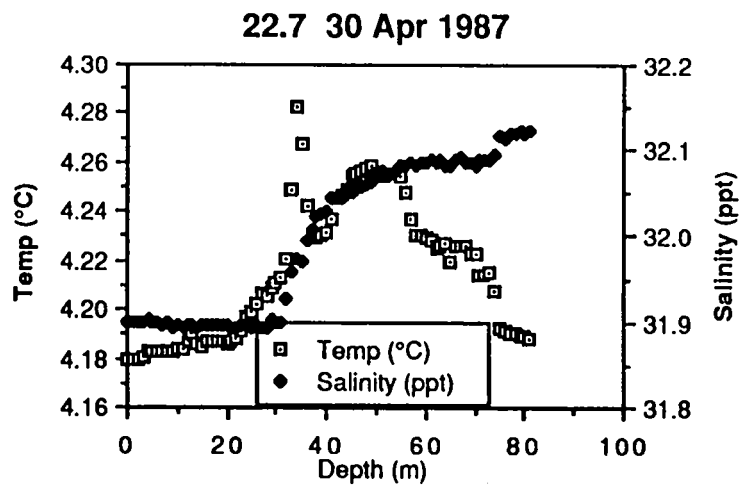

22.4 30 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
3.92
3.90
3.88
3.86
3.84
3.82
31.62
31.60
31.58
31.56
31.54
31.52
0
10
20
30
40

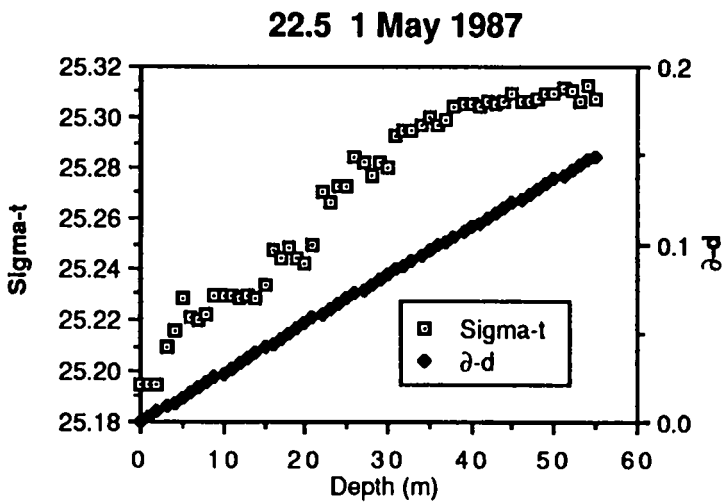

22.5 23 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
3.9
3.8
3.7
32.1
32.0
31.9
31.8
31.7
31.6
0
10
20
30
40
50
60

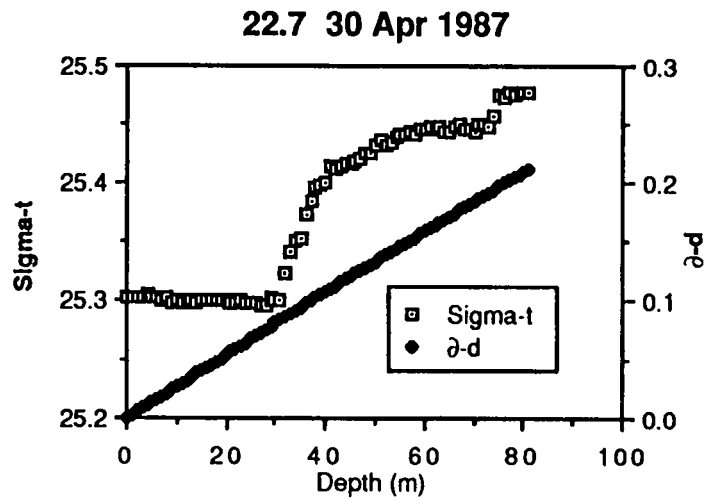

22.4 30 Apr 1987
Sigma-t
∂-d
Depth (m)
25.12
25.10
25.08
25.06
25.04
25.02
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
10
20
30
40

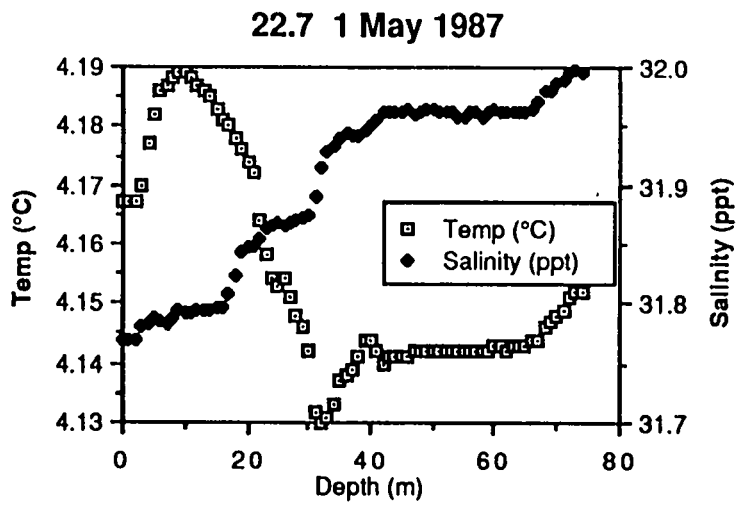

22.5 23 Apr 1987
Sigma-t
∂-d
Depth (m)
25.5
25.4
25.3
25.2
25.1
0.2
0.1
0.0
0
10
20
30
40
50
60

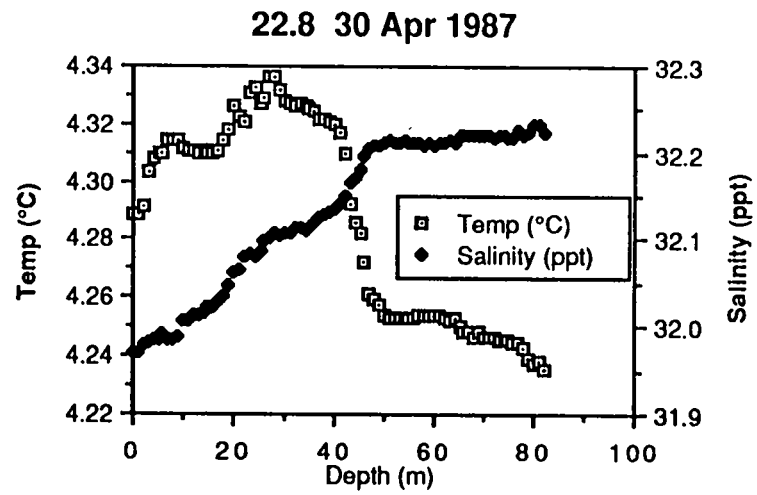

22.5 1 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

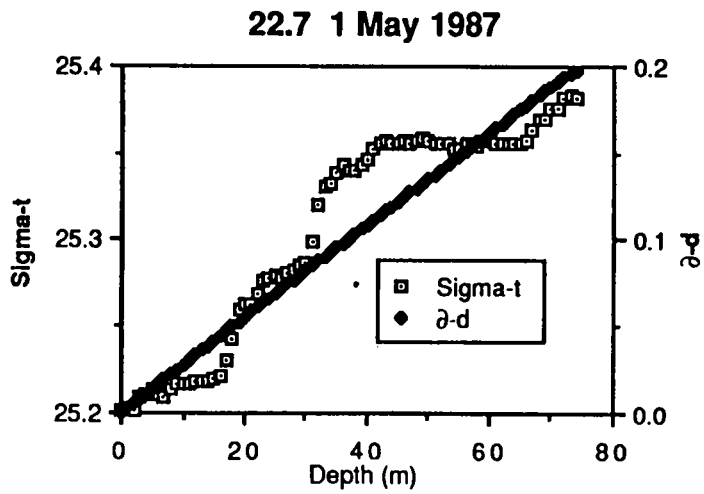

22.7 30 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

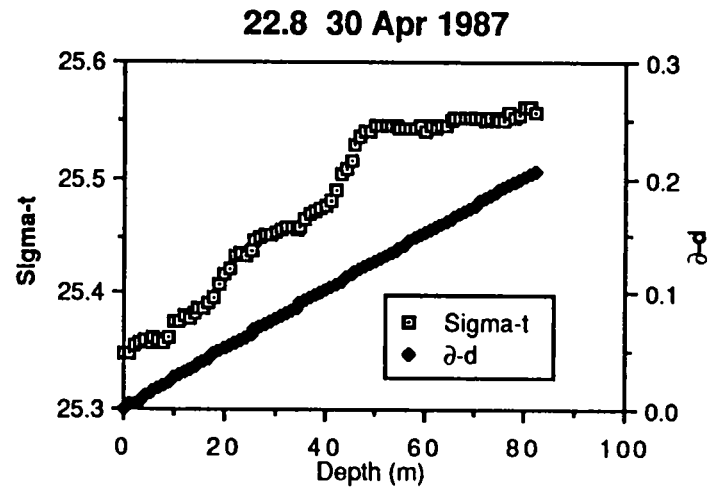

22.5 1 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

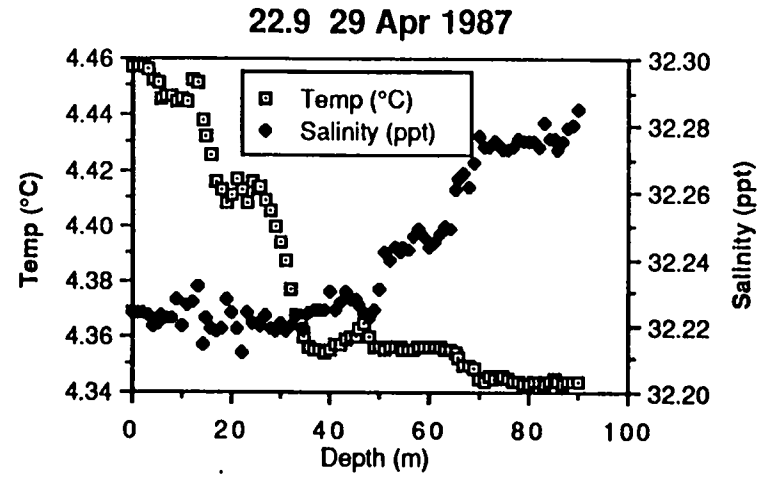

22.7 30 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

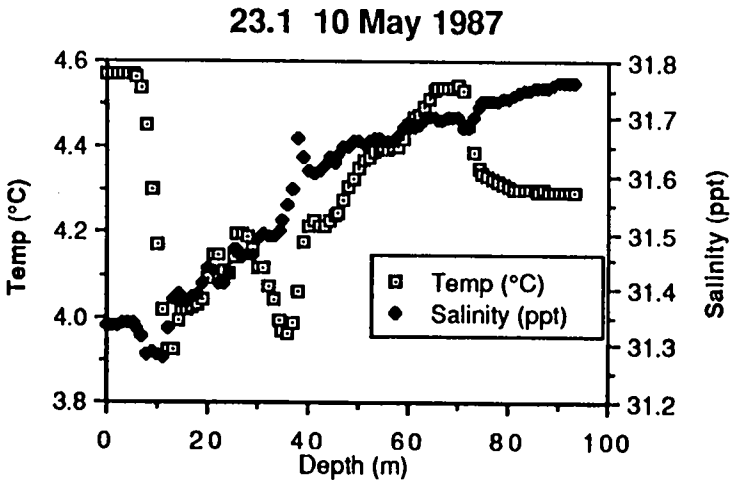

22.7 1 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

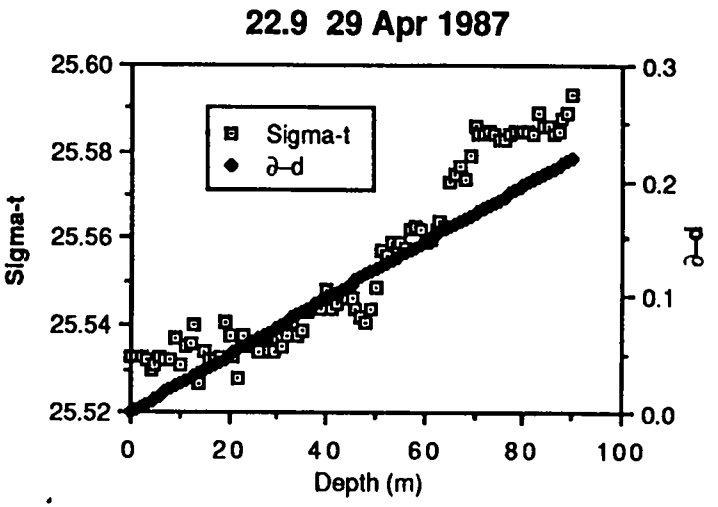

22.8 30 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

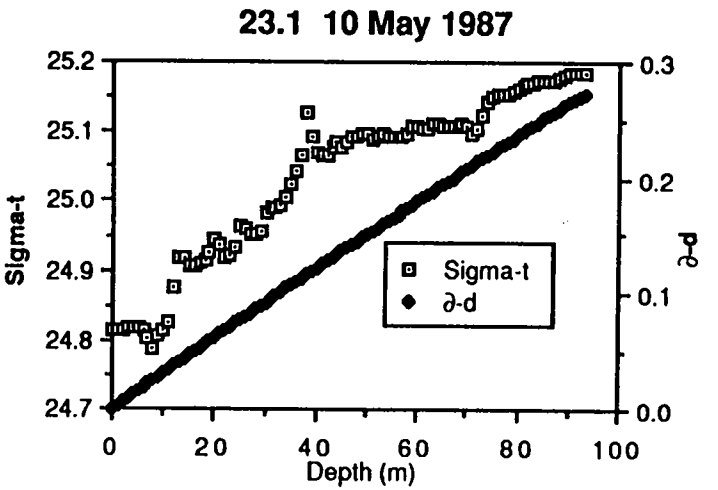

22.7 1 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

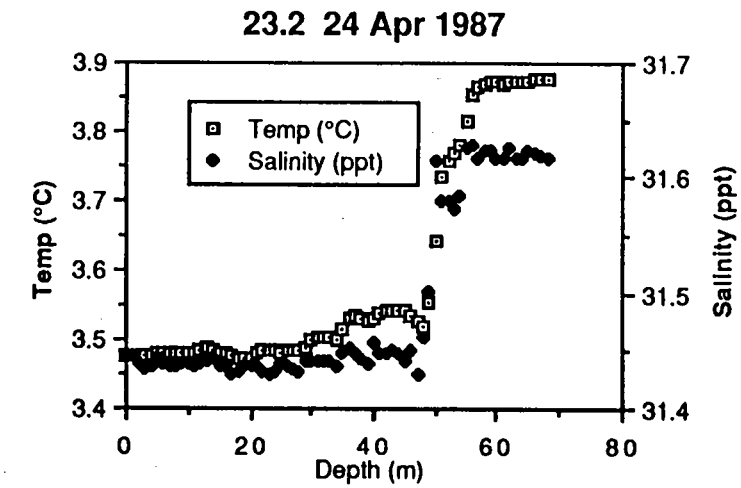

22.8 30 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

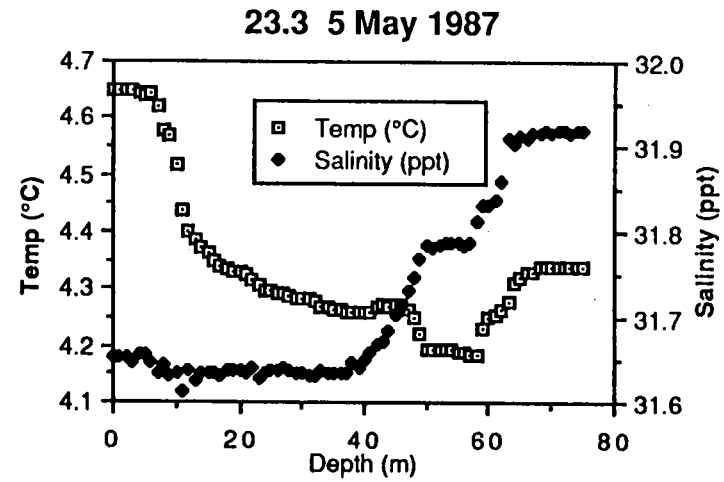

22.9 29 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.46
4.44
4.42
4.40
4.38
4.36
4.34
32.30
32.28
32.26
32.24
32.22
32.20
0
20
40
60
80
100

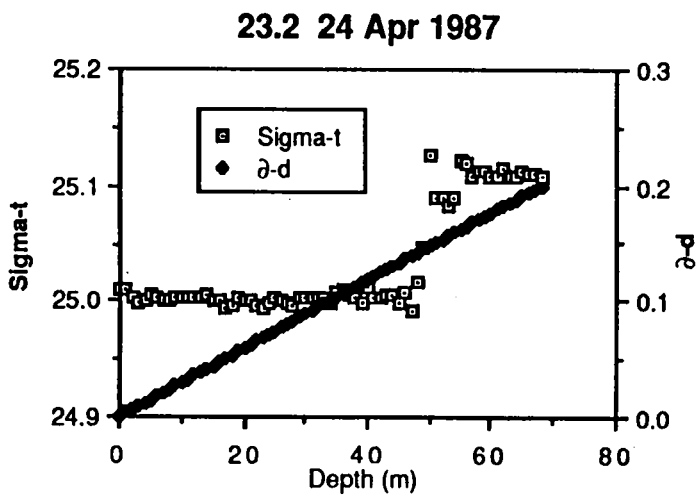

23.1 10 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.6
4.4
4.2
4.0
3.8
31.8
31.7
31.6
31.5
31.4
31.3
31.2
0
20
40
60
80
100

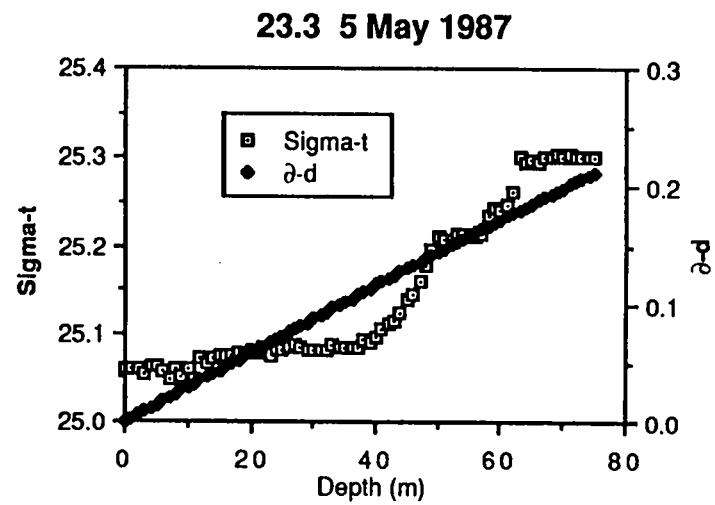

22.9 29 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.60
25.58
25.56
25.54
25.52
0.3
0.2
0.1
0.0
0
20
40
60
80
100

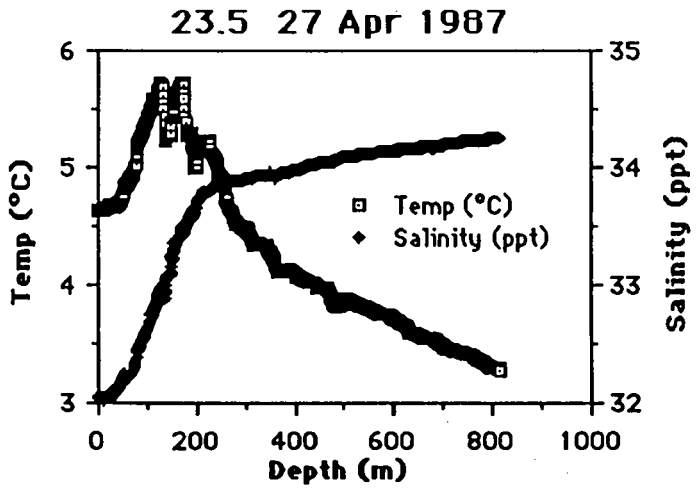

23.1 10 May 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.2
25.1
25.0
24.9
24.8
24.7
0.3
0.2
0.1
0.0
0
20
40
60
80
100

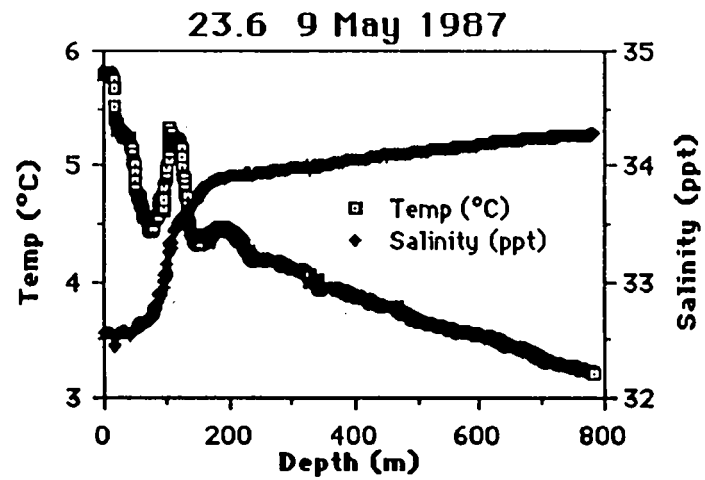

23.2 24 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
3.9
3.8
3.7
3.6
3.5
3.4
31.7
31.6
31.5
31.4
0
20
40
60
80

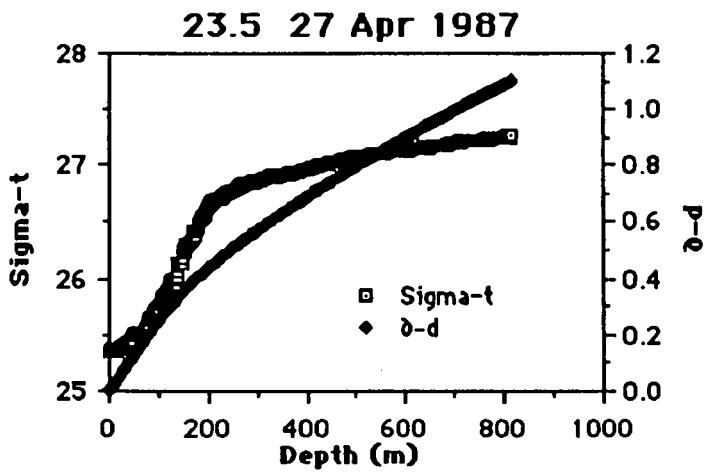

23.3 5 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.7
4.6
4.5
4.4
4.3
4.2
4.1
32.0
31.9
31.8
31.7
31.6
0
20
40
60
80

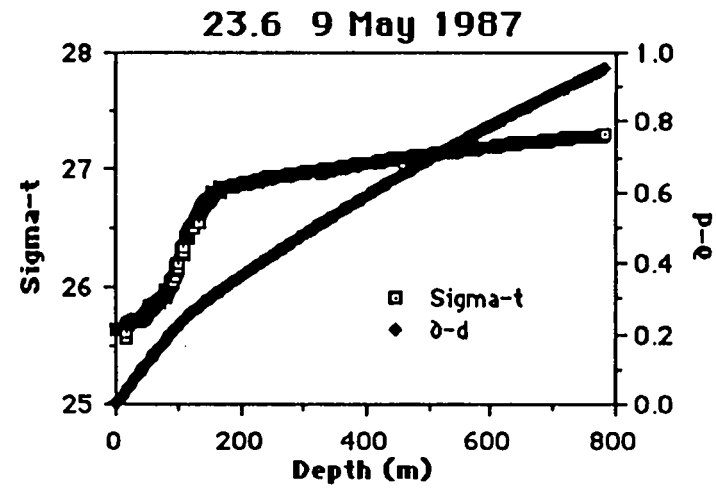

23.2 24 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.2
25.1
25.0
24.9
0.3
0.2
0.1
0.0
0
20
40
60
80

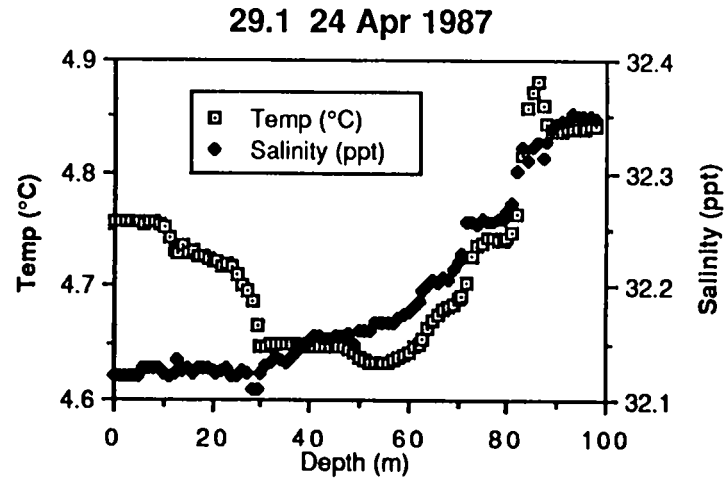

23.3 5 May 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.4
25.3
25.2
25.1
25.0
0.3
0.2
0.1
0.0
0
20
40
60
80

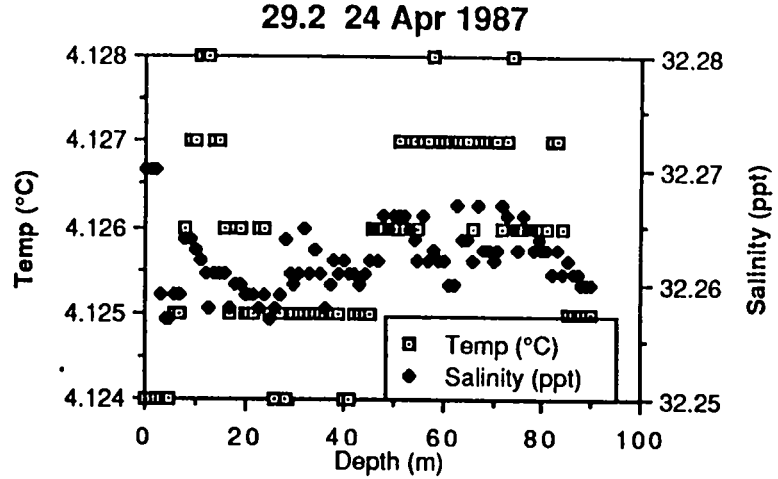

23.5 27 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

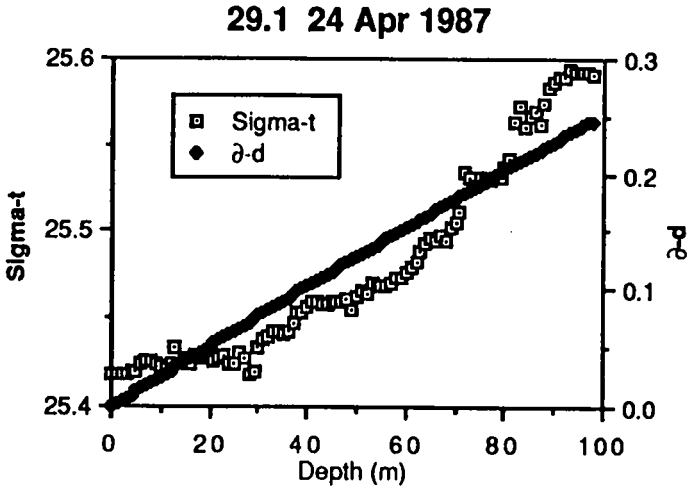

23.6 9 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

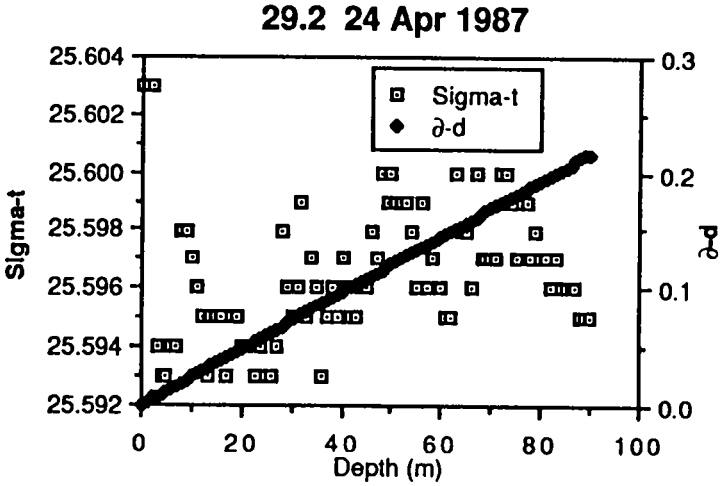

23.5 27 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

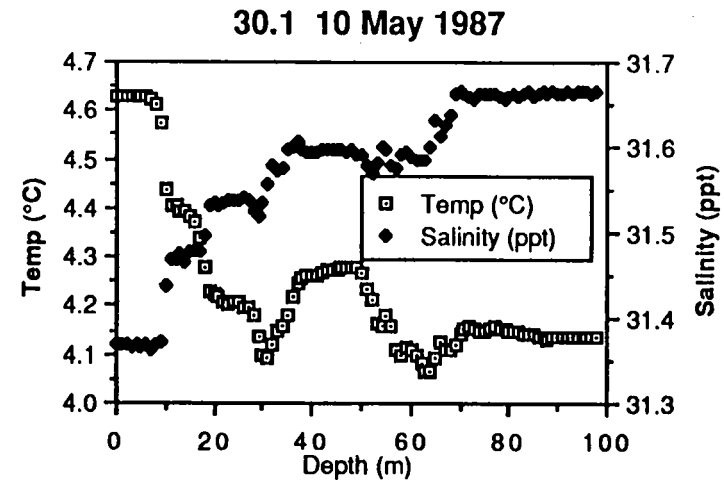

23.6 9 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

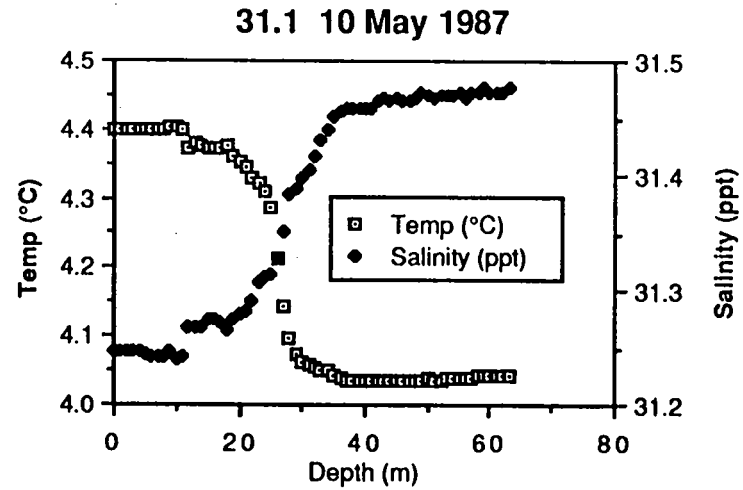

29.1 24 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.9
4.8
4.7
4.6
32.4
32.3
32.2
32.1
0
20
40
60
80
100

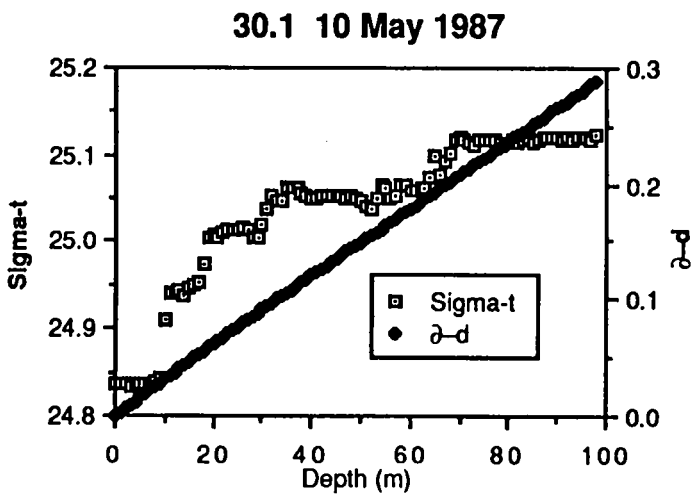

29.2 24 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.128
4.127
4.126
4.125
4.124
32.28
32.27
32.26
32.25
0
20
40
60
80
100

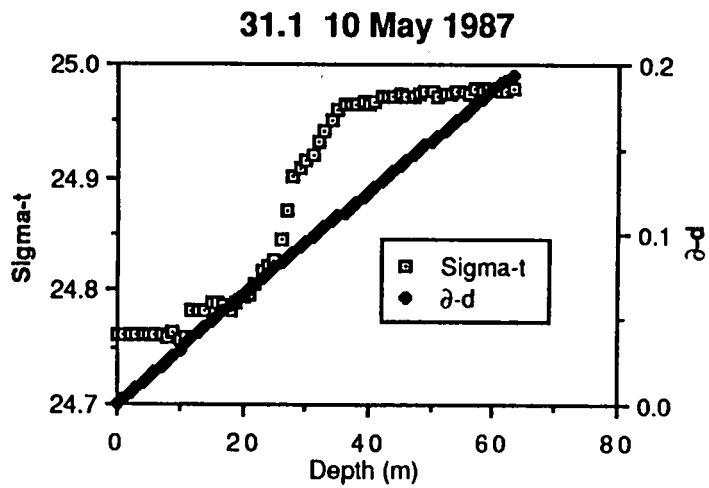

29.1 24 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.6
25.5
25.4
0.3
0.2
0.1
0.0
0
20
40
60
80
100

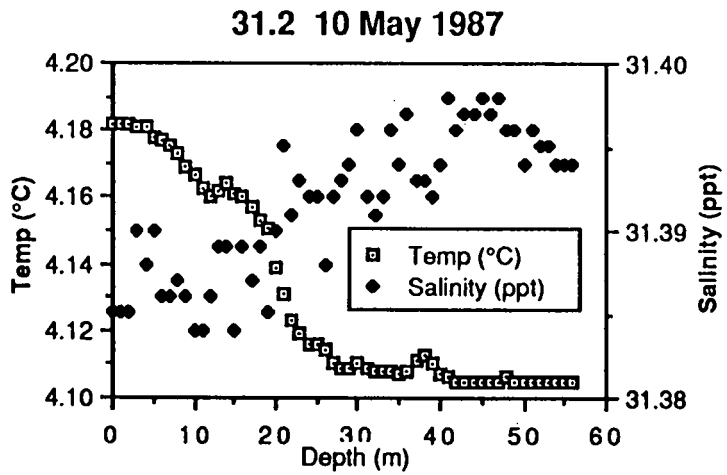

29.2 24 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
25.604
25.602
25.600
25.598
25.596
25.594
25.592
0.3
0.2
0.1
0.0
0
20
40
60
80
100

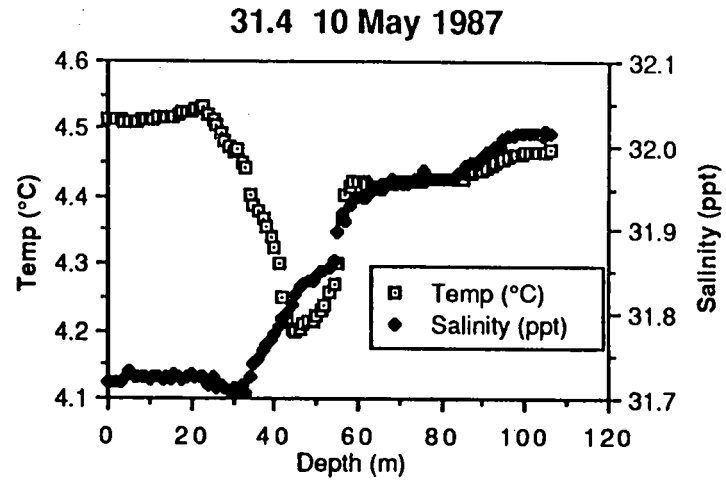

30.1 10 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

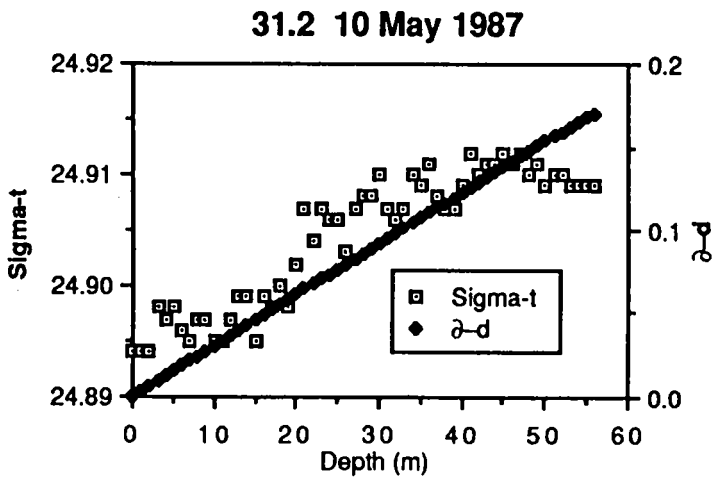

31.1 10 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

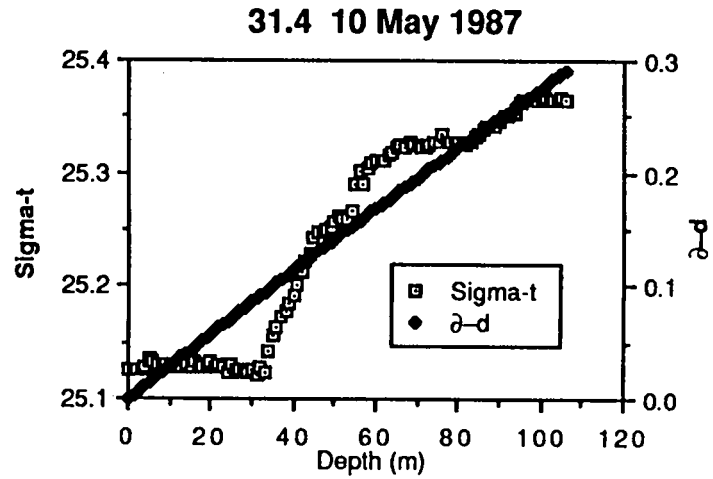

30.1 10 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

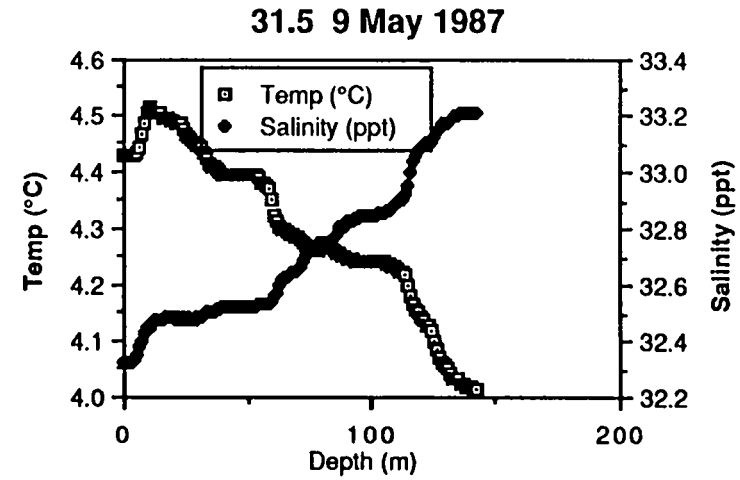

31.1 10 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

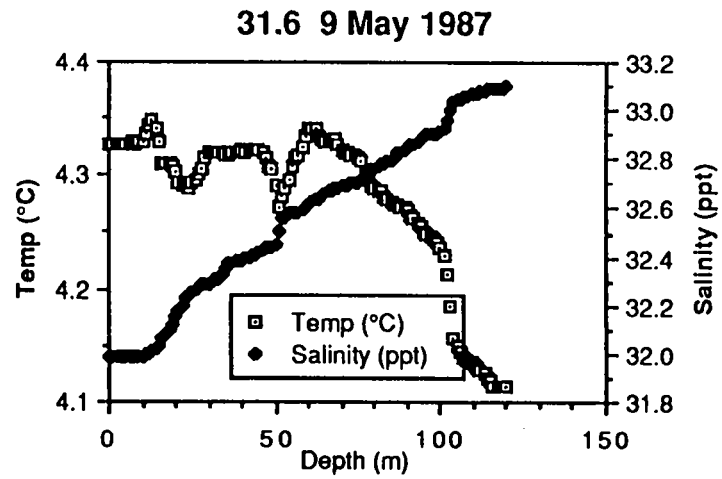

31.2 10 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

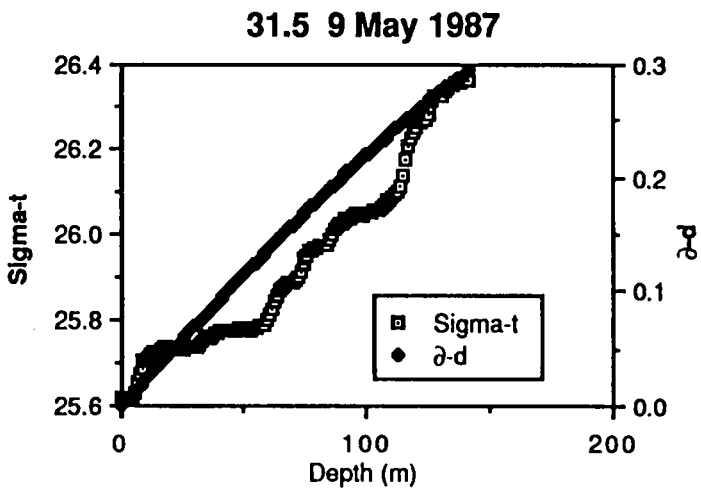

31.4 10 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

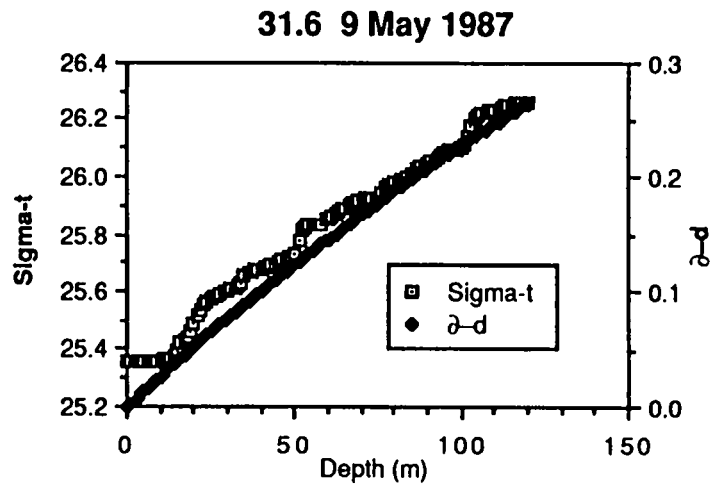

31.2 10 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

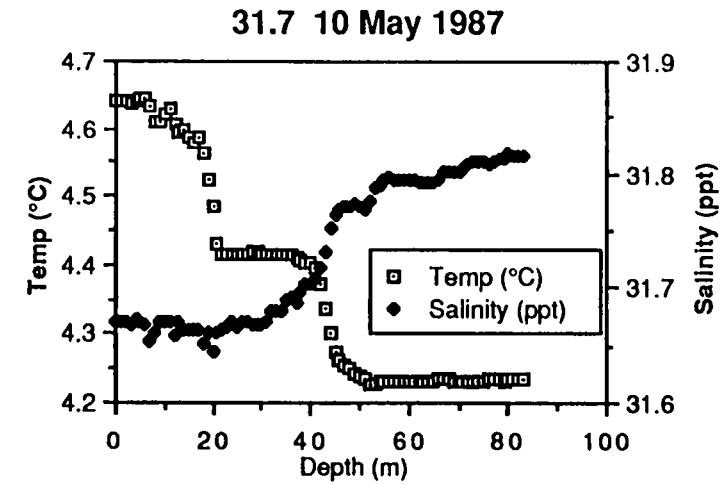

31.4 10 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

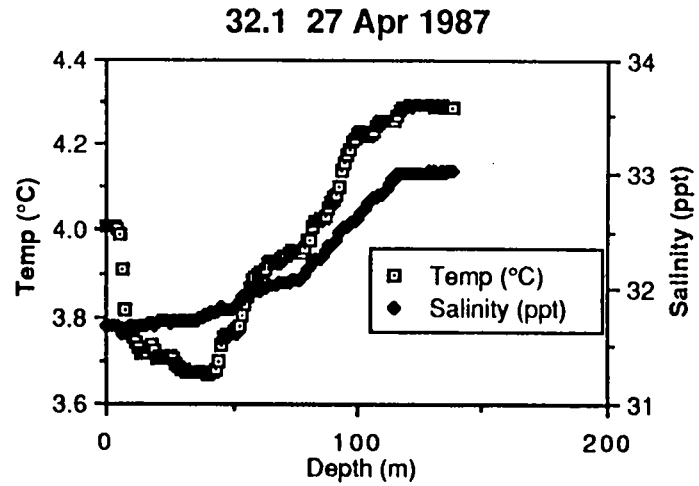

31.5 9 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.6
4.5
4.4
4.3
4.2
4.1
4.0
33.4
33.2
33.0
32.8
32.6
32.4
32.2
0
100
200

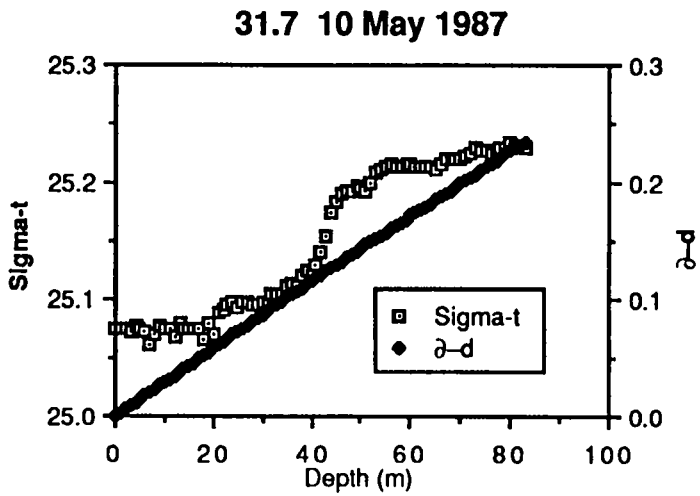

31.6 9 May 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
4.4
4.3
4.2
4.1
33.2
33.0
32.8
32.6
32.4
32.2
32.0
31.8
0
50
100
150

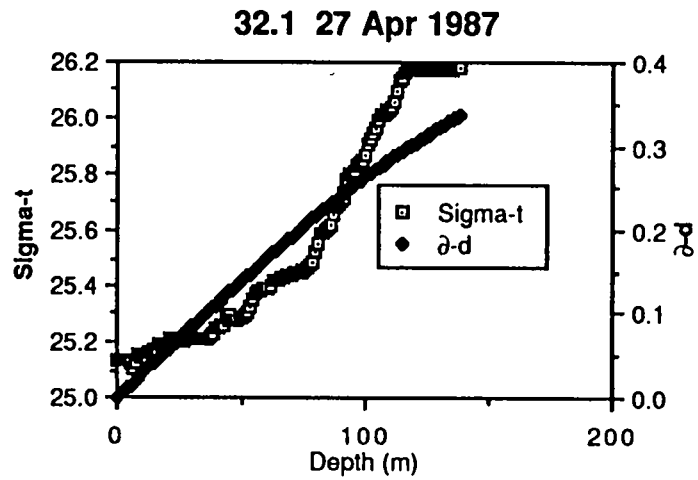

31.5 9 May 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.4
26.2
26.0
25.8
25.6
0.3
0.2
0.1
0.0
0
100
200

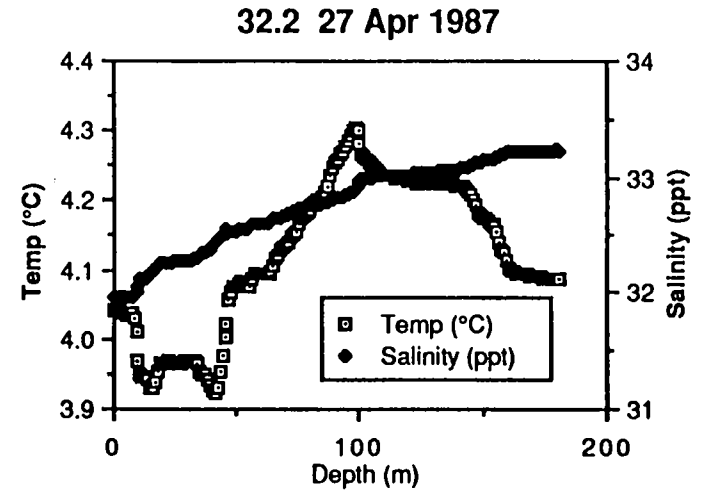

31.6 9 May 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
26.4
26.2
26.0
25.8
25.6
25.4
25.2
0.3
0.2
0.1
0.0
0
50
100
150

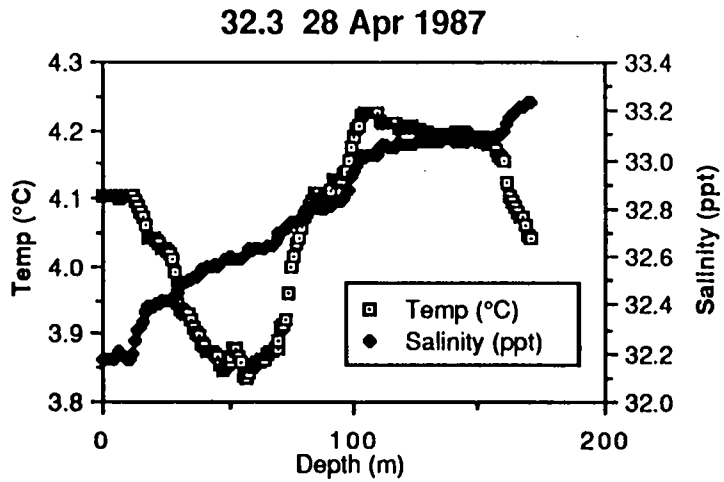

31.7 10 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

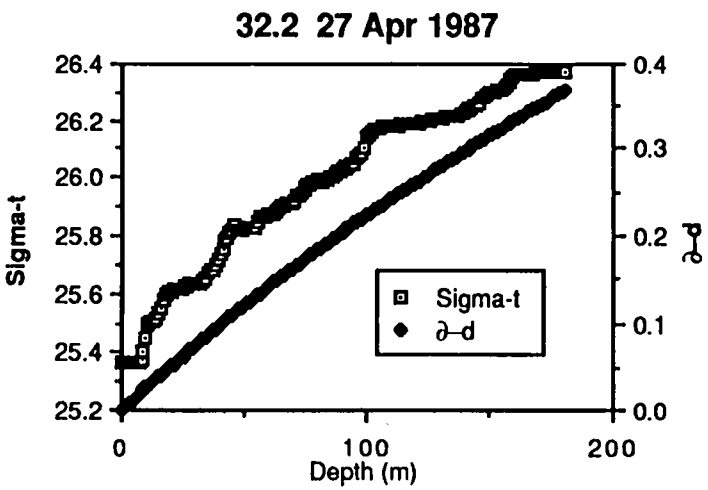

32.1 27 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

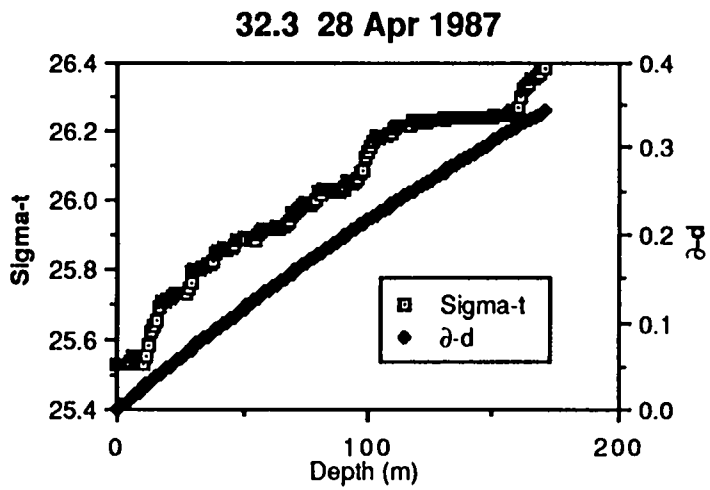

31.7 10 May 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

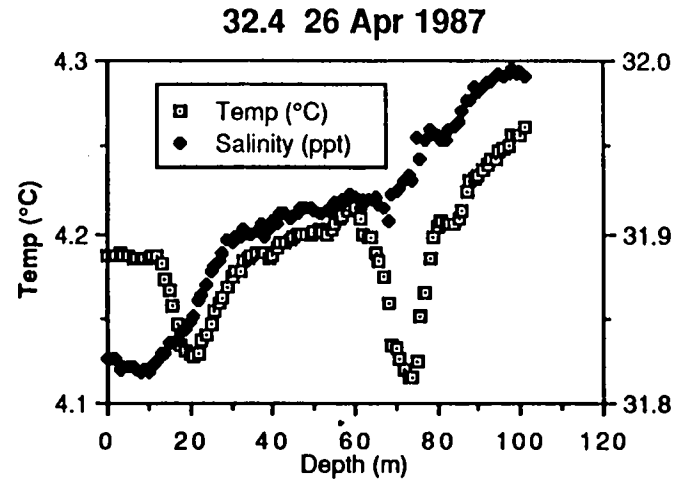

32.1 27 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

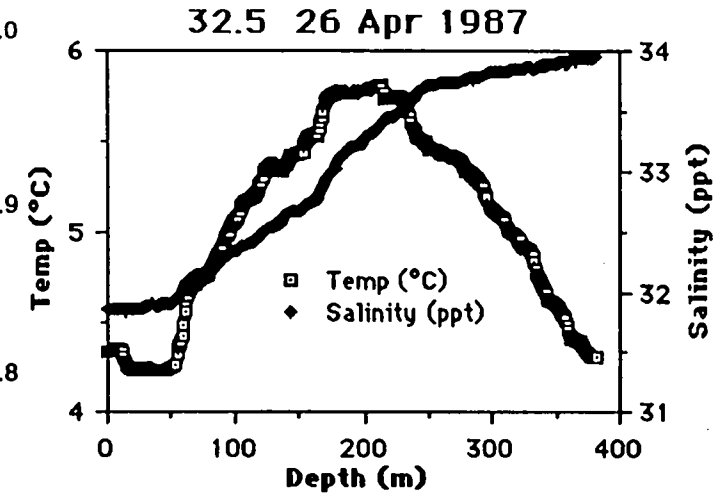

32.2 27 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

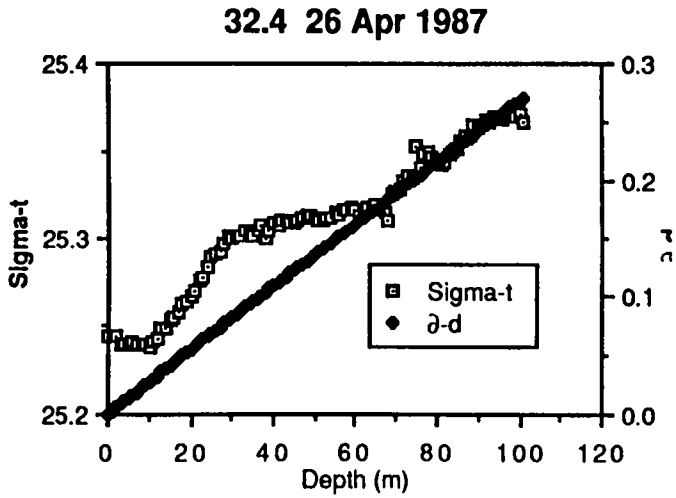

32.3 28 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

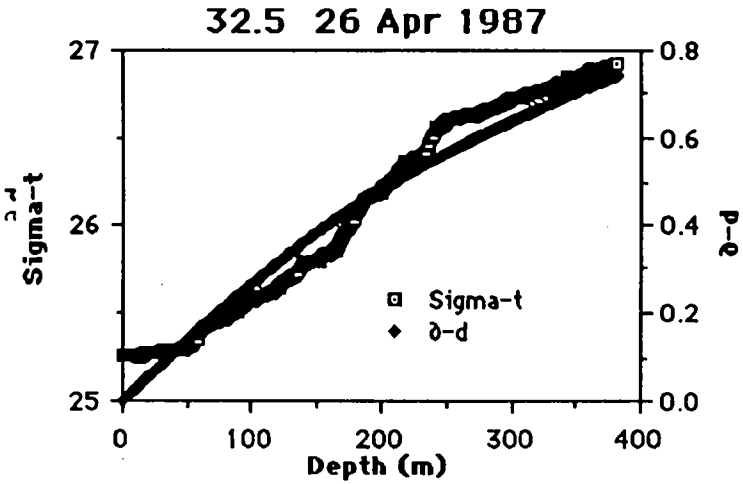

32.2 27 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

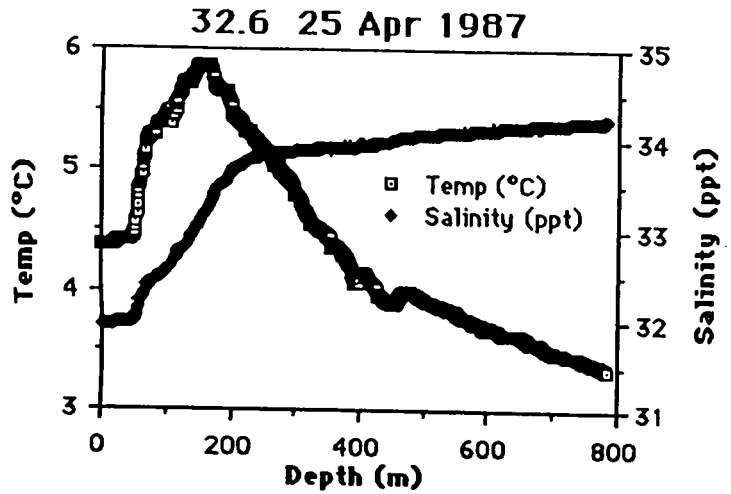

32.3 28 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d

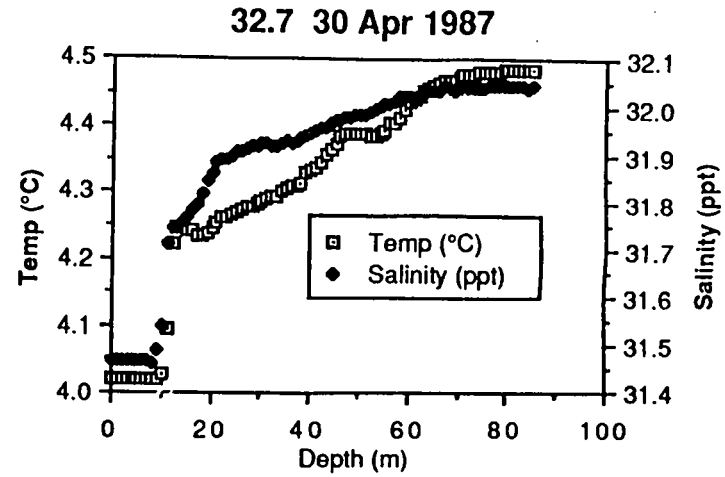

32.4 26 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Depth (m)
4.3
4.2
4.1
32.0
31.9
31.8
0
20
40
60
80
100
120

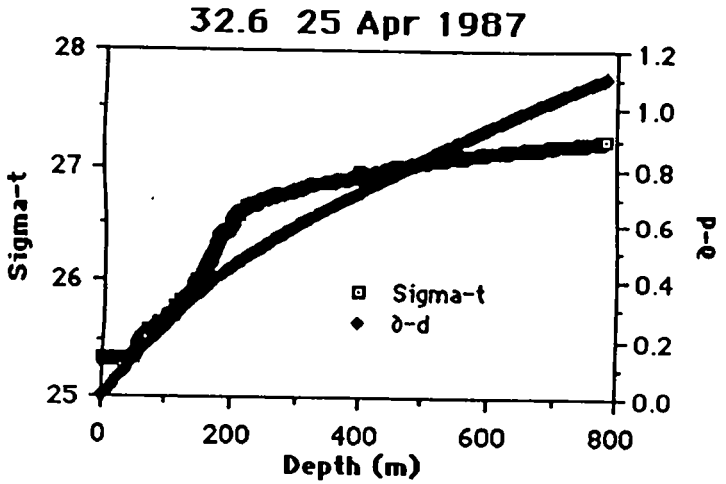

32.5 26 Apr 1987
Temp (°C)
Salinity (ppt)
Temp (°C)
Salinity (ppt)
Depth (m)
6
5
4
34
33
32
31
0
100
200
300
400

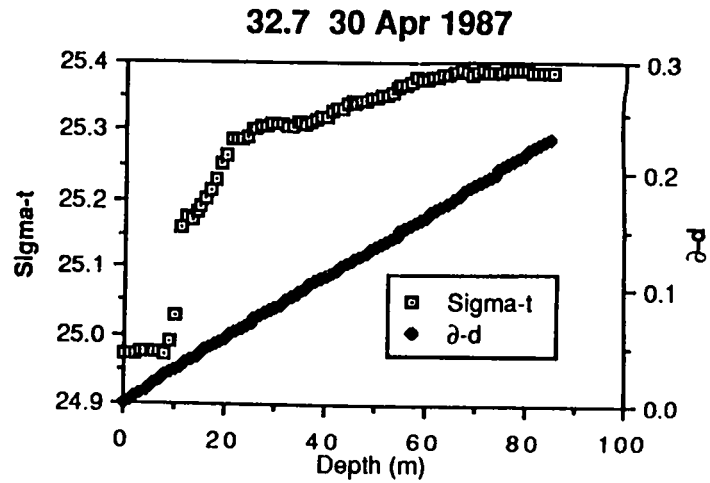

32.4 26 Apr 1987
Sigma-t
∂-d
Sigma-t
Depth (m)
25.4
25.3
25.2
0.3
0.2
0.1
0.0
0
20
40
60
80
100
120

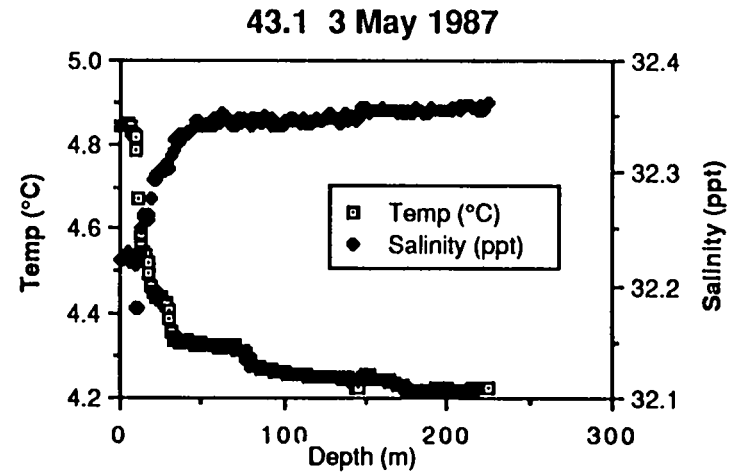

32.5 26 Apr 1987
Sigma-t
∂-d
Sigma-t
∂-d
Depth (m)
27
26
25
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400

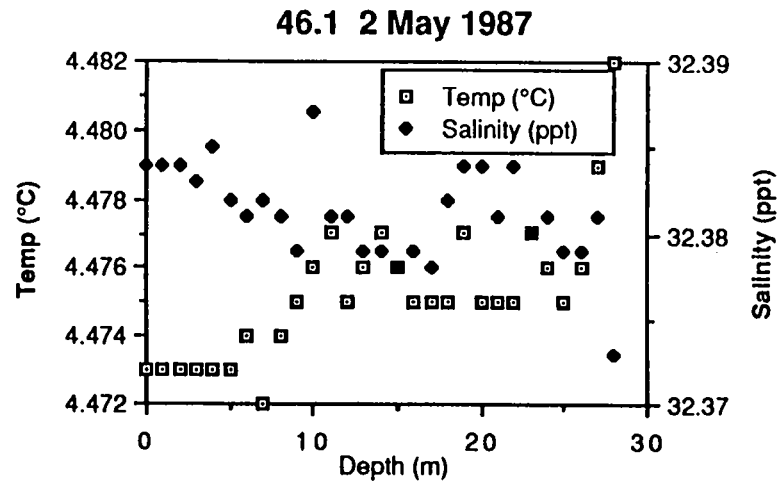

32.6 25 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

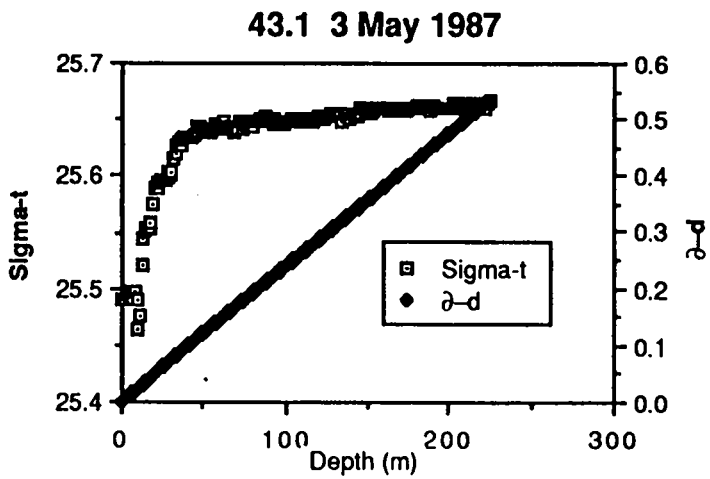

32.7 30 Apr 1987
Temp (°C)
Salinity (ppt)
Depth (m)
Temp (°C)
Salinity (ppt)

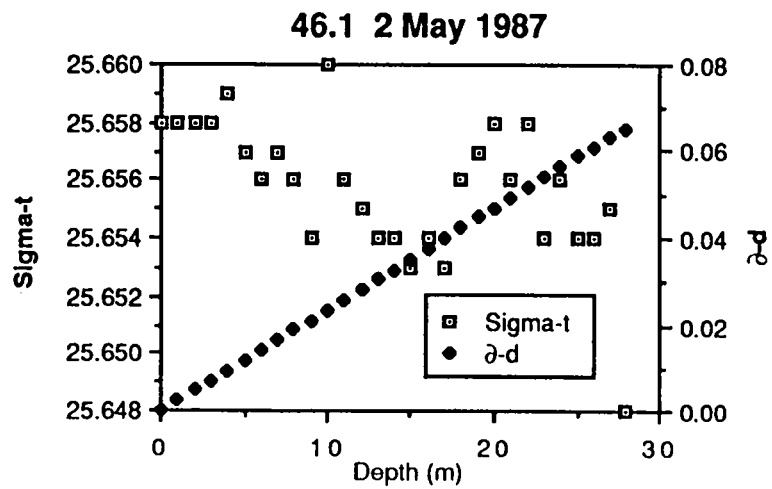

32.6 25 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d


32.7 30 Apr 1987
Sigma-t
∂-d
Depth (m)
Sigma-t
∂-d


43.1 3 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
5.0
4.8
4.6
4.4
4.2
32.4
32.3
32.2
32.1
0
100
200
300


46.1 2 May 1987
Temp (°C)
Salinity (ppt)
Depth (m)
4.482
4.480
4.478
4.476
4.474
4.472
32.39
32.38
32.37
0
10
20
30


43.1 3 May 1987
Sigma-t
∂-d
Depth (m)
25.7
25.6
25.5
25.4
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
100
200
300


46.1 2 May 1987
Sigma-t
∂-d
Depth (m)
25.660
25.658
25.656
25.654
25.652
25.650
25.648
0.08
0.06
0.04
0.02
0.00
0
10
20
30

APPENDIX C-1

Distribution of water quality measurements (CTD) and biological samples (bongo, Marinovich, trynet, Tucker, Shipeck, and dredge) taken in fall, 1986, in the Unimak Pass area, Alaska. Listings are in order by station numbers, station locations are given by degrees and minutes of North latitude and West longitude, and depths are in meters.

Table C-1. Listing of samples taken during the fall cruise.

GEAR	CAST	STATION	LATITUDE		LONGITUDE		DATE	DEPTH
CTD	1	2.1	53	56.3	165	46.7	19 Sep 86	73
HORIZONTAL BONGO	505	2.1	53	55.1	165	46.5	18 Sep 86	71
HORIZONTAL BONGO	333	2.1	53	55.1	165	46.5	18 Sep 86	71
OBLIQUE BONGO	505	2.1	53	56.0	165	46.7	18 Sep 86	71
OBLIQUE BONGO	333	2.1	53	56.0	165	46.7	18 Sep 86	71
CTD	2	2.2	54	9.7	166	21.4	19 Sep 86	219
HORIZONTAL BONGO	505	2.2	54	9.6	166	21.6	19 Sep 86	241
HORIZONTAL BONGO	333	2.2	54	9.6	166	21.6	19 Sep 86	241
OBLIQUE BONGO	505	2.2	54	9.6	166	21.6	19 Sep 86	241
OBLIQUE BONGO	333	2.2	54	9.6	166	21.6	19 Sep 86	241
CTD	3	2.3	54	9.5	166	22.5	19 Sep 86	415
CTD	4	2.4	54	10.2	166	22.7	19 Sep 86	622
CTD	5	2.5	54	11.0	166	23.9	19 Sep 86	830
HORIZONTAL BONGO	505	2.5	54	11.9	166	26.5	19 Sep 86	795
HORIZONTAL BONGO	333	2.5	54	11.9	166	26.5	19 Sep 86	795
OBLIQUE BONGO	505	2.5	54	11.4	166	23.4	19 Sep 86	840
OBLIQUE BONGO	333	2.5	54	11.4	166	23.4	19 Sep 86	840
HORIZONTAL BONGO	505	3.1	54	26.1	166	29.4	19 Sep 86	570
HORIZONTAL BONGO	333	3.1	54	26.1	166	29.4	19 Sep 86	570
MARINOVICH	1	3.1	54	24.6	166	33.2	19 Sep 86	595
CTD	6	3.2	55	0.3	164	31.2	20 Sep 86	57
HORIZONTAL BONGO	505	3.2	55	1.0	164	31.1	19 Sep 86	57
HORIZONTAL BONGO	333	3.2	55	1.0	164	31.1	19 Sep 86	57
OBLIQUE BONGO	505	3.2	55	0.7	164	30.6	19 Sep 86	57
OBLIQUE BONGO	333	3.2	55	0.7	164	30.6	19 Sep 86	57
CTD	7	3.3	54	50.0	165	6.4	20 Sep 86	101
CTD	8	3.4	54	45.1	165	24.0	20 Sep 86	201
HORIZONTAL BONGO	505	3.4	54	44.4	165	24.6	20 Sep 86	206
HORIZONTAL BONGO	333	3.4	54	44.4	165	24.6	20 Sep 86	206
OBLIQUE BONGO	505	3.4	54	44.8	165	24.1	19 Sep 86	206
OBLIQUE BONGO	333	3.4	54	44.8	165	24.1	19 Sep 86	206
CTD	9	3.5	54	37.0	165	48.0	20 Sep 86	388
CTD	10	4.1	54	51.9	166	30.3	20 Sep 86	176
HORIZONTAL BONGO	505	4.1	54	51.9	166	32.2	20 Sep 86	176
HORIZONTAL BONGO	333	4.1	54	51.9	166	32.2	20 Sep 86	176
MARINOVICH	2	4.1	54	51.2	166	29.4	20 Sep 86	179
OBLIQUE BONGO	555	4.1	54	51.8	166	31.0	20 Sep 86	176
OBLIQUE BONGO	333	4.1	54	51.8	166	31.0	20 Sep 86	176
Tucker		4.1	54	52.1	166	31.7	20 Sep 86	176
CTD	12	4.2	54	10.0	164	23.2	21 Sep 86	92
CTD	11	4.3	54	13.8	164	37.5	21 Sep 86	97
CTD	13	4.4	54	25.2	165	10.3	21 Sep 86	166
CTD	14	4.5	54	31.9	165	29.3	21 Sep 86	99
CTD	15	4.6	54	37.3	165	38.3	21 Sep 86	346
CTD	30	5.1	54	6.3	165	29.8	24 Sep 86	96
MARINOVICH	6	5.1	54	6.8	165	27.3	24 Sep 86	97
Tucker		5.1	54	6.7	165	29.8	24 Sep 86	96
CTD	19	6.1	54	9.0	165	20.1	22 Sep 86	66
CTD	20	6.2	54	18.4	165	26.5	22 Sep 86	161
CTD	21	6.3	54	25.5	165	31.2	22 Sep 86	97

Tucker		6.3	54	25.5	165	31.9	22 Sep 86	97
CTD	29	8.1	54	2.6	165	26.1	24 Sep 86	73
Tucker		8.1	54	2.8	165	25.7	24 Sep 86	73
CTD	16	9.1	54	10.4	164	53.2	22 Sep 86	69
HORIZONTAL BONGO	505	9.1	54	10.4	164	52.9	21 Sep 86	60
HORIZONTAL BONGO	333	9.1	54	10.4	164	52.9	21 Sep 86	60
OBLIQUE BONGO	505	9.1	54	10.5	164	53.2	21 Sep 86	60
OBLIQUE BONGO	333	9.1	54	10.5	164	53.2	21 Sep 86	60
CTD	17	9.2	54	7.3	165	13.9	22 Sep 86	53
HORIZONTAL BONGO	505	9.2	54	7.5	165	13.7	21 Sep 86	45
HORIZONTAL BONGO	333	9.2	54	7.5	165	13.7	21 Sep 86	45
OBLIQUE BONGO	555	9.2	54	7.4	165	13.9	21 Sep 86	53
OBLIQUE BONGO	333	9.2	54	7.4	165	13.9	21 Sep 86	53
CTD	18	9.3	54	5.1	165	30.0	22 Sep 86	63
HORIZONTAL BONGO	505	9.3	54	6.1	165	29.6	22 Sep 86	90
HORIZONTAL BONGO	333	9.3	54	6.1	165	29.6	22 Sep 86	90
OBLIQUE BONGO	505	9.3	54	5.3	165	30.9	22 Sep 86	75
OBLIQUE BONGO	333	9.3	54	5.3	165	30.9	22 Sep 86	75
CTD	60	9.4	54	5.2	165	30.1	30 Sep 86	75
HORIZONTAL BONGO	505	9.4	54	5.4	165	30.3	30 Sep 86	69
HORIZONTAL BONGO	333	9.4	54	5.4	165	30.3	30 Sep 86	69
OBLIQUE BONGO	505	9.4	54	5.4	165	29.8	30 Sep 86	79
OBLIQUE BONGO	333	9.4	54	5.4	165	29.8	30 Sep 86	79
Tucker		9.4	54	5.3	165	30.0	30 Sep 86	68
MARINOVICH	17	9.5	54	6.7	165	18.6	30 Sep 86	48
CTD	61	9.6	54	8.0	165	3.8	01 Oct 86	35
Tucker		9.6	54	8.2	165	3.7	30 Sep 86	42
CTD	62	9.7	54	12.1	164	55.3	01 Oct 86	55
HORIZONTAL BONGO	505	9.7	54	13.2	164	55.3	30 Sep 86	55
HORIZONTAL BONGO	333	9.7	54	13.2	164	55.3	30 Sep 86	55
OBLIQUE BONGO	505	9.7	54	12.3	164	55.2	30 Sep 86	55
OBLIQUE BONGO	333	9.7	54	12.3	164	55.2	30 Sep 86	55
Tucker		9.7	54	13.7	164	55.4	30 Sep 86	60
CTD	63	9.8	54	13.5	164	50.8	01 Oct 86	49
Tucker		9.8	54	13.5	164	50.7	01 Oct 86	51
HORIZONTAL BONGO	505	10.1	54	26.0	165	32.6	22 Sep 86	100
HORIZONTAL BONGO	333	10.1	54	26.0	165	32.6	22 Sep 86	100
HORIZONTAL BONGO	505	10.1	54	25.3	165	32.5	22 Sep 86	100
HORIZONTAL BONGO	333	10.1	54	25.3	165	32.5	22 Sep 86	100
OBLIQUE BONGO	505	10.1	54	25.5	165	32.9	22 Sep 86	100
OBLIQUE BONGO	333	10.1	54	25.5	165	32.9	22 Sep 86	100
Tucker		10.1	54	24.5	165	32.0	22 Sep 86	100
Tucker		10.1	54	24.5	165	32.0	22 Sep 86	100
MARINOVICH	3	10.2	54	31.1	165	22.9	22 Sep 86	146
HORIZONTAL BONGO	505	10.3	54	3.8	166	22.8	27 Sep 86	84
HORIZONTAL BONGO	333	10.3	54	3.8	166	22.8	27 Sep 86	84
MARINOVICH	4	10.3	54	29.1	165	25.1	22 Sept 86	161
MARINOVICH	12	10.3	54	4.2	166	22.2	27 Sep 86	81
OBLIQUE BONGO	505	10.3	54	3.9	166	22.2	27 Sep 86	84
OBLIQUE BONGO	333	10.3	54	3.9	166	22.2	27 Sep 86	84
CTD	25	13.1	53	46.7	165	53.8	24 Sep 86	128
Tucker		13.1					23 Sep 86	106
CTD	27	13.2	53	54.3	166	8.7	24 Sep 86	75
HORIZONTAL BONGO	505	13.2	53	54.2	166	7.9	23 Sep 86	157

HORIZONTAL BONGO	333	13.2	53	54.2	166	7.9	23 Sep 86	157
OBLIQUE BONGO	505	13.2	53	54.3	166	8.5	23 Sep 86	82
OBLIQUE BONGO	333	13.2	53	54.3	166	8.5	23 Sep 86	82
Tucker		13.2	53	55.0	166	6.7	24 Sep 86	124
CTD	22	14.1	53	48.0	165	29.2	23 Sep 86	
HORIZONTAL BONGO	505	14.1	53	48.1	165	28.9	22 Sep 86	90
HORIZONTAL BONGO	333	14.1	53	48.1	165	28.9	22 Sep 86	90
OBLIQUE BONGO	505	14.1	53	47.9	165	29.3	22 Sep 86	93
OBLIQUE BONGO	333	14.1	53	47.9	165	29.3	22 Sep 86	93
CTD	23	14.2	53	42.9	165	17.0	23 Sep 86	187
HORIZONTAL BONGO	505	14.2	53	42.6	165	16.3	23 Sep 86	195
HORIZONTAL BONGO	333	14.2	53	42.6	165	16.3	23 Sep 86	195
OBLIQUE BONGO	505	14.2	53	42.6	165	16.9	23 Sep 86	191
OBLIQUE BONGO	333	14.2	53	42.6	165	16.9	23 Sep 86	191
CTD	28	14.3	53	49.5	165	32.0	24 Sep 86	104
HORIZONTAL BONGO	505	14.3	53	49.3	165	31.4	24 Sep 86	101
HORIZONTAL BONGO	333	14.3	53	49.3	165	31.4	24 Sep 86	101
OBLIQUE BONGO	505	14.3	53	49.6	165	31.9	24 Sep 86	106
OBLIQUE BONGO	333	14.3	53	49.6	165	31.9	24 Sep 86	106
Tucker		14.3	53	49.0	165	31.1	24 Sep 86	96
CTD	26	14.4	53	58.3	166	2.9	24 Sep 86	60
HORIZONTAL BONGO	505	14.4	53	58.3	166	1.2	23 Sep 86	64
HORIZONTAL BONGO	333	14.4	53	58.3	166	1.2	23 Sep 86	64
OBLIQUE BONGO	505	14.4	53	58.4	166	1.9	23 Sep 86	64
OBLIQUE BONGO	333	14.4	53	58.4	166	1.9	23 Sep 86	64
Tucker		14.4	53	58.4	166	2.9	23 Sep 86	59
MARINOVICH	7	14.6	54	1.5	166	6.8	24 Sep 86	51
Tucker		14.6	54	0.9	166	1.4	24 Sep 86	74
CTD	24	15.1	53	44.7	164	0.4	23 Sep 86	344
HORIZONTAL BONGO	505	15.1	53	44.6	164	1.1	23 Sep 86	390
HORIZONTAL BONGO	333	15.1	53	44.6	164	1.1	23 Sep 86	390
HORIZONTAL BONGO	505	15.1	53	44.5	164	0.9	23 Sep 86	389
HORIZONTAL BONGO	333	15.1	53	44.5	164	0.9	23 Sep 86	389
MARINOVICH	5	15.1	53	43.0	164	2.0	23 Sep 86	0
Tucker		15.1	53	44.5	164	0.6	23 Sep 86	389
CTD	31	16.1	54	20.1	164	43.1	25 Sep 86	62
Tucker		16.1	54	20.2	164	43.1	24 Sep 86	66
CTD	32	16.2	54	22.8	164	43.8	25 Sep 86	47
HORIZONTAL BONGO	505	16.2	54	22.5	164	41.9	24 Sep 86	51
HORIZONTAL BONGO	333	16.2	54	22.5	164	41.9	24 Sep 86	51
HORIZONTAL BONGO	505	16.2	54	22.5	164	42.5	24 Sep 86	55
HORIZONTAL BONGO	505	16.2	54	22.5	164	42.5	24 Sep 86	55
OBLIQUE BONGO	505	16.2	54	22.6	164	42.7	24 Sep 86	51
OBLIQUE BONGO	333	16.2	54	22.6	164	42.7	24 Sep 86	51
CTD	38	16.3	54	17.3	166	28.5	26 Sep 86	1560
HORIZONTAL BONGO	505	16.3	54	13.9	166	21.3	26 Sep 86	860
HORIZONTAL BONGO	333	16.3	54	13.9	166	21.3	26 Sep 86	860
MARINOVICH	9	16.3	54	16.3	166	26.1	26 Sep 86	915
OBLIQUE BONGO	505	16.3	54	14.6	166	22.1	26 Sep 86	860
OBLIQUE BONGO	333	16.3	54	14.6	166	22.1	26 Sep 86	860
Tucker		16.3	54	13.4	166	21.4	26 Sep 86	823
CTD	39	16.4	54	19.9	166	8.6	26 Sep 86	841
Tucker		16.4	54	20.2	166	8.0	26 Sep 86	841
CTD	40	16.5	54	34.0	166	29.8	26 Sep 86	439

Tucker		16.5	54	34.2	166	29.7	26 Sep 86	439
CTD	36	17.1	54	58.1	164	26.0	25 Sep 86	40
HORIZONTAL BONGO	505	17.1	54	59.2	164	24.6	25 Sep 86	40
HORIZONTAL BONGO	333	17.1	54	59.2	164	24.6	25 Sep 86	40
HORIZONTAL BONGO	505	17.1	54	59.6	164	24.6	25 Sep 86	40
HORIZONTAL BONGO	333	17.1	54	59.6	164	24.6	25 Sep 86	40
MARINOVICH	8	17.1	54	59.0	164	19.2	25 Sep 86	38
OBLIQUE BONGO	505	17.1	54	58.9	164	25.1	25 Sep 86	40
OBLIQUE BONGO	333	17.1	54	58.9	164	25.1	25 Sep 86	40
CTD	35	17.2	54	49.0	164	42.0	25 Sep 86	57
HORIZONTAL BONGO	505	17.2	54	49.2	164	41.8	25 Sep 86	57
HORIZONTAL BONGO	333	17.2	54	49.2	164	41.8	25 Sep 86	57
CTD	34	17.3	54	38.0	164	59.0	25 Sep 86	61
HORIZONTAL BONGO	505	17.3	54	37.5	164	59.2	25 Sep 86	60
HORIZONTAL BONGO	333	17.3	54	37.5	164	59.2	25 Sep 86	60
HORIZONTAL BONGO	505	17.3	54	37.2	164	59.5	25 Sep 86	60
HORIZONTAL BONGO	333	17.3	54	37.2	164	59.5	25 Sep 86	60
OBLIQUE BONGO	505	17.3	54	37.6	164	59.4	25 Sep 86	63
OBLIQUE BONGO	333	17.3	54	37.6	164	59.4	25 Sep 86	63
CTD	33	17.4	54	33.5	165	11.6	25 Sep 86	86
HORIZONTAL BONGO	505	17.4	54	34.2	165	11.6	25 Sep 86	86
HORIZONTAL BONGO	333	17.4	54	34.2	165	11.6	25 Sep 86	86
CTD	44	17.5	54	18.6	165	39.5	27 Sep 86	66
Tucker		17.5	54	18.9	165	39.0	27 Sep 86	70
CTD	41	17.6	54	14.1	165	59.7	27 Sep 86	57
Tucker		17.6	54	14.1	165	59.6	26 Sep 86	57
CTD	37	17.8	54	6.5	166	29.6	26 Sep 86	413
HORIZONTAL BONGO	505	17.8	54	6.5	166	29.0	25 Sep 86	457
HORIZONTAL BONGO	333	17.8	54	6.5	166	29.0	25 Sep 86	457
OBLIQUE BONGO	505	17.8	54	6.9	166	29.1	25 Sep 86	444
OBLIQUE BONGO	333	17.8	54	6.9	166	29.1	25 Sep 86	444
Tucker		17.8	54	7.0	166	29.0	25 Sep 86	421
HORIZONTAL BONGO	505	17.9	54	7.3	166	34.7	25 Sep 86	717
HORIZONTAL BONGO	333	17.9	54	7.3	166	34.7	25 Sep 86	717
Tucker		17.9					25 Sep 86	
MARINOVICH	10	18.1	54	51.1	166	31.3	26 Sep 86	183
CTD	42	19.1	54	28.7	165	37.6	27 Sep 86	168
HORIZONTAL BONGO	505	19.1	54	27.5	165	37.8	26 Sep 86	161
HORIZONTAL BONGO	333	19.1	54	27.5	165	37.8	26 Sep 86	161
MARINOVICH	11	19.1	54	29.0	165	36.3	26 Sep 86	139
OBLIQUE BONGO	505	19.1	54	27.9	165	37.5	26 Sep 86	163
OBLIQUE BONGO	333	19.1	54	27.9	165	37.5	26 Sep 86	163
Tucker		19.1	54	29.2	165	37.0	26 Sep 86	168
CTD	43	19.2	54	32.4	165	33.1	27 Sep 86	129
HORIZONTAL BONGO	505	19.2	54	31.2	165	32.1	27 Sep 86	196
HORIZONTAL BONGO	333	19.2	54	31.2	165	32.1	27 Sep 86	196
OBLIQUE BONGO	505	19.2	54	32.3	165	32.7	27 Sep 86	220
OBLIQUE BONGO	333	19.2	54	32.3	165	32.7	27 Sep 86	220
Tucker		19.2	54	30.9	165	32.1	27 Sep 86	190
CTD	45	21.1	54	17.7	166	27.7	28 Sep 86	1220
CTD	46	21.2	54	8.7	166	16.4	28 Sep 86	102
CTD	47	21.3	54	1.4	166	3.3	28 Sep 86	39
CTD	48	21.4	53	51.9	165	48.3	28 Sep 86	86
CTD	49	21.5	53	40.0	165	31.1	28 Sep 86	141

CTD	56	22.1	53	54.2	165	56.2	30 Sep 86	108
HORIZONTAL BONGO	505	22.1	53	54.2	165	55.6	29 Sep 86	84
HORIZONTAL BONGO	333	22.1	53	54.2	165	55.6	29 Sep 86	84
OBLIQUE BONGO	505	22.1	53	54.6	165	55.4	29 Sep 86	79
OBLIQUE BONGO	333	22.1	53	54.6	165	55.4	29 Sep 86	79
Tucker		22.1	53	54.7	165	55.8	29 Sep 86	108
CTD	66	22.11	54	5.7	165	33.4	02 Oct 86	66
Tucker		22.11	54	5.5	165	33.4	01 Oct 86	68
CTD	57	22.2	53	54.3	165	47.2	30 Sep 86	78
Tucker		22.2	53	54.3	165	46.9	30 Sep 86	78
CTD	58	22.3	53	57.2	165	35.7	30 Sep 86	94
HORIZONTAL BONGO	505	22.3	53	57.3	165	36.9	30 Sep 86	96
HORIZONTAL BONGO	333	22.3	53	57.3	165	36.9	30 Sep 86	96
OBLIQUE BONGO	505	22.3	53	58.0	165	36.1	30 Sep 86	99
OBLIQUE BONGO	333	22.3	53	58.0	165	36.1	30 Sep 86	99
Tucker		22.3	53	58.2	165	35.6	30 Sep 86	98
CTD	64	22.4	54	12.1	164	48.1	01 Oct 86	40
HORIZONTAL BONGO	505	22.4	54	12.1	164	47.9	01 Oct 86	40
HORIZONTAL BONGO	333	22.4	54	12.1	164	47.9	01 Oct 86	40
MARINOVICH	18	22.4	54	13.9	164	48.3	01 Oct 86	57
OBLIQUE BONGO	505	22.4	54	12.1	164	47.8	01 Oct 86	40
OBLIQUE BONGO	333	22.4	54	12.1	164	47.8	01 Oct 86	40
Tucker		22.4	54	12.4	164	48.0	01 Oct 86	43
CTD	65	22.5	54	3.3	165	2.7	01 Oct 86	61
HORIZONTAL BONGO	505	22.5	54	3.1	165	3.2	01 Oct 86	64
HORIZONTAL BONGO	333	22.5	54	3.1	165	3.2	01 Oct 86	64
MARINOVICH	20	22.5	54	3.1	165	2.5	01 Oct 86	66
OBLIQUE BONGO	505	22.5	54	3.1	165	2.9	01 Oct 86	61
OBLIQUE BONGO	333	22.5	54	3.1	165	2.9	01 Oct 86	61
Tucker		22.5	54	3.0	165	3.4	01 Oct 86	64
MARINOVICH	19	22.6	54	11.2	164	52.4	01 Oct 86	73
MARINOVICH	21	22.7	54	1.8	165	10.5	01 Oct 86	75
CTD	67	22.8	53	60.0	165	17.6	02 Oct 86	90
HORIZONTAL BONGO	505	22.8	53	59.1	165	19.3	01 Oct 86	90
HORIZONTAL BONGO	333	22.8	53	59.1	165	19.3	01 Oct 86	90
MARINOVICH	22	22.8	54	2.9	165	16.9	01 Oct 86	79
OBLIQUE BONGO	505	22.8	53	59.3	165	18.6	01 Oct 86	90
OBLIQUE BONGO	333	22.8	53	59.3	165	18.6	01 Oct 86	90
Tucker		22.8	53	59.5	165	17.6	01 Oct 86	90
CTD	68	22.9	53	59.9	165	40.3	02 Oct 86	89
HORIZONTAL BONGO	505	22.9	54	0.4	165	40.9	01 Oct 86	89
HORIZONTAL BONGO	333	22.9	54	0.4	165	40.9	01 Oct 86	89
MARINOVICH	23	22.9	54	5.2	165	40.0	01 Oct 86	81
OBLIQUE BONGO	505	22.9	54	0.0	165	40.4	01 Oct 86	86
OBLIQUE BONGO	333	22.9	54	0.0	165	40.4	01 Oct 86	86
Tucker		22.9	54	1.1	165	40.2	02 Oct 86	88
CTD	50	23.1	54	25.0	164	18.5	29 Sep 86	86
Tucker		23.1	54	24.8	164	18.5	28 Sep 86	90
CTD	51	23.2	54	14.3	163	60.0	29 Sep 86	75
HORIZONTAL BONGO	505	23.2	54	13.3	164	2.5	28 Sep 86	75
HORIZONTAL BONGO	333	23.2	54	13.3	164	2.5	28 Sep 86	75
OBLIQUE BONGO	505	23.2	54	13.5	164	1.7	28 Sep 86	75
OBLIQUE BONGO	333	23.2	54	13.5	164	1.7	28 Sep 86	75
Tucker		23.2	54	13.8	164	0.5	28 Sep 86	75

CTD	52	23.3	54	3.5	164	0.1	29 Sep 86	78
Tucker		23.3	54	3.3	164	0.5	28 Sep 86	78
CTD	53	23.4	53	47.0	163	60.0	29 Sep 86	119
HORIZONTAL BONGO	505	23.4	53	47.4	164	0.9	29 Sep 86	109
HORIZONTAL BONGO	333	23.4	53	47.4	164	0.9	29 Sep 86	109
OBLIQUE BONGO	505	23.4	53	47.1	164	0.0	29 Sep 86	112
OBLIQUE BONGO	333	23.4	53	47.1	164	0.0	29 Sep 86	112
Tucker		23.4	53	47.0	164	0.1	29 Sep 86	117
CTD	55	23.5	53	35.7	164	2.0	29 Sep 86	
MARINOVICH	14	23.5	53	35.4	164	5.3	29 Sep 86	2013
Tucker		23.5					29 Sep 86	
CTD	54	23.6	53	30.7	164	2.1	29 Sep 86	
HORIZONTAL BONGO	505	23.6	53	30.8	164	0.7	29 Sep 86	XXX
HORIZONTAL BONGO	333	23.6	53	30.8	164	0.7	29 Sep 86	XXX
MARINOVICH	13	23.6	53	30.5	164	2.0	29 Sep 86	>915
OBLIQUE BONGO	505	23.6	53	30.2	164	0.6	29 Sep 86	XXX
OBLIQUE BONGO	333	23.6	53	30.2	164	0.6	29 Sep 86	XXX
Tucker		23.6	53	30.4	164	1.5	29 Sep 86	
CTD	59	25.1	54	6.1	165	38.2	30 Sep 86	59
Tucker		25.1	54	6.0	165	37.6	30 Sep 86	63
MARINOVICH	15	26.1	53	58.3	165	55.3	29 Sep 86	119
CTD	86	26.2	53	54.1	166	6.4	07 Oct 86	305
CTD	87	26.2	53	54.2	166	6.9	06 Oct 86	310
CTD	88	26.2	53	54.1	166	6.2	07 Oct 86	312
CTD	89	26.2	53	54.1	166	7.7	07 Oct 86	320
CTD	90	26.2	53	54.1	166	7.5	07 Oct 86	329
CTD	91	26.2	53	54.4	166	7.8	07 Oct 86	
CTD	92	26.2	53	53.6	166	6.4	07 Oct 86	241
OBLIQUE BONGO	505	26.2	53	54.2	166	6.9	06 Oct 86	336
OBLIQUE BONGO	333	26.2	53	54.2	166	6.9	06 Oct 86	336
OBLIQUE BONGO	505	26.2	53	54.2	166	6.6	06 Oct 86	318
OBLIQUE BONGO	333	26.2	53	54.2	166	6.6	06 Oct 86	318
OBLIQUE BONGO	505	26.2	53	54.0	166	6.6	06 Oct 86	316
OBLIQUE BONGO	333	26.2	53	54.0	166	6.6	06 Oct 86	316
OBLIQUE BONGO	505	26.2	53	54.8	166	8.3	06 Oct 86	103
OBLIQUE BONGO	333	26.2	53	54.8	166	8.3	06 Oct 86	103
OBLIQUE BONGO	505	26.2	53	54.1	166	7.2	06 Oct 86	324
OBLIQUE BONGO	333	26.2	53	54.1	166	7.2	06 Oct 86	324
OBLIQUE BONGO	505	26.2	53	54.3	166	6.6	06 Oct 86	305
OBLIQUE BONGO	333	26.2	53	54.3	166	6.6	06 Oct 86	305
OBLIQUE BONGO	505	26.2	53	54.2	166	5.9	06 Oct 86	310
OBLIQUE BONGO	333	26.2	53	54.2	166	5.9	06 Oct 86	310
OBLIQUE BONGO	505	26.2	53	54.0	166	5.9	07 Oct 86	260
OBLIQUE BONGO	333	26.2	53	54.0	166	5.9	07 Oct 86	260
OBLIQUE BONGO	505	26.2	53	53.5	166	7.7	07 Oct 86	320
OBLIQUE BONGO	333	26.2	53	53.5	166	7.7	07 Oct 86	320
OBLIQUE BONGO	505	26.2	53	53.9	166	7.2	07 Oct 86	329
OBLIQUE BONGO	333	26.2	53	53.9	166	7.2	07 Oct 86	329
OBLIQUE BONGO	505	26.2	53	54.5	166	7.7	07 Oct 86	139
OBLIQUE BONGO	333	26.2	53	54.5	166	7.7	07 Oct 86	139
OBLIQUE BONGO	505	26.2	53	53.7	166	6.2	07 Oct 86	230
OBLIQUE BONGO	333	26.2	53	53.7	166	6.2	07 Oct 86	230
MARINOVICH	16	27.1	53	54.3	166	8.8	30 Sep 86	183
CTD	70	29.1	53	30.0	166	26.1	02 Oct 86	101

HORIZONTAL BONGO	505	29.1	53	30.8	166	25.6	02 Oct 86	100
HORIZONTAL BONGO	333	29.1	53	30.8	166	25.6	02 Oct 86	100
MARINOVICH	24	29.1	53	28.7	166	25.8	02 Oct 86	115
OBLIQUE BONGO	505	29.1	53	30.4	166	25.9	02 Oct 86	100
OBLIQUE BONGO	333	29.1	53	30.4	166	25.9	02 Oct 86	100
Tucker		29.1	53	30.0	166	26.2	02 Oct 86	102
CTD	69	29.2	53	36.8	165	55.8	02 Oct 86	98
Tucker		29.2	53	37.3	165	55.8	02 Oct 86	97
CTD	71	30.1	54	29.2	164	0.5	02 Oct 86	86
HORIZONTAL BONGO	505	30.1	54	29.8	164	2.3	02 Oct 86	113
HORIZONTAL BONGO	333	30.1	54	29.8	164	2.3	02 Oct 86	113
MARINOVICH	25	30.1	54	29.3	163	59.5	02 Oct 86	82
OBLIQUE BONGO	505	30.1	54	29.3	164	1.7	02 Oct 86	106
OBLIQUE BONGO	333	30.1	54	29.3	164	1.7	02 Oct 86	106
Tucker		30.1	54	30.8	164	3.0	02 Oct 86	100
CTD	72	31.1	54	21.8	164	39.5	03 Oct 86	66
Tucker		31.1	54	21.8	164	39.6	03 Oct 86	66
CTD	73	31.2	54	22.5	164	49.5	03 Oct 86	48
OBLIQUE BONGO	505	31.2	54	22.5	164	50.1	03 Oct 86	59
OBLIQUE BONGO	333	31.2	54	22.5	164	50.1	03 Oct 86	59
Tucker		31.2	54	23.0	164	52.3	03 Oct 86	63
CTD	74	31.3	54	4.8	164	33.2	03 Oct 86	95
HORIZONTAL BONGO	505	31.3	54	22.5	164	51.1	03 Oct 86	57
HORIZONTAL BONGO	333	31.3	54	22.5	164	51.1	03 Oct 86	57
Tucker		31.3	54	4.9	164	33.7	03 Oct 86	95
CTD	75	31.4	53	57.9	164	29.7	03 Oct 86	109
HORIZONTAL BONGO	505	31.4	53	58.9	164	27.4	03 Oct 86	109
HORIZONTAL BONGO	333	31.4	53	58.9	164	27.4	03 Oct 86	109
OBLIQUE BONGO	505	31.4	53	58.5	164	27.3	03 Oct 86	109
OBLIQUE BONGO	333	31.4	53	58.5	164	27.3	03 Oct 86	109
Tucker		31.4	53	58.0	164	27.2	03 Oct 86	109
CTD	77	31.5	54	46.6	165	15.0	04 Oct 86	146
Tucker		31.5	54	46.6	165	15.1	03 Oct 86	146
CTD	76	31.6	54	59.9	165	29.6	04 Oct 86	126
HORIZONTAL BONGO	505	31.6	54	58.2	165	27.4	03 Oct 86	125
HORIZONTAL BONGO	333	31.6	54	58.2	165	27.4	03 Oct 86	125
HORIZONTAL BONGO	505	31.6	55	0.4	165	30.4	03 Oct 86	126
HORIZONTAL BONGO	333	31.6	55	0.4	165	30.4	03 Oct 86	126
MARINOVICH	26	31.6	54	59.6	165	28.3	03 Oct 86	124
OBLIQUE BONGO	505	31.6	55	0.0	165	30.1	03 Oct 86	126
OBLIQUE BONGO	333	31.6	55	0.0	165	30.1	03 Oct 86	126
Tucker		31.6	55	0.8	165	30.8	03 Oct 86	126
CTD	85	31.7	54	9.0	164	29.4	05 Oct 86	86
HORIZONTAL BONGO	505	31.7	54	8.8	164	28.2	05 Oct 86	86
HORIZONTAL BONGO	333	31.7	54	8.8	164	28.2	05 Oct 86	86
OBLIQUE BONGO	505	31.7	54	9.0	164	28.7	05 Oct 86	86
OBLIQUE BONGO	333	31.7	54	9.0	164	28.7	05 Oct 86	86
Tucker		31.7	54	9.1	164	29.0	05 Oct 86	86
MARINOVICH	29	31.8	54	35.3	163	57.7	05 Oct 86	59
CTD	80	32.1	54	60.0	165	59.9	04 Oct 86	138
HORIZONTAL BONGO	505	32.1	55	1.4	165	59.0	04 Oct 86	138
HORIZONTAL BONGO	333	32.1	55	1.4	165	59.0	04 Oct 86	138
MARINOVICH	27	32.1	54	58.6	165	59.8	04 Oct 86	143
OBLIQUE BONGO	505	32.1	55	0.9	165	59.4	04 Oct 86	138

OBLIQUE BONGO	333	32.1	55	0.9	165	59.4	04 Oct 86	138
Tucker		32.1	55	0.3	165	59.9	04 Oct 86	138
CTD	79	32.2	54	47.0	165	54.8	04 Oct 86	200
Tucker		32.2	54	46.9	165	43.6	04 Oct 86	196
CTD	78	32.3	54	36.2	165	30.9	04 Oct 86	173
CTD	84	32.3	54	0.1	164	49.9	05 Oct 86	93
HORIZONTAL BONGO	505	32.3	54	36.6	153	31.0	04 Oct 86	194
HORIZONTAL BONGO	333	32.3	54	36.6	153	31.0	04 Oct 86	194
OBLIQUE BONGO	505	32.3	54	36.1	165	31.1	04 Oct 86	171
OBLIQUE BONGO	333	32.3	54	36.1	165	31.1	04 Oct 86	171
Tucker		32.3	54	37.2	165	30.9	04 Oct 86	204
Tucker	32.7	32.3	54	0.5	164	49.8	05 Oct 86	90
CTD	83	32.4	53	50.2	164	48.0	05 Oct 86	103
HORIZONTAL BONGO	505	32.4	53	49.7	164	48.3	05 Oct 86	108
HORIZONTAL BONGO	333	32.4	53	49.7	164	48.3	05 Oct 86	108
OBLIQUE BONGO	505	32.4	53	50.2	164	48.2	05 Oct 86	103
OBLIQUE BONGO	333	32.4	53	50.2	164	48.2	05 Oct 86	103
Tucker		32.4	53	49.6	164	48.4	05 Oct 86	108
CTD	82	32.5	53	40.3	164	46.5	05 Oct 86	313
Tucker		32.5	53	40.3	164	47.2	05 Oct 86	322
CTD	81	32.6	53	29.6	164	49.5	05 Oct 86	2000
HORIZONTAL BONGO	505	32.6	53	29.4	164	49.6	04 Oct 86	2000
HORIZONTAL BONGO	333	32.6	53	29.4	164	49.6	04 Oct 86	2000
MARINOVICH	28	32.6	53	30.0	164	45.8	04 Oct 86	0
OBLIQUE BONGO	505	32.6	53	29.4	164	50.0	04 Oct 86	2000
OBLIQUE BONGO	333	32.6	53	29.4	164	50.0	04 Oct 86	2000
Tucker		32.6	53	29.3	164	49.6	04 Oct 86	2000
Shipeck	A01	A004	54	14.1	165	34.3	21 Sep 86	9
Shipeck	A02	A013	54	13.3	165	31.8	21 Sep 86	3
Shipeck	A03	A027	54	10.3	165	26.3	21 Sep 86	6
Shipeck	A04	A027	54	10.3	165	26.3	21 Sep 86	6
Shipeck	A05	A031	54	9.8	165	28.8	21 Sep 86	8
Shipeck	A06	A031	54	9.8	165	28.8	21 Sep 86	8
Shipeck	A07	A053	54	13.7	165	21.8	22 Sep 86	6
Shipeck	A08	A055	54	13.5	165	24.8	22 Sep 86	4
Shipeck	A09	A061	54	10.0	165	23.5	22 Sep 86	5
Shipeck	A10	A061	54	10.0	165	23.5	22 Sep 86	5
Shipeck	A11	A070	54	8.7	165	33.9	30 Sep 86	2
Shipeck	A12	A070	54	8.7	165	33.9	30 Sep 86	6
Shipeck	A13	A074	54	9.8	165	31.0	30 Sep 86	6
Shipeck	B04	B003	54	4.9	166	4.4	27 Sep 86	10
Shipeck	B05	B004	54	5.5	166	4.3	27 Sep 86	4
Shipeck	B06	B019	54	13.1	165	56.2	27 Sep 86	4
Shipeck	B07	B023	54	11.9	165	53.4	27 Sep 86	4
Shipeck	B08	B024	54	11.1	165	52.4	27 Sep 86	4
Shipeck	B09	B027	54	11.3	165	49.0	27 Sep 86	4
Shipeck	B01	B031	54	8.6	165	44.1	22 Sep 86	7
Shipeck	B02	B031	54	8.6	165	44.1	22 Sep 86	7
Shipeck	B03	B031	54	8.6	165	44.1	22 Sep 86	7
Shipeck	B10	B046	54	6.8	166	0.1	30 Sep 86	4
Shipeck	B11	B048	54	6.6	165	57.1	30 Sep 86	6
Shipeck	B12	B048	54	6.6	165	57.1	30 Sep 86	6
Shipeck	B13	B053	54	7.5	165	51.3	30 Sep 86	3
Shipeck	F01	F017	54	6.2	165	23.7	24 Sep 86	8

Shipeck	F02	F018	54	6.4	165	22.5	24 Sep 86	7
Shipeck	F03	F023	54	5.6	165	21.6	24 Sep 86	6
Shipeck	G06	G006	54	5.4	165	8.9	01 Oct 86	2
Shipeck	G05	G006	54	5.6	165	8.5	01 Oct 86	4
Shipeck	G04	G017	54	8.1	164	58.7	01 Oct 86	2
Shipeck	G03	G028	54	7.3	164	58.9	24 Sep 86	6
Shipeck	G02	G035	54	7.2	165	6.2	24 Sep 86	6
Shipeck	G01	G040	54	6.2	165	13.6	24 Sep 86	4

APPENDIX C-2

Distribution of water quality measurements (CTD) and biological samples (bongo, Marinovich, trynet, Tucker, Shipeck, and dredge) taken in winter, 1987, in the Unimak Pass area, Alaska. Listings are in order by station numbers, station locations are given by degrees and minutes of North latitude and West longitude, and depths are in meters.

Table C-2. Listing of samples taken during the winter cruise.

GEAR	CAST	STATION	LATITUDE	LONGITUDE	DATE	DEPTH
CTD	34	2.2	54 09.97	166 21.47	26 Feb 87	291
Hor Bongo		2.2	54 09.70	166 22.00	27 Feb 87	392
Obl Bongo		2.2	54 09.90	166 21.90	27 Feb 87	392
Surface Bongo		2.2	54 09.60	166 22.00	27 Feb 87	
CTD	23	3.1	54 25.53	166 31.26	24 Feb 87	574
CTD	72	3.1	54 25.47	166 31.65	6 Mar 87	569
Hor Bongo		3.1	54 26.70	166 31.90	24 Feb 87	549
MARINOVICH	10	3.1	54 25.83	166 31.22	24 Feb 87	580
Obl Bongo		3.1	54 25.90	166 32.20	24 Feb 87	561
Tucker		3.1	54 27.20	166 31.70	24 Feb 87	541
CTD	22	3.2	55 00.70	164 31.00	24 Feb 87	57
CTD	68	3.2	55 01.44	164 31.62	5 Mar 87	58
Hor Bongo		3.2			24 Feb 87	58
MARINOVICH	6	3.2	55 00.45	164 29.96	23 Feb 87	58
Obl Bongo		3.2			24 Feb 87	57
Tucker		3.2			24 Feb 87	57
CTD	21	3.3	54 49.98	165 06.31	24 Feb 87	103
CTD	69	3.3	54 50.01	165 06.31	5 Mar 87	104
Hor Bongo		3.3	54 49.40	165 07.20	24 Feb 87	112
MARINOVICH	9	3.3	54 50.35	165 07.86	24 Feb 87	115
Obl Bongo		3.3	54 49.50	165 06.60	24 Feb 87	104
Rock Dredge	2	3.3	54 50.23	165 06.18	24 Feb 87	104
Trynet	2	3.3	54 50.65	165 50.65	24 Feb 87	119
Tucker		3.3	54 49.30	165 08.20	24 Feb 87	115
CTD	25	3.4	54 44.83	165 24.19	25 Feb 87	206
CTD	70	3.4	54 44.91	165 24.55	5 Mar 87	210
Hor Bongo		3.4	54 46.70	165 23.90	25 Feb 87	190
Obl Bongo		3.4	54 45.90	165 24.10	25 Feb 87	189
CTD	24	3.5	54 37.20	165 48.31	24 Feb 87	393
CTD	71	3.5	54 37.13	165 48.32	6 Mar 87	393
Hor Bongo		3.5	54 37.40	165 50.90	6 Mar 87	393
Obl Bongo		3.5	54 37.30	165 50.00	6 Mar 87	393
Tucker		3.5	54 38.10	165 49.60	24 Feb 87	384
CTD	8	4.1	54 51.85	166 31.21	18 Feb 87	176
Hor Bongo		4.1	54 52.70	166 32.10	18 Feb 87	172
MARINOVICH	3	4.1	54 50.50	166 30.58	18 Feb 87	196
Obl Bongo		4.1	54 52.20	166 32.00	18 Feb 87	176
Tucker		4.1	54 53.30	166 32.10	18 Feb 87	170
CTD	13	4.2	54 09.68	164 23.33	19 Feb 87	93
CTD	12	4.3	54 13.43	164 37.29	19 Feb 87	86
CTD	11	4.4	54 25.41	165 10.17	19 Feb 87	161
CTD	10	4.5	54 31.89	165 29.30	19 Feb 87	99
CTD	9	4.6	54 37.25	165 38.29	18 Feb 87	342
CTD	59	5.1	54 06.62	165 28.43	3 Mar 87	104
Hor Bongo		5.1	54 06.50	165 29.00	3 Mar 87	97
MARINOVICH	24	5.1	54 06.04	165 29.56	3 Mar 87	110
Obl Bongo		5.1	54 06.60	165 28.90	3 Mar 87	99
Rock Dredge	3	5.1	54 06.17	165 30.19	3 Mar 87	101
Surface Bongo		5.1	54 06.40	165 29.30	3 Mar 87	102

CTD	32	6.1	54	09.35	165	19.60	26 Feb 87	66
Surface Bongo		6.1	54	09.90	165	18.60	26 Feb 87	75
CTD	64	6.2	54	18.39	165	27.28	4 Mar 87	143
Hor Bongo		6.2	54	18.40	165	26.50	4 Mar 87	155
Obl Bongo		6.2	54	18.20	165	26.10	4 Mar 87	126
Surface Bongo		6.2	54	18.30	165	26.40	4 Mar 87	170
CTD	65	6.3	54	25.30	165	31.69	4 Mar 87	95
Hor Bongo		6.3	54	25.70	165	31.20	4 Mar 87	95
Obl Bongo		6.3	54	25.50	165	31.30	4 Mar 87	95
Surface Bongo		6.3	54	26.20	165	31.10	4 Mar 87	95
CTD	31	9.2	54	07.80	165	14.08	26 Feb 87	60
Hor Bongo		9.2	54	08.10	165	13.90	26 Feb 87	58
Obl Bongo		9.2	54	08.00	165	14.10	26 Feb 87	62
Surface Bongo		9.2	54	08.20	165	12.80	26 Feb 87	57
CTD	30	9.3	54	05.71	165	29.60	26 Feb 87	88
Hor Bongo		9.3	54	05.90	165	29.50	26 Feb 87	106
Obl Bongo		9.3	54	06.00	165	29.30	26 Feb 87	106
Surface Bongo		9.3	54	06.20	165	28.10	26 Feb 87	
MARINOVICH	19	9.5	54	07.17	165	19.60	1 Mar 87	57
CTD	60	9.7	54	12.53	164	55.17	3 Mar 87	53
Hor Bongo		9.7	54	13.40	164	55.40	4 Mar 87	59
Obl Bongo		9.7	54	12.00	164	54.60	3 Mar 87	55
Surface Bongo		9.7	54	13.50	164	55.40	4 Mar 87	59
MARINOVICH	25	10.1	54	25.11	165	32.57	4 Mar 87	165
MARINOVICH	11	10.2	54	32.03	165	25.22	25 Feb 87	93
CTD	33	10.3	54	03.97	166	21.96	26 Feb 87	84
Hor Bongo		10.3	54	03.50	166	20.20	26 Feb 87	80
MARINOVICH	14	10.3	54	03.85	166	22.19	27 Feb 87	87
Obl Bongo		10.3	54	03.90	166	20.90	26 Feb 87	84
Surface Bongo		10.3	54	03.00	166	19.30	26 Feb 87	80
CTD	28	13.2	53	54.30	166	08.06	25 Feb 87	137
Hor Bongo		13.2	53	54.70	166	07.80	25 Feb 87	112
Obl Bongo		13.2	53	54.60	166	08.00	25 Feb 87	82
Surface Bongo		13.2	53	54.70	166	07.60	25 Feb 87	115
CTD	39	14.2	53	42.80	165	16.86	27 Feb 87	192
Hor Bongo		14.2	53	42.60	165	16.60	28 Feb 87	197
Obl Bongo		14.2	53	43.30	165	16.80	28 Feb 87	191
Surface Bongo		14.2	53	42.50	165	16.50	28 Feb 87	197
CTD	40	14.3	53	49.62	165	31.47	28 Feb 87	105
Hor Bongo		14.3	53	49.50	165	31.50	28 Feb 87	16
Obl Bongo		14.3	53	49.70	165	31.50	28 Feb 87	104
Surface Bongo		14.3	53	49.30	165	31.40	28 Feb 87	104
CTD	29	14.4	53	58.46	166	02.46	25 Feb 87	59
Hor Bongo		14.4	53	58.90	166	02.70	25 Feb 87	42
Obl Bongo		14.4	53	58.80	166	02.90	25 Feb 87	37
Surface Bongo		14.4	53	59.20	166	02.40	25 Feb 87	42
CTD	18	17.1	54	58.84	164	23.77	22 Feb 87	40
Hor Bongo		17.1	54	58.90	164	23.90	22 Feb 87	42
MARINOVICH	5	17.1	55	00.55	164	22.68	22 Feb 87	40
Obl Bongo		17.1	54	58.40	164	22.80	22 Feb 87	38
Rock Dredge	1	17.1	55	00.39	164	23.59	22 Feb 87	46
Trynet	1	17.1	54	59.54	164	26.12	22 Feb 87	48
Tucker		17.1	54	58.60	164	23.70	22 Feb 87	
CTD	20	17.2	54	49.34	164	41.84	23 Feb 87	60

Hor Bongo		17.2	54	50.60	164	41.70	23 Feb 87	60
MARINOVICH	7	17.2	54	48.29	164	42.87	23 Feb 87	60
Obl Bongo		17.2	54	50.20	164	41.70	23 Feb 87	60
Tucker		17.2	54	49.60	164	41.90	24 Feb 87	60
CTD	19	17.3	54	37.69	164	59.71	23 Feb 87	
Hor Bongo		17.3	54	37.30	165	01.40	23 Feb 87	70
MARINOVICH	8	17.3	54	37.32	165	00.01	23 Feb 87	64
Obl Bongo		17.3	54	37.10	165	00.70	23 Feb 87	70
Tucker		17.3	54	37.40	165	02.10	23 Feb 87	68
CTD	26	17.4	54	33.63	165	11.97	25 Feb 87	88
Hor Bongo		17.4	54	34.40	165	11.80	25 Feb 87	81
Obl Bongo		17.4	54	34.00	165	12.10	25 Feb 87	84
Tucker		17.4	54	34.70	165	11.50	25 Feb 87	81
CTD	63	17.5	54	18.98	165	40.01	4 Mar 87	80
Hor Bongo		17.5	54	18.90	165	41.40	4 Mar 87	86
Obl Bongo		17.5	54	18.90	165	40.80	4 Mar 87	84
Surface Bongo		17.5	54	19.00	165	47.00	4 Mar 87	86
CTD	37	17.6	54	14.60	165	59.53	27 Feb 87	96
Hor Bongo		17.6	54	15.10	165	57.20	27 Feb 87	96
Obl Bongo		17.6	54	15.10	165	58.50	27 Feb 87	96
Surface Bongo		17.6	54	15.10	165	56.20	27 Feb 87	91
CTD	36	17.8	54	07.00	166	28.45	27 Feb 87	706
Hor Bongo		17.8	54	07.00	166	28.50	27 Feb 83	
Obl Bongo		17.8	54	07.80	166	25.90	27 Feb 87	695
Surface Bongo		17.8	54	06.90	166	27.70	27 Feb 87	
CTD	49	21.1	54	17.73	166	27.10	1 Mar 87	1085
CTD	50	21.2	54	09.20	166	16.37	2 Mar 87	123
CTD	48	21.3	54	01.14	166	01.72	1 Mar 87	77
CTD	73	21.3	54	01.42	166	03.68	6 Mar 87	43
CTD	74	21.3	54	01.48	166	02.69	6 Mar 87	48
CTD	75	21.3	54	01.55	166	04.42	7 Mar 87	63
CTD	76	21.3	54	01.28	166	03.88	7 Mar 87	53
CTD	77	21.3	54	01.31	166	04.45	7 Mar 87	44
CTD	78	21.3	54	01.64	166	05.26	7 Mar 87	71
Obl Bongo		21.3	54	01.50	166	04.20	6 Mar 87	63
Obl Bongo		21.3	54	01.50	166	03.70	6 Mar 87	43
Obl Bongo		21.3	54	01.90	166	06.30	6 Mar 87	72
Obl Bongo		21.3	54	01.60	166	03.70	6 Mar 87	51
Obl Bongo		21.3	54	01.20	166	03.40	6 Mar 87	55
Obl Bongo		21.3	54	01.20	166	03.30	6 Mar 87	52
Obl Bongo		21.3	54	01.40	166	02.20	6 Mar 87	56
Obl Bongo		21.3	54	01.50	166	03.60	6 Mar 87	72
Obl Bongo		21.3	54	01.80	166	05.10	7 Mar 87	77
Obl Bongo		21.3	54	01.50	166	04.70	7 Mar 87	55
Obl Bongo		21.3	54	01.20	166	02.60	7 Mar 87	50
Obl Bongo		21.3	54	01.50	166	04.30	7 Mar 87	66
CTD	51	21.4	53	52.04	165	48.06	2 Mar 87	88
CTD	17	21.5	53	39.70	165	30.90	19 Feb 87	148
CTD	52	21.5	53	40.03	165	30.81	2 Mar 87	146
Tucker		21.5	53	39.30	165	29.90	20 Feb 87	201
CTD	53	21.6	53	29.76	165	16.26	2 Mar 87	1006
CTD	42	22.1	53	55.34	165	56.40	28 Feb 87	91
Hor Bongo		22.1	53	55.40	165	55.90	28 Feb 87	73
Obl Bongo		22.1	53	55.50	165	56.30	28 Feb 87	79

Surface Bongo		22.1	53	55.30	165	55.50	28 Feb 87	86
CTD	41	22.3	53	57.93	165	35.72	28 Feb 87	99
Hor Bongo		22.3	53	58.90	165	35.10	28 Feb 87	82
Obl Bongo		22.3	53	58.60	165	35.50	28 Feb 87	86
Surface Bongo		22.3	53	59.20	165	34.70	28 Feb 87	86
CTD	54	22.4	54	12.03	164	47.31	2 Mar 87	51
Hor Bongo		22.4	54	11.70	164	46.80	2 Mar 87	57
MARINOVICH	17	22.4	54	11.50	164	47.56	1 Mar 87	66
Obl Bongo		22.4	54	12.10	164	47.10	2 Mar 87	53
Surface Bongo		22.4	54	11.30	164	46.70	2 Mar 87	62
CTD	46	22.5	54	03.15	165	02.98	1 Mar 87	61
CTD	58	22.5	54	03.02	165	03.60	3 Mar 87	68
Hor Bongo		22.5	54	03.20	164	59.80	1 Mar 87	68
Hor Bongo		22.5	54	02.90	165	02.70	3 Mar 87	60
MARINOVICH	21	22.5	54	02.90	165	02.90	3 Mar 87	60
Obl Bongo		22.5	54	03.70	165	00.30	1 Mar 87	62
Obl Bongo		22.5	54	02.80	165	03.40	3 Mar 87	66
Surface Bongo		22.5	54	03.30	164	58.90	1 Mar 87	68
Surface Bongo		22.5	54	03.00	165	01.80	3 Mar 87	59
MARINOVICH	18	22.6	54	11.84	164	53.51	1 Mar 87	44
MARINOVICH	22	22.7	54	01.25	165	09.81	3 Mar 87	80
CTD	47	22.8	54	00.17	165	17.39	1 Mar 87	73
CTD	57	22.8	53	59.61	165	18.63	3 Mar 87	84
Hor Bongo		22.8	54	00.50	165	15.60	1 Mar 87	79
Hor Bongo		22.8	53	59.30	165	19.00	3 Mar 87	90
MARINOVICH	23	22.8	53	59.91	165	18.07	3 Mar 87	88
Obl Bongo		22.8	54	00.50	165	16.40	1 Mar 87	81
Obl Bongo		22.8	53	59.70	165	18.80	3 Mar 87	80
Surface Bongo		22.8	54	00.50	165	14.80	1 Mar 87	81
Surface Bongo		22.8	53	58.90	165	19.20	3 Mar 87	90
CTD	27	22.9	54	01.35	165	40.59	25 Feb 87	91
Hor Bongo		22.9	54	01.10	165	41.60	25 Feb 87	99
Obl Bongo		22.9	54	01.30	165	41.10	25 Feb 87	91
Surface Bongo		22.9	54	01.00	165	42.10	25 Feb 87	93
CTD	62	23.1	54	23.81	164	22.59	4 Mar 87	110
Hor Bongo		23.1	54	24.20	164	22.90	4 Mar 87	106
Obl Bongo		23.1	54	23.90	164	23.10	4 Mar 87	108
Surface Bongo		23.1	54	24.40	164	22.80	4 Mar 87	99
CTD	44	23.2	54	13.57	164	00.97	28 Feb 87	75
Hor Bongo		23.2	54	12.80	163	59.60	28 Feb 87	77
Obl Bongo		23.2	54	12.90	164	00.30	28 Feb 87	77
Surface Bongo		23.2	54	12.70	163	58.80	28 Feb 87	77
CTD	14	23.3	54	03.52	164	00.03	19 Feb 87	82
Tucker		23.3	54	02.70	163	59.70	19 Feb 87	81
CTD	5	23.5	53	35.52	164	03.75	18 Feb 87	1738
MARINOVICH	2	23.5	53	35.76	164	02.46	17 Feb 87	863
Tucker		23.5	53	36.10	164	06.70	18 Feb 87	1738
CTD	4	23.6	53	29.45	164	00.27	17 Feb 87	1912
Hor Bongo		23.6	53	28.90	163	03.40	17 Feb 87	1688
MARINOVICH	1	23.6	53	29.20	164	02.52	17 Feb 87	1509
Obl Bongo		23.6	53	29.30	164	01.10	17 Feb 87	1783
Tucker		23.6	53	28.80	164	04.40	17 Feb 87	1688
MARINOVICH	13	26.1	53	58.12	165	52.96	26 Feb 87	77
CTD	15	29.1	53	29.87	166	26.02	19 Feb 87	104

Hor Bongo		29.1	53	29.20	165	25.80	19 Feb 87	110
MARINOVICH	4	29.1	53	28.61	166	24.34	19 Feb 87	110
Obl Bongo		29.1	53	29.50	166	25.70	19 Feb 87	104
Tucker		29.1	53	28.80	166	25.80	19 Feb 87	113
CTD	16	29.2	53	37.00	165	55.51	19 Feb 87	97
MARINOVICH	12	29.2	54	00.71	165	42.62	25 Feb 87	91
Tucker		29.2	53	36.80	165	55.20	19 Feb 87	97
CTD	43	30.1	54	29.86	164	01.74	28 Feb 87	108
Hor Bongo		30.1	54	29.60	164	00.70	28 Feb 87	82
MARINOVICH	16	30.1	54	29.13	164	00.54	28 Feb 87	86
Obl Bongo		30.1	54	29.70	164	01.50	28 Feb 87	88
Surface Bongo		30.1	54	29.60	163	59.80	28 Feb 87	82
CTD	61	31.1	54	21.73	164	39.82	4 Mar 87	66
Hor Bongo		31.1	54	21.50	164	40.30	4 Mar 87	70
Obl Bongo		31.1	54	21.60	164	39.80	4 Mar 87	71
Surface Bongo		31.1	54	21.50	164	40.90	4 Mar 87	70
CTD	1	31.2	54	22.63	164	51.06	17 Feb 87	64
Hor Bongo		31.2	54	23.10	164	52.30	17 Feb 87	63
Obl Bongo		31.2	54	23.20	164	51.70	17 Feb 87	61
Tucker		31.2	54	22.70	164	53.10	17 Feb 87	66
CTD	7	31.3	54	14.35	164	42.82	18 Feb 87	77
Hor Bongo		31.3	54	16.20	164	44.80	18 Feb 87	99
Obl Bongo		31.3	54	15.50	164	44.30	18 Feb 87	88
Tucker		31.3	54	16.60	164	45.40	18 Feb 87	90
CTD	6	31.4	53	58.69	164	27.59	18 Feb 87	115
Hor Bongo		31.4	53	59.50	164	27.20	18 Feb 87	115
Obl Bongo		31.4	53	59.40	164	27.70	18 Feb 87	119
Tucker		31.4	53	59.10	164	27.90	18 Feb 87	112
CTD	2	31.5	54	46.86	165	14.76	17 Feb 87	144
Tucker		31.5	54	47.00	165	14.40	17 Feb 87	144
CTD	3	31.6	54	59.63	165	28.90	17 Feb 87	126
Obl Bongo		31.6	54	59.90	165	27.50	17 Feb 87	125
Tucker		31.6	55	00.20	165	27.60	17 Feb 87	125
CTD	66	32.2	54	46.94	165	49.29	5 Mar 87	196
Hor Bongo		32.2	54	47.80	165	49.70	5 Mar 87	190
Obl Bongo		32.2	54	47.00	165	49.50	5 Mar 87	193
Surface Bongo		32.2	54	48.20	165	49.90	5 Mar 87	174
CTD	67	32.3	54	36.37	165	30.86	5 Mar 87	173
Hor Bongo		32.3	54	36.40	165	30.70	5 Mar 87	183
Obl Bongo		32.3	54	35.90	165	31.10	5 Mar 87	176
Surface Bongo		32.3	54	36.70	165	30.50	5 Mar 87	185
CTD	45	32.4	53	49.65	164	48.39	1 Mar 87	107
Hor Bongo		32.4	53	50.00	164	47.70	1 Mar 87	106
Obl Bongo		32.4	53	50.00	164	48.20	1 Mar 87	106
Surface Bongo		32.4	53	50.00	164	47.30	1 Mar 87	106
CTD	55	32.5	53	40.15	164	46.48	2 Mar 87	326
Hor Bongo		32.5	53	39.10	164	45.90	2 Mar 87	389
Obl Bongo		32.5	53	39.90	164	46.10	2 Mar 87	337
Surface Bongo		32.5	53	38.70	164	46.10	2 Mar 87	
CTD	38	32.6	53	30.23	164	49.99	27 Feb 87	1673
Hor Bongo		32.6	53	29.50	164	49.90	27 Feb 87	1865
MARINOVICH	15	32.6	53	28.92	164	47.16	27 Feb 87	2124
Obl Bongo		32.6	53	29.70	164	49.80	27 Feb 87	1920
Surface Bongo		32.6	53	29.50	164	49.60	27 Feb 87	1781

CTD	56	32.7	54	01.06	164	50.83	3 Mar 87	87
Hor Bongo		32.7	54	00.10	164	50.70	3 Mar 87	92
MARINOVICH	20	32.7	53	59.54	164	50.00	3 Mar 87	91
Obl Bongo		32.7	54	00.70	164	50.70	3 Mar 87	91
Surface Bongo		32.7	54	00.20	164	50.90	3 Mar 87	96
CTD	35	46.1	54	00.91	166	07.22	26 Feb 87	29
Hor Bongo		46.1	54	00.80	166	07.20	26 Feb 87	
Surface Bongo		46.1	54	01.20	166	07.60	26 Feb 87	37
Shipeck	A24	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A25	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A26	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A27	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A28	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A29	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A30	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A31	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A32	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A33	A013	54	12.55	165	32.61	4 Mar 87	12
Shipeck	A34	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A35	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A36	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A37	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A38	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A39	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A40	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A41	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A42	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A43	A055	54	13.51	165	36.21	4 Mar 87	16
Shipeck	A14	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A15	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A16	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A17	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A18	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A19	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A20	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A21	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A22	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	A23	A074	54	09.11	165	29.05	25 Feb 87	25
Shipeck	B14	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B15	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B16	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B17	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B18	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B19	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B20	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B21	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B22	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	B23	B059	54	06.51	165	40.11	25 Feb 87	10
Shipeck	C01	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C02	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C03	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C04	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C05	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C06	C013	53	59.21	166	12.41	26 Feb 87	20

Shipeck	C07	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C08	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C09	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C10	C013	53	59.21	166	12.41	26 Feb 87	20
Shipeck	C11	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C12	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C13	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C14	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C15	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C16	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C17	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C18	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C19	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	C20	C015	53	59.31	166	10.51	26 Feb 87	15
Shipeck	E01	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E02	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E03	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E04	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E05	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E06	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E07	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E08	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E09	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	E10	E010	54	03.21	165	30.41	3 Mar 87	12
Shipeck	F04	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F05	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F06	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F07	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F08	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F09	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F10	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F11	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F12	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	F13	F016	54	05.01	165	26.51	1 Mar 87	8
Shipeck	G17	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G18	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G19	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G20	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G21	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G22	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G23	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G24	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G25	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G26	G006	54	05.01	165	08.21	3 Mar 87	9
Shipeck	G07	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G08	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G09	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G10	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G11	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G12	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G13	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G14	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G15	G026	54	07.31	164	59.21	1 Mar 87	8
Shipeck	G16	G026	54	07.31	164	59.21	1 Mar 87	8

APPENDIX C-3

Distribution of water quality measurements (CTD) and biological samples (bongo, Marinovich, trynet, Tucker, Shipeck, and dredge) taken in spring, 1987, in the Unimak Pass area, Alaska. Listings are in order by station numbers, station locations are given by degrees and minutes of North latitude and West longitude, and depths are in meters.

Table C-3. Listing of samples taken during the spring cruise.

GEAR	CAST	STATION	LATITUDE	LONGITUDE	DATE	DEPTH
CTD	55	3.1	54 26.08	166 31.69	5 May 87	556
hor bongo	52	3.1	54 26.10	166 31.10	7 May 87	554
Marinovich	20	3.1	54 26.10	166 31.66	4 May 87	567
Marinovich	25	3.1	54 26.52	166 32.93	8 May 87	540
Obl bongo	55	3.1	54 26.20	166 31.50	7 May 87	553
surf bongo	52	3.1	54 26.20	166 31.80	7 May 87	552
CTD	51	3.2	55 00.79	164 31.24	4 May 87	57
hor bongo	45	3.2	55 01.20	164 31.10	4 May 87	58
Marinovich	21	3.2	54 59.89	164 30.81	4 May 87	51
Obl bongo	47	3.2	55 00.80	164 30.80	4 May 87	58
surf bongo	45	3.2	55 00.80	164 30.90	4 May 87	58
CTD	52	3.3	54 49.81	165 06.94	4 May 87	107
hor bongo	46	3.3	54 49.90	165 06.80	4 May 87	106
Obl bongo	48	3.3	54 49.90	165 07.10	4 May 87	108
surf bongo	46	3.3	54 50.30	165 06.20	4 May 87	104
CTD	53	3.4	54 45.38	165 24.44	5 May 87	202
hor bongo	47	3.4	54 45.30	165 23.90	4 May 87	201
Obl bongo	49	3.4	54 45.40	165 24.20	5 May 87	199
surf bongo	47	3.4	54 45.70	165 23.70	5 May 87	196
CTD	54	3.5	54 37.38	165 49.58	5 May 87	392
hor bongo	55	3.5	54 36.70	165 47.70	9 May 87	396
Obl bongo	70	3.5	54 37.20	165 49.10	9 May 87	396
surf bongo	55	3.5	54 36.50	165 47.00	9 May 87	396
CTD	62	4.1	54 51.88	166 31.43	6 May 87	175
Marinovich	22	4.1	54 52.41	166 32.44	6 May 87	174
CTD	57	4.2	54 09.78	164 23.26	5 May 87	91
CTD	58	4.3	54 13.58	164 37.45	5 May 87	91
CTD	59	4.4	54 25.40	165 10.66	5 May 87	171
hor bongo	50	4.4	54 25.30	165 10.30	6 May 87	162
Obl bongo	53	4.4	54 25.40	165 10.20	6 May 87	156
surf bongo	50	4.4	54 25.30	165 10.70	6 May 87	166
CTD	60	4.5	54 31.94	165 29.50	6 May 87	98
hor bongo	51	4.5	54 32.30	165 29.70	7 May 87	97
Obl bongo	54	4.5	54 31.90	165 29.20	6 May 87	98
surf bongo	51	4.5	54 32.70	165 30.30	7 May 87	98
CTD	61	4.6	54 37.10	165 38.43	6 May 87	342
hor bongo	48	4.6	54 37.70	165 38.10	5 Jun 87	341
Obl bongo	51	4.6	54 36.90	165 37.60	6 May 87	326
surf bongo	48	4.6	54 37.30	165 38.50	6 May 87	345
CTD	31	5.1	54 06.33	165 28.17	29 Apr 87	106
hor bongo	24	5.1	54 06.80	165 29.50	29 Apr 87	
Marinovich	10	5.1	54 06.24	165 29.84	29 Apr 87	104
Obl bongo	26	5.1	54 06.70	165 29.00	29 Apr 87	90
surf bongo	25	5.1	54 06.70	165 29.30	29 Apr 87	90
CTD	32	6.1	54 09.44	165 19.48	29 Apr 87	68
hor bongo	25	6.1	54 08.90	165 19.40	29 Apr 87	67
Obl bongo	27	6.1	54 09.10	165 19.20	29 Apr 87	76
surf bongo	26	6.1	54 08.90	165 19.50	30 Apr 87	67
CTD	42	6.2	54 18.63	165 27.16	1 May 87	146

hor bongo	35	6.2	54	18.30	165	26.60	1 May 87	158
Obl bongo	37	6.2	54	17.60	165	27.10	1 May 87	151
surf bongo	35	6.2	54	18.30	165	26.40	1 May 87	158
CTD	43	6.3	54	25.65	165	31.54	1 May 87	98
hor bongo	36	6.3	54	24.90	165	31.60	1 May 87	95
Obl bongo	38	6.3	54	25.50	165	31.30	1 May 87	96
surf bongo	36	6.3	54	25.80	165	31.20	1 May 87	94
CTD	65	6.4	54	23.40	165	29.34	7 May 87	102
CTD	66	6.4	54	23.47	165	29.52	7 May 87	98
CTD	67	6.4	54	23.38	165	29.80	8 May 87	97
CTD	68	6.4	54	23.37	165	29.77	8 May 87	97
CTD	69	6.4	54	23.47	165	29.36	8 May 87	102
CTD	70	6.4	54	23.51	165	29.36	8 May 87	102
Marinovich	24	6.4	54	23.32	165	29.39	8 May 87	97
Obl bongo	57	6.4	54	23.50	165	29.50	7 May 87	97
Obl bongo	58	6.4	54	23.60	165	29.60	7 May 87	98
Obl bongo	59	6.4	54	24.10	165	29.30	7 May 87	98
Obl bongo	60	6.4	54	23.60	165	29.30	7 May 87	125
Obl bongo	61	6.4	54	23.20	165	29.30	7 May 87	88
Obl bongo	62	6.4	54	23.60	165	29.40	7 May 87	102
Obl bongo	63	6.4	54	23.50	165	29.40	7 May 87	102
Obl bongo	64	6.4	54	23.10	165	30.60	8 May 87	126
Obl bongo	65	6.4	54	23.40	165	30.50	8 May 87	113
Obl bongo	66	6.4	54	23.30	165	29.40	8 May 87	96
Obl bongo	67	6.4	54	23.40	165	29.40	8 May 87	98
Obl bongo	68	6.4	54	23.50	165	29.70	8 May 87	103
CTD	33	9.2	54	07.87	165	14.02	30 Apr 87	58
hor bongo	26	9.2	54	08.30	165	13.40	30 Apr 87	62
Obl bongo	28	9.2	54	08.00	165	13.60	30 Apr 87	62
surf bongo	27	9.2	54	08.60	165	13.10	30 Apr 87	63
CTD	39	9.7	54	12.93	164	54.95	1 May 87	56
hor bongo	32	9.7	54	13.40	164	55.00	1 May 87	57
Obl bongo	34	9.7	54	13.10	164	55.00	1 May 87	57
surf bongo	33	9.7	54	13.50	164	05.10	1 May 87	57
CTD	38	9.8	54	13.46	164	51.49	30 Apr 87	50
hor bongo	31	9.8	54	13.90	164	51.30	1 May 87	51
Obl bongo	33	9.8	54	13.70	164	51.40	1 May 87	51
surf bongo	32	9.8	54	14.30	164	50.90	1 May 87	51
CTD	63	10.1	54	25.31	165	32.58	6 May 87	93
hor bongo	49	10.1	54	25.20	165	32.70	6 May 87	94
Marinovich	23	10.1	54	24.62	165	32.94	6 May 87	95
Obl bongo	52	10.1	54	25.20	165	32.40	6 May 87	94
surf bongo	49	10.1	54	25.30	165	32.30	6 May 87	94
CTD	64	10.3	54	03.77	166	21.28	7 May 87	83
hor bongo	53	10.3	54	03.50	166	21.60	7 May 87	78
Obl bongo	56	10.3	54	03.80	166	21.10	7 May 87	83
surf bongo	53	10.3	54	03.60	166	21.10	7 May 87	81
CTD	49	13.2	53	54.65	166	07.88	3 May 87	118
hor bongo	43	13.2	53	54.50	166	08.60	3 May 87	76
Obl bongo	45	13.2	53	54.60	166	07.80	3 May 87	96
surf bongo	43	13.2	53	54.60	166	08.90	3 May 87	91
Marinovich	19	13.4	53	54.20	166	05.65	3 May 87	166
CTD	8	14.2	53	42.64	165	17.25	25 Apr 87	192
hor bongo	8	14.2	53	42.30	165	19.20	25 Apr 87	194

Obl bongo	8	14.2	53	42.30	165	18.00	25 Apr 87	195
surf bongo	8	14.2	53	42.40	165	20.10	25 Apr 87	196
CTD	7	14.3	53	49.52	165	31.61	25 Apr 87	106
hor bongo	7	14.3	53	49.50	165	33.10	25 Apr 87	106
Obl bongo	7	14.3	53	49.30	165	32.30	25 Apr 87	106
surf bongo	7	14.3	53	49.80	165	33.70	25 Apr 87	106
CTD	48	14.4	53	59.06	166	02.72	2 May 87	39
hor bongo	42	14.4	53	58.70	166	02.50	3 May 87	50
Obl bongo	44	14.4	53	58.90	166	02.70	3 May 87	40
surf bongo	42	14.4	53	58.60	166	02.40	3 May 87	61
CTD	18	15.1	53	44.13	164	01.19	27 Apr 87	450
hor bongo	12	15.1	53	43.60	164	03.60	27 Apr 87	
Marinovich	7	15.1	53	45.12	164	00.22	27 Apr 87	388
Obl bongo	14	15.1	53	43.60	164	02.00	27 Apr 87	636
surf bongo	13	15.1	53	44.40	164	01.30	27 Apr 87	440
hor bongo	54	16.3	54	14.80	166	23.20	8 May 87	910
Marinovich	5	16.3	54	15.17	166	23.99	25 Apr 87	823
Obl bongo	69	16.3	54	14.70	166	23.70	8 May 87	910
surf bongo	54	16.3	54	14.90	166	23.10	8 May 87	910
CTD	44	16.4	54	20.50	166	08.27	2 May 87	779
hor bongo	37	16.4	54	20.10	166	08.60	2 May 87	804
Obl bongo	39	16.4	54	20.00	166	09.40	2 May 87	799
surf bongo	37	16.4	54	20.00	166	09.50	2 May 87	792
CTD	25	17.1	54	59.12	164	23.58	28 Apr 87	42
hor bongo	18	17.1	54	58.70	164	24.20	28 Apr 87	41
Marinovich	9	17.1	54	59.01	164	23.45	28 Apr 87	42
Obl bongo	20	17.1	54	58.70	164	23.90	28 Apr 87	41
surf bongo	19	17.1	54	58.80	164	24.40	28 Apr 87	41
CTD	26	17.2	54	49.56	164	41.53	28 Apr 87	60
hor bongo	19	17.2	54	49.50	164	41.90	28 Apr 87	61
Obl bongo	21	17.2	54	49.80	164	41.90	28 Apr 87	61
CTD	27	17.3	54	37.45	165	00.28	28 Apr 87	66
hor bongo	20	17.3	54	37.10	165	00.50	29 Apr 87	67
Obl bongo	22	17.3	54	37.10	165	00.90	29 Apr 87	71
surf bongo	21	17.3	54	37.10	165	00.40	29 Apr 87	
CTD	28	17.4	54	34.36	165	11.84	29 Apr 87	81
hor bongo	21	17.4	54	35.50	165	11.90	29 Apr 87	89
Obl bongo	23	17.4	54	34.90	165	12.20	29 Apr 87	86
surf bongo	22	17.4	54	36.60	165	11.50	29 Apr 87	89
CTD	23	17.5	54	19.22	165	41.74	28 Apr 87	86
hor bongo	16	17.5	54	19.20	165	41.10	28 Apr 87	84
Obl bongo	18	17.5	54	19.40	165	41.30	28 Apr 87	85
surf bongo	17	17.5	54	18.90	165	40.90	28 Apr 87	84
CTD	24	17.6	54	15.23	165	59.58	28 Apr 87	102
hor bongo	17	17.6	54	14.90	165	58.90	28 Apr 87	98
Obl bongo	19	17.6	54	15.20	165	59.10	28 Apr 87	100
surf bongo	18	17.6	54	14.60	165	58.60	28 Apr 87	85
CTD	45	17.8	54	06.89	166	28.54	2 May 87	640
hor bongo	39	17.8	54	07.00	166	28.40	2 May 87	656
Obl bongo	41	17.8	54	06.80	166	28.00	2 May 87	666
surf bongo	39	17.8	54	07.10	166	28.90	2 May 87	654
CTD	29	19.1	54	28.99	165	37.84	29 Apr 87	182
hor bongo	22	19.1	54	29.00	165	38.50	29 Apr 87	230
Obl bongo	24	19.1	54	28.50	165	37.40	29 Apr 87	170

surf bongo	23	19.1	54	28.30	165	37.80	29	Apr 87	170
surf bongo	20	20.2	54	49.70	164	41.70	28	Apr 87	61
CTD	10	21.1	54	17.52	166	27.41	25	Apr 87	1050
CTD	80	21.1	54	17.91	166	27.54	11	May 87	975
CTD	81	21.1	54	17.70	166	27.29	11	May 87	1040
CTD	82	21.1	54	17.82	166	27.70	11	May 87	1017
CTD	83	21.1	54	17.79	166	27.52	11	May 87	1024
CTD	84	21.1	54	17.77	166	27.76	12	May 87	1016
hor bongo	38	21.1	54	17.60	166	27.90	2	May 87	1068
hor bongo	66	21.1	54	17.70	166	27.40	11	May 87	1005
hor bongo	67	21.1	54	17.80	166	27.50	11	May 87	1010
hor bongo	68	21.1	54	17.80	166	27.20	11	May 87	1000
hor bongo	69	21.1	54	17.80	166	27.30	11	May 87	1006
hor bongo	70	21.1	54	18.30	166	28.10	11	May 87	972
hor bongo	71	21.1	54	18.40	166	28.00	11	May 87	1962
hor bongo	72	21.1	54	17.40	166	27.50	11	May 87	1060
hor bongo	73	21.1	54	17.80	166	27.50	11	May 87	1097
hor bongo	74	21.1	54	17.60	166	27.50	11	May 87	1017
hor bongo	75	21.1	54	17.60	166	27.30	11	May 87	957
hor bongo	76	21.1	54	18.40	166	27.70	12	May 87	913
Marinovich	29	21.1	54	18.61	166	28.37	11	May 87	1006
Obl bongo	40	21.1	54	17.50	166	27.50	2	May 87	1068
Obl bongo	81	21.1	54	17.80	166	27.40	11	May 87	998
Obl bongo	82	21.1	54	18.10	166	27.40	11	May 87	1000
Obl bongo	83	21.1	54	17.60	166	27.20	11	May 87	1100
Obl bongo	84	21.1	54	17.80	166	27.30	11	May 87	1050
Obl bongo	85	21.1	54	17.90	166	27.60	11	May 87	984
Obl bongo	86	21.1	54	17.90	166	27.50	11	May 87	999
Obl bongo	87	21.1	54	17.90	166	27.20	11	May 87	1060
Obl bongo	88	21.1	54	17.60	166	27.40	11	May 87	1037
Obl bongo	89	21.1	54	17.70	166	27.10	11	May 87	1046
Obl bongo	90	21.1	54	18.00	166	27.90	11	May 87	1024
Obl bongo	91	21.1	54	18.00	166	27.60	12	May 87	1036
surf bongo	38	21.1	54	17.90	166	27.30	2	May 87	1068
surf bongo	66	21.1	54	18.30	166	27.60	11	May 87	985
surf bongo	67	21.1	54	18.20	166	27.60	11	May 87	993
surf bongo	68	21.1	54	17.90	166	27.40	11	May 87	1000
surf bongo	69	21.1	54	17.90	166	27.50	11	May 87	1006
surf bongo	70	21.1	54	17.90	166	27.30	11	May 87	1038
surf bongo	71	21.1	54	17.80	166	27.20	11	May 87	1041
surf bongo	72	21.1	54	18.10	166	27.30	11	May 87	1060
surf bongo	73	21.1	54	17.60	166	27.30	11	May 87	1020
surf bongo	74	21.1	54	17.80	166	27.20	11	May 87	1017
surf bongo	75	21.1	54	17.90	166	27.20	11	May 87	1048
surf bongo	76	21.1	54	19.10	166	27.80	12	May 87	818
CTD	11	21.2	54	08.79	166	16.22	25	Apr 87	106
Obl bongo	10	21.2	54	08.70	166	16.50	25	Apr 87	102
CTD	12	21.3	54	01.20	166	04.01	25	Apr 87	46
Obl bongo	11	21.3	54	01.60	166	04.50	26	Apr 87	75
CTD	14	21.5	53	39.55	165	31.16	26	Apr 87	144
surf bongo	10	21.5	53	40.40	165	30.80	26	Apr 87	136
CTD	15	21.6	53	29.59	165	16.57	26	Apr 87	1175
Marinovich	6	21.6	53	29.97	165	14.95	26	Apr 87	805
CTD	13	21.8	53	51.96	165	48.66	26	Apr 87	88

CTD	1	22.1	53	54.73	165	56.43	23 Apr 87	105
hor bongo	1	22.1	53	54.70	165	56.20	23 Apr 87	102
Marinovich	1	22.1	53	54.89	165	51.33	23 Apr 87	80
Obl bongo	1	22.1	53	55.00	165	55.90	23 Apr 87	81
surf bongo	1	22.1	53	55.00	165	56.10	23 Apr 87	79
CTD	46	22.11	54	05.65	165	32.93	2 May 87	94
hor bongo	40	22.11	54	05.60	165	33.20	2 May 87	99
Obl bongo	42	22.11	54	05.70	165	33.10	2 May 87	85
surf bongo	40	22.11	54	05.60	165	33.10	2 May 87	84
hor bongo	27	22.12	53	59.70	165	14.20	30 Apr 87	88
Obl bongo	29	22.12	53	59.60	165	13.70	30 Apr 87	83
CTD	2	22.3	53	58.44	165	36.29	23 Apr 87	94
hor bongo	2	22.3	53	58.60	165	36.10	23 Apr 87	86
Obl bongo	2	22.3	53	58.20	165	35.20	23 Apr 87	90
surf bongo	2	22.3	53	59.00	165	35.10	24 Apr 87	81
CTD	37	22.4	54	12.03	164	47.69	30 Apr 87	46
hor bongo	30	22.4	54	12.30	164	47.60	30 Apr 87	48
Obl bongo	32	22.4	54	12.20	164	47.60	30 Apr 87	48
surf bongo	31	22.4	54	11.80	164	47.30	30 Apr 87	48
CTD	3	22.5	54	03.18	165	01.36	23 Apr 87	61
CTD	40	22.5	54	03.13	165	02.32	1 May 87	61
hor bongo	3	22.5	54	03.10	165	01.30	24 Apr 87	61
hor bongo	33	22.5	54	02.90	165	01.90	1 May 87	59
Marinovich	16	22.5	54	02.53	165	02.90	30 Apr 87	70
Obl bongo	3	22.5	54	02.90	165	01.80	24 Apr 87	62
Obl bongo	35	22.5	54	02.90	165	02.60	1 May 87	64
surf bongo	3	22.5	54	03.30	165	01.10	24 Apr 87	60
surf bongo	34	22.5	54	03.20	165	02.30	1 May 87	56
CTD	34	22.7	53	59.76	165	13.31	30 Apr 87	86
CTD	41	22.7	54	01.67	165	10.12	1 May 87	79
hor bongo	34	22.7	54	01.50	165	10.40	1 May 87	84
Marinovich	15	22.7	54	00.67	165	09.56	30 Apr 87	86
Obl bongo	36	22.7	54	01.70	165	10.50	1 May 87	78
surf bongo	28	22.7	54	02.00	165	09.90	30 Apr 87	81
CTD	35	22.8	53	59.74	165	17.72	30 Apr 87	87
hor bongo	28	22.8	54	00.20	165	17.90	30 Apr 87	74
Marinovich	12	22.8	53	59.94	165	19.22	30 Apr 87	79
Marinovich	13	22.8	53	59.58	165	18.05	30 Apr 87	90
Marinovich	13b	22.8	53	59.52	165	17.43	30 Apr 87	90
Obl bongo	30	22.8	53	59.80	165	17.80	30 Apr 87	86
surf bongo	29	22.8	53	59.80	165	17.80	30 Apr 87	86
CTD	30	22.9	54	00.89	165	41.38	29 Apr 87	93
hor bongo	23	22.9	54	01.40	165	40.80	29 Apr 87	88
Marinovich	11	22.9	54	01.38	165	41.61	29 Apr 87	86
Obl bongo	25	22.9	54	00.80	165	40.50	29 Apr 87	94
surf bongo	24	22.9	54	00.90	165	41.10	29 Apr 87	88
CTD	76	23.1	54	24.21	164	21.72	10 May 87	97
hor bongo	61	23.1	54	24.10	164	22.00	10 May 87	93
surf bongo	61	23.1	54	24.30	164	22.00	10 May 87	92
CTD	4	23.2	54	13.32	164	00.95	24 Apr 87	75
hor bongo	4	23.2	54	13.20	164	01.70	24 Apr 87	75
Obl bongo	4	23.2	54	13.10	164	01.50	23 Apr 87	75
surf bongo	4	23.2	54	13.30	164	01.70	24 Apr 87	75
CTD	56	23.3	54	03.22	164	00.39	5 May 87	80

Marinovich	2	23.3	54	02.98	163	59.88	24 Apr 87	80
Obl bongo	50	23.3	54	03.30	163	60.00	5 May 87	79
CTD	19	23.5	53	35.72	164	04.61	27 Apr 87	1700
CTD	73	23.6	53	29.79	164	01.92	9 May 87	1990
hor bongo	58	23.6	53	29.80	164	01.70	9 May 87	1990
Marinovich	27	23.6	53	29.80	164	01.49	9 May 87	1625
Obl bongo	73	23.6	53	29.90	164	01.70	9 May 87	1990
surf bongo	58	23.6	53	29.90	164	01.80	9 May 87	1990
Marinovich	18	26.1	53	58.16	165	53.64	2 May 87	115
CTD	5	29.1	53	29.90	166	26.27	24 Apr 87	103
hor bongo	5	29.1	53	29.90	166	25.70	24 Apr 87	103
Marinovich	3	29.1	53	30.44	166	24.58	24 Apr 87	101
Obl bongo	5	29.1	53	30.00	166	26.40	24 Apr 87	102
surf bongo	5	29.1	53	29.70	166	25.20	24 Apr 87	109
CTD	6	29.2	53	37.04	165	55.70	24 Apr 87	96
hor bongo	6	29.2	53	36.80	165	55.80	24 Apr 87	96
Obl bongo	6	29.2	53	36.80	165	55.70	24 Apr 87	97
surf bongo	6	29.2	53	36.60	165	56.20	24 Apr 87	101
CTD	77	30.1	54	29.77	164	01.56	10 May 87	103
hor bongo	62	30.1	54	29.80	164	01.40	10 May 87	87
Marinovich	28	30.1	54	29.28	164	00.83	10 May 87	88
Obl bongo	77	30.1	54	29.70	164	01.90	10 May 87	113
surf bongo	62	30.1	54	29.70	164	01.60	10 May 87	
CTD	78	31.1	54	21.64	164	40.10	10 May 87	66
hor bongo	64	31.1	54	21.70	164	40.40	10 May 87	71
Obl bongo	79	31.1	54	21.60	164	40.20	10 May 87	70
surf bongo	64	31.1	54	21.80	164	39.80	10 May 87	65
CTD	79	31.2	54	22.67	164	51.45	10 May 87	60
hor bongo	65	31.2	54	22.90	164	51.20	10 May 87	71
Obl bongo	80	31.2	54	22.70	164	51.40	10 May 87	61
surf bongo	65	31.2	54	22.90	164	51.10	10 May 87	57
hor bongo	63	31.3	54	15.80	164	44.20	10 May 87	86
Obl bongo	78	31.3	54	15.60	164	44.60	10 May 87	67
surf bongo	63	31.3	54	15.60	164	44.60	10 May 87	86
CTD	74	31.4	53	59.08	164	28.19	10 May 87	112
hor bongo	59	31.4	53	59.20	164	28.50	10 May 87	112
Obl bongo	74	31.4	53	58.80	164	28.10	10 May 87	112
surf bongo	59	31.4	53	58.90	164	27.70	10 May 87	112
CTD	71	31.5	54	47.04	165	15.37	9 May 87	146
hor bongo	56	31.5	54	47.00	165	15.40	9 May 87	146
Obl bongo	71	31.5	54	46.80	165	15.00	9 May 87	145
surf bongo	56	31.5	54	47.00	165	15.80	9 May 87	148
CTD	72	31.6	54	59.82	165	29.06	9 May 87	125
hor bongo	57	31.6	54	60.00	165	29.10	9 May 87	125
Marinovich	26	31.6	54	59.96	165	28.60	9 May 87	124
Obl bongo	72	31.6	55	00.00	165	29.10	9 May 87	125
surf bongo	57	31.6	54	00.10	165	29.70	9 May 87	125
CTD	75	31.7	54	09.02	164	29.13	10 May 87	89
hor bongo	60	31.7	54	08.80	164	29.00	10 May 87	87
Obl bongo	75	31.7	54	09.20	164	29.70	10 May 87	87
surf bongo	60	31.7	54	09.50	164	29.60	10 May 87	87
CTD	20	32.1	55	00.21	165	59.85	27 Apr 87	140
hor bongo	13	32.1	55	00.20	165	59.50	27 Apr 87	142
Marinovich	8	32.1	55	00.53	166	00.48	27 Apr 87	134

Obl bongo	15	32.1	55	00.50	165	59.80	27	Apr 87	142
Obl bongo	76	32.1	54	24.30	164	21.70	10	May 87	96
surf bongo	14	32.1	55	00.40	165	59.40	27	Apr 87	
CTD	21	32.2	54	47.40	165	49.57	27	Apr 87	190
hor bongo	14	32.2	54	47.20	165	49.70	27	Apr 87	190
Obl bongo	16	32.2	54	47.60	165	49.20	27	Apr 87	188
surf bongo	15	32.2	54	47.30	165	49.30	27	Apr 87	190
CTD	22	32.3	54	36.55	165	30.80	28	Apr 87	182
hor bongo	15	32.3	54	36.90	165	28.50	28	Apr 87	159
Obl bongo	17	32.3	54	36.90	165	29.40	28	Apr 87	169
surf bongo	16	32.3	54	35.60	165	28.00	28	Apr 87	135
CTD	17	32.4	53	49.76	164	48.08	26	Apr 87	106
hor bongo	11	32.4	53	49.80	164	48.20	26	Apr 87	106
Obl bongo	13	32.4	53	49.60	164	48.00	26	Apr 87	106
surf bongo	12	32.4	53	49.90	164	48.00	26	Apr 87	106
CTD	16	32.5	53	39.42	164	46.27	26	Apr 87	392
hor bongo	10	32.5	53	39.40	164	46.00	26	Apr 87	350
Obl bongo	12	32.5	53	38.60	164	45.80	26	Apr 87	402
surf bongo	11	32.5	53	39.70	164	46.40	26	Apr 87	336
CTD	9	32.6	53	29.34	164	50.07	25	Apr 87	2195
hor bongo	9	32.6	53	29.70	164	49.90	25	Apr 87	2195
Marinovich	4	32.6	53	28.05	164	49.33	25	Apr 87	2377
Obl bongo	9	32.6	53	28.40	164	50.90	25	Apr 87	2195
surf bongo	9	32.6	53	29.90	164	50.10	25	Apr 87	2195
CTD	36	32.7	53	59.94	164	50.82	30	Apr 87	91
hor bongo	29	32.7	54	00.40	164	50.80	30	Apr 87	91
Marinovich	17	32.7	54	00.26	164	50.79	30	Apr 87	90
Obl bongo	31	32.7	54	00.50	164	50.60	30	Apr 87	91
surf bongo	30	32.7	54	00.50	164	50.40	30	Apr 87	92
CTD	50	43.1	53	49.43	166	20.54	3	May 87	253
hor bongo	44	43.1	53	49.60	166	20.50	3	May 87	281
Obl bongo	46	43.1	53	49.40	166	20.40	3	May 87	250
surf bongo	44	43.1	53	49.40	166	20.20	3	May 87	262
CTD	47	46.1	54	01.01	166	07.54	2	May 87	31
hor bongo	41	46.1	54	01.20	166	07.50	2	May 87	54
Obl bongo	43	46.1	54	01.10	166	06.70	2	May 87	36
surf bongo	41	46.1	54	01.00	166	07.40	2	May 87	49
Shipeck	A54	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A55	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A56	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A57	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A58	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A59	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A60	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A61	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A62	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A63	A030	54	10.41	165	28.21	29	Apr 87	15
Shipeck	A44	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A45	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A46	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A47	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A48	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A49	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A50	A070	54	08.21	165	33.21	29	Apr 87	15

Shipeck	A51	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A52	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	A53	A070	54	08.21	165	33.21	29	Apr 87	15
Shipeck	E11	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E12	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E13	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E14	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E15	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E16	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E17	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E18	E010	54	03.11	165	30.41	30	Apr 87	10
Shipeck	E19	E010	54	03.11	165	30.41	30	Apr 87	10

APPENDIX D

Haul characteristics for forage fish samples for fall, winter, and spring cruises, Unimak Pass, Alaska.

Table D. Haul characteristics for forage fish samples.

Fall Cruise

Gear	#	STA	Lat.		Long		Date	Bottom	Duration	Depth	Dist
Marinovich	1	3.1	54	24.57	166	33.23	19-Sep-86	325		64	
Marinovich	2	4.1	54	51.23	166	29.38	20-Sep-86	98		19	
Marinovich	3	10.2	54	31.08	165	22.92	22-Sep-86	80		70	
Marinovich	4	10.3	54	29.14	165	25.06	22-Sep-86	88		10	
Marinovich	5	15.1	53	43.04	164	02.04	23-Sep-86			100	
Marinovich	6	5.1	54	06.75	165	27.31	24-Sep-86	53		26	
Marinovich	7	14.6	54	01.45	166	06.84	24-Sep-86	28		9	
Marinovich	8	17.1	54	59.00	164	19.21	25-Sep-86	21		15	
Marinovich	9	16.3	54	16.27	166	26.07	26-Sep-86	500		75	
Marinovich	10	18.1	54	51.09	166	31.30	26-Sep-86	100		25	
Marinovich	11	19.1	54	29.01	165	36.27	26-Sep-86	76		45	
Marinovich	12	10.3	54	04.22	166	22.19	27-Sep-86	44		15	
Marinovich	13	23.6	53	30.53	164	02.01	29-Sep-86	>500		4	
Marinovich	14	23.5	53	35.35	164	05.33	29-Sep-86	1100		125	
Marinovich	15	26.1	53	58.29	165	55.26	29-Sep-86	65		18	
Marinovich	16	27.1	53	54.28	166	08.79	30-Sep-86	100		20	
Marinovich	17	9.5	54	06.65	165	18.58	30-Sep-86	26		5	
Marinovich	18	22.4	54	13.87	164	48.33	1-Oct-86	31		20	
Marinovich	19	22.6	54	11.17	164	52.39	1-Oct-86	40		20	
Marinovich	20	22.5	54	03.10	165	02.50	1-Oct-86	36		20	
Marinovich	21	22.7	54	01.80	165	10.50	1-Oct-86	41		23	
Marinovich	22	22.8	54	02.92	165	16.94	1-Oct-86	43		25	
Marinovich	23	22.9	54	05.23	165	40.02	1-Oct-86	44		20	
Marinovich	24	29.1	53	28.68	166	25.75	2-Oct-86	63		48	
Marinovich	25	30.1	54	29.34	163	59.52	2-Oct-86	45		20	
Marinovich	26	31.6	54	59.64	165	28.33	3-Oct-86	68		29	
Marinovich	27	32.1	54	58.60	165	59.82	4-Oct-86	78		35	
Marinovich	28	32.6	53	29.95	164	45.81	4-Oct-86			20	
Marinovich	29	31.8	54	35.25	163	57.65	5-Oct-86	32		20	

Winter Cruise

Gear	#	STA	Lat.		Long		Date	Bottom	Duration	Depth	Dist
Marinovich	1	23.6	53	29.20	164	02.52	17-Feb-87	1509	00.50	154	1.5
Marinovich	2	23.5	53	35.76	164	02.46	17-Feb-87	863	00.50	115	0.9
Marinovich	3	4.1	54	50.50	166	30.58	18-Feb-87	196	00.50	135	1.5
Marinovich	4	29.1	53	28.61	166	24.34	19-Feb-87	110	00.50	100	1.5
Rock Dredge	1	17.1	55	00.39	164	23.59	22-Feb-87	46	00.17	46	0.5
Trynet	1	17.1	54	59.54	164	26.12	22-Feb-87	48	00.03	48	0.08
Marinovich	5	17.1	55	00.55	164	22.68	22-Feb-87	40	00.50	18	1.5
Marinovich	6	3.2	55	00.45	164	29.96	23-Feb-87	58	00.50	18	1.25
Marinovich	7	17.2	54	48.29	164	42.87	23-Feb-87	60	00.50	42	1.5
Marinovich	8	17.3	54	37.32	165	00.01	23-Feb-87	64	00.50	55	1.5
Rock Dredge	2	3.3	54	50.23	165	06.18	24-Feb-87	104	00.05	104	0.2
Trynet	2	3.3	54	50.65	165	50.65	24-Feb-87	119	00.10	115	0.4
Marinovich	9	3.3	54	50.35	165	07.86	24-Feb-87	115	00.50	82	1.4
Marinovich	10	3.1	54	25.83	166	31.22	24-Feb-87	580	00.50	252	1.5
Marinovich	11	10.2	54	32.03	165	25.22	25-Feb-87	93	00.50	86	

Marinovich	12	29.2	54	00.71	165	42.62	25-Feb-87	91	00.50	79	1.75
Marinovich	13	26.1	53	58.12	165	52.96	26-Feb-87	77	00.50	68	1.4
Marinovich	14	10.3	54	03.85	166	22.19	27-Feb-87	87	00.50	82	1.4
Marinovich	15	32.6	53	28.92	164	47.16	27-Feb-87	2124	00.50	179	1.3
Marinovich	16	30.1	54	29.13	164	00.54	28-Feb-87	86	00.50	71	1.35
Marinovich	17	22.4	54	11.50	164	47.56	1-Mar-87	66	00.50	48	1.4
Marinovich	18	22.6	54	11.84	164	53.51	1-Mar-87	44	00.50	42	1.8
Marinovich	19	9.5	54	07.17	165	19.60	1-Mar-87	57	00.55	40	1.6
Marinovich	20	32.7	53	59.54	164	50.00	3-Mar-87	91	00.50	75	1.85
Marinovich	21	22.5	54	02.90	165	02.90	3-Mar-87	60	00.50	55	1.6
Marinovich	22	22.7	54	01.25	165	09.81	3-Mar-87	80	00.50	70	2.7
Marinovich	23	22.8	53	59.91	165	18.07	3-Mar-87	88	00.50	66	1.7
Marinovich	24	5.1	54	06.04	165	29.56	3-Mar-87	110	00.50	82	0.25
Marinovich	25	10.1	54	25.11	165	32.57	4-Mar-87	165	00.50	95	1.5
Rock Dredge	3	5.1	54	06.17	165	30.19	3-Mar-87	101	00.08	101	0.21

Spring Cruise

Gear	#	STA	Lat.		Long		Date	Bottom	Duration	Depth	Dist
Marinovich	1	22.1	53	54.89	165	51.33	23-Apr-87	80	00.50	31	1.35
Marinovich	2	23.3	54	02.98	163	59.88	24-Apr-87	80	00.50	46	1.3
Marinovich	3	29.1	53	30.44	166	24.58	24-Apr-87	101	00.50	58	1.35
Marinovich	4	32.6	53	28.05	164	49.33	25-Apr-87	2377	00.50	230	0.65
Marinovich	5	16.3	54	15.17	166	23.99	25-Apr-87	823	00.50	119	1.8
Marinovich	6	21.6	53	29.97	165	14.95	26-Apr-87	805	00.50	229	1.3
Marinovich	7	15.1	53	45.12	164	00.22	27-Apr-87	388	00.50	247	1.27
Marinovich	8	32.1	55	00.53	166	00.48	27-Apr-87	134	00.50	96	1.45
Marinovich	9	17.1	54	59.01	164	23.45	28-Apr-87	42	00.50	26	1.2
Marinovich	10	5.1	54	06.24	165	29.84	29-Apr-87	104	00.50	44	1.5
Marinovich	11	22.9	54	01.38	165	41.61	29-Apr-87	86	00.50	40	1.35
Marinovich	12	22.8	53	59.94	165	19.22	30-Apr-87	79	00.50	48	1.75
Marinovich	13	22.8	53	59.58	165	18.05	30-Apr-87	90	00.25	38	1.13
Marinovich	13b	22.8	53	59.52	165	17.43	30-Apr-87	90	00.25	48	1.08
Marinovich	15	22.7	54	00.67	165	09.56	30-Apr-87	86	00.50	33	1.93
Marinovich	16	22.5	54	02.53	165	02.90	30-Apr-87	70	00.50	35	1.3
Marinovich	17	32.7	54	00.26	164	50.79	30-Apr-87	90	00.50	59	1.6
Marinovich	18	26.1	53	58.16	165	53.64	2-May-87	115	00.50	42	1.25
Marinovich	19	13.4	53	54.20	166	05.65	3-May-87	166	00.50	51	1.25
Marinovich	20	3.1	54	26.10	166	31.66	4-May-87	567	00.50	53	1.6
Marinovich	21	3.2	54	59.89	164	30.81	4-May-87	51	00.50	18	1.4
Marinovich	22	4.1	54	52.41	166	32.44	6-May-87	174	00.50	71	1.35
Marinovich	23	10.1	54	24.62	165	32.94	6-May-87	95	00.50	64	1.25
Marinovich	24	6.4	54	23.32	165	29.39	8-May-87	97	00.50	37	1.25
Marinovich	25	3.1	54	26.52	166	32.93	8-May-87	540	00.50	137	1.4
Marinovich	26	31.6	54	59.96	165	28.60	9-May-87	124	00.50	73	1.4
Marinovich	27	23.6	53	29.80	164	01.49	9-May-87	1625	00.50	110	1.4
Marinovich	28	30.1	54	29.28	164	00.83	10-May-87	88	00.50	79	1.5
Marinovich	29	21.1	54	18.61	166	28.37	11-May-87	1006	00.50	132	1.5

APPENDIX E

Place names and sampling station locations for fall, winter, and spring cruises, Unimak Pass area, Alaska.

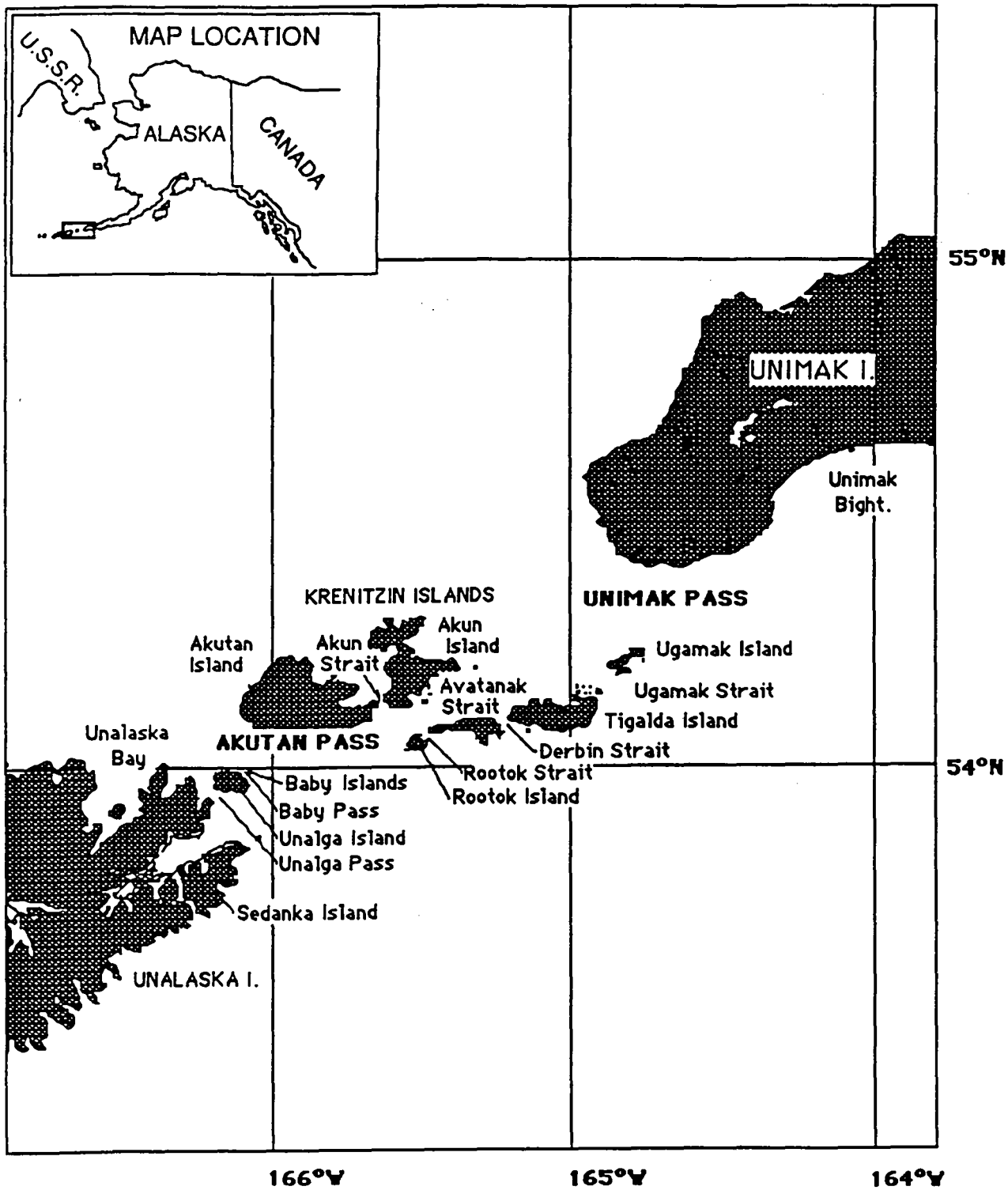


Figure 1. Place names in the Unimak Pass area, Alaska.

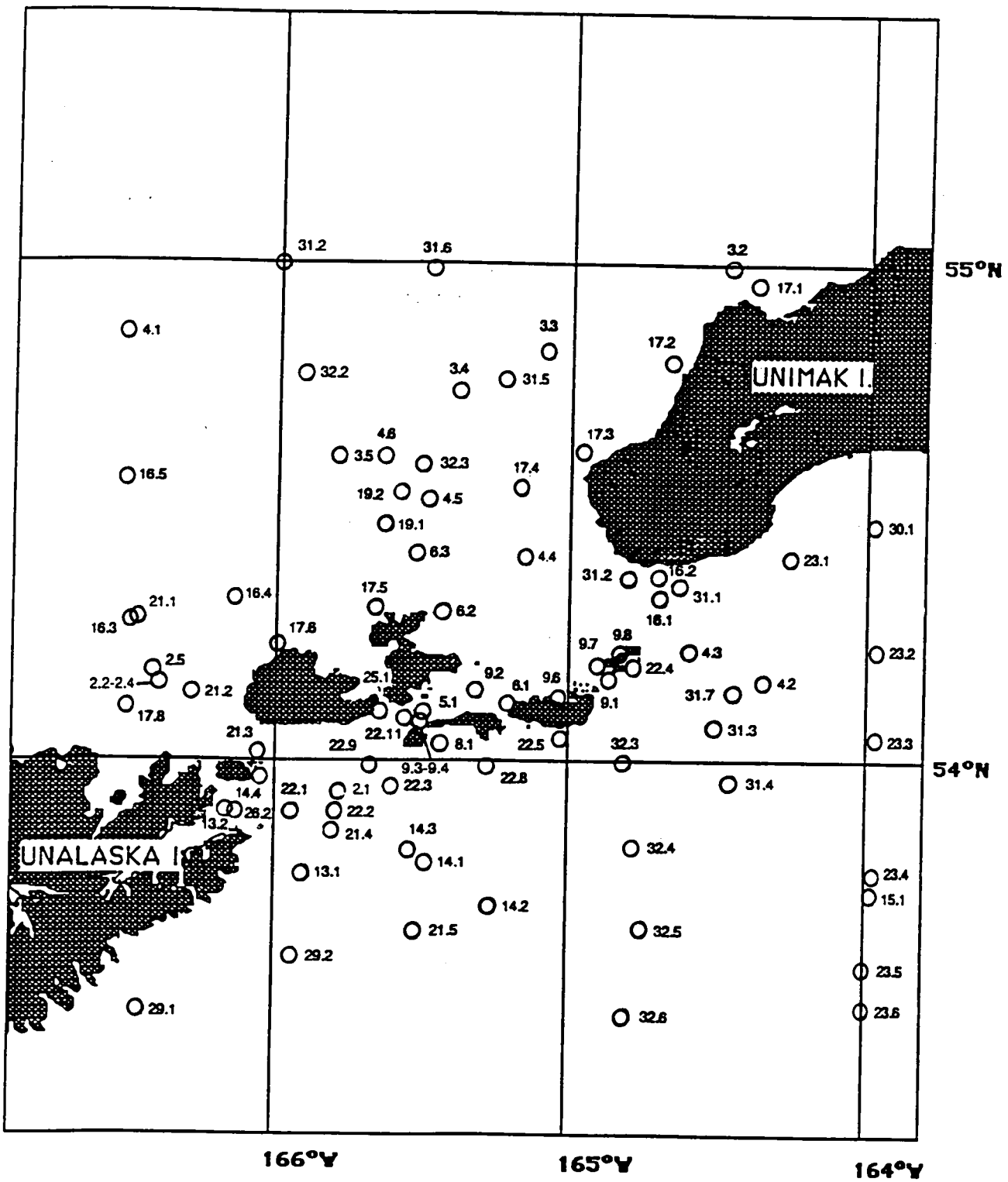


Figure 2. Locations of CTD stations sampled during the fall 1986 cruise, 18 Sept-7 Oct, Unimak Pass area, Alaska.

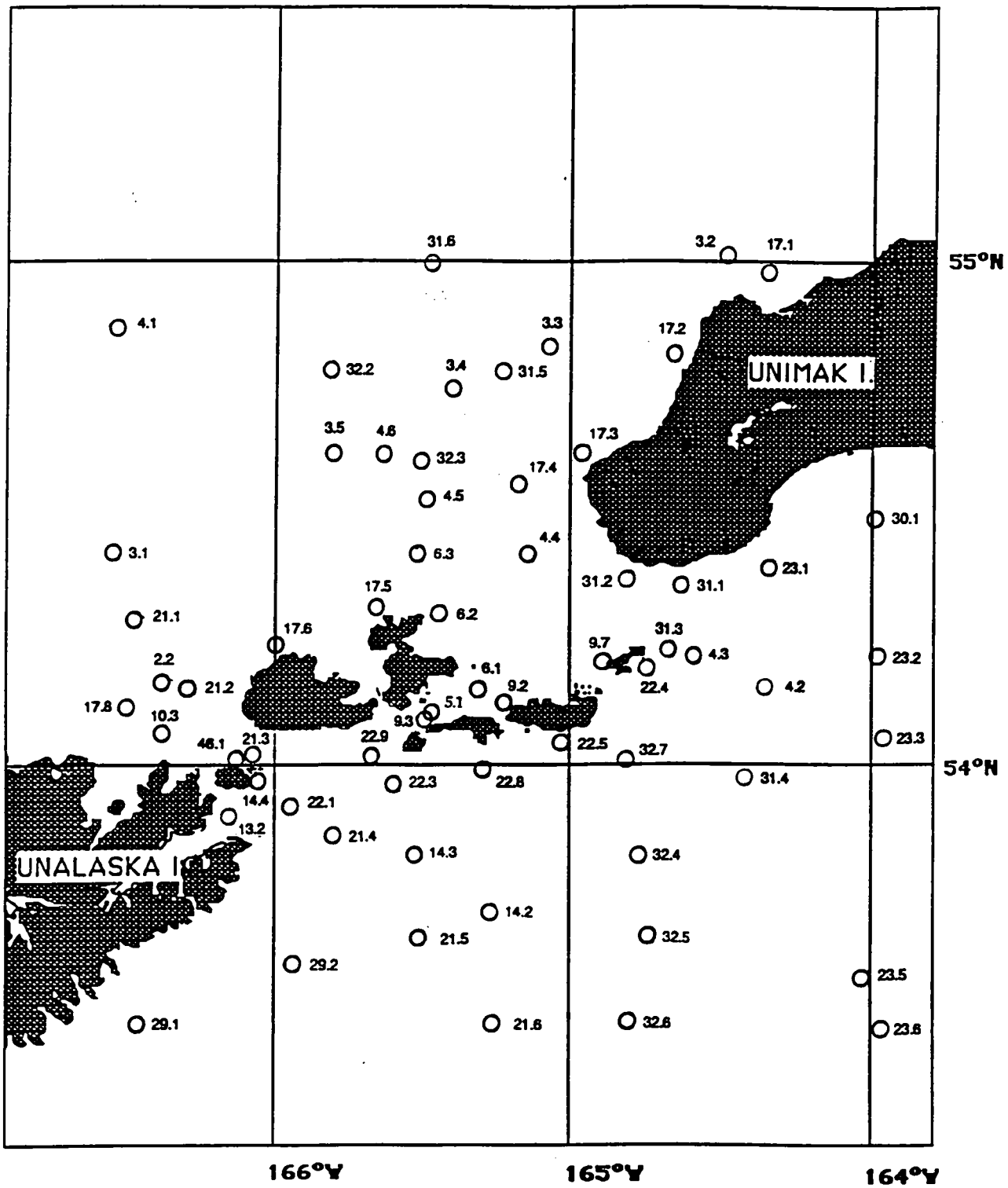


Figure 3. Locations of CTD stations sampled during the winter 1987 cruise, 14 Feb-9 March, Unimak Pass area, Alaska.

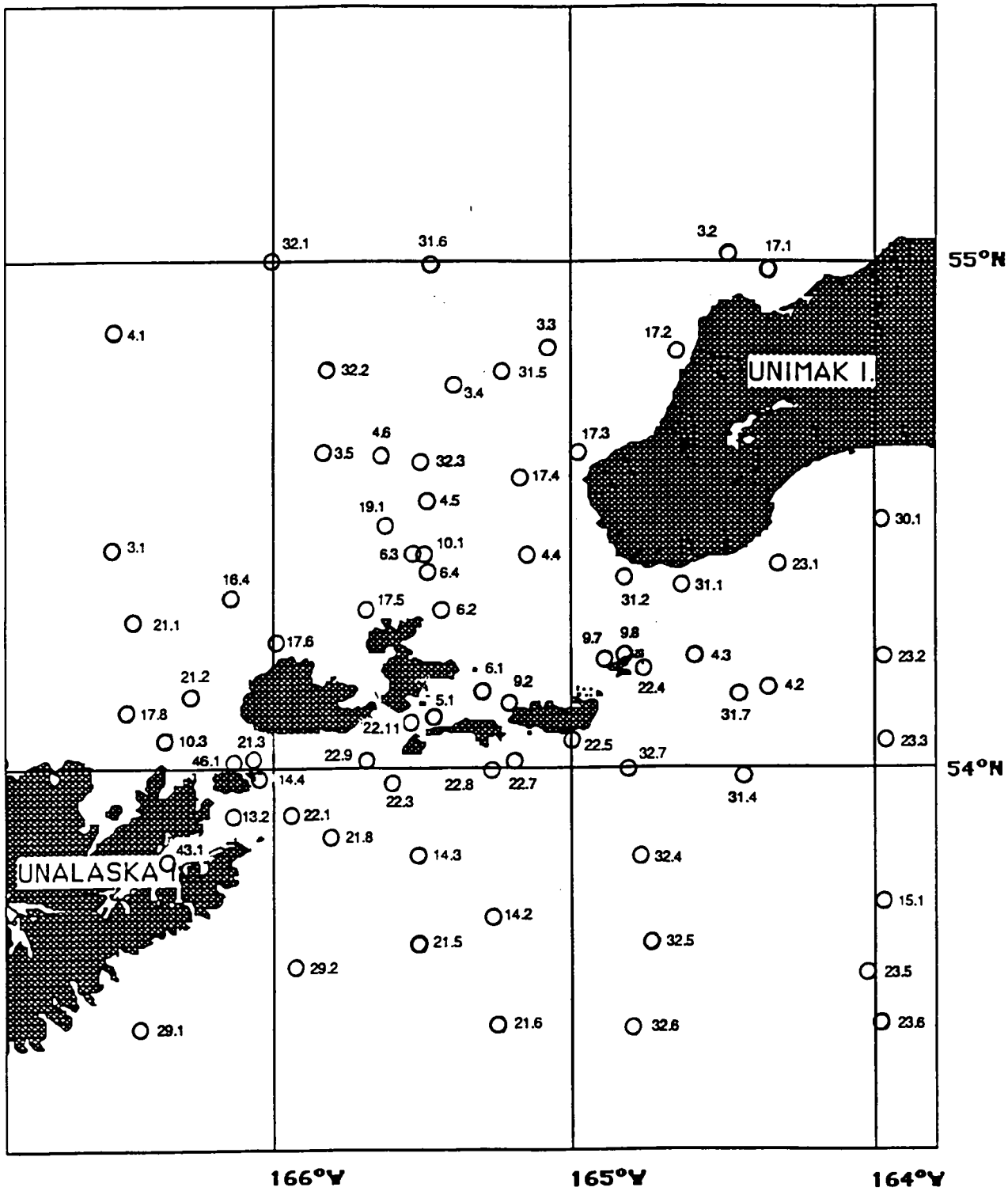


Figure 4. Locations of CTD stations sampled during the spring 1987 cruise, 21 April-14 May, Unimak Pass area, Alaska.