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**OCEANOGRAPHIC DATA REPORT FOR SOUTH
 WEST PACIFIC CRUISES IN THE SEAMAP SERIES.
 PART 2. WINTER SURVEY DATA 1985 TO 1987**

L.J. HAMILTON and J.A. BOYLE

**MARITIME SYSTEMS DIVISION
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OCEANOGRAPHIC DATA REPORT FOR SOUTH WEST
PACIFIC CRUISES IN THE SEAMAP SERIES.
PART 2. WINTER SURVEY DATA 1985 TO 1987

L.J. Hamilton and J.A. Boyle

SUMMARY (U)

Six oceanographic surveys have been made in the south west Pacific Ocean on HMAS Cook from January 1984 to September 1987 as part of an investigation of physical and acoustical oceanographic parameters known as project SEAMAP. This report presents winter survey data for bathymetry, sea surface temperature, wind speed, sea state and swell, and from expendable bathy-thermograph (XBT) drops, and CTD and Nansen stations. Underway data are mostly presented as four-hourly discrete values on maps of ship track, forming a representative data set rather than a detailed analysis. (The winter survey tracks were also traversed in oceanographic summer; the summer data are presented in a separate report.)

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INTRODUCTION

This report presents oceanographic data for the south Pacific Ocean collected during a series of three winter surveys on HMAS Cook by the Royal Australian Navy Research Laboratory (RANRL) as part of an investigation known as Project SEAMAP. This organisation became part of Maritime Systems Division in 1987. Data collected during the corresponding summer surveys are reported in a separate publication (Hamilton and Boyle, 1989). Project SEAMAP surveys are made along major shipping routes, and are planned to encompass the seas about Australia (figure 1). The principal aim of SEAMAP is to investigate geophysical and oceanographic factors influencing sonar performance. Acoustic properties of the water column are measured along the same track in both winter and summer to obtain the seasonal extremes.

The South Pacific surveys were conducted along two major circuits, designated A and B (figure 1). The Pacific routes made to date were covered on several cruises, with Route A winter covered in one survey, SEAMAP 6, and route B winter covered in two surveys, SEAMAP 2 and SEAMAP 4. Route B summer was covered in surveys SEAMAP 1 and SEAMAP 5, and route A summer by survey SEAMAP 3. The actual summer and winter cruise tracks made are shown in figures 2 and 3 with the identifying survey name and survey number (eg SEAMAP 1 and RANRL 1/84).

Oceanographic station positions, occupied in both summer and winter, are shown in figure 4. Only the Pacific Ocean surveys have been undertaken to date.

Detailed analyses are not made in this report, but pointers are given to some of the main features of interest in the data. In addition, major ocean current features are identified when appropriate. Data for the three surveys in this report (SEAMAP 2, SEAMAP 4, and SEAMAP 6) are discussed in separate sections, each independent of the other sections. These three sections are preceded by general sections on the data types described, some brief descriptions of oceanography of the south-west Pacific, and details of Nansen and CTD (Conductivity-Temperature-Depth profiler) data processing. The CTD salinity data for surveys SEAMAP 4 and SEAMAP 6 are not well calibrated, and should be used for profile shapes, rather than for absolute salinity values. For these surveys the CTD was used principally as a velocimeter, with sound-speed obtained from an independent sensor also attached to the CTD.

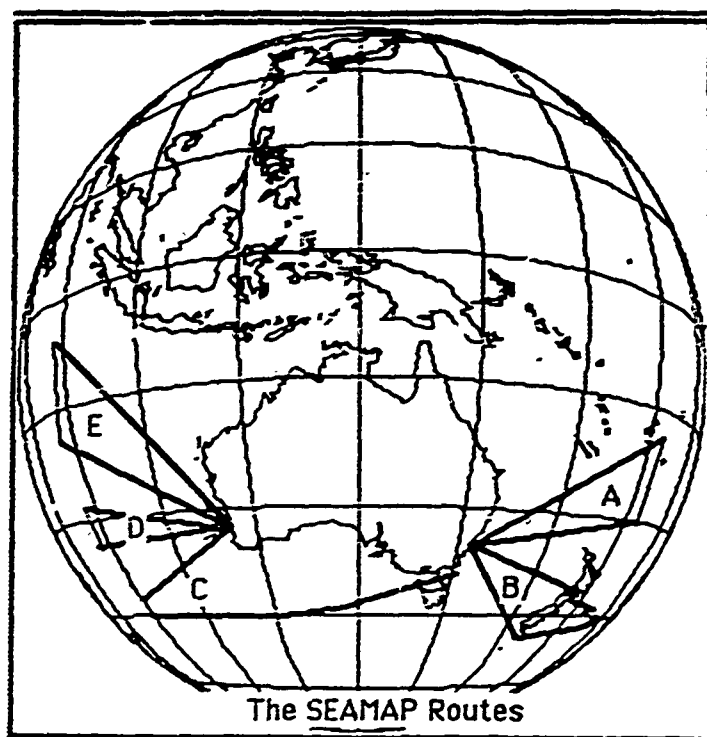


Figure 1. Planned survey routes for Project SEAMAP. Each route to be traversed in both winter and summer

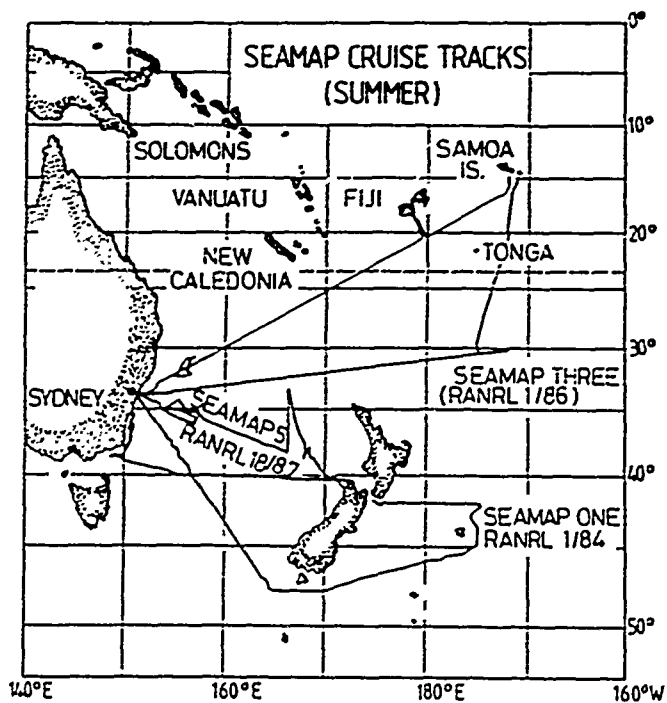


Figure 2. Actual summer routes for Project SEAMAP in the south west Pacific Ocean for 1984 to 1987

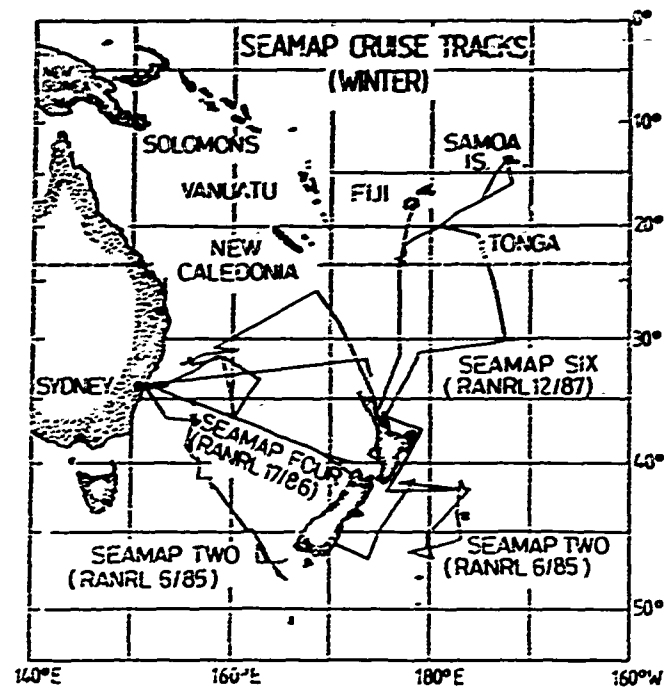


Figure 3. Actual winter routes for Project SEAMAP in the south west Pacific Ocean for 1985 to 1987

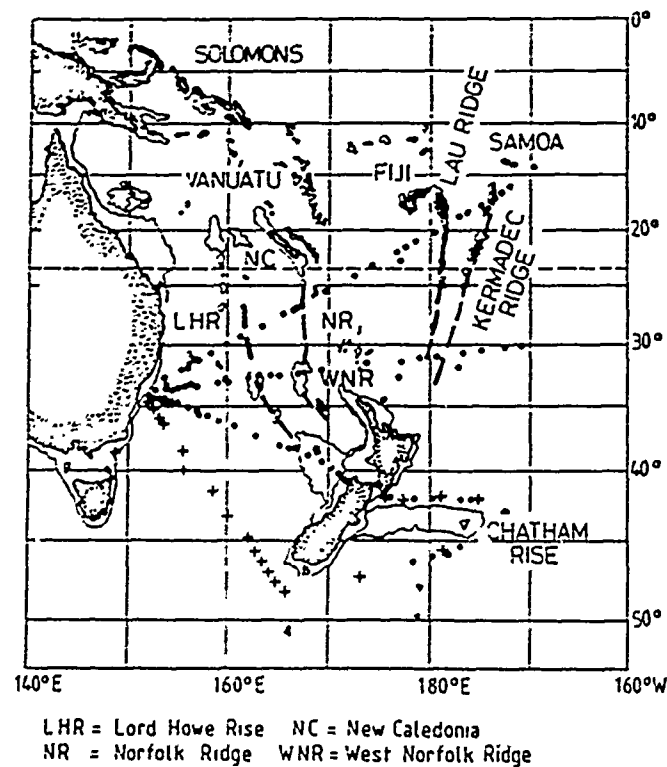


Figure 4. Oceanographic station positions for Project SEAMAP winter and summer surveys in the south west Pacific Ocean for 1984 to 1987. The contour shown is for 1000 m. (+ are Nansen stations; . are VCTOD stations; thick dashed lines are ridges and rises)

SEAMAP DATA TYPES AND DATA FORMAT

The types of oceanographic data presented in this report, and brief reasons for measuring them are:

- (a) Sea state, swell height, and wind vectors are plotted along ship track from four-hourly observations. [These are indicative of surface roughness and acoustic reflection losses at the air-sea interface.] Table 1 (on page 5) shows the sea conditions associated with the sea state values. The sea state and swell observations were made visually by HMAS Cook's bridge watchkeepers.
- (b) Surface Temperature and Salinity. Sea surface temperature (SST) values are plotted along ship track from four-hourly observations taken from a hull mounted sensor. Surface salinity samples are also shown. [Surface measurements can show the positions of surface fronts.]
- (c) Bathymetry. Cross-sections along ship track are constructed from hourly observations [Topography affects acoustic bottom bounce propagation and paths of currents.]
- (d) Subsurface parameters. Cross-sections are constructed from expendable bathy-thermograph (XBT), Nansen station and Conductivity Temperature-Depth (CTD) profiler data. [Related to surface duct sound speed profiles and acoustic propagation.]
- (e) Nansen station temperature, salinity and depth data are given as listings (and plots) at measured and interpolated depths. [Gives sound-speed profiles and components of geostrophic current.]
- (f) VCTOD (Velocity of sound, Conductivity, Temperature, Oxygen, Depth) values are given as listings and plots. [Provides continuous sound-speed profiles.]

The discrete values given herein represent a subset of the available data. Continuous observations were also made of some of these and a range of variables which were automatically recorded by HMAS COOK's Hewlett Packard HP1000 data logger. The parameters logged, with sensor type, resolution, and data rate, are given in Appendix I (page 193). Any requests for copies of the logged data should be sent to the Australian Oceanographic Data Centre, C/- Hydrographic Office, 161 Walker Street, North Sydney, NSW 2060, Australia.

Acoustic bottom bounce propagation experiments, sea noise and volume reverberation measurements, bottom coring, and seismic profiling were also undertaken during the surveys. These will be reported separately by other authors. Appendix II (page 195) lists available reports in these categories as of May 1989.

TABLE 1. BEAUFORT SCALE WITH CORRESPONDING SEA STATE CODES

—Beaufort Scale with Corresponding Sea State Codes

Sea State	Beaufort number	Wind speed			Seaman's term	U. S. Weather Bureau term	Estimating wind speed		WMO Code	
		knots	mph	meters per second			Effects observed at sea	Effects observed on land	Term and height of waves, in feet	Code
0	0	under 1	under 1	0.0-0.2	Calm	Light	Sea like mirror.	Calm; smoke rises vertically.	Calm, glassy, 0	0
1	1	1-3	1-3	0.3-1.3	Light air		Ripples with appearance of scales; no foam crests.	Smoke drift indicates wind direction; waves do not move.	Sluggish, 0-1	1
2	2	4-6	4-7	1.0-3.3	Light breeze		Small wavelets; crests of glassy appearance, not breaking.	Wind felt on face; leaves rustle; waves begin to move.	Sluggish, 1-2	2
3	3	7-10	8-12	3.4-5.4	Gentle breeze		Large wavelets; crests begin to break; scattered whitecaps.	Leaves, small twigs in constant motion; light flags extended.	Sluggish, 2-4	3
4	4	11-16	13-18	5.5-7.9	Moderate breeze		Small waves, becoming longer; numerous whitecaps.	Twigs, leaves, and loose paper raised up; small branches move.	Moderate, 4-6	4
5	5	17-21	19-24	8.0-10.7	Fresh breeze		Moderate waves, taking longer form; many whitecaps; some spray.	Small trees in leaf begin to sway.	Moderate, 6-8	5
6	6	22-27	25-31	10.8-13.8	Strong breeze		Larger waves forming; whitecaps every where; more spray.	Larger branches of trees in motion; whistling heard in wires.	Irregular, 8-13	6
7	7	28-33	32-38	13.0-17.1	Moderate gale		Sea begins to whip foam from break; in waves begins to be blown in streaks.	Whole trees in motion; resistance felt in walking against wind.	Very rough, 13-20	7
8	8	34-40	39-46	17.2-20.7	Fresh gale		Moderately high waves of greater length; edges of crests begin to break into spindrift; foam is blown in well-marked streaks.	Twigs and small branches broken off trees; progress generally impeded.	High, 20-30	8
9	9	41-47	47-64	20.8-24.4	Strong gale		High waves; sea begins to roll; dense streaks of foam; spray may reduce visibility.	Slight structural damage occurs; slate blown from roofs.	High, 30-45	9
10	10	48-55	55-73	24.5-28.4	Whole gale		Very high waves with overhanging crests; sea takes white appearance as foam is blown in very dense streaks; rolling is heavy and visibility reduced.	Beloom experienced on land; trees broken or uprooted; considerable structural damage occurs.	Very high, 50-65	10
11	11	56-63	64-72	28.5-32.6	Storm		Exceptionally high waves; sea covered with white foam patches; visibility still more reduced.	Very rarely experienced on land; usually accompanied by widespread damage.	Phenomenal, over 45	11
12	12	64-71	73-82	32.7-36.9						
13	13	72-80	83-97	37.0-41.4						
14	14	81-89	93-103	41.6-46.1						
15	15	90-99	104-114	46.2-50.9						
16	16	100-109	115-125	51.0-56.0						
17	17	110-119	126-136	56.1-61.2						

Note: Since January 1, 1956, weather map symbols have been based upon wind speed in knots, at two-knot intervals, rather than upon Beaufort number.

T B/8 completely overcast

O/B no clouds

C = celestial

F = radar

S = surface

Dr = dead reckoning

BRIEF INTRODUCTION TO OCEANOGRAPHY OF THE SOUTH-WEST PACIFIC

In general it is the conditions in the upper hundreds of metres which are of most importance to the SEAMAP project, since this is where parameters vary most rapidly. The oceanography of seas to the east of New Zealand is not well known, and much of Tasman Sea behaviour has yet to be clarified. For example, it is generally believed that the East Australian Current flows in a general west to east direction (after leaving the Australian coastline) as the Tasman Front, but only a handful of surveys have attempted to follow this front. The interaction of the front with the Lord Howe Rise has only recently been investigated in any detail. Seasonal behaviour of currents and convergences are virtually unknown in many areas of the South Pacific Ocean.

The general positions of currents and convergences are given diagrammatically in figure 5. Convergences are regions where two currents meet (or converge), the two currents flowing in directions that cause surface waters to pile up and sink between them. Divergences are regions where waters from two currents move away from each other, with water upwelling between them to preserve continuity of volume. (Both convergences and divergences can occur for currents flowing in the same direction, or opposite directions, depending on orientation in the hemisphere. For example, see Pickard and Emery, 1982.)

The following descriptions of currents shown in figure 5 are constructed from various sources, including Heath (1985) (New Zealand waters), Wyrski (1960) (general), Henin and others (1984) (New Caledonia), Nilsson and Cresswell (1981). Although some currents are described as well known permanent features of the circulation eg, those east and north of New Zealand, not enough surveys have been made to define more than broad tendencies of flows in most parts of the Pacific.

The East Australian Current (EAC) originates in the northern and western Coral Sea where waters piled up by the South-east Trade Winds are constrained to flow southward by the land barriers of New Guinea and Australia. The broad and diffuse Trade Drift sets through Fiji and Vanuatu into the Coral Sea. From April to December the drift splits to flow west-north-west of the Solomons, and into the Coral Sea. From January to March the monsoon allows equatorial water masses to enter from north and north-east between the Solomons and Vanuatu. The Trade Drift is displaced to the south, then being mainly south of the Fiji Islands. The southern boundary of the Trade Drift is subject to considerable fluctuation, and normally corresponds to the position of the Tropical Convergence. From June the current shifts northwards, reaching its most northern position in September, with flow south of Fiji small and weak, and a possible flow reversal south of New Caledonia.

The East Australian Current generally heads seawards near 33 to 34 S to form the meandering Tasman Front. Mesoscale warm core eddies may be spawned south of the front by these meanders, with lives of 6 to 12 months. A component of the current sometimes flows along the east Tasmanian coastline, flooding eastern Bass Strait in the process. Waters generally move west to east through Bass Strait into the Tasman Sea under the influence of the prevailing wind systems. The high salinity waters originating in Bass Strait may be found as salinity and temperature inversions throughout the Tasman Sea, and are often transported east by eddies (eg Scott 1981), and on the Tasman Front, as well as northwards along the Australian continental slope at depths up to 600 m.

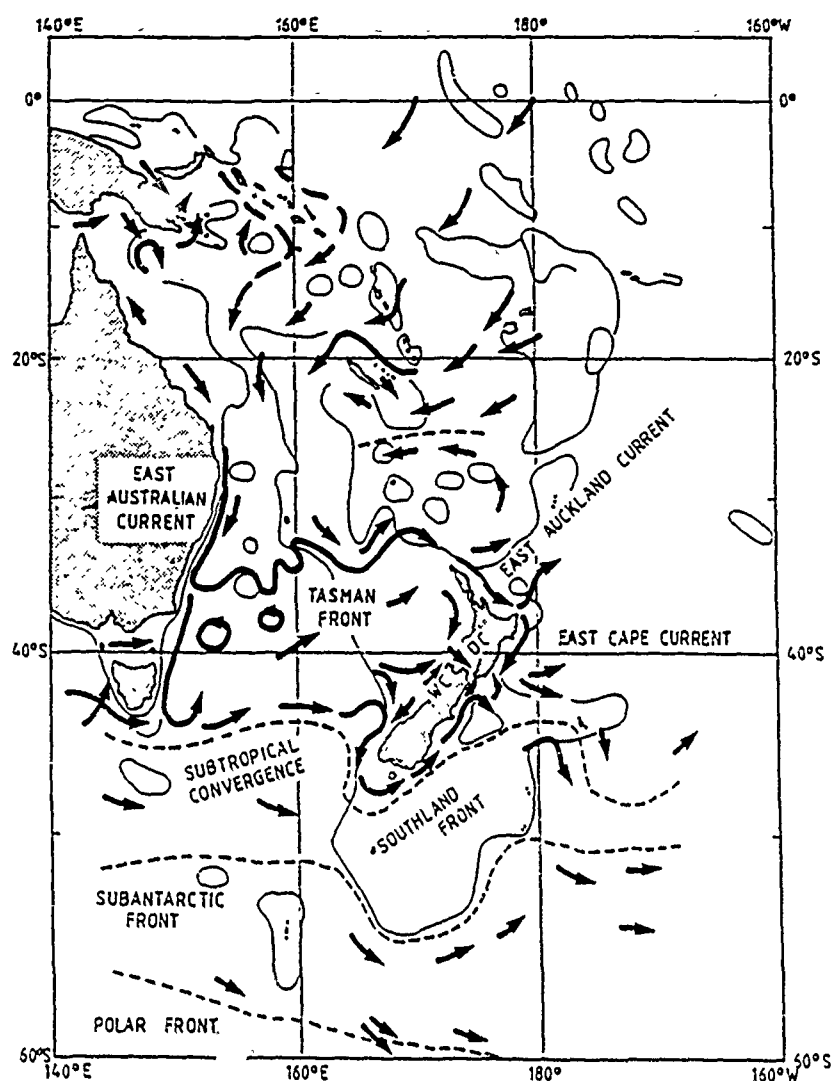


Figure 5(a). General circulation and position of fronts in the south-west Pacific Ocean.
 (After several sources, especially Heath, 1985 and Wyrski, 1960).
 (DC = D'Urville Current, WC = Westland Current). The depth contour shown is for 1000 fathoms. Also see figure 5(b) on page 9

The eastward flow of the EAC is influenced by the shallower topography of the Lord Howe Rise, often looping north along the rise, and Norfolk Ridge. The Tasman Front can be traced to at least 160°E but its path then is not well defined. Warren (1970) postulates it as a zonal jet needed to connect the western boundary current off the eastern coast of Australia to the flow east of New Zealand.

South of Australia and New Zealand the broad, deep eastward flowing West Wind Drift (or Antarctic Circumpolar Current) forms the only current running completely round the globe. The northern boundary of eastward flow forms the Subtropical Convergence at about 43°S. The Antarctic Polar Frontal Zone occurs at about 50°S. Waters south of this zone cool and sink to as far north as the Subtropical Convergence, forming several water masses, including Antarctic Intermediate Water. The Subtropical Convergence is at its most northerly from April to October (winter). East of New Zealand the convergence is situated along the coastline, passing through the Snares Depression, along the continental shelf of eastern South Island, and through the Mernoo saddle. Along the coast it is also known as the Southland Front (and Southland Current). East of the Chatham Rise the convergence generally projects southwards. Much of the flow east of New Zealand is constrained by the shallow topography of the Chatham Rise.

Flow out of the Tasman Sea north of New Zealand gives rise to the East Auckland Current (figure 5(b)) flowing south along the eastern coast of the north island. The current branches near East Cape, returning north, and also contributes to the East Cape Current, a warm saline flow. Water passes eastwards through Foveaux Strait (south of South Island) from along the southern flank of the Challenger Plateau. Flow occurs to the south along the continental slope of the south-west coast of the South Island (the Southland Current). The Southland current appears related to the Subtropical Convergence. Waters of the D'Urville, Westland, and East Cape Currents mix in Cook Strait, exiting eastwards around Cape Palliser.

Henin, Guillermin, and Chabert (1984) describe flow around New Caledonia in terms of two wind regimes. During the trade winds (nearly all year round) flow is to the north west, with a south-east component along the northern end of the southern part of New Caledonia. For periods about July-August a westwind regime may cause flow to the south-east on both sides of the southern regions of New Caledonia, with variable flow.

Throughout the eastern part of the south-west Pacific the circulation patterns are little known. Reid (1986) derived general circulation patterns for the South Pacific using an extremely sparse station network, which east of New Zealand very generally show west to east flow, with an unclosed meander centred at 42°S, 165°W. Surface flow to the east of New Zealand in the area east of Chatham Rise is generally to the south-east. Eastward flow at these latitudes constitutes the southern part of an ocean basin scale gyre which flows anti-clockwise around the Pacific. The East Australian Current, described earlier, forms the western boundary current of this circulation. A useful bibliography of the physical oceanography of the Tasman and Coral Seas is given by Stanton (1975).

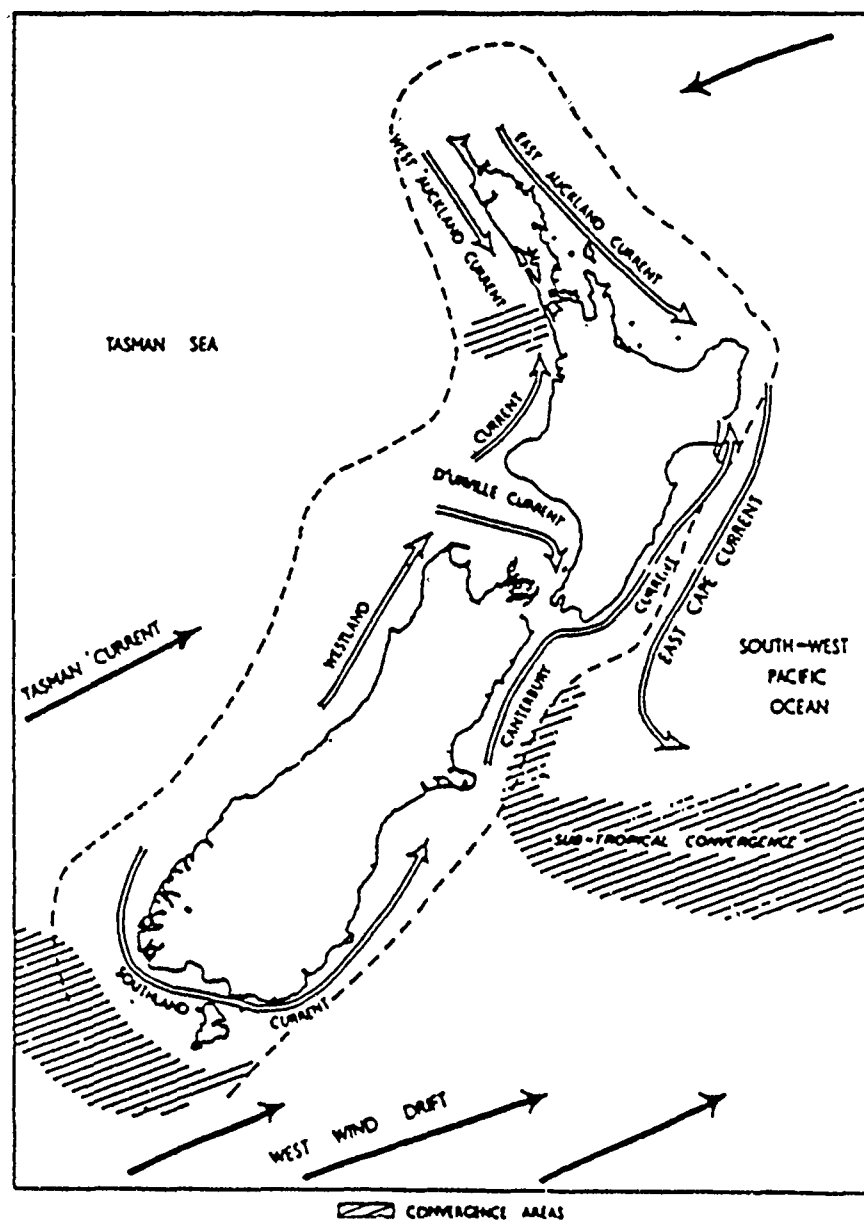


Figure 5(b). Coastal current patterns around New Zealand (Brodie, 1960)

DATA PROCESSING FOR NANSEN AND CTD DATA

Nansen station data and processing

Nansen station data were taken using the standard procedures outlined in publication 607 (US Naval Oceanographic Office, 1970). The bow thruster and active rudder on HMAS Cook were used to keep the wire on the hydrology winch vertical. Oxygen samples were analysed using the Winkler method (Major and others, 1972). Salinity samples were analysed for conductivity ratio using an Autolab Inductive Salinometer Mk III model. Derived quantities such as salinity and sound-speed were calculated using the algorithms shown in Table 2. Reversing thermometer temperatures were calibrated and pressure corrected using desktop computer programs (Hamilton, 1982) which are corrected versions of May (1969). Dynamic heights and geostrophic currents were calculated using computer programs in Hamilton (1982), which are also corrected and updated versions of May (1969).

TABLE 2. REFERENCES TO ALGORITHMS USED TO PROCESS NANSEN STATION DATA

(DSRT = Deep Sea Reversing Thermoter)

Calculation	Reference
DSRT Temperature Correction	SVERDRUP (1947)
DSRT Reversal Depth	WUST (1933)
Conductivity to Salinity	LEWIS (1980)
Depth to pressure	SAUNDERS (1981)
Density - One Atmosphere	MILLERO and POISSON (1981)
- High Pressure	MILLERO, CHEN, BRADSHAW and SCHLEICHER (1980)
Potential Temperature	BRYDEN (1973)
Sound Speed	WILSON (1960)

VCTOD data and processing

The VCTOD [(Velocity of sound, Conductivity, Temperature, Oxygen, Depth (actually pressure)) profiler is a Plessey model 9041. Sensor precisions and resolutions are given in Table 3. Oxygen was not measured with the VCTOD.

TABLE 3. VCTOD SENSOR CHARACTERISTICS

Sensor	Range	Time constant (s)	Resolution	Precision	Logged precision	Manuf. calibs (Info only)
Conductivity [C]	10 to 60 mmho/cm	0.015	0.01	0.005	0.01	0.03
Temperature [T]	-2 to 35 C	0.312	0.01	0.005	0.01	0.02
Depth [D]	0 to 6000 m	0.02	0.1% FS (= 6 m)	0.04% FS (= 2.4 m)	1 m	0.1% FS
Sound Speed [V]	1400 to 1600 m/s	0.0001	Unknown	0.05	0.05	0.15

(The data rate is 1.66 Hz) (FS = Full Scale)

Absolute accuracy of the calibrated quantities, quoted as one standard error about the estimate, is as follows:

Pressure	6.3 dbar
Temperature	0.015°C (to 0.01 for pressures over 4000 dbar)
Conductivity	0.04 mmho/cm (in upper waters) To 0.01 at depth (subject to shift)
Sound Speed	0.18 m/s.

Data are calibrated only from reversing thermometer and Niskin bottle measurements made at sea, no laboratory calibration facilities being available. Reversing thermometers and Niskin bottles were mounted in a rosette sampler, with sensors being less than 1 m below the bottles.

Because of the higher gradients in upper waters, it is expected that (without conductivity shifts) calibrations are more accurate at depth, to 0.01 units of temperature (degrees Centigrade), conductivity (mmho/cm), and salinity (PSU), and worsening to over 0.03 units and much higher

towards the surface. The bulk of calibration data is biased to deeper values (4000 to 5000 m) which removes some bias caused at the top end, since calibration curves are linear except for pressure. The calibrations were established from data combined from SEAMAP and other cruises (Hamilton, 1986). Temperature, pressure, and sound speed accuracies are equal to or better than sample bottle measurements.

SEAMAP 6 VCTOD calibrations

Because of an unexpected shift in the calibration of the conductivity signal from station to station during station 6, salinity calibration is poor in term of absolute value, and also varies between some stations. This means that the salinity data for SEAMAP 6 are not suitable for inclusion in oceanographic data bases, and not suitable for dynamic calculations. The reason for the shift in conductivity calibration is not known. The original cruises for which calibrations were established showed no shifts, and the conductivity sensor is an inductive type, which is not expected to either drift or shift. Calibration remained the same between some sets of stations, but varied at other times from station to station.

The conductivity calibration for the inductive sensor takes the form of a linear correction curve having the same slope for all stations and with an offset term. The shifts in calibration change the value of the offset term, but not the slope. Ignoring a non-linear effect introduced in the calculation of salinity by the shifts means that the salinity profiles given for SEAMAP 6 have the right shape, but are displaced from their true absolute values by some additive constant, in some cases by gross amounts. The constant is not well determined because only a single Nansen bottle was strung above the VCTOD on SEAMAP 6, a rosette sampler not being available.

SEAMAP 2 VCTOD calibrations

Only the data for survey SEAMAP 2 are well calibrated for salinity, except for station 10, where the rosette sampler was not used. As no conductivity shifts were experienced during SEAMAP 2, the calibration for the other stations was assumed to be applicable. However no calibration data is available for any station deeper than 4900 m, and station 10 data is shown to over 6450 m.

SEAMAP 4 VCTOD calibrations

The inner glass sleeve of the conductivity sensor was found to be cracked on completion of this cruise so that no profiles or calibrated salinity values are available. The salinity data is pressure affected. Calibrations for other sensors have remained the same during the period of use of the instrument to within the accuracies on page 11.

VCTOD data processing method

Derived quantities were calculated using the algorithms given in Fofonoff and Millard (1983). Data processing was performed using computer programs written by Dr N. White of CSIRO Marine Laboratories, Hobart. Mismatch in sensor time constants is allowed for by an exponential-recursive filter, as described in Millard (1982). The data is for the down cast, with only monotonically increasing pressure values being used.

The monotonically increasing pressure values were pre-smoothed using a two point centred running average to remove some of the steps caused by the low sampling rate. This introduces a non-linearity which is offset to some extent by averaging the pre-smoothed, lagged parameters over 10 dbar intervals before calculation of derived parameters. For all stations the processing left few density inversions in the 10 dbar averages. Salinity profiles still contain spurious spikes, particularly at the base of the mixed layer. Spikes are caused in the calculated salinity values (by mismatch in the temperature and conductivity sensor time constants) at temperature inversions, subsurface mixed layers, and steps in temperature and/or conductivity. In most cases no attempt has been made to remove these spikes. They drastically alter the upper part of the temperature salinity curve in many instances from its true shape. Deeper than the mixed layer, spikes are a useful indicator of real changes, eg temperature inversions, accompanied by real salinity changes, which are exaggerated in the spikes.

VCTOD data format

The VCTOD data are given in the form of plots and listings of parameters with pressure. A listing of the Niskin/Nansen sample bottle values for each station is given after the VCTOD data listings. The plots are drawn from averages of parameters over 10 dbar pressure intervals. Listings show 10 dbar averages spaced at selected intervals, with the pressure interval centred around the given pressure value.

From left to right the values in the listings are pressure, depth, temperature, salinity, sigma-t, anomaly of specific volume, geopotential anomaly, sound speed, potential temperature, number of observations in the 10 dbar interval, and standard deviation of temperature, then standard deviation of conductivity values for the 10 dbar interval. For example see page 74.

THE WINTER SURVEY DATA ARE PRESENTED IN TWO PARTS.

PART A PRESENTS WINTER DATA FOR ROUTE A OF FIGURE 1 (SEE PAGE 2)

ROUTE A WAS COVERED BY SURVEY SEAMAP 6 IN JULY TO SEPTEMBER 1987

PART B PRESENTS WINTER DATA FOR ROUTE B OF FIGURE 1 (SEE PAGE 2)

ROUTE B WAS COVERED BY TWO SURVEYS :-

SURVEY SEAMAP 2 IN AUGUST TO SEPTEMBER 1985 (PAGES 89 TO 144)

SURVEY SEAMAP 4 IN AUGUST TO SEPTEMBER 1986 (PAGES 145 TO 187)

TEXT AND FIGURES ARE INTERSPERSED, WITH NANSEN AND VCTOD DATA TABLES AND PROFILES COMING AFTER THE FIGURES AND TEXT FOR EACH SURVEY.

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PART A - WINTER SURVEY FOR SEAMAP SOUTH PACIFIC ROUTE A**Data for survey six (RANRL 12/87) - route A - winter**

Part A presents data for a survey made in southern hemispheric winter around the circuit Sydney - Auckland - Tonga - Samoa - Whangarei - Fiji - Sydney from 28 July to 25 September 1987 (figure 6). Acoustic and geophysical data for the survey are given in other sources (see Appendix II). The survey, designated as RANRL 12/87, and SEAMAP 6, was the sixth and final cruise of the SEAMAP series made by Maritime Systems Division on the naval oceanographic research vessel HMAS Cook. For details of the summer counterpart of this survey, SEAMAP 3 (RANRL 1/86), see the summer report (Hamilton and Boyle, 1989). The survey route was covered in five legs (see figures 6, 17, 28, and 39 for the track plots for each leg). An XBT section along part of route A was also made during SEAMAP 2 (see pages 92, 112, 113).

Text continued on page 20



Seamap 6 - Route A - Winter

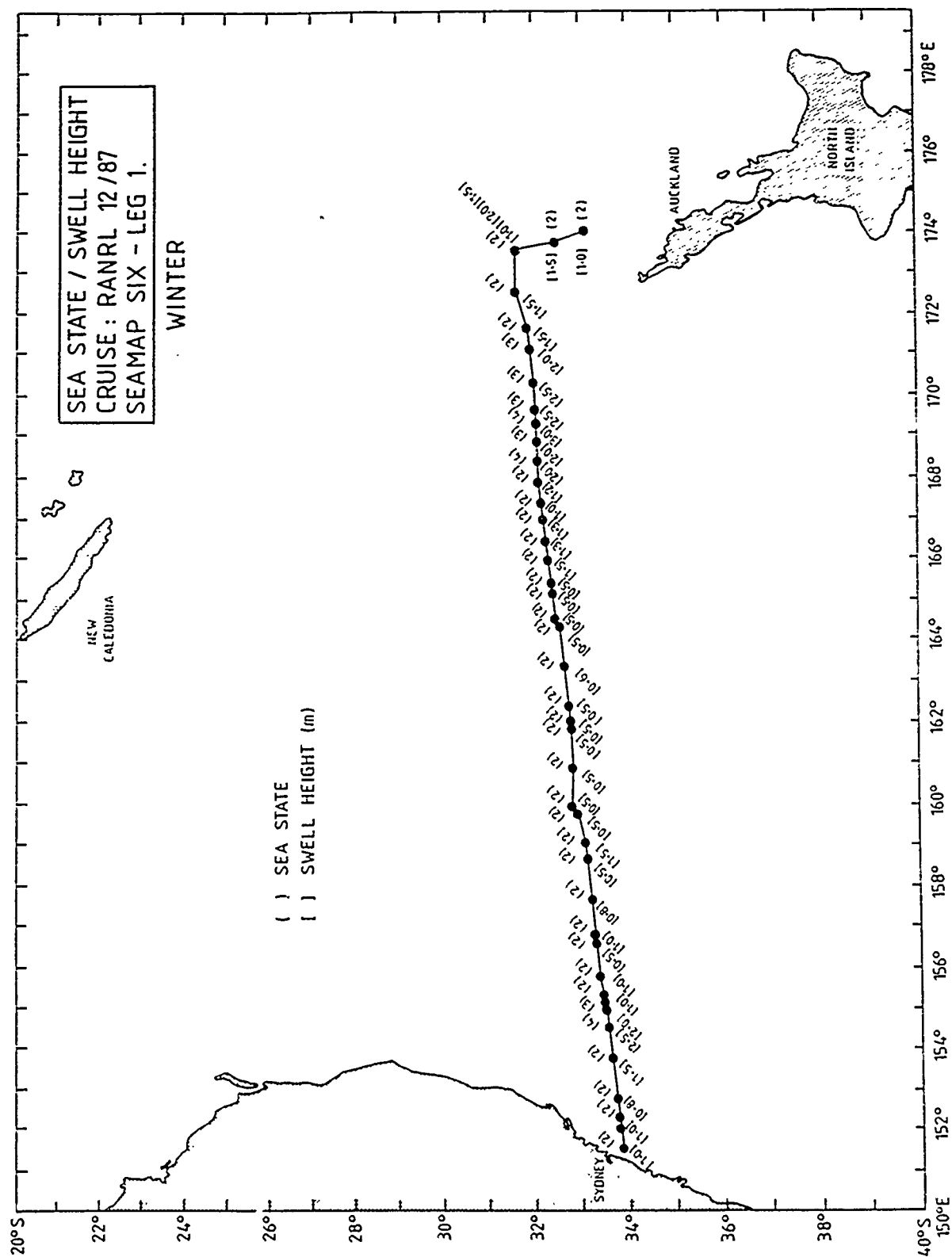


Figure 7. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg one 28 July to 6 August 1987

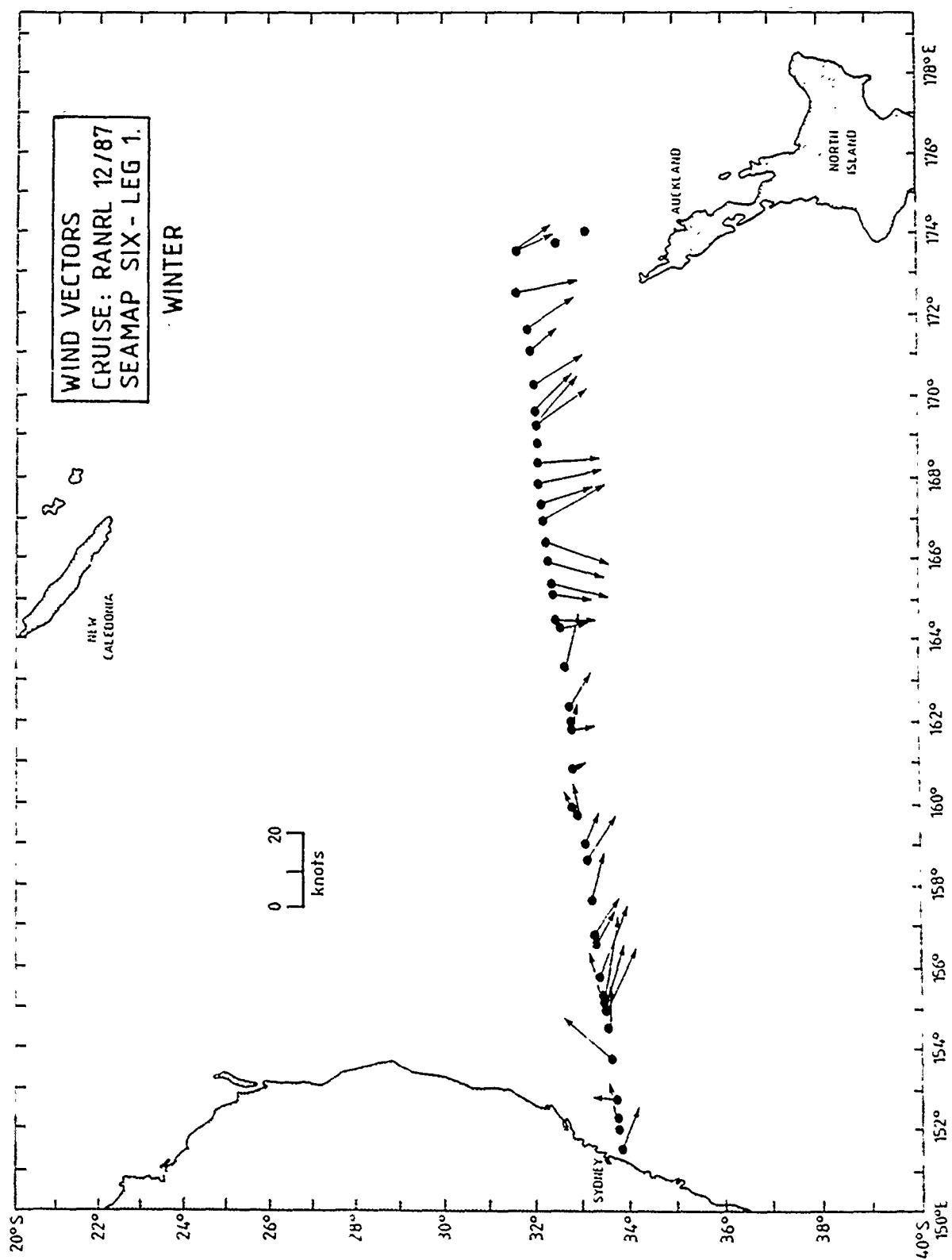


Figure 8. Wind vectors for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87).
Leg one 28 July to 6 August 1987

Surface parameters

Sea state, swell height, and wind vectors

Four-hourly observations made by bridge watchkeepers are shown in figures 7 and 8, 18 and 19, 29 and 30, 40 and 41 for the various legs of the cruise, being a subset of hourly observations. Table 1 (on page 5) shows the sea conditions associated with the sea state values. Wind strengths for the entire survey were seldom over 20 kn, and usually less than 15 kn. Twenty knot winds were experienced north of New Zealand on leg 5, with sea state 5, corresponding to moderate to rough seas. A period of rough seas also occurred north-east of New Zealand about 31°S, 180°. Three metre swells were seldom if ever exceeded, with swell for large parts of the cruise being less than 2 m. Away from New Zealand seas were occasionally moderate and usually smooth to slight. Calm glassy seas were encountered north-west of Lord Howe Island to north-west of Norfolk Island.

Surface temperature and salinity

Sea Surface Temperature (SST) (figures 9, 20, 31 and 42)

Highly speculative sea surface temperature (SST) contours can be drawn along the sections. SST infra-red imagery from CSIRO Aspendale Victoria is available for areas near the Australian coastline for 1 Aug (figure 12). The imagery shows an eddy east and south-east of Jervis Bay, with the Tasman Front leaving the coast farther north at 33°S, 152°E and sloping to the south-east. This corresponds with the position of a front crossed by HMAS COOK at 33°30'S, 154°30'E during leg 1. Leg 5 shows the only other marked surface fronts, in the region from Sydney to north-east of Lord Howe Island, with a frontal area also about 27°S, 166°E. The frontal areas will be further discussed when the XBT sections are examined. Sea surface temperature products from Royal Meteorological Centre (RMC) Wellington for the period of this cruise are shown in figures 11 and 33.

Sea Surface Salinity (figures 10, 21, 32 and 43)

Lowest surface salinities for the open sea (35.18 PSU) were observed near Samoa, in association with the higher temperatures at these low latitudes. (The lowest salinity of all was 34.996 in Hauraki Gulf, after Auckland, presumably associated with fresh water dilution.) Highest salinities (35.80) were observed along 30°S north-east and north-west of New Zealand (associated with an excess of evaporation over precipitation at these latitudes eg, Wyrski, 1962). High salinity also occurred about 27°S, 165°E. See Donguy and Henin (1977) for similar results. A T-S curve of the surface values (figure 50) highlights some of these results. Because of the north-south temperature gradation, the surface T-S plot is roughly equivalent to a plot of salinity with latitude. The maximum salinity values are spread due to latitudinal variations over the traverse area.

Text continued on page 27

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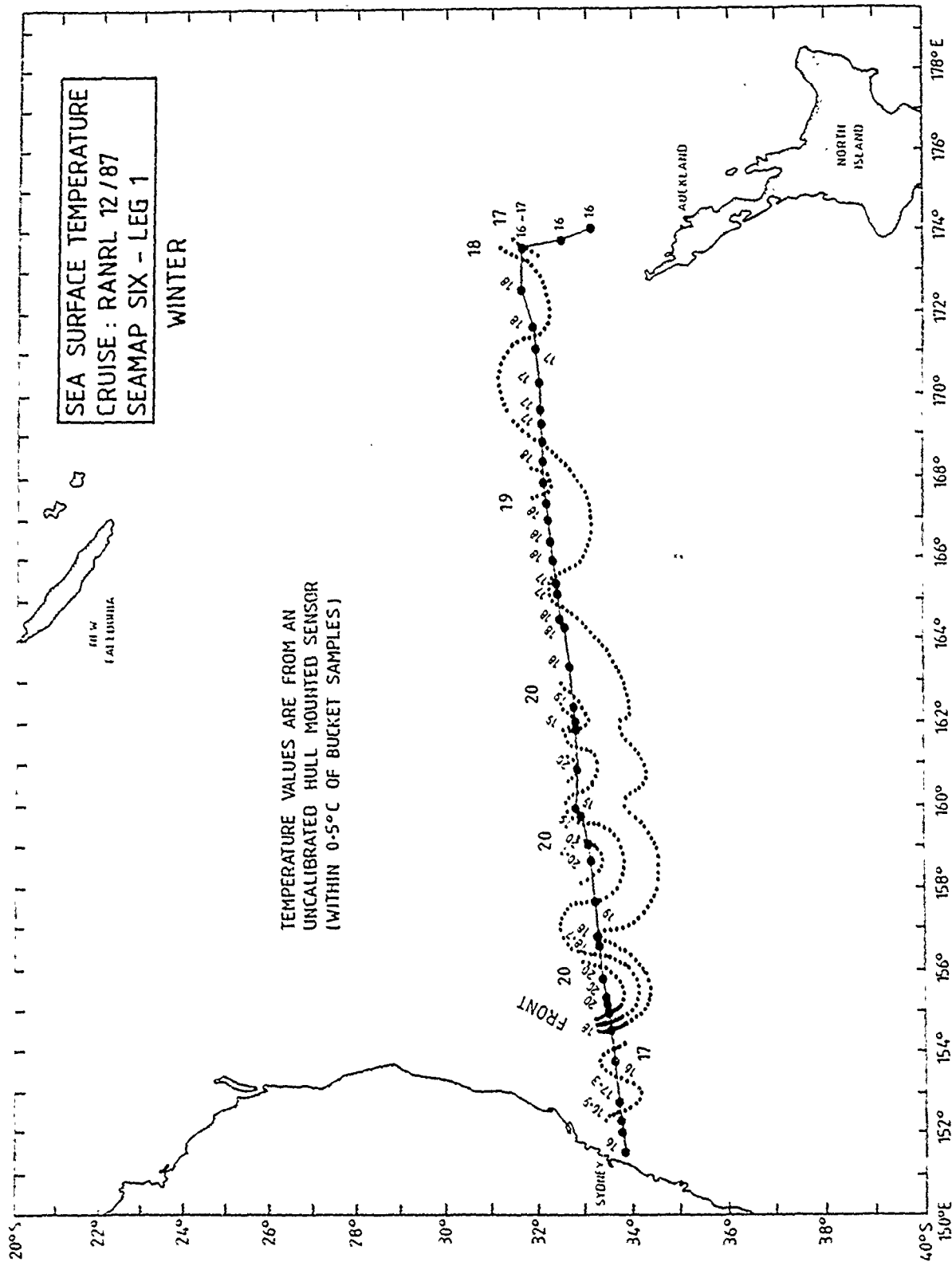


Figure 9. Speculative sea surface temperature contours for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg one 28 July to 6 August 1987

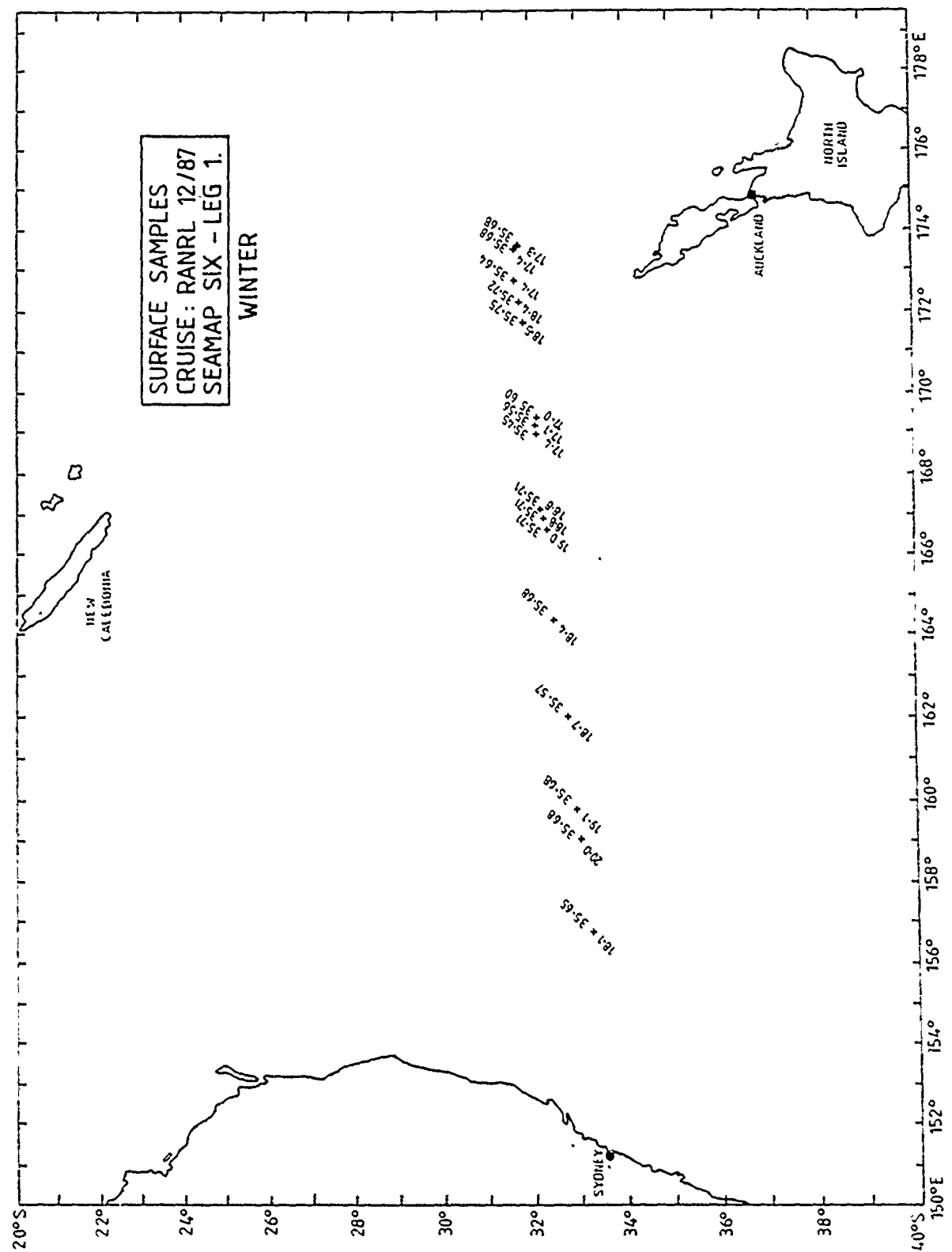


Figure 10. Sea surface salinity (and temperature) for SEAMAP route A winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg one 28 July to 6 August 1987

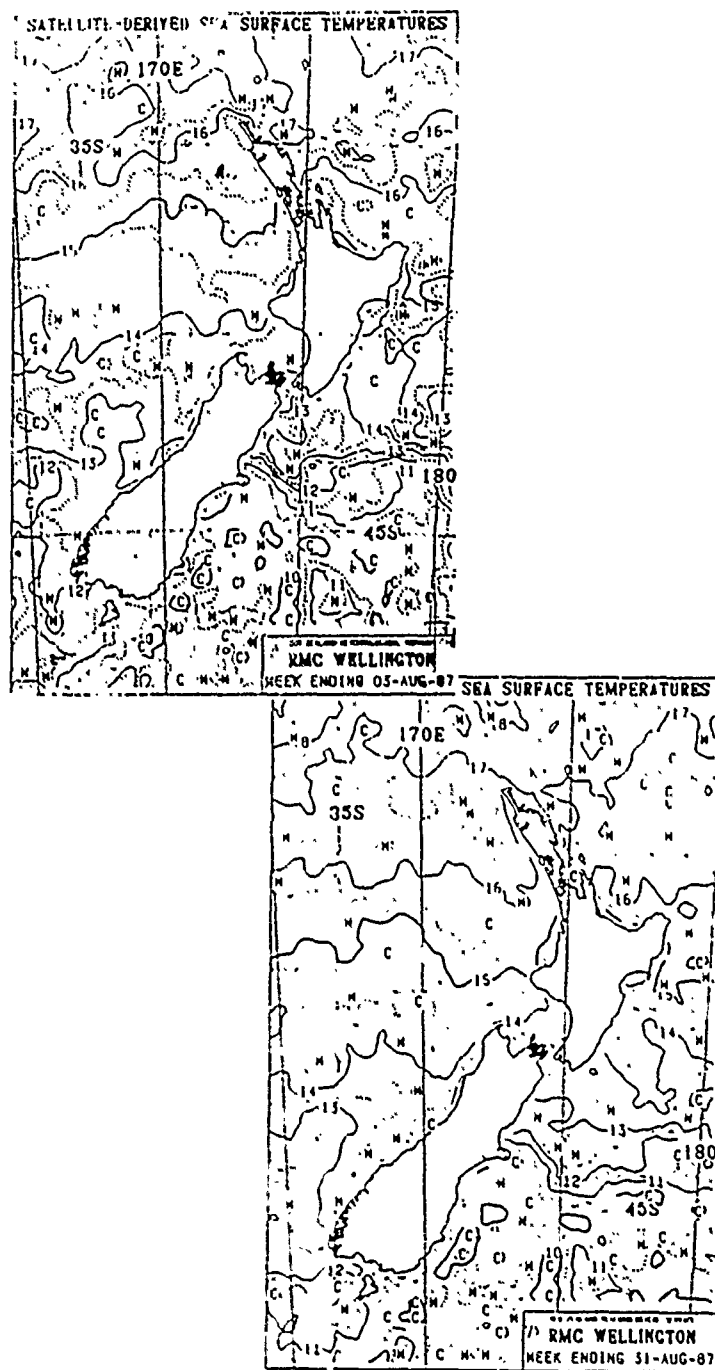


Figure 11. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 3, 31 August 1987 coinciding with sections of SEAMAP 6 winter survey (RANRL 12/87) route A, Leg one

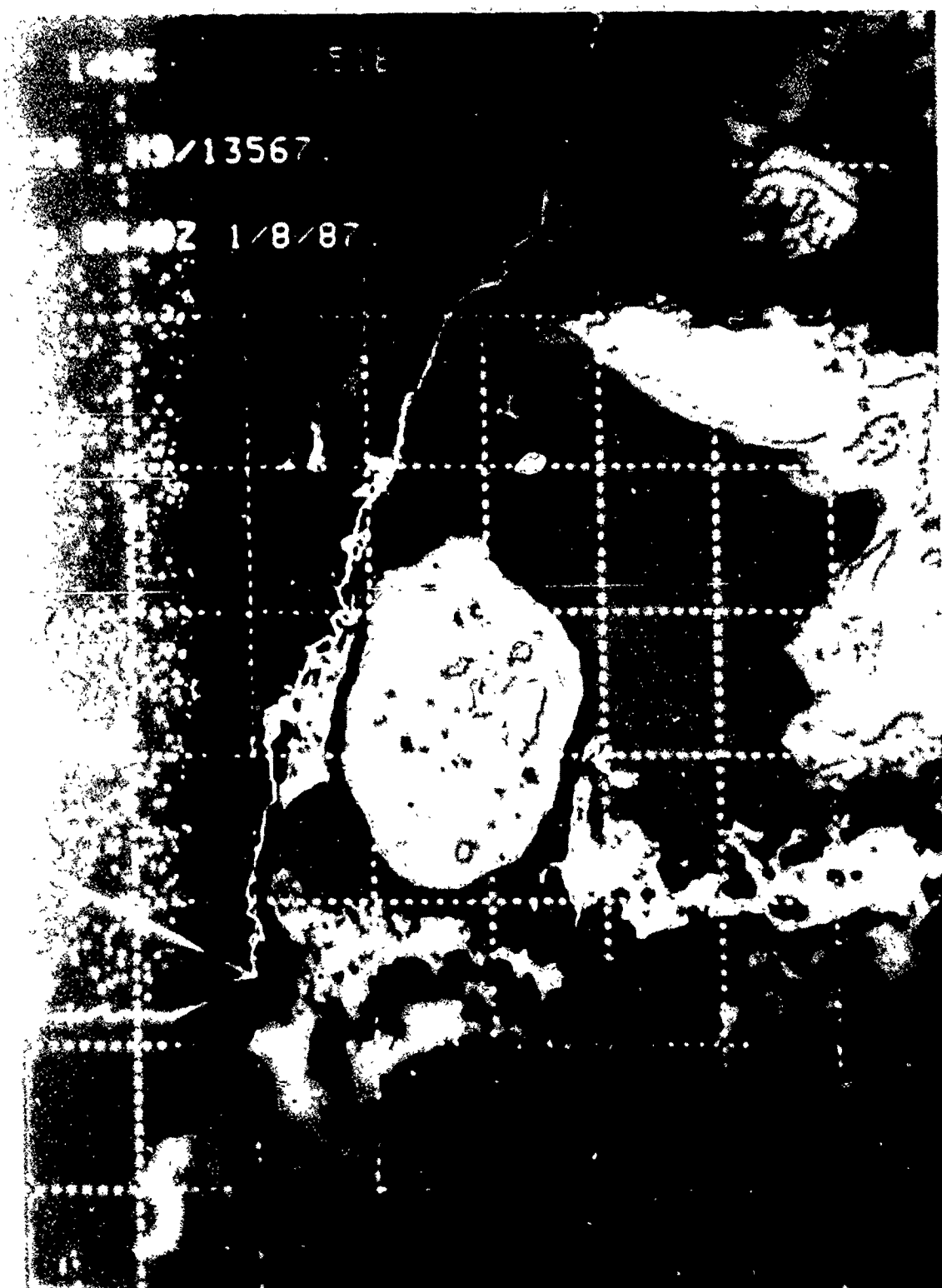


Figure 12. Sea surface temperature false colour satellite imagery from CSIRO Division of Atmospheric Research, Aspendale Victoria for 1 August 1987 coinciding with sections of SEAMAP 6 winter survey (RANRL 12/87) route A, leg one

Subsurface parameters

Bathymetry

Smoothed interpretations showing major features are shown in figures 14, 22, 25, 35, 45 and 47. These have generally been drawn to correspond with XBT or VCTOD cross-sections, and are generally placed facing the cross-section.

XBT/Nansen/VCTOD cross-sections

XBT temperature cross-sections

Cross-sections of XBT data are shown in figures 13, 22, 24, 34, 36, 44 and 46. Gaps in the sections were caused by periods of seismic profiling, when XBT wires would have fouled the towed streamer (or eel).

Sydney to New Zealand (figure 13) (leg 1)

The East Australian Current is crossed near 155°S, being situated west of Taupo Bank. A second broader warm core meander is situated on the western flank of the Lord Howe Rise, centered on the enclosed trough between the Rise and Dampier Ridge. A minor warm feature at 162° 30'E appears to be sited on a depression to the west of the highest parts of the Rise. A warm feature is sited west of Three Kings Ridge at 172°E, which has SST of 18 to 19°C. (The locations of these features are indications of the influence of topography on the flow of the Tasman Front.)

Auckland to 30°S, 170°30'W (figure 22) (leg 2)

The section is not of high quality, but does show indications of flow to the east or south-east between 35 and 36°S. At 31°S, 179°E a warm feature is crossed, sited on the western side of Colville Ridge. Warmer waters at 30°S, 170°W appear to have little significant subsurface expression, but this cannot be confirmed.

From 30°S, 170°W to SAMOA (via TONGA AND 20°S, 179°30'W) (figure 24)

This incomplete section shows a warm feature at 25°S, associated with weak surface fronts, indicating eastward flow, with some recirculation north of 25°S. Surface flow from Tonga to 30°S, 170°W appears to be mainly eastward and diffuse. Flow south of Samoa may also be eastwards at the surface.

Text continued on page 30

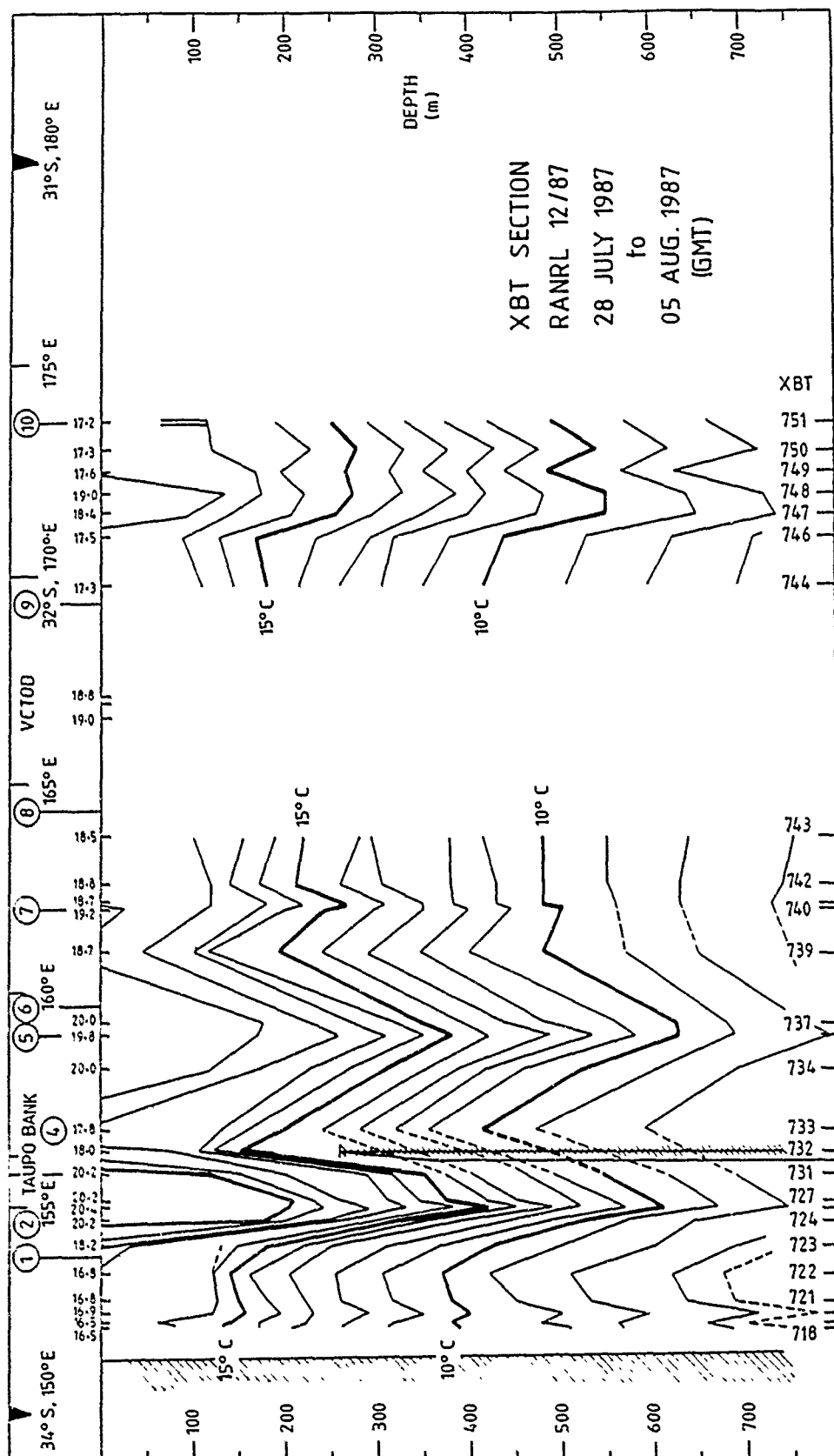


Figure 13. XBT temperature section from Sydney to station 10 (31°41'S, 173°30' E) for 28 July to 5 August 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg one. (See figure 22 for a continuation of this section to station 14). Leg one

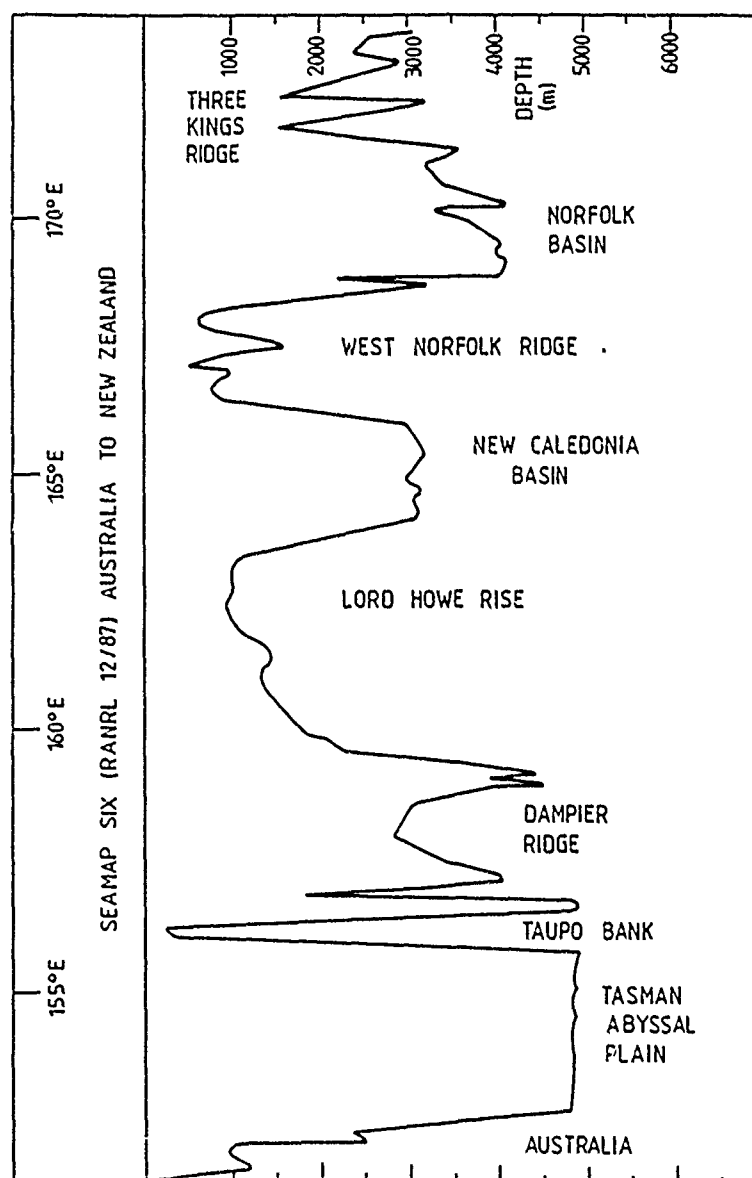


Figure 14. Bathymetry from Sydney to station 10. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg one

Samoa to Whangarei (figure 34)

This section confirms some observations made for the section from New Zealand to Samoa. South of Samoa there appears to be surface flow to the east to 150 m. Eastward flow is seen on the continental slope north of New Zealand. Surface flow generally appears eastward. Currents over the section appear to be weak except south of Samoa and north of New Zealand.

Fiji to 23°S, 177°E (figure 36)

This section was made on a detour to Fiji not scheduled as part of the cruise. Flow at 20°S appears eastward to about 250 m. Flow below 250 m then becomes westward.

Whangarei to waypoint D (leg 5) (figure 44)

This section again shows eastward flow components on the New Zealand continental slope. A warm feature is situated at waypoint C, with waypoint D also showing plunging isotherms. Sea surface temperature contours (figure 42) show these to be meanders of a south-eastwards flow sited north and east of Norfolk Island. Several drifting buoy tracks (figure 49) confirm the general eastwards flow for the section.

Waypoint D TO Sydney (figure 46)

Several meanders are crossed from waypoint D to Sydney. Warm features are seen west of Dampier Ridge, on the western flank of the Lord Howe Rise, and on the eastern flank of the Rise. The strongest feature is the East Australian Current meander between waypoints I and N, over the Tasman Abyssal Plain. This meander, and the feature at H have a warmer core of surface waters between their centre and western boundary. This effect is frequently seen in XBT sections in this area, and is sometimes seen on the eastern boundary also. In satellite imagery these waters appear as warmer ribbons (or rings around eddies) (eg see Nilsson and others, 1981). The general picture is that of a meandering front running from Sydney to the north-east, which can be traced by the 20°C isotherm in the sea surface temperature diagram (figure 42). The speculative SST contours north of Norfolk Island appear to pass over an opening on Norfolk Ridge. The western side of the EAC is some 200 km farther west than on leg 1, when the first meander crossed was at 155°30'E. Several drifting buoy tracks (figure 49) confirm the current directions inferred from SST contours and the XBT sections. The buoy track to the north of Lord Howe Island shows particularly good agreement with directions of SST contours.

VCTOD temperature and salinity sections

VCTOD temperature sections are shown in figures 15, 26, 37 and 48. Shifts and complete failures in the conductivity between stations made it impossible for any sort of good conductivity (salinity) calibration. A new inner glass sleeve had to be fitted to the

inductive salinity sensor before station 23 during the cruise, leading to a new calibration. A rosette sampler was not available to establish salinity calibrations, with the VCTOD being used as a velocimeter. The salinity profiles shown with the VCTOD data listings are expected to have the right shape, but absolute values are unknown.

Sydney to station 12 (figure 15)

The warm features west of Taupo Bank and Lord Howe Rise seen in the XBT sections extend to the station depth limit of 2000 m. Stations are too broadly spaced to give much further detail.

Station 4 to station 24 (figure 26)

The VCTOD section is much the same in spacing as the XBT section (figure 24). The 4°C isotherm is elevated between stations 11 to 15, but isotherms below 3°C are depressed.

Nansen station data listings and profiles

Nansen stations were not occupied on this cruise. At VCTOD stations 22 and 23, multiple casts to several depths were made with a single Nansen bottle on the VCTOD wire, in an attempt to get some sort of conductivity calibration. The data is not presented in this report.

VCTOD station data listings and profiles

Thirty-two VCTOD stations were occupied at sites shown in figures 6, 17, 28 and 39. Listings and profiles are given on pages 71 to 87. Temperature sections have been discussed earlier. (Note that data was not logged at station 1.) Salinity is uncalibrated.

Stations 2 to 15, 23, 24 (Sydney to 30°S, 170°30'W)

Surface mixed layers from 50 to 150 m (and over 200 m at station 2) were seen along this part of the route, except for mixed layers of 30 and 20 m at stations 6 and 12. The sound-speed maximum occurred at the same depth or deeper (often considerably) than the surface mixed layer depth. The shallowest sound-speed maximum occurred at station 6 (30 m), apparently in the frontal area to the eastern side of a warm core feature, all other maxima occurring at 50 m and deeper. Maximum sonic layer depth occurred in the first meander of the warm waters of the East Australian Current.

Stations 2 to 15 (except station 7) have maximum salinity at or very near the surface, as do stations 23 and 24. The exception at station 7 (162°E) is caused by cooler lower salinity surface waters associated with a temperature inversion of 0.09°C, indicating possible entrainment of coastal waters. (A similar effect was seen at 35°S, 155°E on SEAMAP 5; and at 30°55'S, 155°26'E on cruise MSD 2/87 in November 1987.) Salinities generally decrease monotonically from the surface to the Antarctic Intermediate Water (AAIW) mass salinity minimum at about 900 m, with occasional reversals.

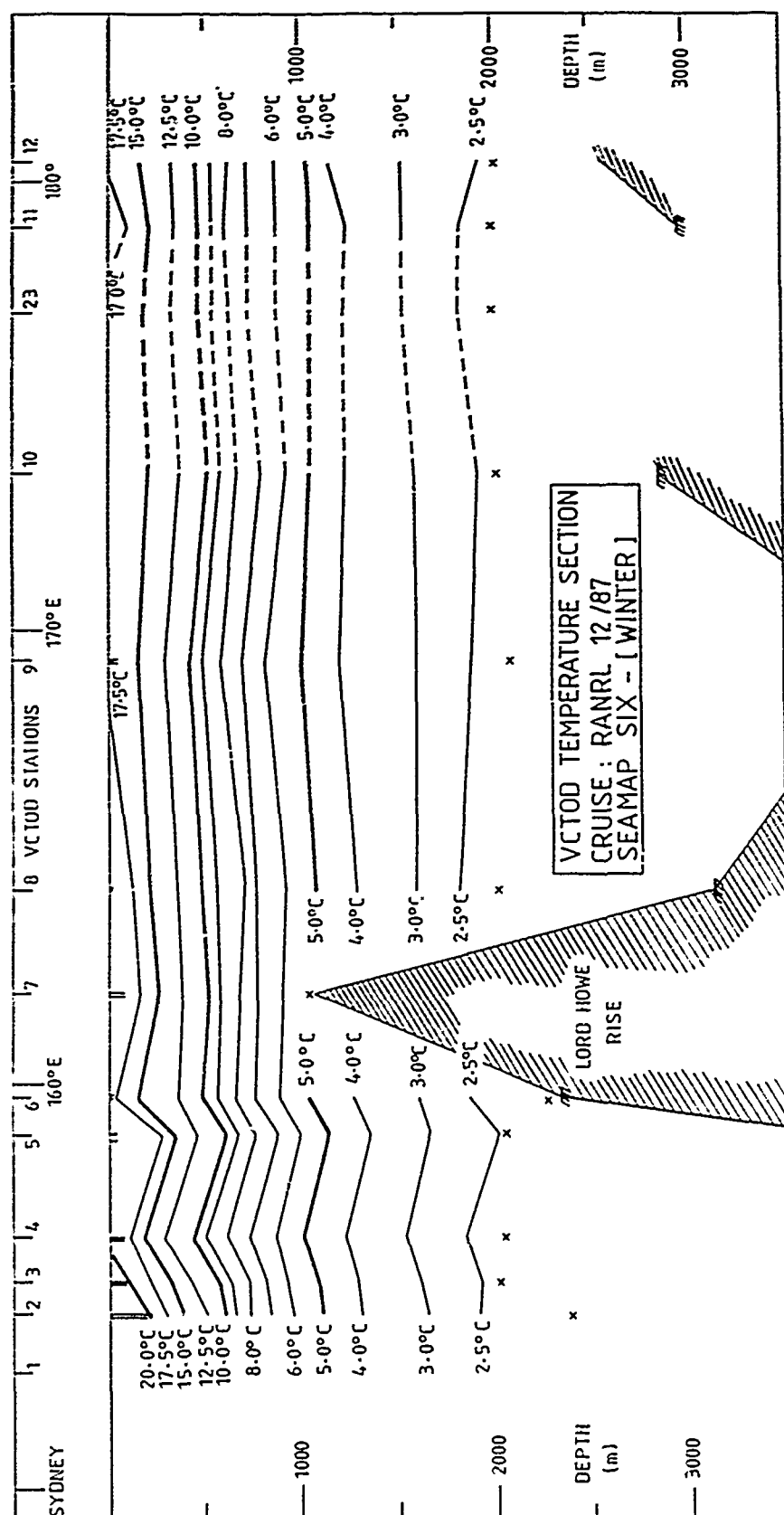


Figure 15. VCTOD temperature section to 2000 m from Sydney to station 12 (30°58'S, 179°30'W) for 28 July to 12 August 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A

Several stations shown small scale temperature and salinity structure. Station 2 shows well mixed waters just above 400 m, only 5 m or so in vertical extent, with stepping and possible inversions to 450 m. Perturbations also occur as follows: station 4 at 200 m and 230 m; station 5 at 350 m, and particularly at 430 m; station 6 at 225 m, and 270 m, and perhaps 425 m; station 7 at 225 and 420 m; station 9 at 400 m, 600 m and 650 m; station 10 at 250 m, 450 m, 500 m, 725 m, 1060 m and 1120 m; station 11 at 170 m, 760 m and 980 m; station 12 at 420 m, 580 m, 930 m and 1330 m; station 14 at 320 m; station 23 at 1150 m; station 24 remains unchecked, but is only a 500 m station.

These inversions and irregularities are usually seen in both down and upcasts, but at differing depths. Some of the shallower inversions are due to Bass Strait Waters. The unexpectedly deep temperature inversions were identified in the summer cruise report (Hamilton and Boyle, 1989) as arising from meetings of the two branches of the AAIW in this area, and possibly also meetings of different parts of the same branch after diversions and splitting of flow by ridges. Deep mixing is expected to occur as a result, as can be seen in the perturbations in the salinity and T-S profiles. Flow of the AAIW is discussed in a separate report (Hamilton, 1990). Station 7 shows a bottom mixed layer formation at 1020 m, this station being situated on the western flank of the highest part of the Lord Howe Rise.

Stations 16 to 32 (except 23,24) (Samoa to Sydney)

Stations 17, 16, 20 and 22 from Samoa to south of Fiji show well mixed surface layers of 40 to 80 m. Of the remainder only stations 30 and 32 show mixed layers deeper than 10 m. (Stations 18, 26 to 29, and 31 have no mixed layer.) In several stations a sound speed maximum does exist in the absence of a well mixed layer due to the pressure of a subsurface salinity maximum, and slowly decreasing temperatures in upper waters. Sonic layer depth is deepest for the northern stations 16 to 22 (except 18 which has zero sonic layer depth) at 40 to 140 m. There is a gap in coverage between station 22 and 25. Sonic layer depth for stations 25, 28 and 29 is zero, and elsewhere is typically 40 m, with 120 m for station 27. These depths are much less than the hundreds of metres off Sydney for the southern outward leg, apparently because frontal areas are being crossed.

Several stations show small to medium scale temperature and salinity structure. Temperature inversions or perturbations are seen in station 16 at 370 m, 630 m, 800 m and 930 m; station 17 at 90 m (base of the mixed layer), 140 m, 320 m, perhaps 550 m, and for 730 to 1160 m; station 18 at 105 m and 450 m; station 19 at 460 m and 560 m; station 22 at 130 m and 250 m; station 25 at 330 m, 925 m, and perhaps 1080 m; station 26 at 800 m; station 28 at 220 m and 270 m; station 29 at 310 m and 405 m; station 30 at 420 m; station 31 at 370 m, and perhaps 540; station 32 at 160 m and perhaps 450 m.

The deep perturbations for station 16 also occurred at the same site on SEAMAP 3. The perturbations were tentatively identified in the summer report (Hamilton and Boyle, 1989) as possible evidence of splitting of flow at this depth into several paths through the Lau Ridge (and the Tongan Islands). Station 17 shows similar effects. The deep perturbations

at stations 25 and 26 are consistent with Wyrтки (1962) who described different branches of the Antarctic Intermediate Water (AAIW) mass entering the Tasman Sea. One branch penetrates from the south, and the other from between Fiji and New Zealand from around the Chatham Rise east of New Zealand. These perturbations are apparently caused by meetings and mixing of waters from these different branches of the AAIW. See Hamilton (1990) for further discussion.

Currents

Surface current directions inferred from SST and XBT data are shown in figures 16, 27, 38 and 49 with tracks of satellite tracked drifting buoys (DRIBU data) (France Meteorologie Nationale).

Additional data

Tracks of vessels deploying XBT in the CSIRO merchant ship programme have not been ascertained.

Text continued on page 36

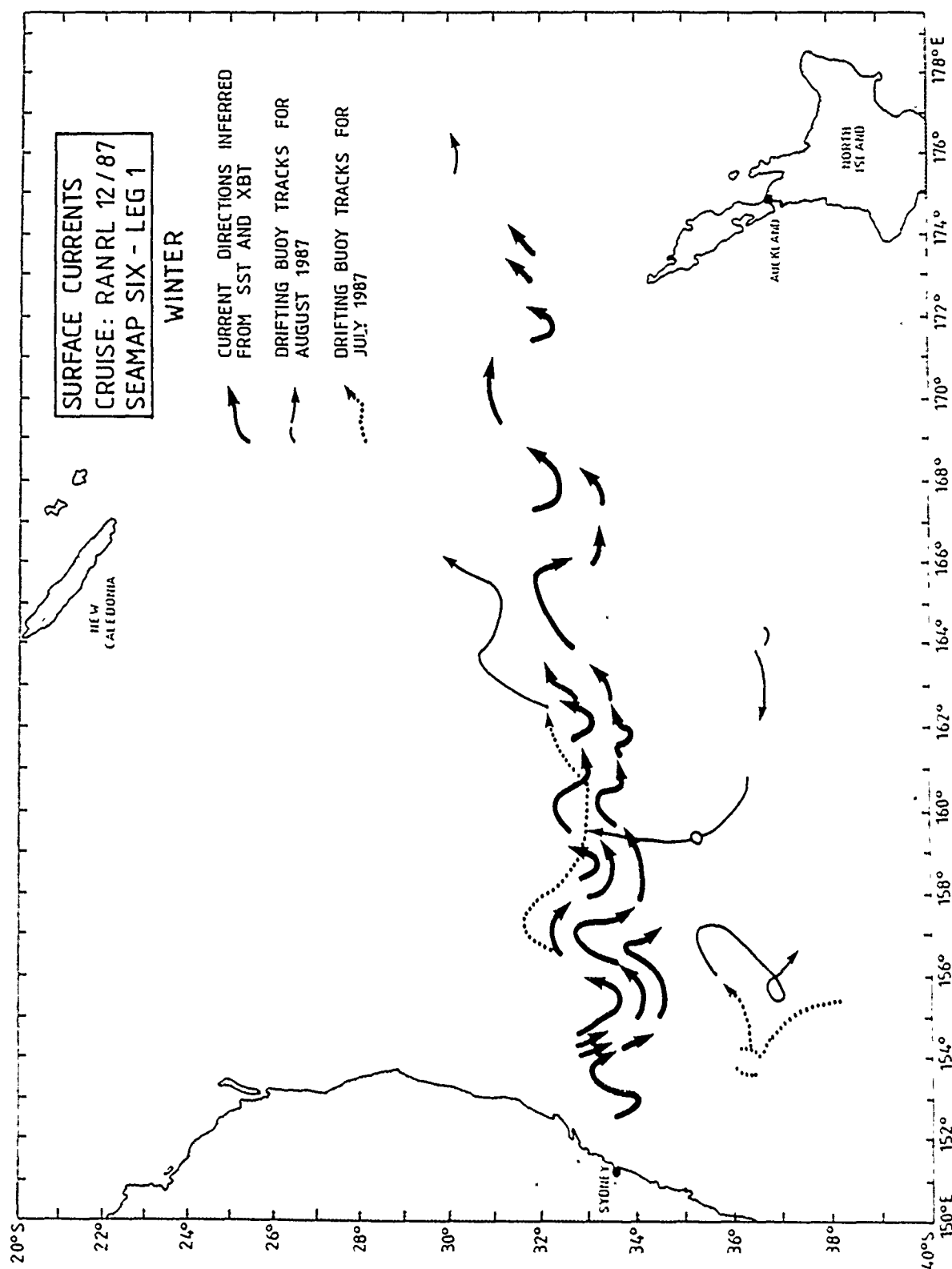


Figure 16. Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg one 28 July to 6 August 1987. Leg one

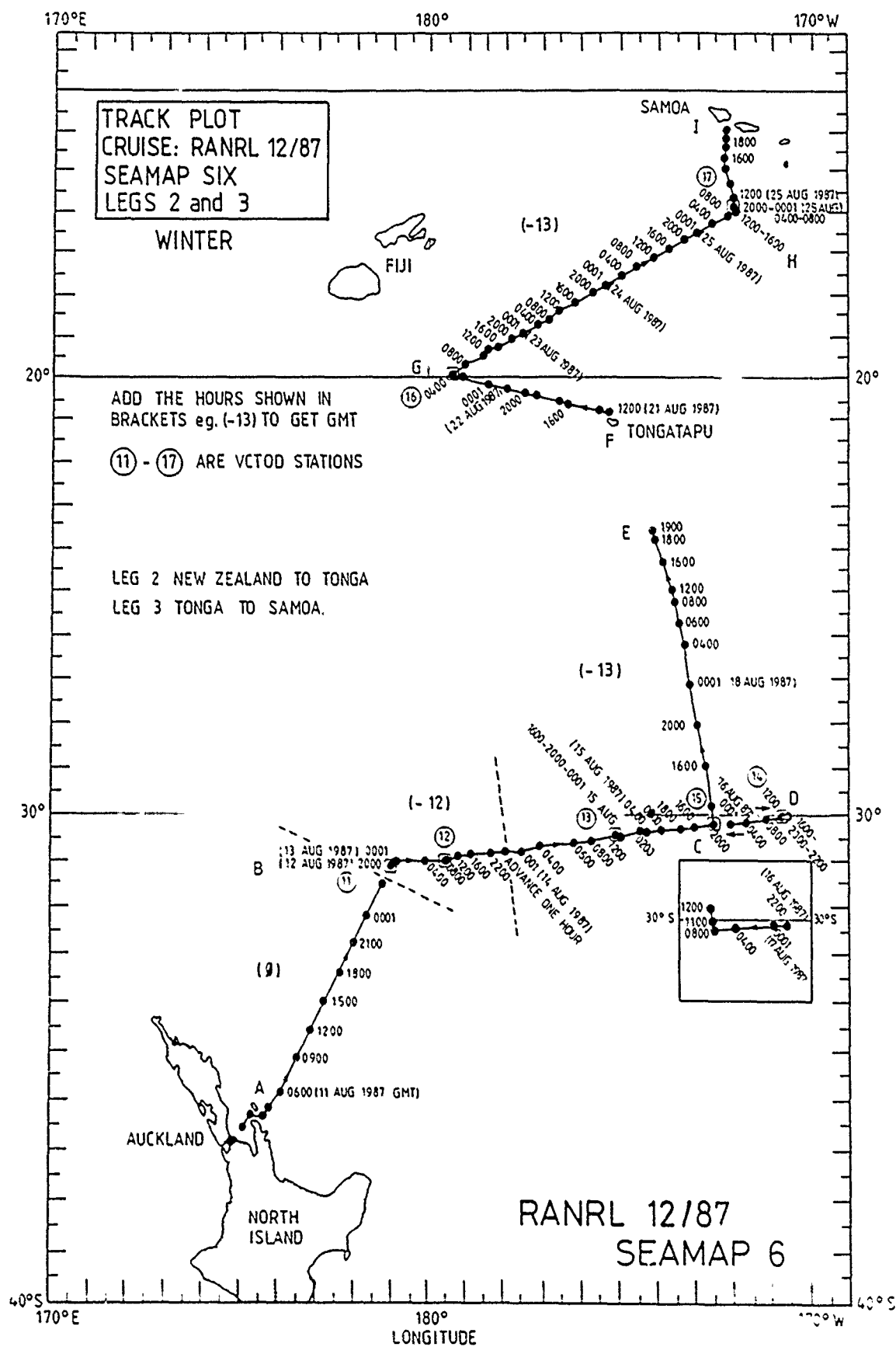
WINTER SURVEY SEAMAP 6 (RANRL 12/87) - ROUTE A

THE DIAGRAMS FOR LEGS 2 AND 3, LEG 4, AND LEG 5 ARE PRESENTED ON FOLLOWING PAGES 37 TO 71.

THESE ARE FOLLOWED BY LISTINGS OF VCTOD DATA ON PAGES 72 TO 87.

THE CRUISE TRACK FOR LEG ONE IS ON PAGE 17.
THE CRUISE TRACK FOR LEG TWO IS ON PAGE 37.
THE CRUISE TRACK FOR LEG THREE IS ON PAGE 37.
THE CRUISE TRACK FOR LEG FOUR IS ON PAGE 48.
THE CRUISE TRACK FOR LEG FIVE IS ON PAGE 61.

Text continued on page 49



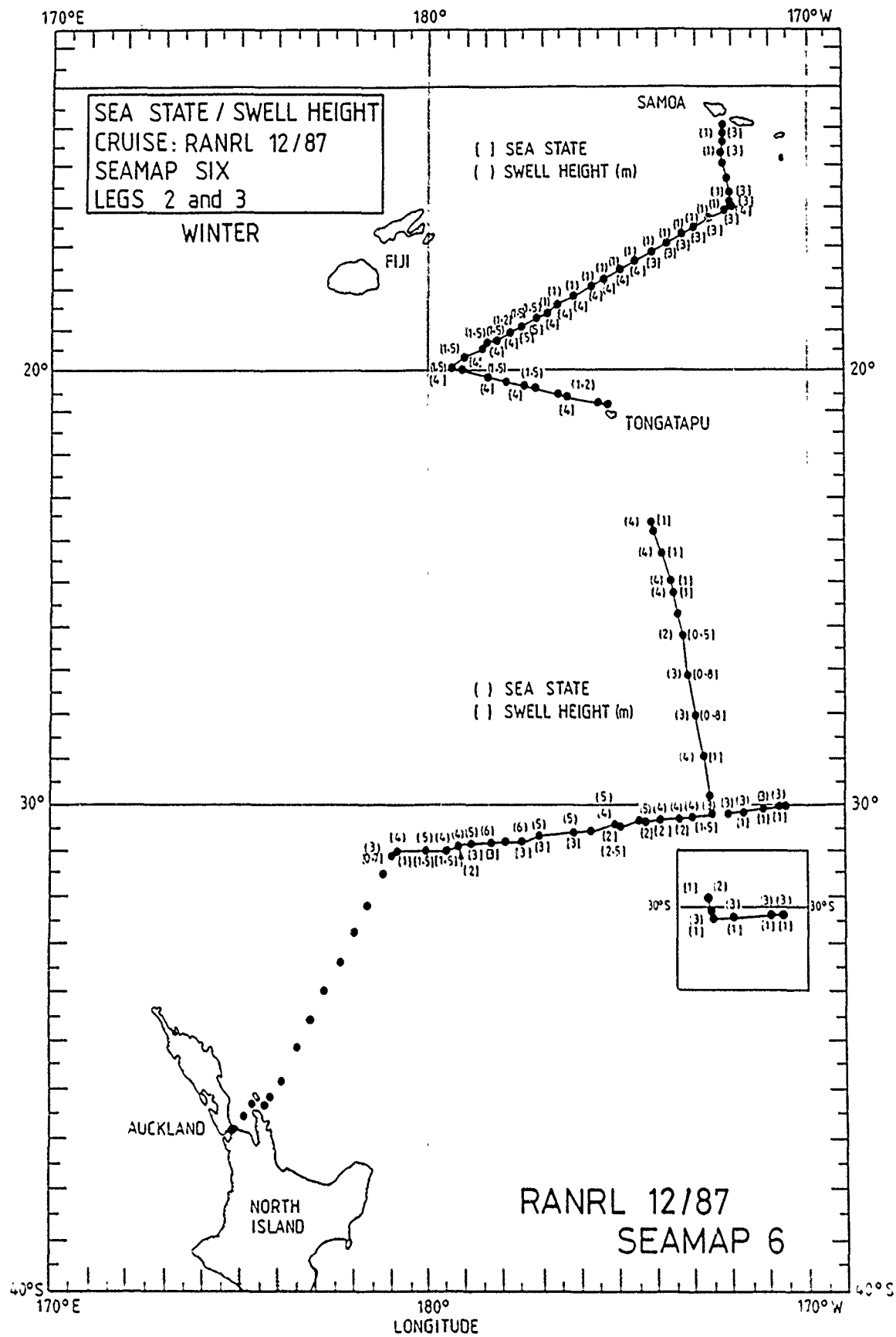


Figure 18. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Legs two and three 11 to 25 August 1987

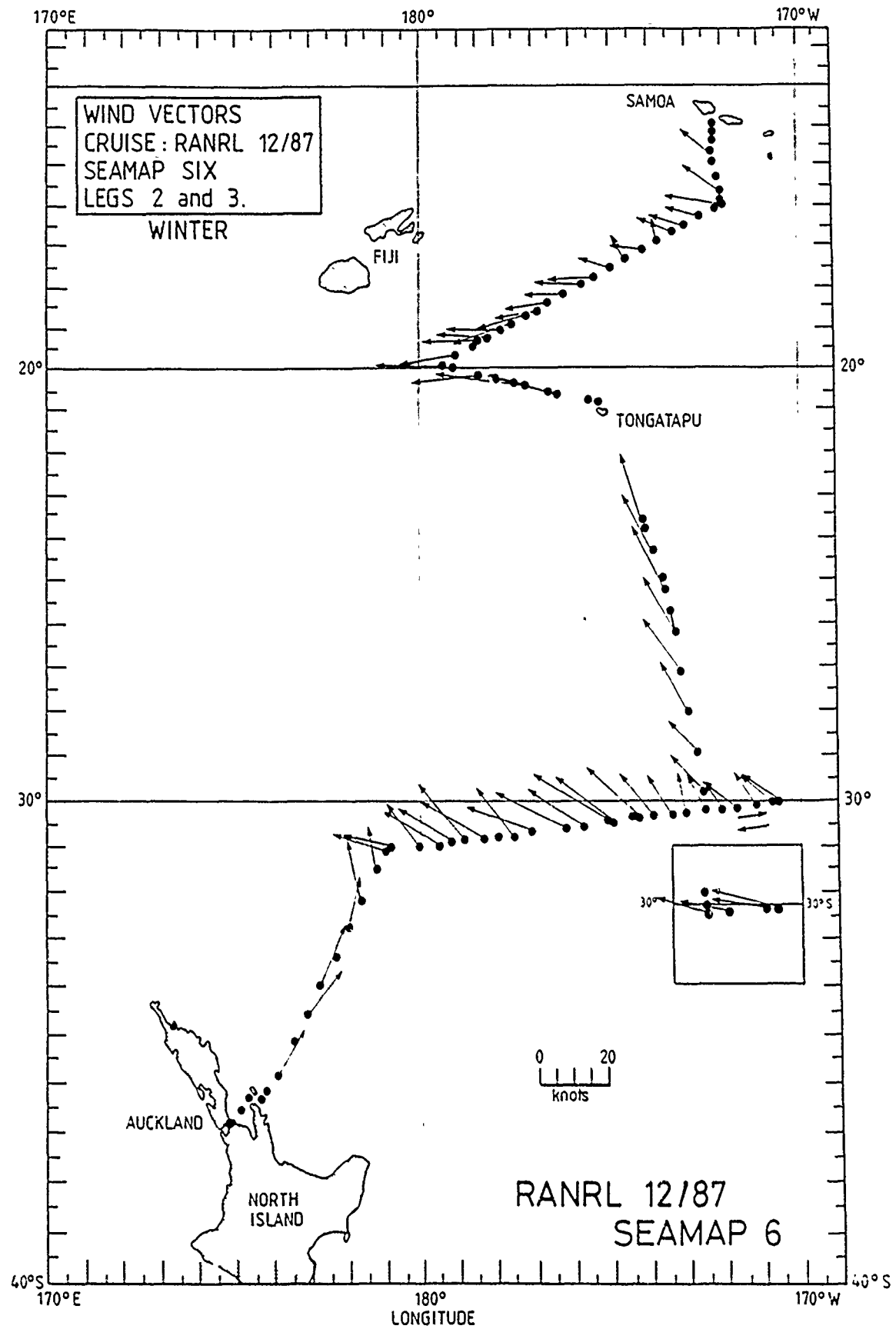


Figure 19. Wind vectors for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Legs two and three 11 to 25 August 1987

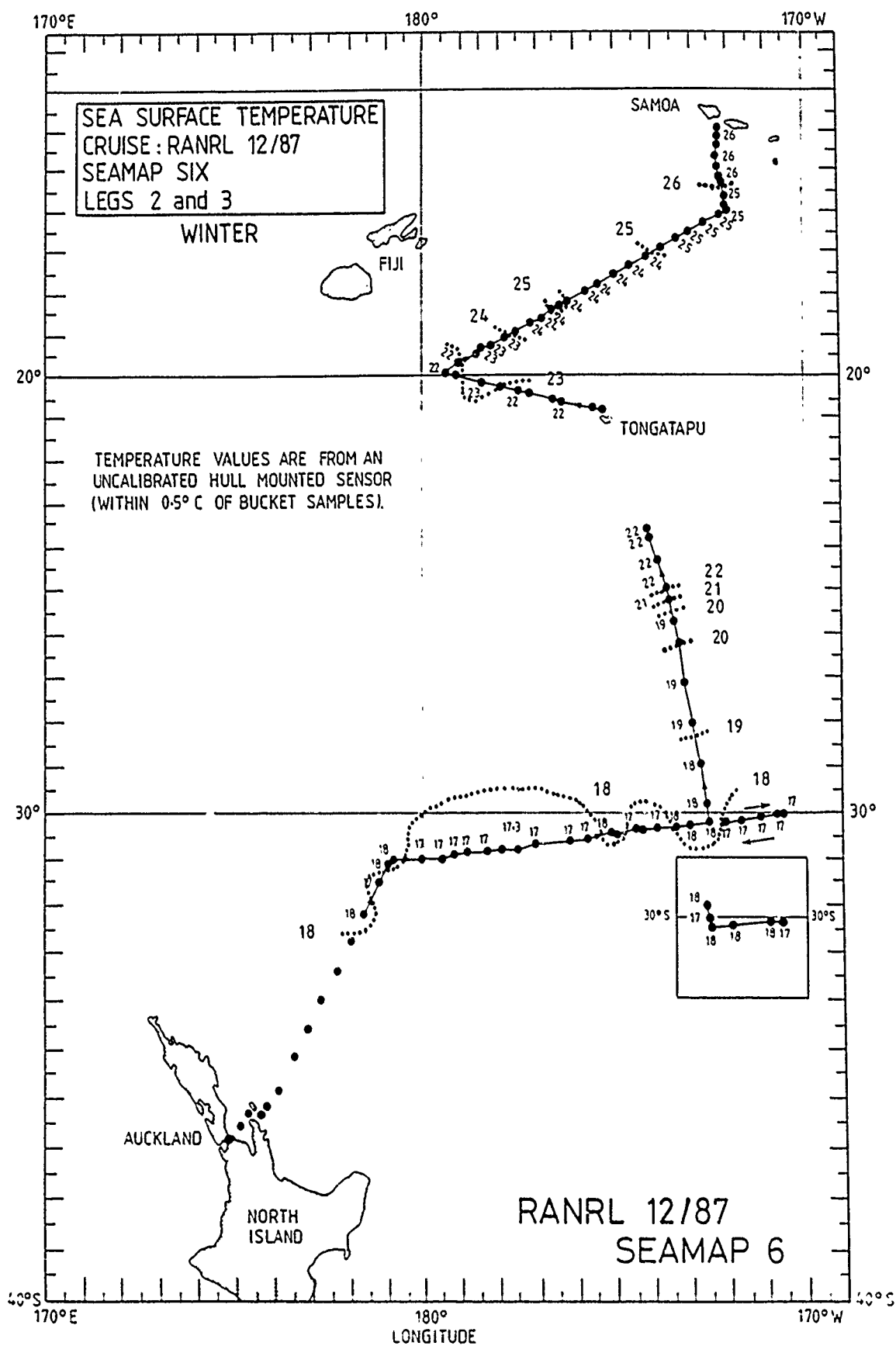


Figure 20. Sea surface temperature for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Legs two and three 11 to 25 August 1987

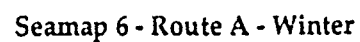


Figure 21. Sea surface salinity for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Legs two and three 11 to 25 August 1987

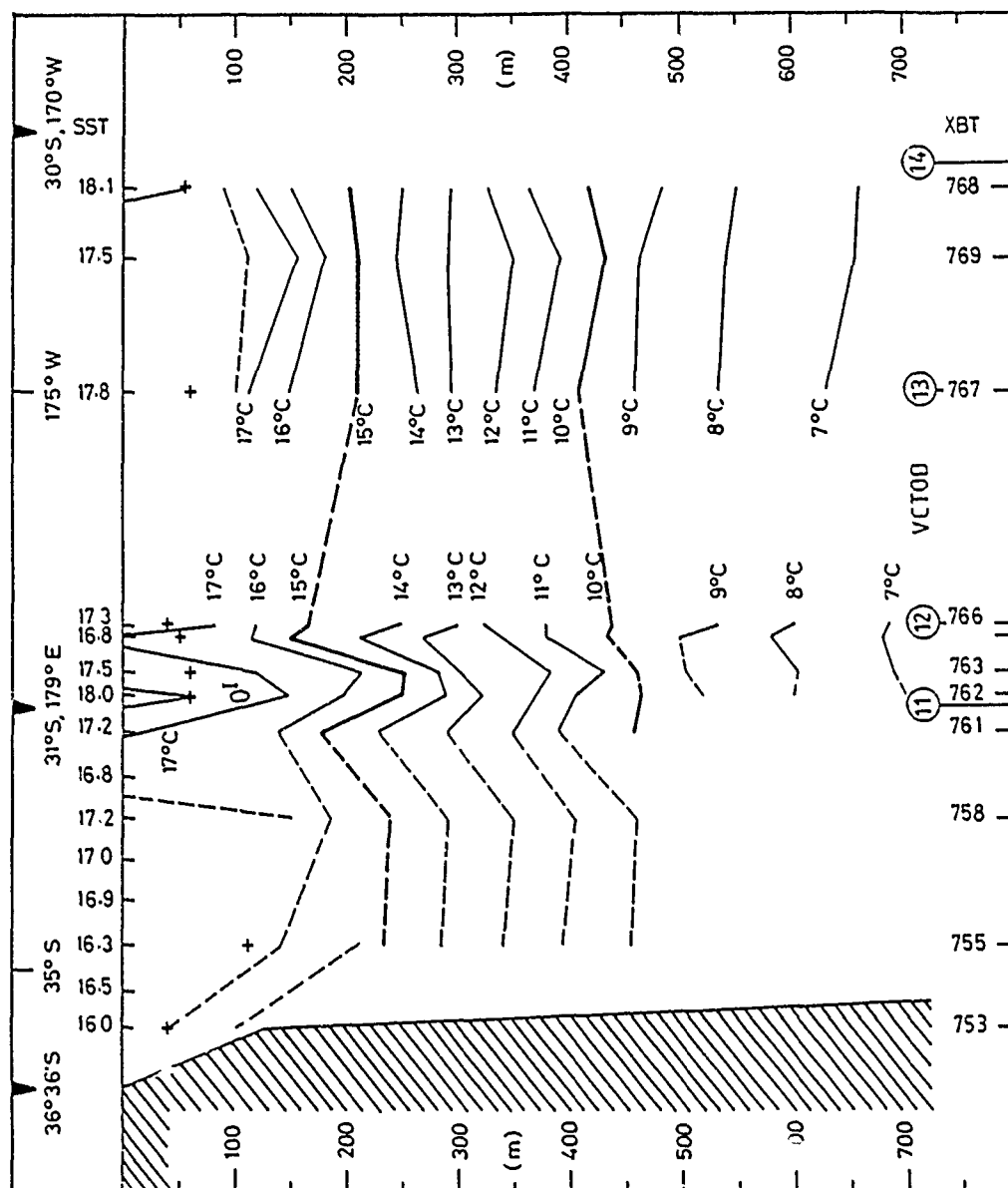


Figure 22. XBT temperature section from Auckland to station 14 (30°S, 170°30' W) for 11 to 6 August 1987. Winter survey SEAMAP Six (RANRL 12/87) route A, legs two and three



1

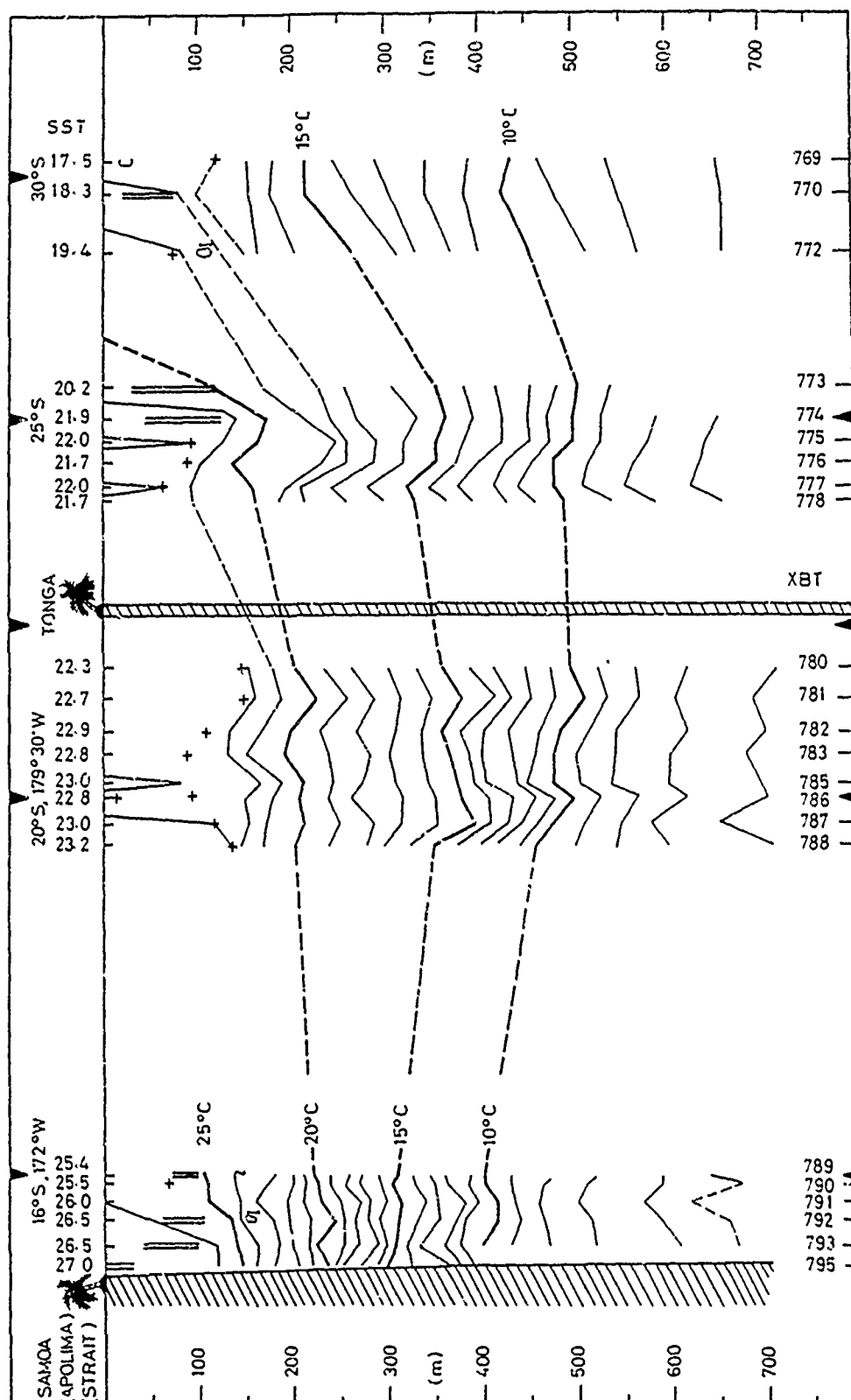


Figure 24. XBT temperature section from waypoint C (station 15) to Samoa for 16 to 25 August 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A. Legs two and three

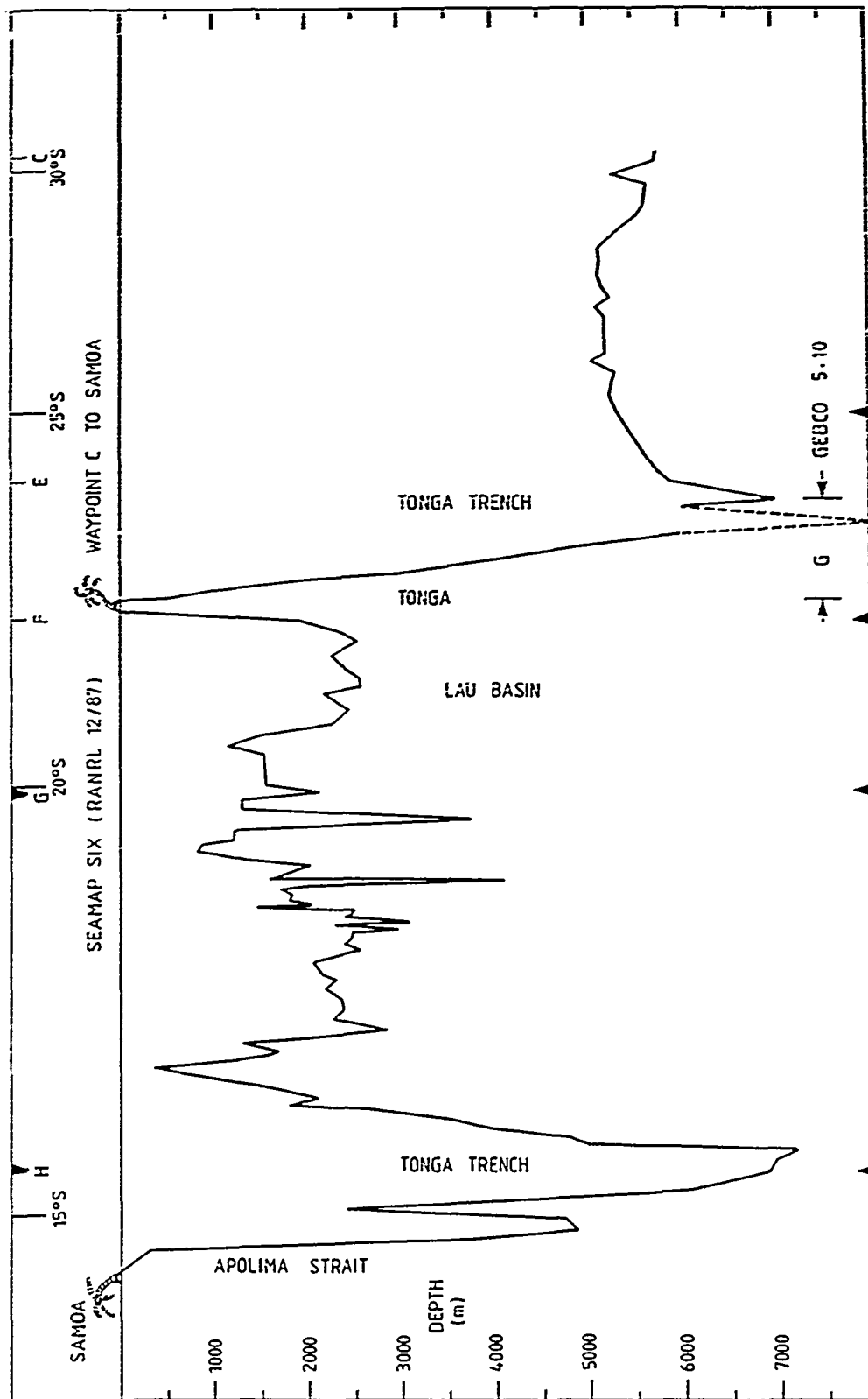


Figure 25. Bathymetry from waypoint C (station 15) to Samoa for 16 to 25 August 1987.
Winter survey SEAMAP 6 (RANRL 12/87) route A. Legs two and three

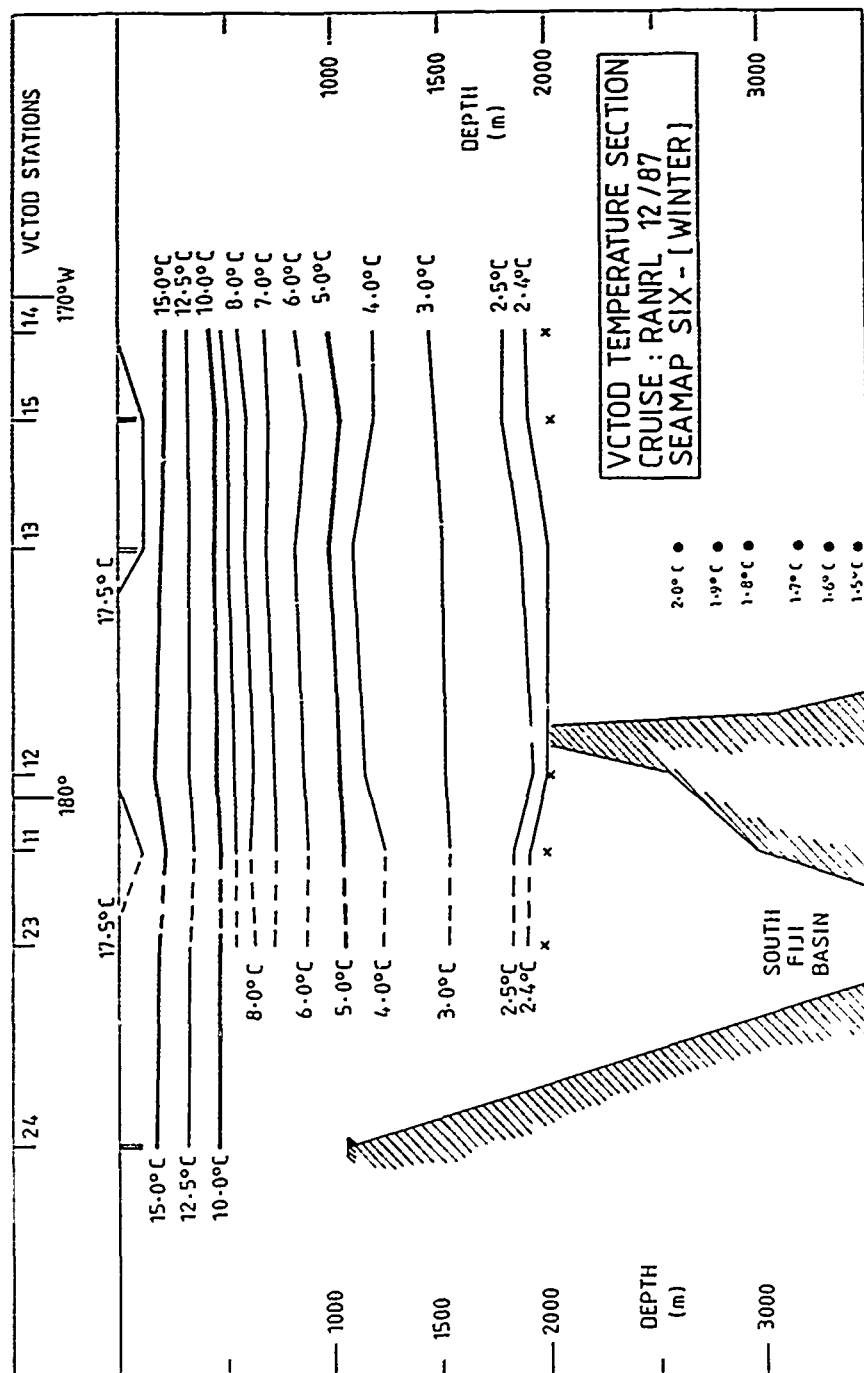


Figure 26. VCTOD temperature section from station 24 (north-east of New Zealand) to station 14 (30°S, 170°30'W). See figures 17 and 28 for station locations

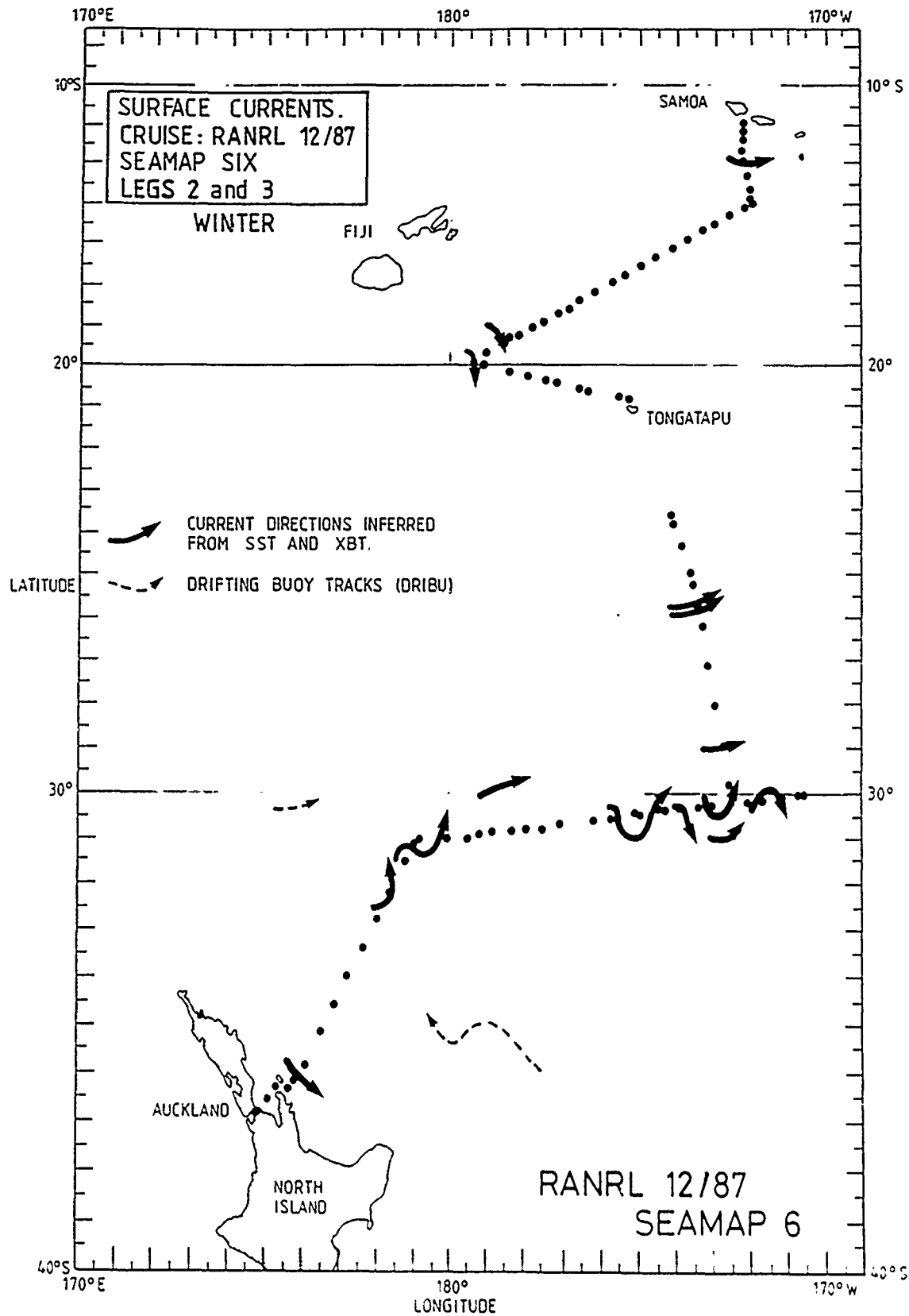


Figure 27. Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, Legs two and three

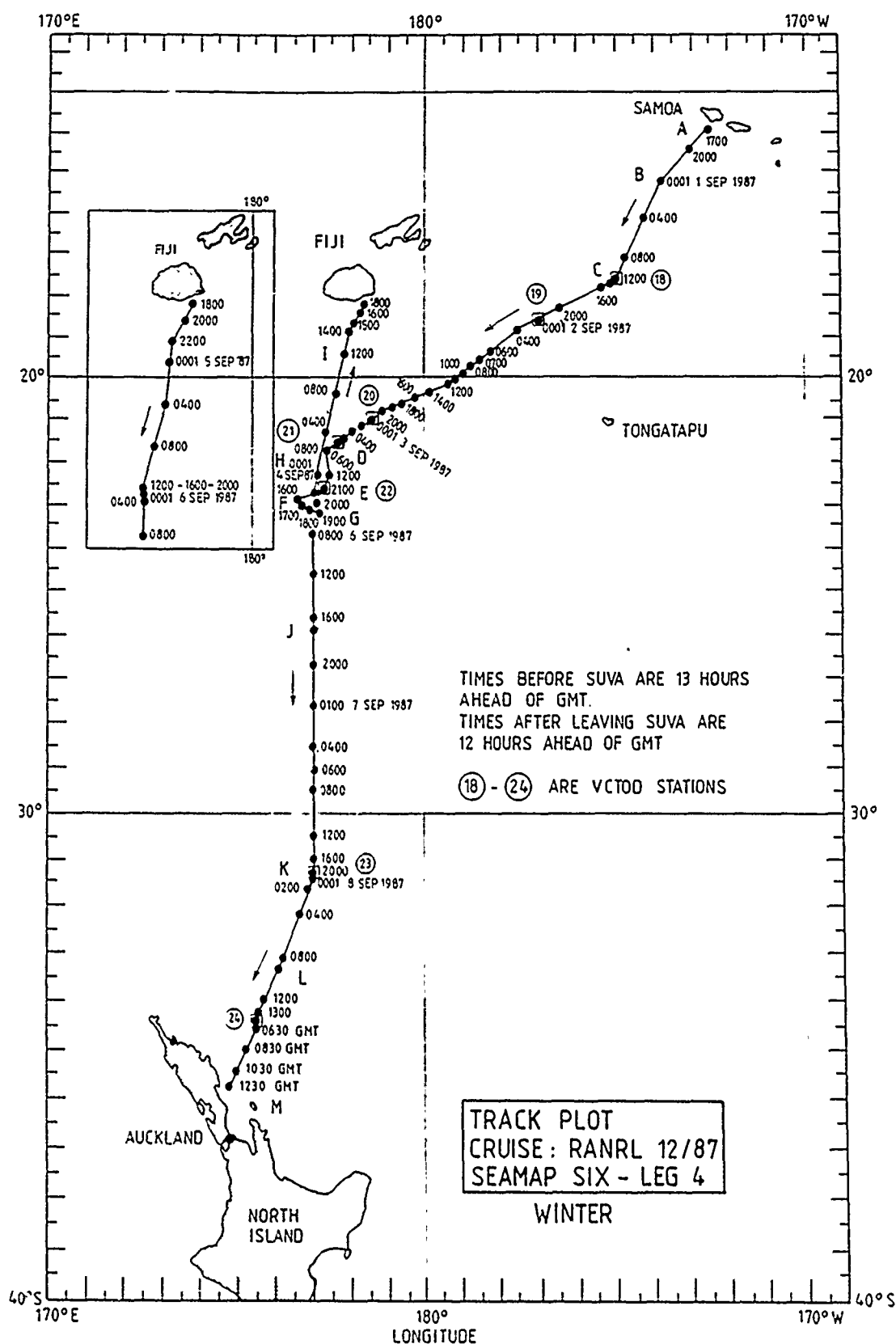


Figure 28. Track plot and oceanographic station positions for SEAMAP 6 (RANRL 12/87) winter survey on route A in the south west Pacific Ocean, 31 August 1987 to 8 September 1987. Leg four

DIAGRAMS FOR LEGS 5 AND 6 OF WINTER SURVEY SEAMAP 6 FOLLOW ON PAGES 50 TO 72.

A SURFACE SAMPLE TEMPERATURE - SALINITY SCATTER PLOT IS SHOWN ON PAGE 72.

THE DIAGRAMS ARE FOLLOWED BY VCTOD DATA LISTINGS AND PROFILES FOR THE FULL SURVEY ON PAGES 73 TO 88.

Text continued on page 73

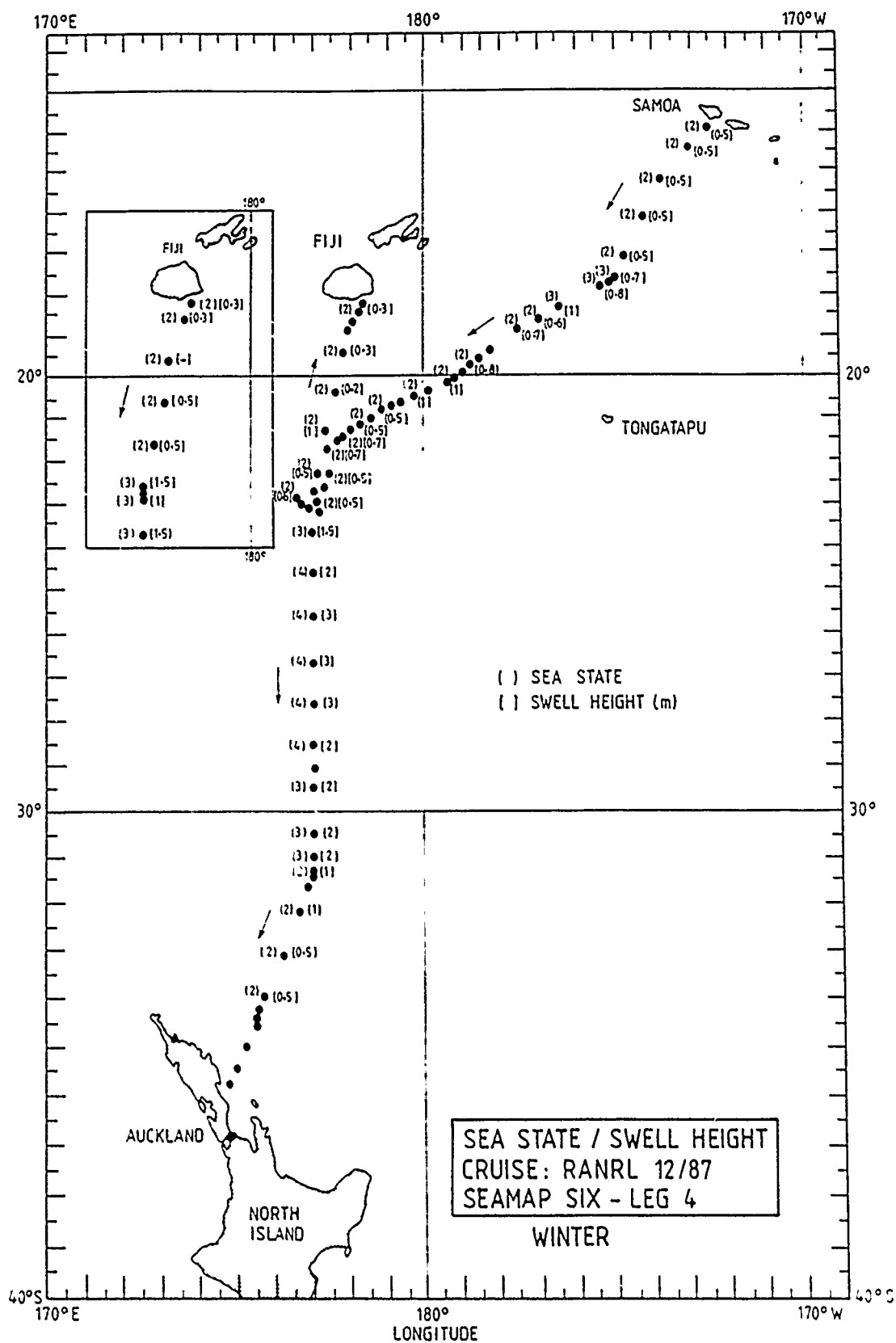


Figure 29. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August 1987 to 8 September 1987

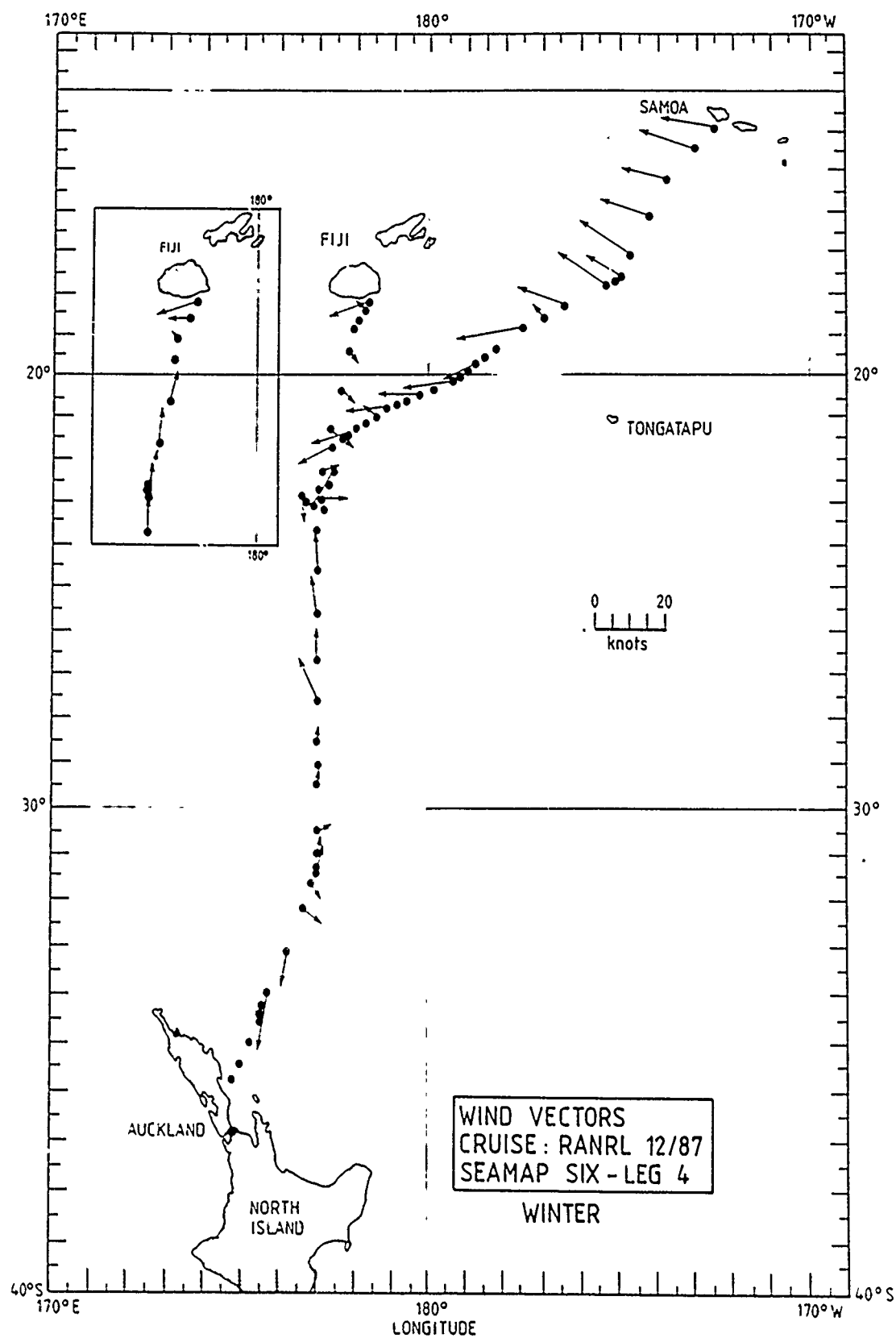


Figure 30. Wind vectors for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August to 8 September 1987

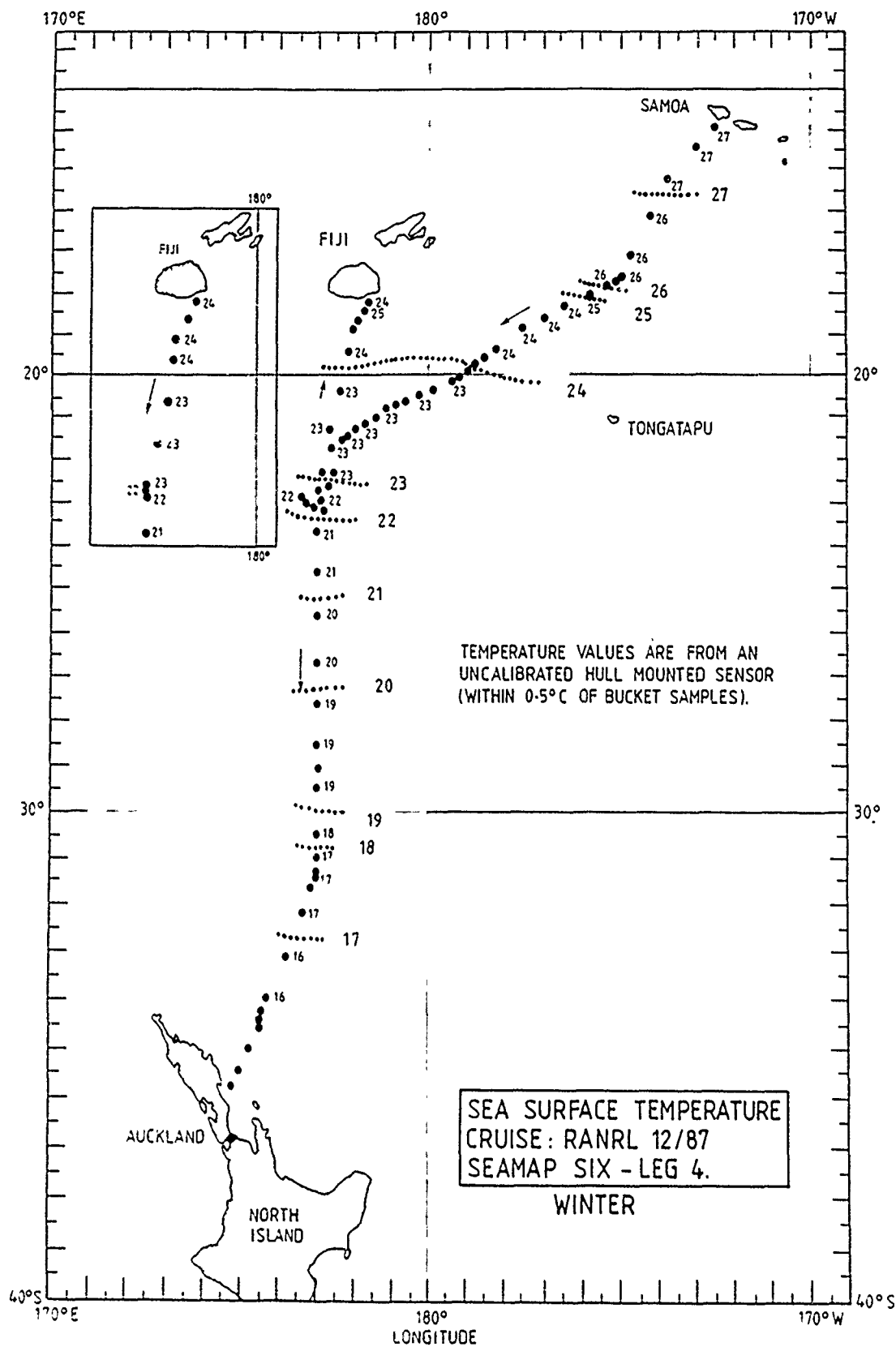


Figure 31. Sea surface temperature for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August to 8 September 1987

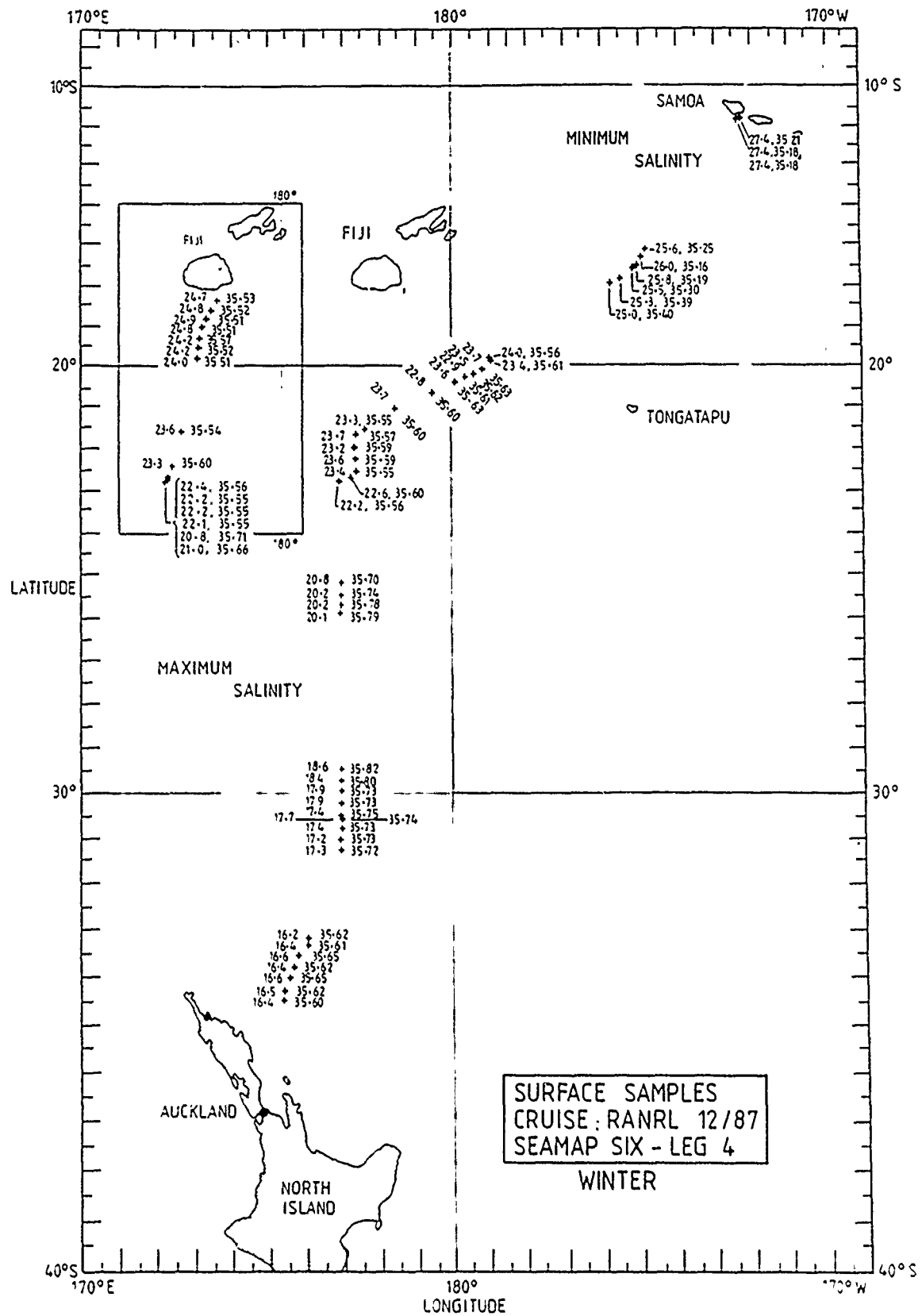


Figure 32. Sea surface salinity for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg four 31 August 1987 to 8 September 1987

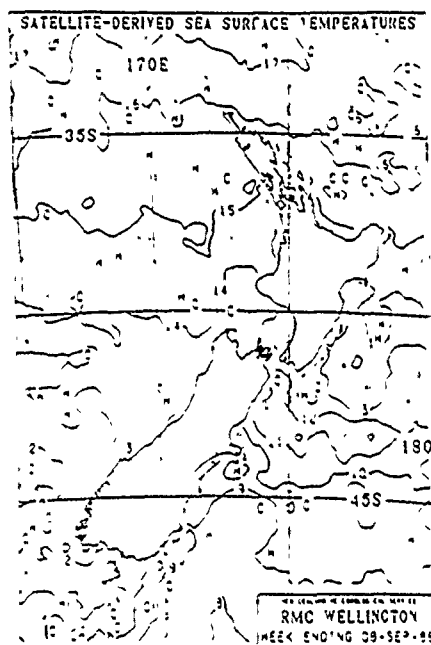
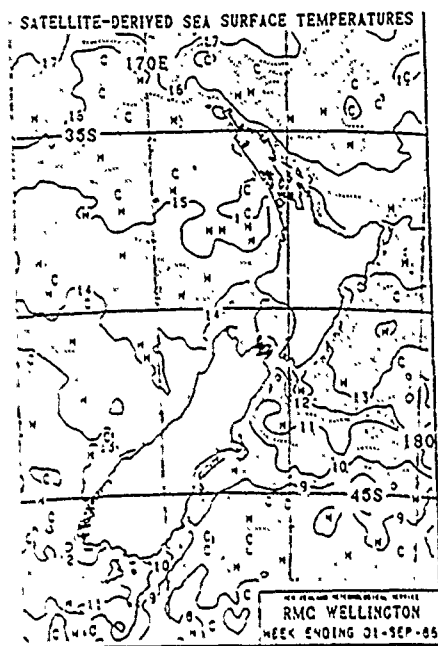


Figure 33. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 1, 8 September 1987 coinciding with sections of SEAMAP 6 winter survey (RANRL 12/87) route A, leg four

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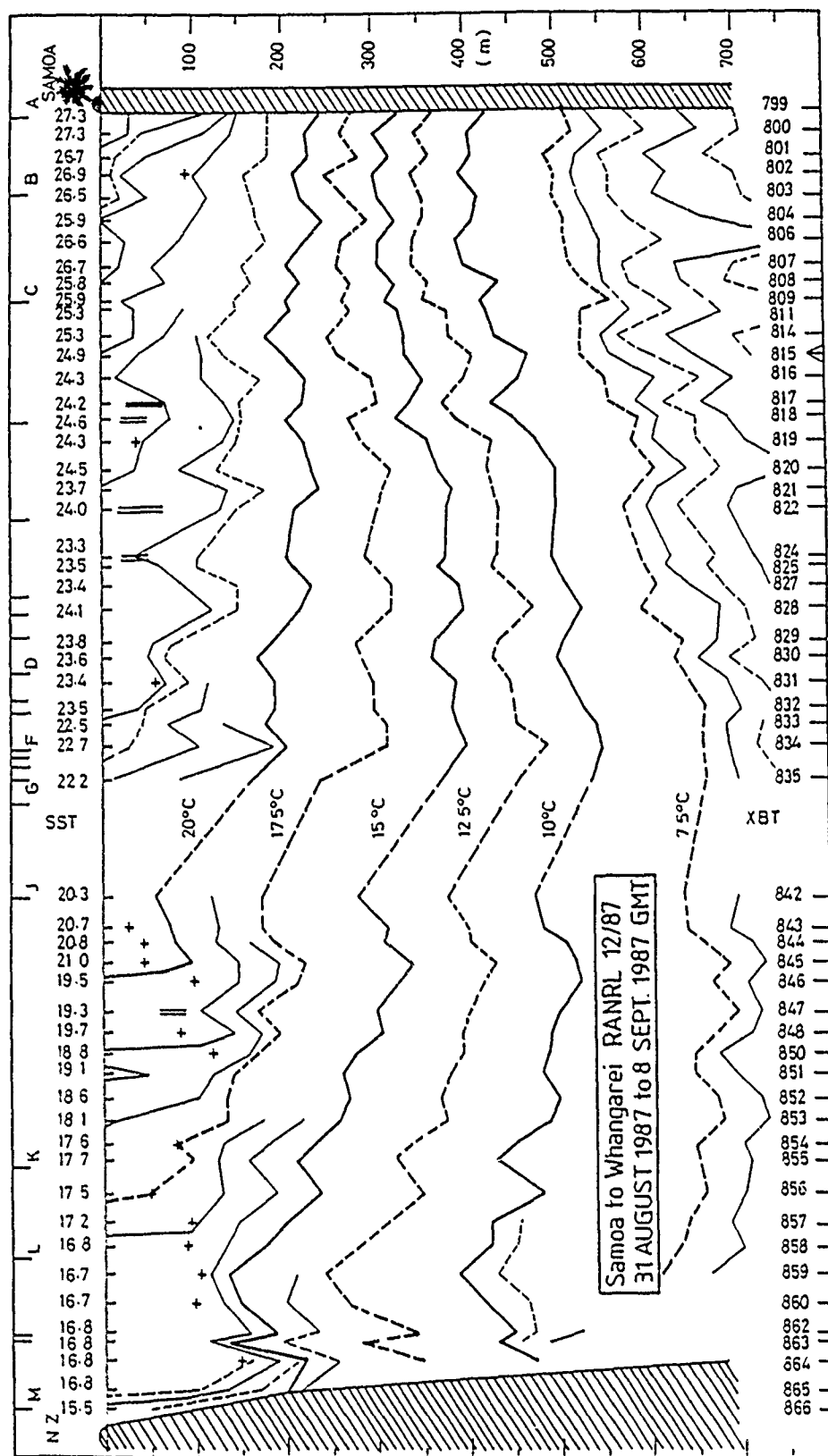


Figure 34. XBT temperature section from Samoa to New Zealand 31 August to 6 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four. (See figure 28 for the cruise track)

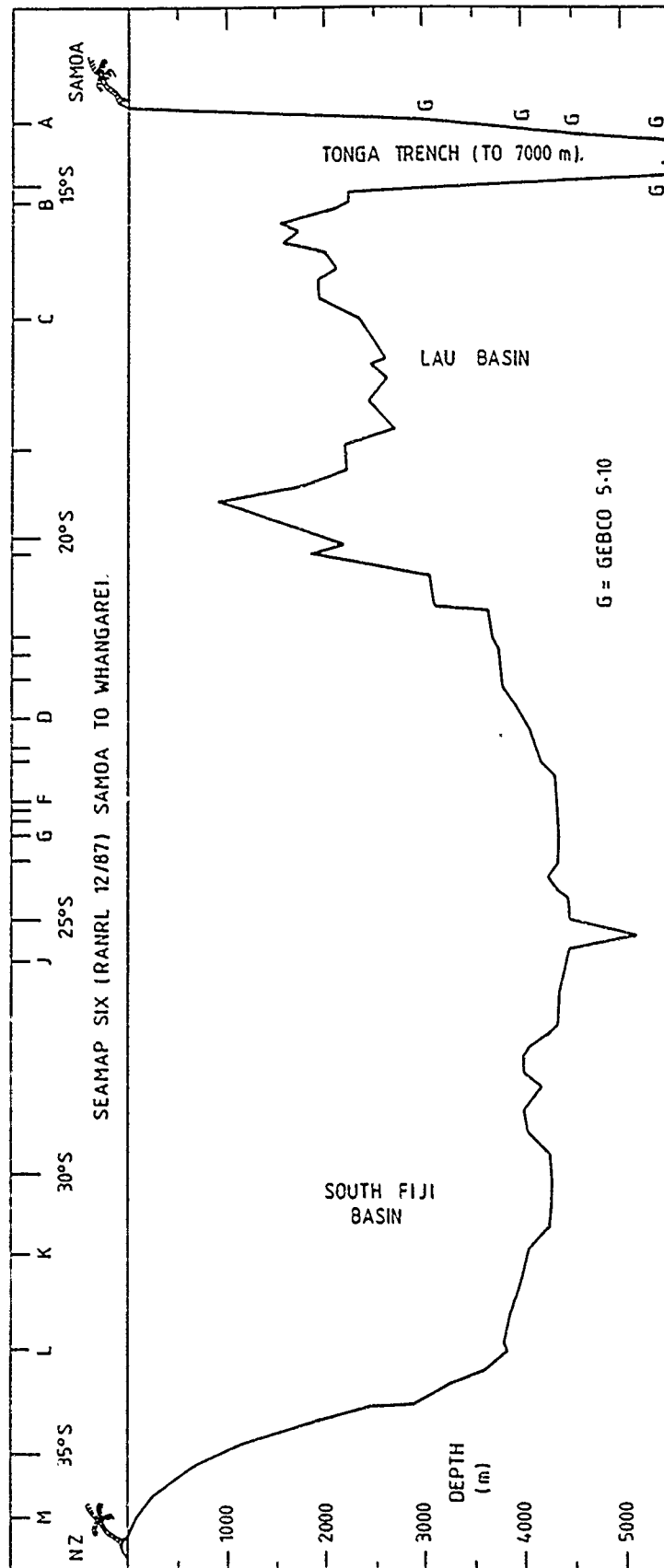


Figure 35. Bathymetry from Samoa to New Zealand. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four. (See figure 28 for the cruise track)

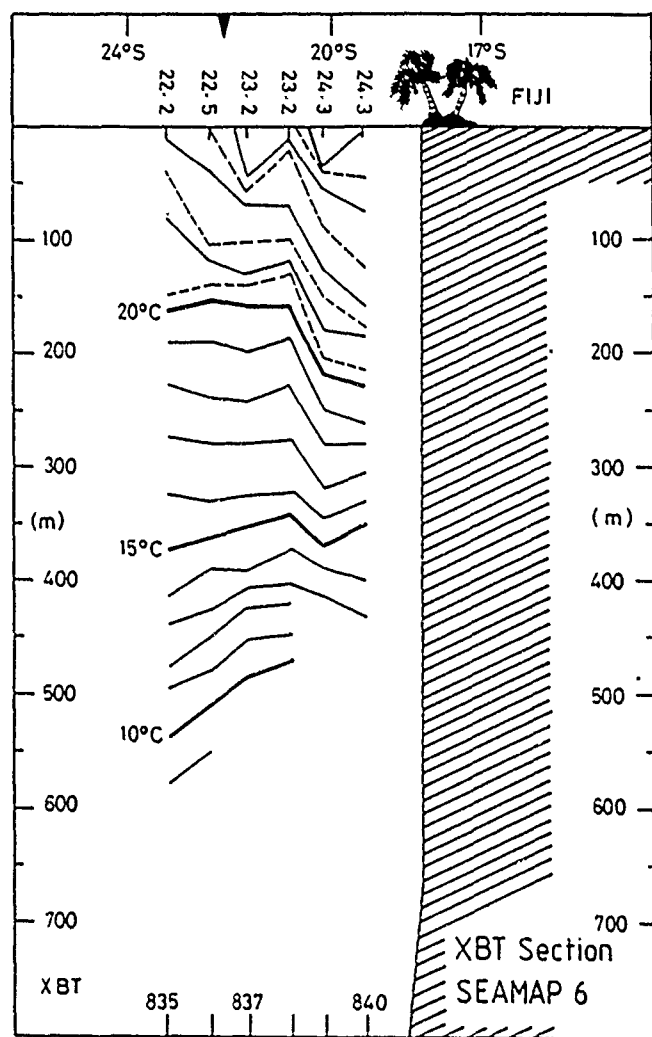


Figure 36. XBT temperature section from waypoint F to Fiji for 4 to 5 September 1987.
Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four

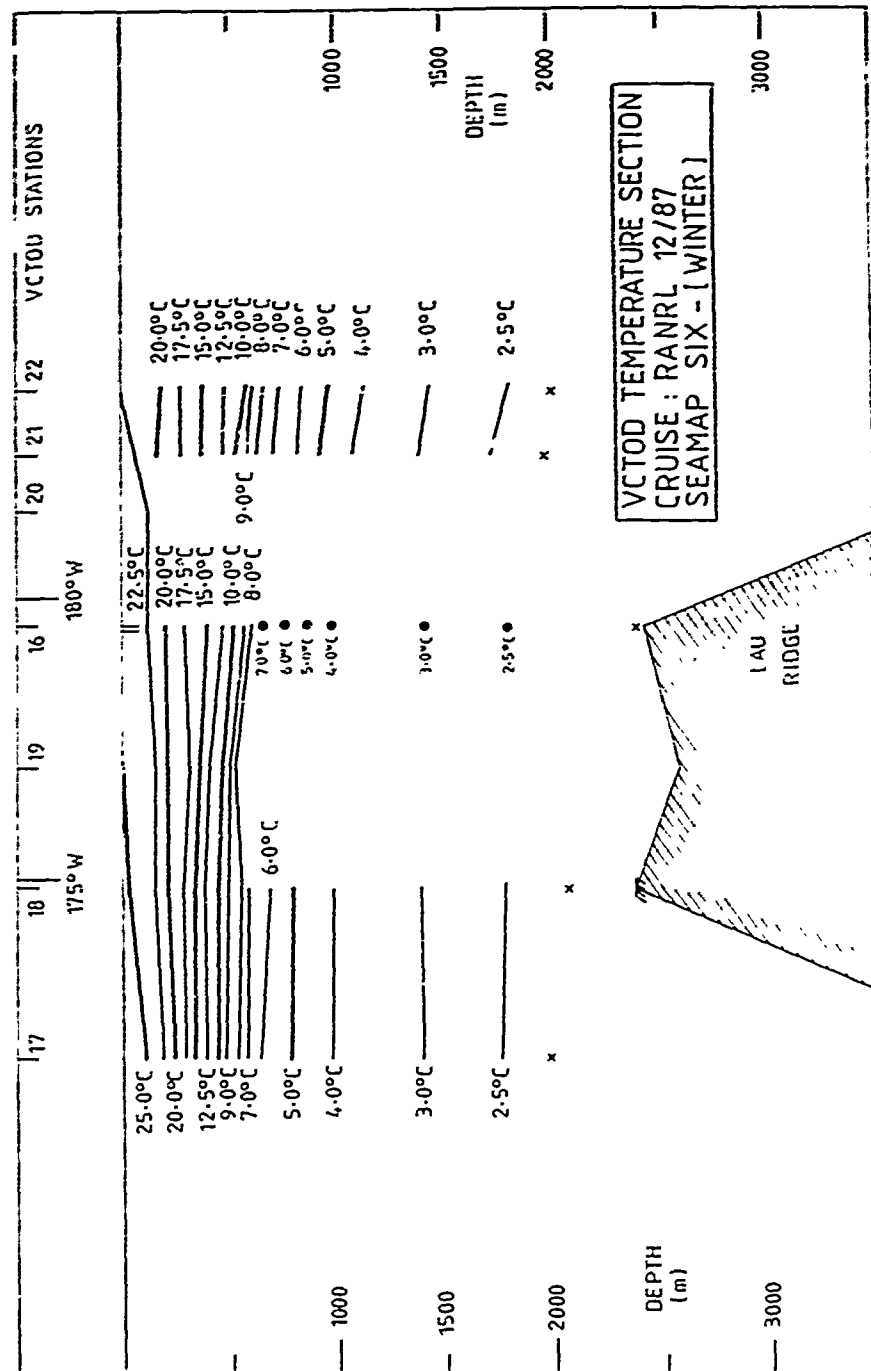


Figure 37. VCTOD temperature section to 2000 m from Samoa to station 22 for 24 August to 5 September 1987. (x show deepest point reached at each station). Winter survey SEAMAP 6 (RANRL 12/87) route A. leg four

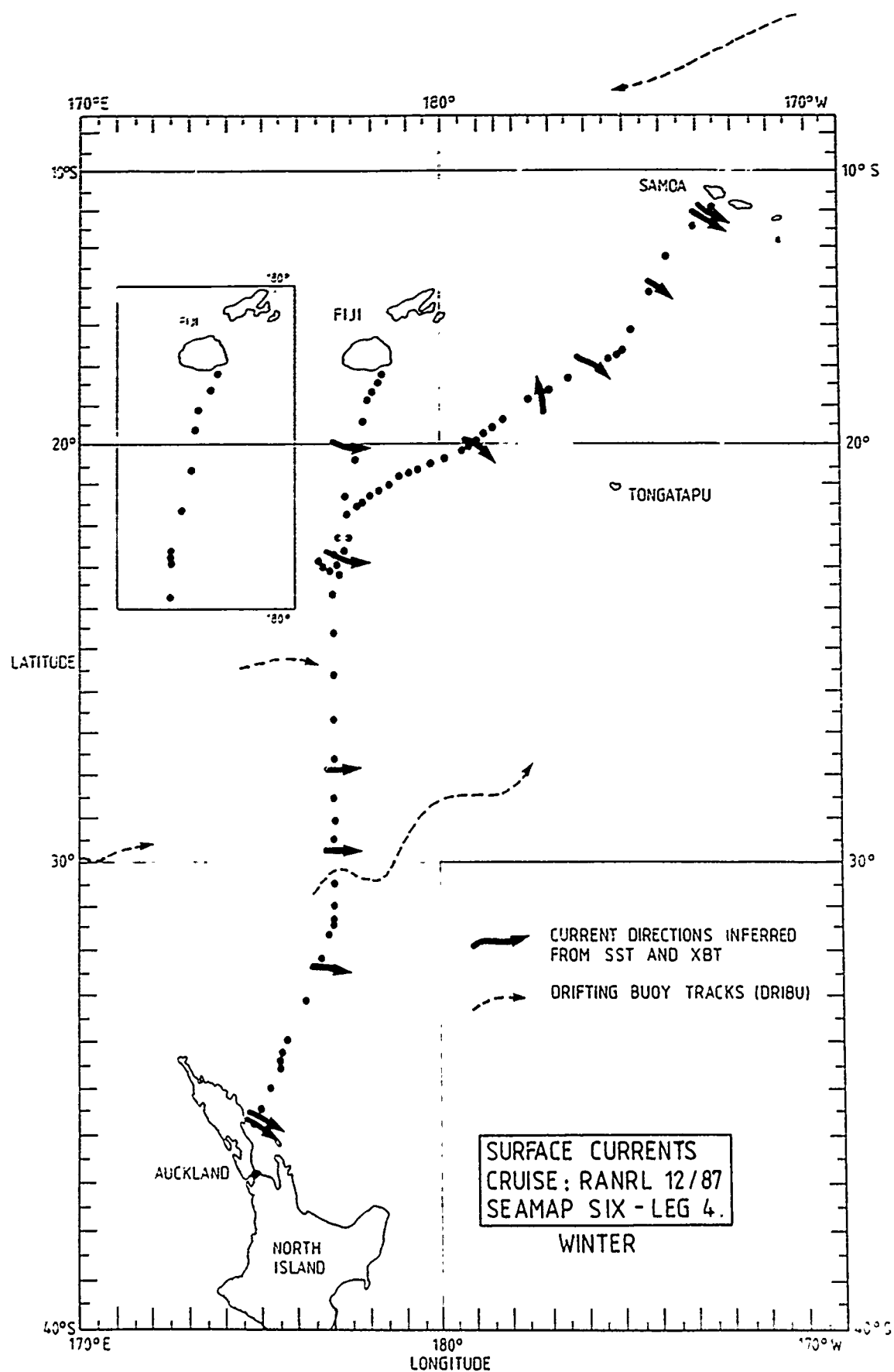
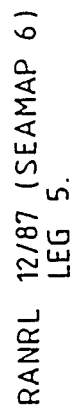


Figure 38. Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg four September 1987



Seamap 6 - Route A - Winter

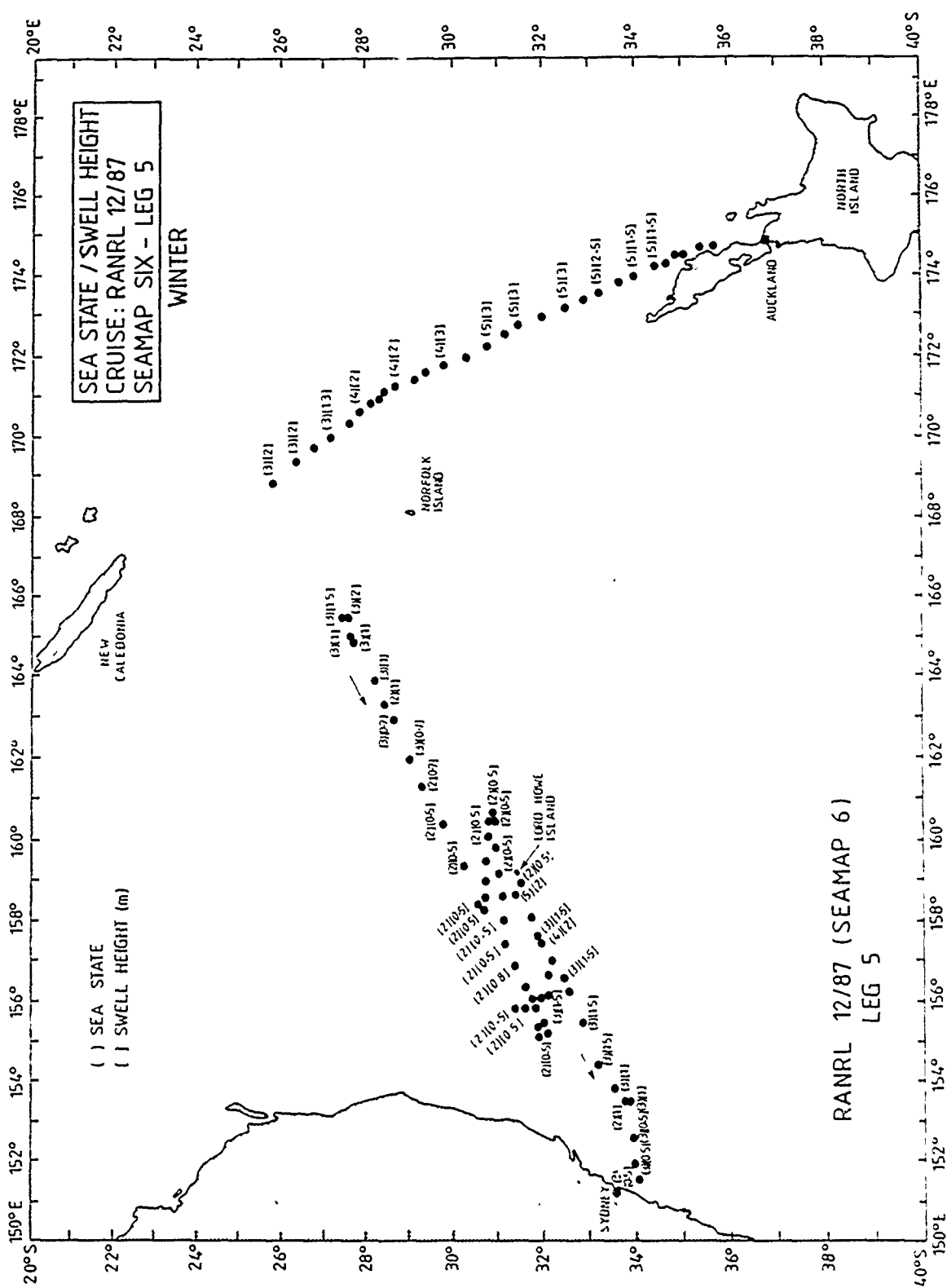


Figure 40. Sea state and swell height for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg five 11 to 25 September 1987



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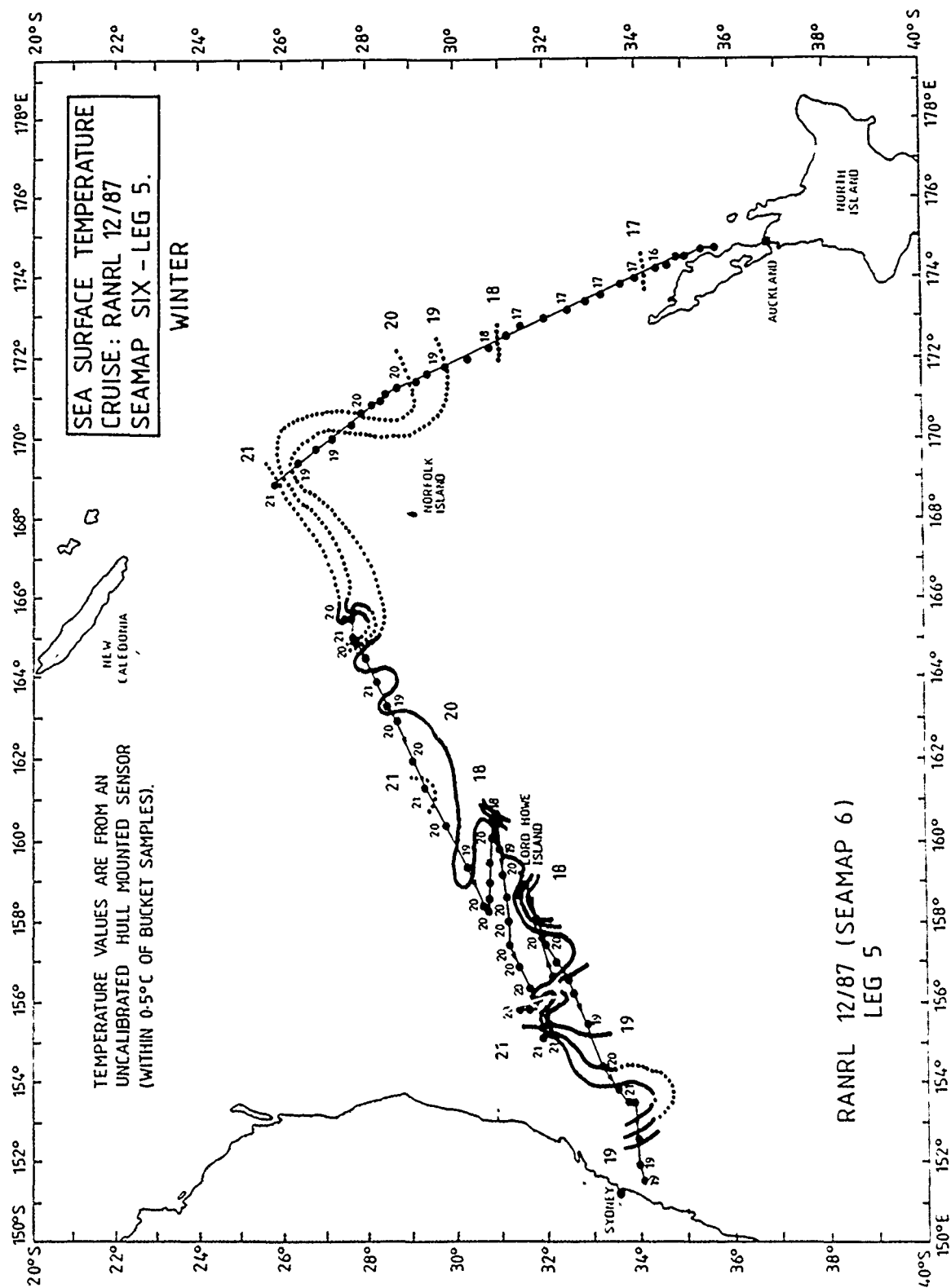


Figure 42. Sea surface temperature for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg five 11 to 25 September 1987

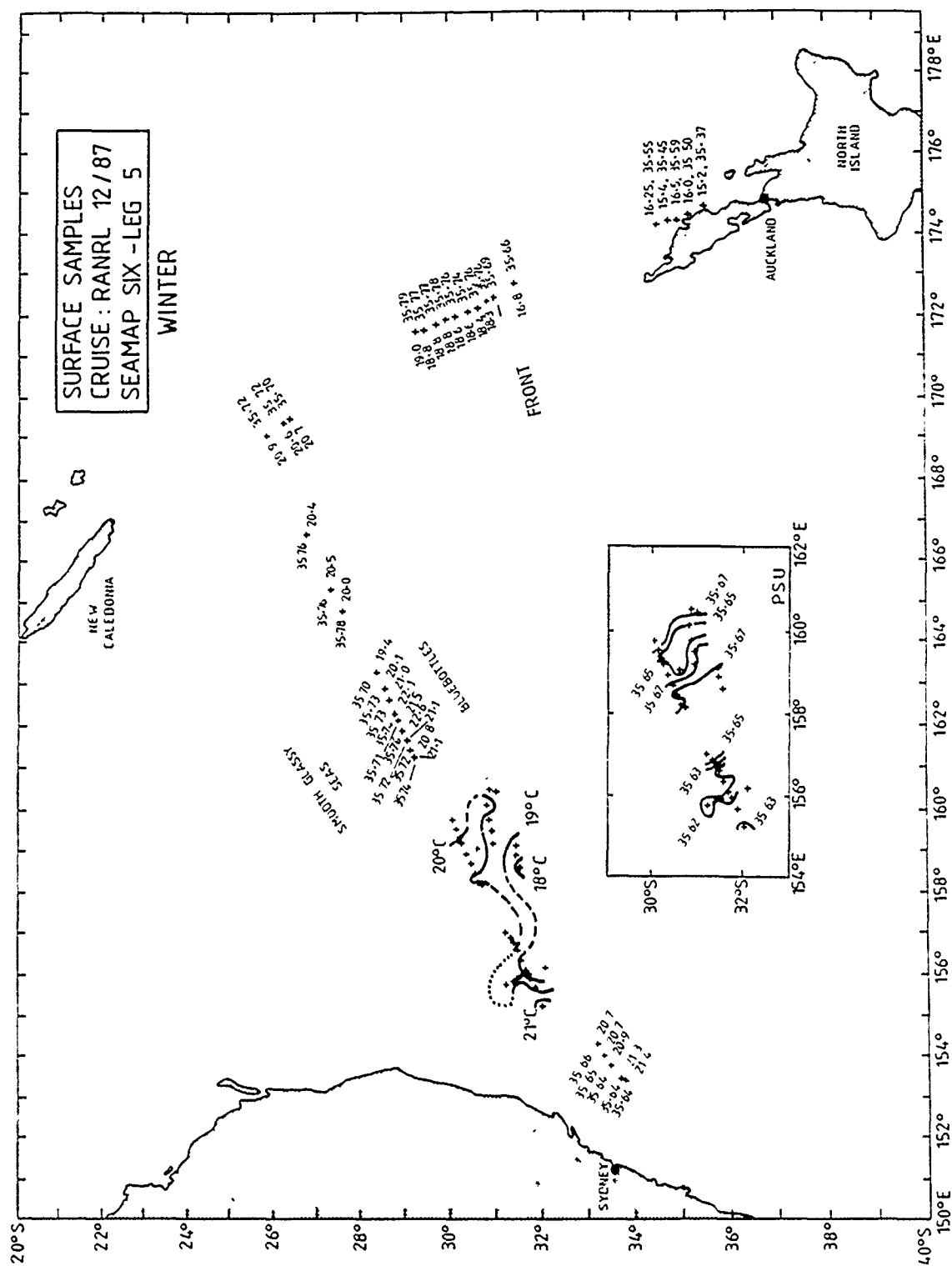


Figure 43. Sea surface salinity for SEAMAP route A in winter 1987 on survey SEAMAP 6 (RANRL 12/87). Leg five 11 to 25 September 1987

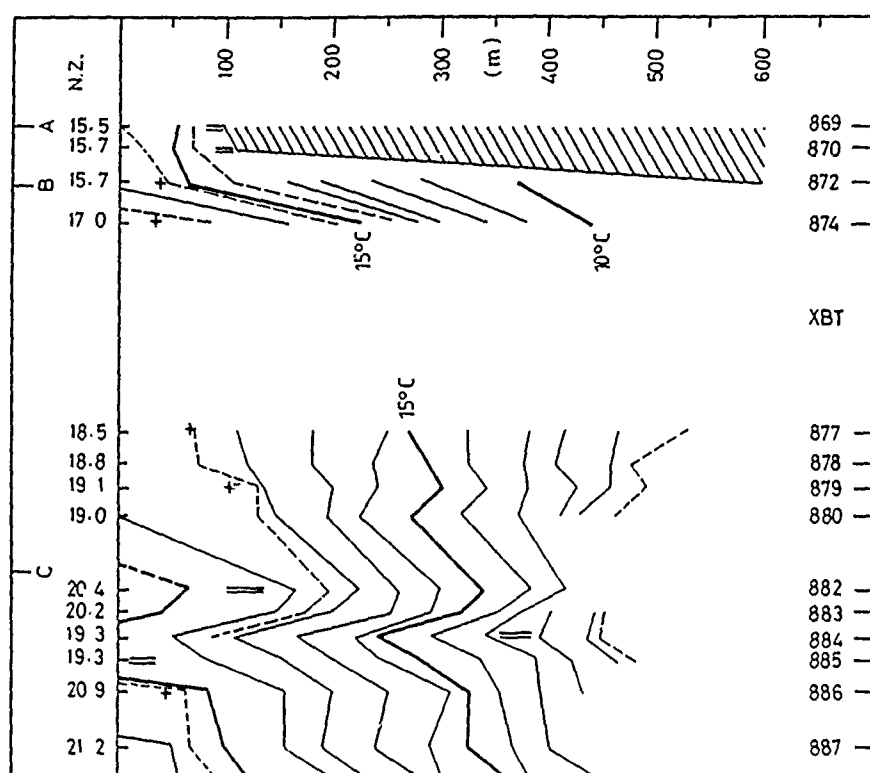


Figure 44. XBT temperature section from New Zealand to waypoint D for 11 to 13 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five. (See figure 39 for the cruise track)

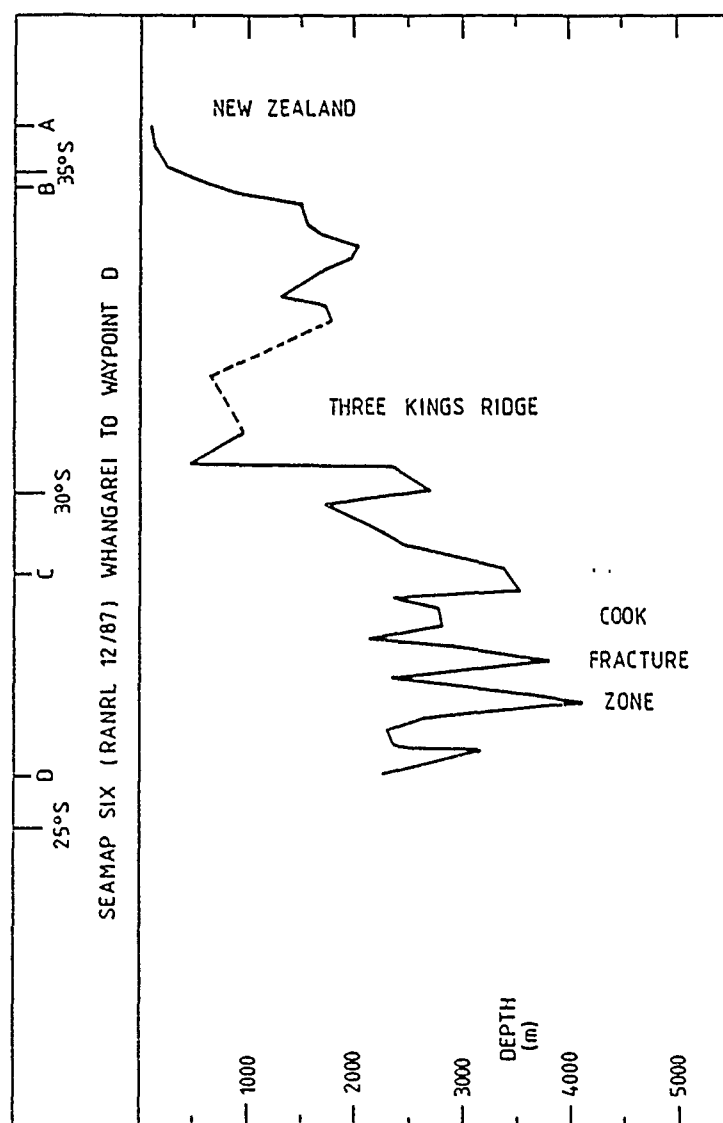


Figure 45. Bathymetry from New Zealand to waypoint D. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five, 11 to 13 September 1987

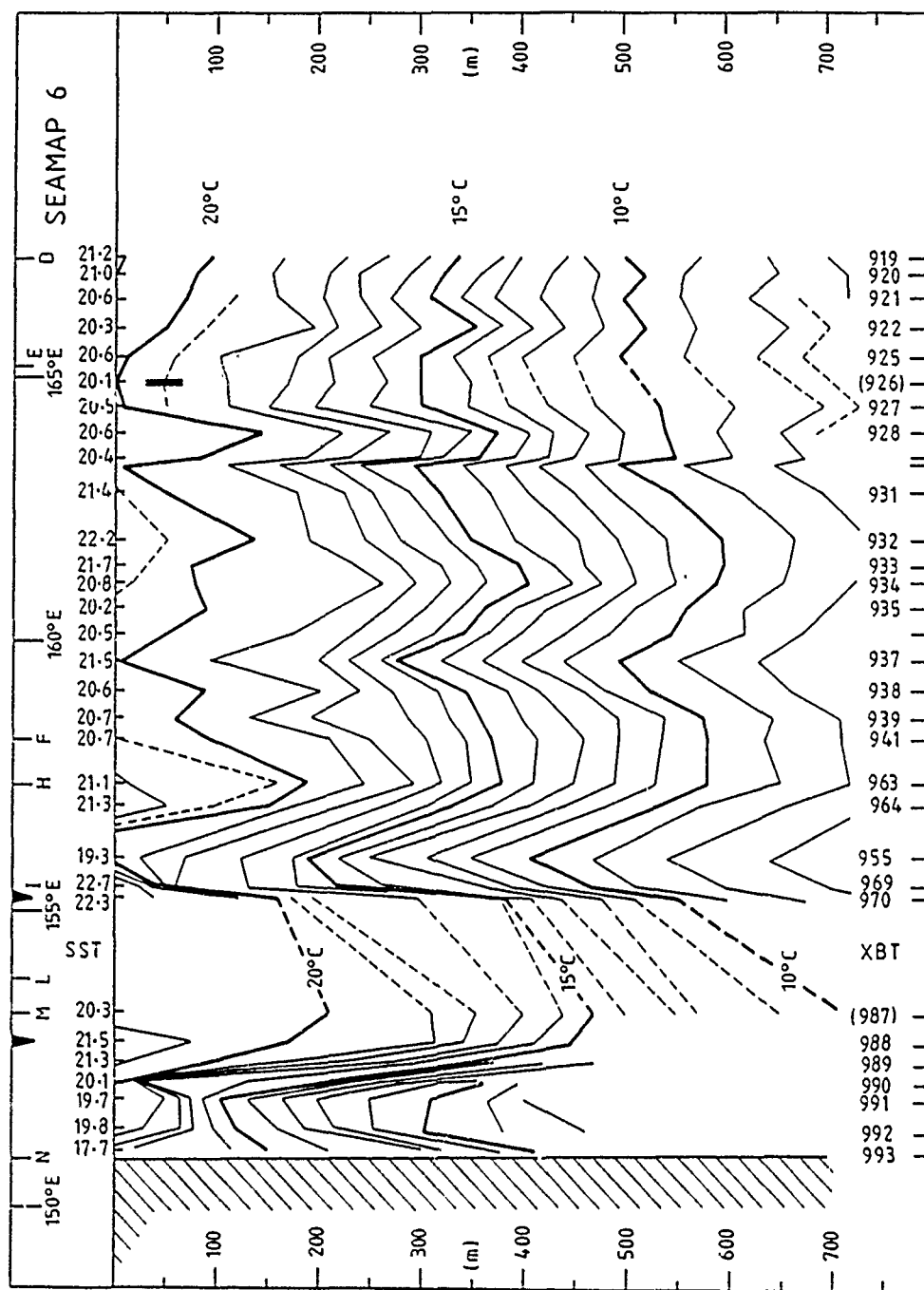


Figure 46. XBT temperature section from waypoint D to Sydney for 17 to 25 September 1987
 'Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five

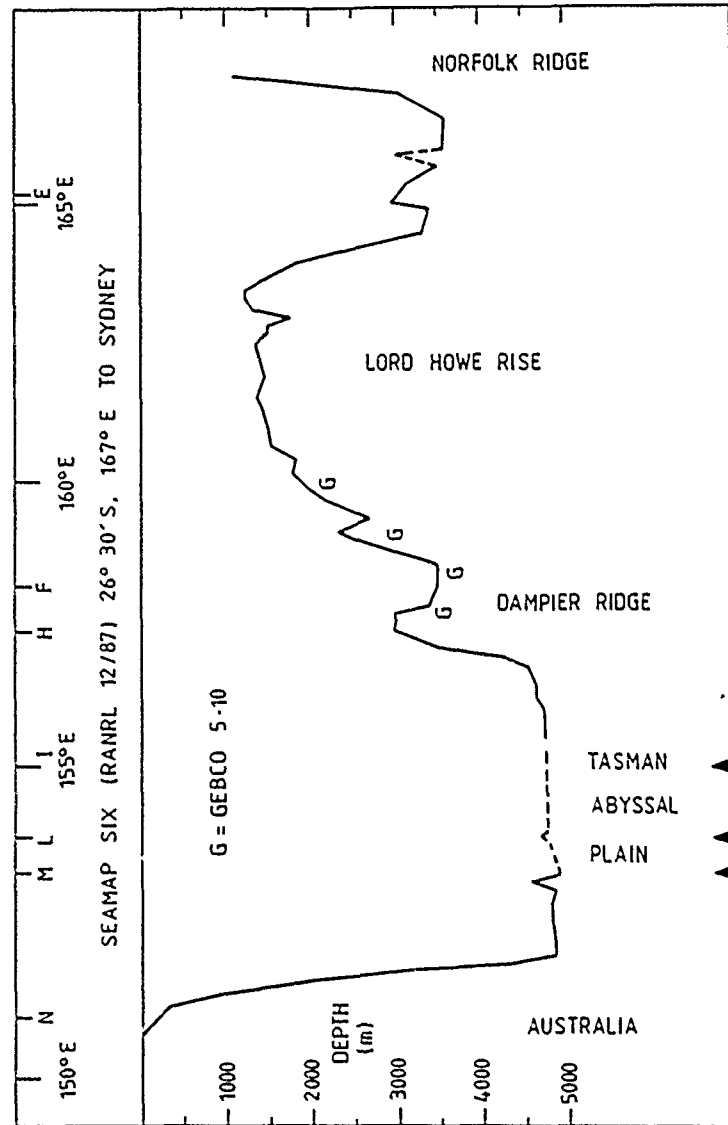


Figure 47. Bathymetry from waypoint D to Sydney for 17 to 25 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five

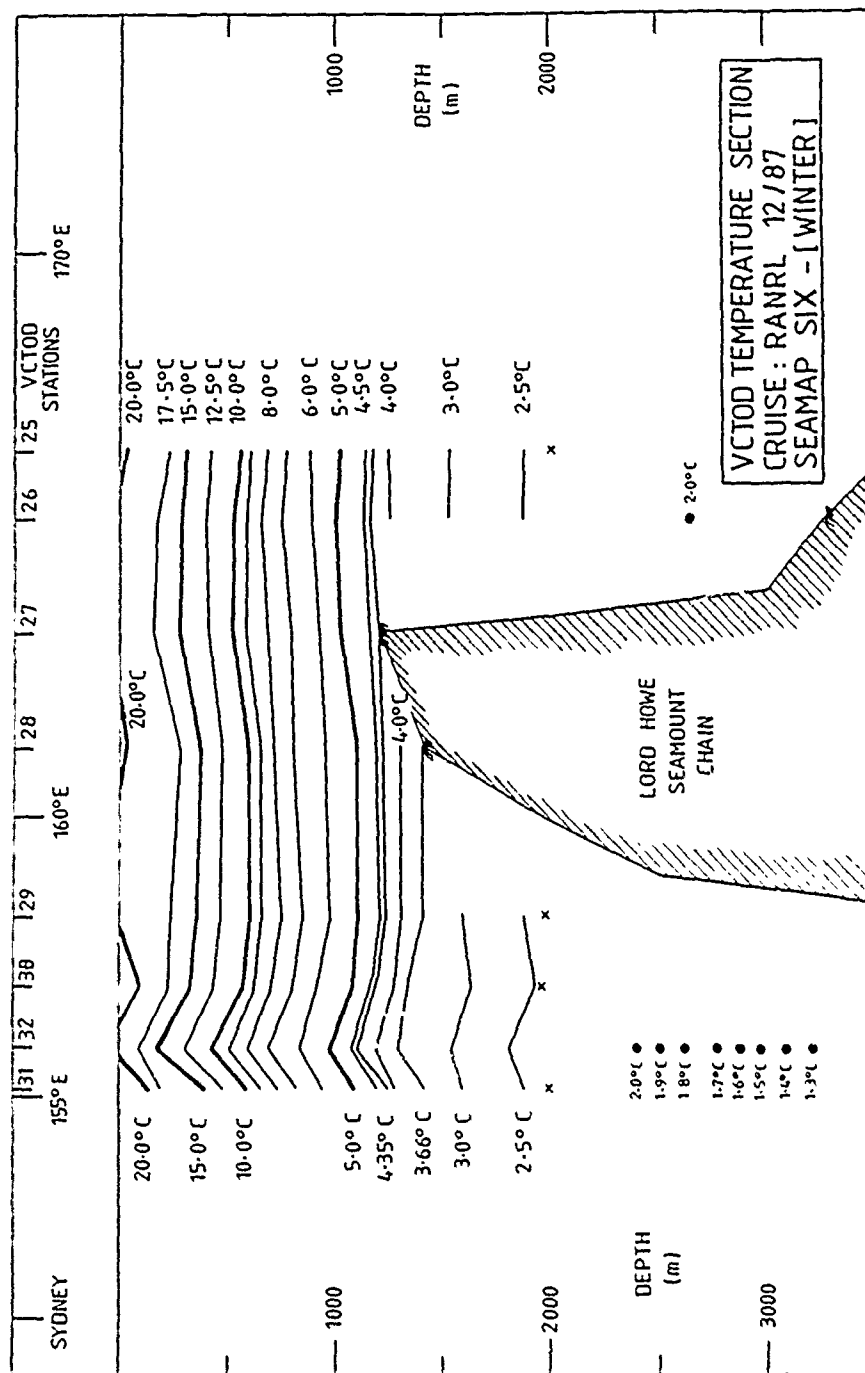


Figure 48. VCTOD temperature section to 2000 m from station 25 to station 31 for 16 to 21 September 1987. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five

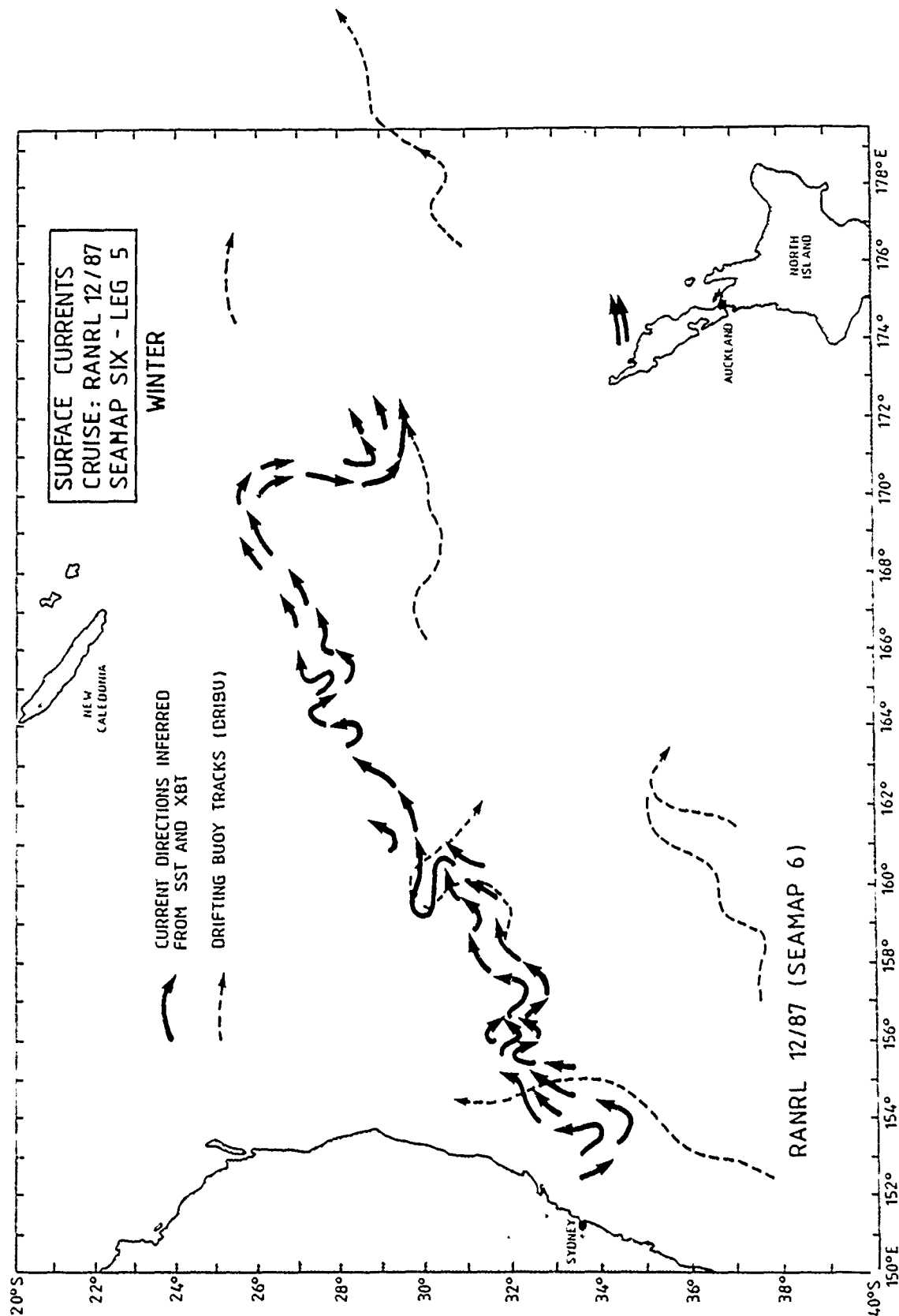


Figure 49 Surface current directions inferred from VCTOD, XBT, and sea surface temperature data. Winter survey SEAMAP 6 (RANRL 12/87) route A, leg five, September 1987

SURFACE T-S SCATTER PLOT (SEAMAP 6)

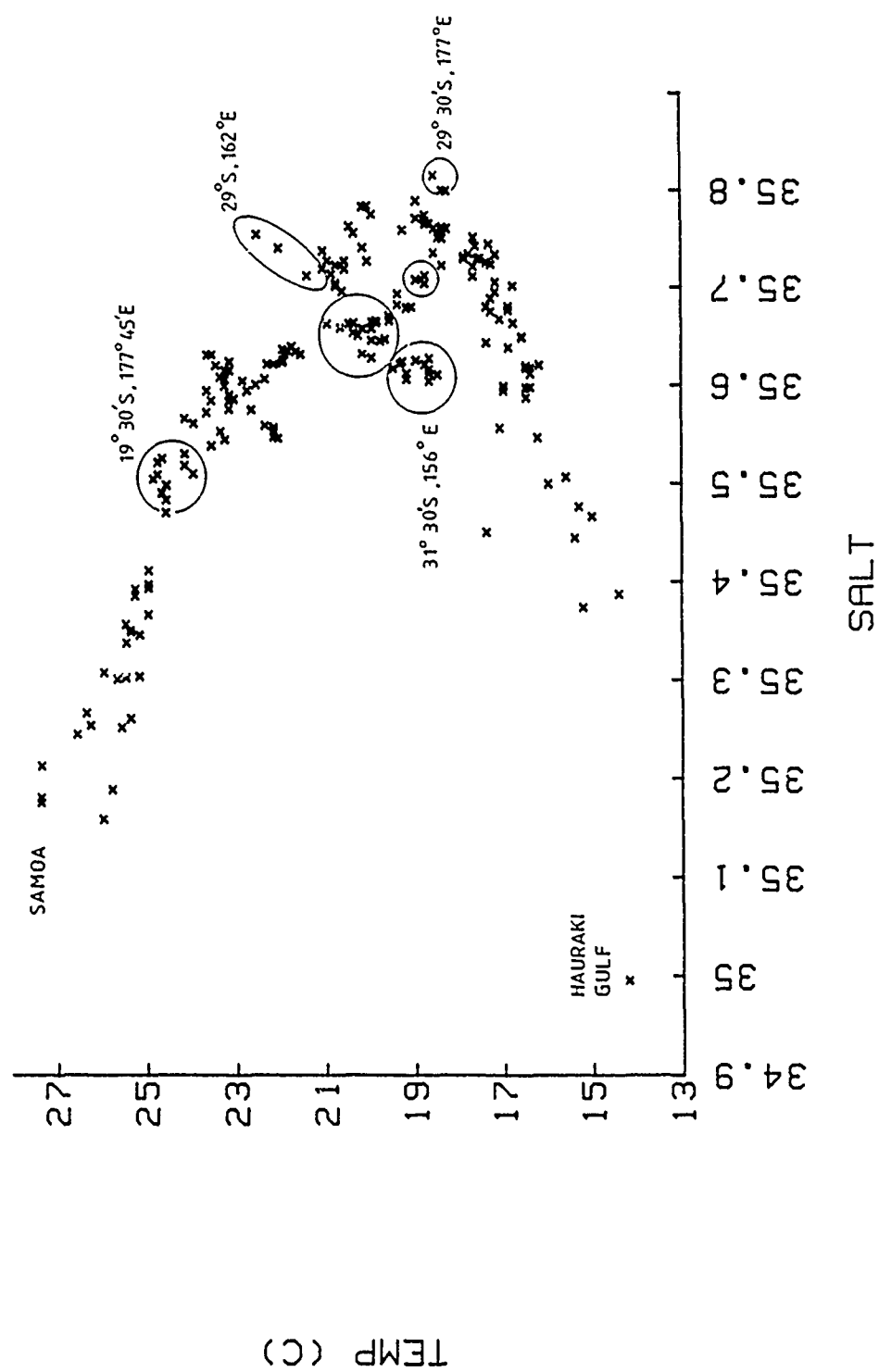


Figure 50. Temperature-Salinity plot for surface bucket samples taken on SEAMAP 6 (RANRL 12/87). Winter survey route A, 1987

STATION : WWS COK - P155
 STATION NUMBER : 1 (STATION DE COK)
 STATION NUMBER : 9 (STATION DE TAP)
 DATE : 30-JUL-1987 (DAY NUMBER 211)
 TIME : 1536 UTC - 2
 DATE TIME : 0712.97
 POSITION : 33:22.625 155:45.30E
 DATE DEPTH : 4794 FEET
 STATION DEPTH : 4794 FEET

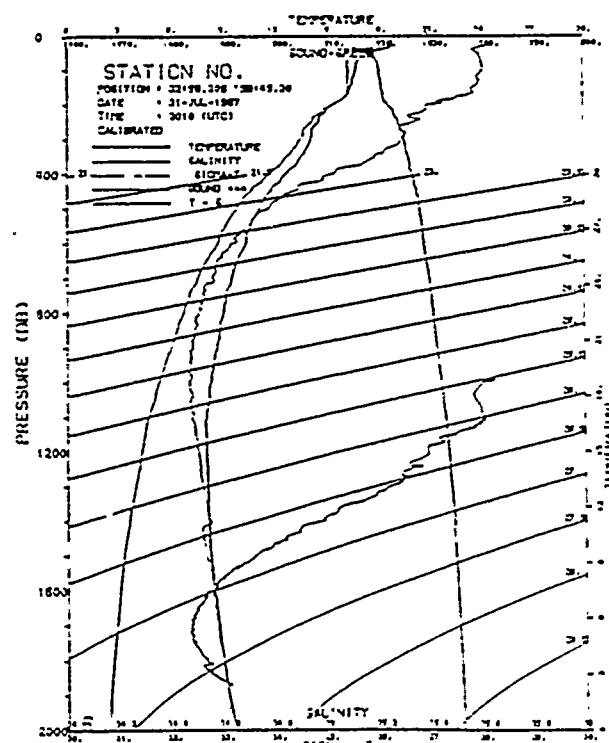
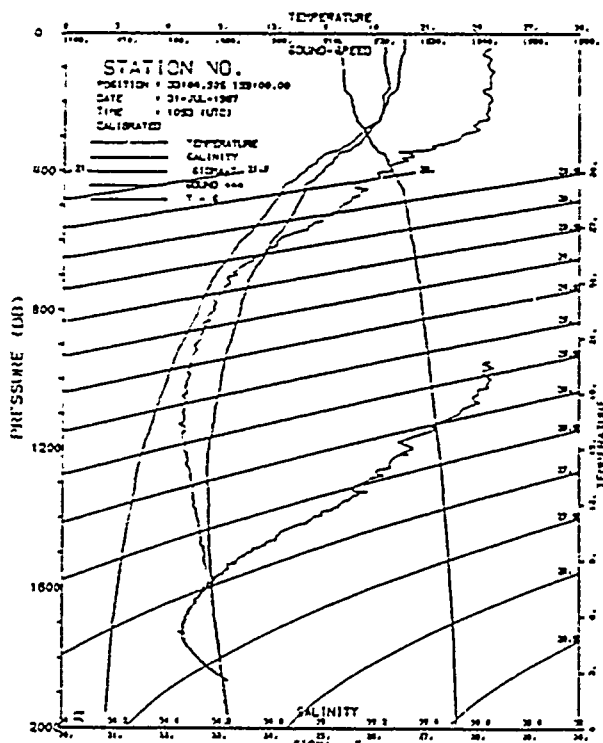
PRESS	DEPTH	TEMP	SAL	STOR-T	SA	G.A.	Sound	POC-TEMP
0.0	0.0	22.050	0.000	0.000	0.00	0.000	1522.58	22.05 5 0.000 0.000
10.0	9.9	22.052	0.000	0.000	0.00	0.000	1522.53	22.05 55 0.012 0.006
20.0	19.9	22.054	0.000	0.000	0.00	0.000	1522.82	22.05 43 0.205 0.005
30.0	29.8	22.054	0.000	0.000	0.00	0.000	1522.99	22.05 59 0.229 0.004
40.0	39.7	22.055	0.000	0.000	0.00	0.000	1523.13	22.06 50 0.232 0.004
50.0	49.6	22.052	0.000	0.000	0.00	0.000	1523.32	22.06 48 0.229 0.004
60.0	59.6	22.061	0.000	0.000	0.00	0.000	1523.47	22.05 47 0.220 0.005
70.0	69.5	22.063	0.000	0.000	0.00	0.000	1523.65	22.05 40 0.004 0.005
80.0	79.4	22.053	0.000	0.000	0.00	0.000	1523.80	22.04 51 0.221 0.009
90.0	89.3	22.045	0.000	0.000	0.00	0.000	1523.91	22.03 35 0.219 0.006
100.0	99.2	22.006	0.000	0.000	0.00	0.000	1524.01	22.00 47 0.225 0.002
110.0	109.1	22.003	0.000	0.000	0.00	0.000	1524.07	22.01 45 0.034 0.024
120.0	119.0	22.044	0.000	0.000	0.00	0.000	1522.47	22.22 51 0.052 0.050
130.0	128.9	22.043	0.000	0.000	0.00	0.000	1521.77	22.06 49 0.070 0.059
140.0	138.8	22.043	0.000	0.000	0.00	0.000	1521.43	22.03 36 0.037 0.041
150.0	148.7	22.043	0.000	0.000	0.00	0.000	1520.59	22.01 54 0.064 0.052
160.0	158.6	22.043	0.000	0.000	0.00	0.000	1519.72	22.02 56 0.090 0.122
170.0	168.5	22.043	0.000	0.000	0.00	0.000	1518.49	22.04 58 0.029 0.025
180.0	178.4	22.043	0.000	0.000	0.00	0.000	1518.53	22.01 54 0.023 0.022
190.0	188.3	22.043	0.000	0.000	0.00	0.000	1518.51	22.00 56 0.000 0.000
200.0	198.2	22.043	0.000	0.000	0.00	0.000	1518.51	22.00 56 0.000 0.000
210.0	208.1	22.043	0.000	0.000	0.00	0.000	1518.51	22.00 56 0.000 0.000
220.0	218.0	22.043	0.000	0.000	0.00	0.000	1518.51	22.00 56 0.000 0.000
230.0	227.7	22.047	0.000	0.000	0.00	0.000	1518.65	22.02 34 0.047 0.036
240.0	237.5	22.062	0.000	0.000	0.00	0.000	1515.12	22.16 34 0.157 0.196
250.0	247.3	22.062	0.000	0.000	0.00	0.000	1514.96	22.15 41 0.107 0.117
260.0	257.1	22.115	0.000	0.000	0.00	0.000	1513.35	22.07 33 0.120 0.102
270.0	267.0	22.131	0.000	0.000	0.00	0.000	1510.51	22.14 33 0.141 0.137
280.0	276.8	22.149	0.000	0.000	0.00	0.000	1509.09	22.17 35 0.092 0.098
290.0	286.6	22.165	0.000	0.000	0.00	0.000	1507.59	22.19 37 0.085 0.093
300.0	296.4	22.182	0.000	0.000	0.00	0.000	1505.99	22.21 39 0.042 0.047
310.0	306.2	22.174	0.000	0.000	0.00	0.000	1505.91	22.31 39 0.011 0.006
320.0	316.0	22.169	0.000	0.000	0.00	0.000	1505.06	22.01 32 0.080 0.075
330.0	325.8	22.162	0.000	0.000	0.00	0.000	1504.46	22.17 39 0.039 0.046
340.0	335.6	22.150	0.000	0.000	0.00	0.000	1500.39	22.10 39 0.062 0.073
350.0	345.4	22.139	0.000	0.000	0.00	0.000	1498.41	22.06 26 0.028 0.025
360.0	355.2	22.138	0.000	0.000	0.00	0.000	1494.75	22.05 29 0.051 0.054
370.0	365.0	22.131	0.000	0.000	0.00	0.000	1491.97	22.11 40 0.048 0.044
380.0	374.8	22.121	0.000	0.000	0.00	0.000	1490.14	22.23 33 0.022 0.020
390.0	384.6	22.109	0.000	0.000	0.00	0.000	1489.19	22.58 31 0.017 0.015
400.0	394.4	22.095	0.000	0.000	0.00	0.000	1488.31	22.49 37 0.018 0.013
410.0	404.2	22.081	0.000	0.000	0.00	0.000	1487.44	22.41 33 0.011 0.008
420.0	414.0	22.067	0.000	0.000	0.00	0.000	1487.38	22.30 32 0.009 0.007
430.0	423.8	22.054	0.000	0.000	0.00	0.000	1487.49	22.23 32 0.005 0.007
440.0	433.6	22.041	0.000	0.000	0.00	0.000	1487.83	22.20 35 0.007 0.010
450.0	443.4	22.031	0.000	0.000	0.00	0.000	1486.36	22.34 30 0.009 0.007
460.0	453.2	22.024	0.000	0.000	0.00	0.000	1489.15	22.72 33 0.007 0.004
470.0	463.0	22.018	0.000	0.000	0.00	0.000	1490.12	22.53 39 0.007 0.004
480.0	472.8	22.014	0.000	0.000	0.00	0.000	1491.25	22.40 34 0.004 0.002
490.0	482.6	22.010	0.000	0.000	0.00	0.000	1492.47	22.29 36 0.005 0.003
500.0	492.4	22.006	0.000	0.000	0.00	0.000	1498.92	22.25 35 0.004 0.005

SHIP : HNS COCK - Plessey
 STATION NUMBER : 5 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 31-JUL-1987 (DAY NUMBER 212)
 START TIME : 1053 UTC - Z
 CRUISE : 0812/87
 POSITION : 31:04.52S 159:00.00E
 CUST DEPTH : 2023 METRES
 BOTTOM DEPTH : 3724 METRES

PRESS	DEPTH	TDP	SAL	SIGMA-T	S-PA	G.A.	Sound	Pot.Temp
10.0	9.9	19.754	0.000	0.000	0.00	0.000	1521.79	19.75 25 0.004 0.004
20.0	19.9	19.747	0.000	0.000	0.00	0.000	1521.92	19.74 34 0.001 0.005
30.0	29.8	19.751	0.000	0.000	0.00	0.000	1522.03	19.75 44 0.011 0.002
40.0	39.7	19.746	0.000	0.000	0.00	0.000	1522.21	19.74 46 0.015 0.004
50.0	49.6	19.755	0.000	0.000	0.00	0.000	1522.39	19.75 48 0.037 0.003
60.0	59.5	19.546	0.000	0.000	0.00	0.000	1522.23	19.54 38 0.062 0.059
70.0	69.5	19.552	0.000	0.000	0.00	0.000	1522.12	19.54 41 0.042 0.006
80.0	79.4	19.518	0.000	0.000	0.00	0.000	1522.16	19.50 38 0.021 0.015
90.0	89.3	19.486	0.000	0.000	0.00	0.000	1522.24	19.47 43 0.009 0.010
100.0	99.3	19.454	0.000	0.000	0.00	0.000	1522.30	19.44 43 0.025 0.004
120.0	119.1	19.423	0.000	0.000	0.00	0.000	1522.65	19.40 52 0.002 0.002
140.0	139.0	19.403	0.000	0.000	0.00	0.000	1522.91	19.38 44 0.000 0.003
160.0	158.8	19.334	0.000	0.000	0.00	0.000	1523.00	19.31 50 0.025 0.043
180.0	178.7	19.851	0.000	0.000	0.00	0.000	1521.95	18.82 44 0.034 0.024
200.0	198.5	18.762	0.000	0.000	0.00	0.000	1522.06	18.73 50 0.037 0.024
220.0	218.3	18.600	0.000	0.000	0.00	0.000	1521.91	18.56 44 0.015 0.019
240.0	238.2	18.393	0.000	0.000	0.00	0.000	1521.62	18.35 47 0.028 0.021
260.0	258.0	17.990	0.000	0.000	0.00	0.000	1520.70	17.95 46 0.112 0.107
280.0	277.8	17.505	0.000	0.000	0.00	0.000	1519.59	17.46 46 0.056 0.064
300.0	297.7	17.011	0.000	0.000	0.00	0.000	1518.42	16.36 47 0.078 0.079
320.0	317.5	16.581	0.000	0.000	0.00	0.000	1517.31	15.53 32 0.092 0.124
340.0	337.3	15.789	0.000	0.000	0.00	0.000	1514.90	15.74 28 0.189 0.279
360.0	357.1	14.896	0.000	0.000	0.00	0.000	1512.59	14.84 33 0.112 0.142
380.0	377.0	14.498	0.000	0.000	0.00	0.000	1511.53	14.44 29 0.099 0.096
400.0	396.8	13.980	0.000	0.000	0.00	0.000	1510.26	13.92 32 0.068 0.106
420.0	416.6	13.488	0.000	0.000	0.00	0.000	1508.91	13.43 27 0.071 0.096
440.0	436.4	12.797	0.000	0.000	0.00	0.000	1506.89	12.74 31 0.059 0.061
460.0	456.2	12.634	0.000	0.000	0.00	0.000	1505.70	12.57 31 0.046 0.053
480.0	476.1	12.344	0.000	0.000	0.00	0.000	1505.99	12.28 32 0.047 0.044
500.0	495.9	12.027	0.000	0.000	0.00	0.000	1505.20	11.96 25 0.037 0.037
550.0	545.4	11.315	0.000	0.000	0.00	0.000	1503.38	11.24 25 0.057 0.074
600.0	594.9	10.280	0.000	0.000	0.00	0.000	1500.43	10.21 27 0.057 0.061
700.0	693.9	8.809	0.000	0.000	0.00	0.000	1496.52	8.73 35 0.041 0.049
800.0	792.8	7.826	0.000	0.000	0.00	0.000	1494.43	7.74 23 0.010 0.007
900.0	891.7	6.878	0.000	0.000	0.00	0.000	1492.27	6.79 26 0.014 0.014
1000.0	990.6	6.058	0.000	0.000	0.00	0.000	1490.73	5.97 21 0.007 0.008
1100.0	1089.4	5.326	0.000	0.000	0.00	0.000	1489.40	5.23 34 0.021 0.018
1200.0	1188.1	4.679	0.000	0.000	0.00	0.000	1488.40	4.58 30 0.029 0.026
1300.0	1286.8	4.203	0.000	0.000	0.00	0.000	1488.15	4.10 33 0.009 0.006
1400.0	1385.5	3.860	0.000	0.000	0.00	0.000	1488.33	3.75 29 0.013 0.013
1500.0	1484.1	3.503	0.000	0.000	0.00	0.000	1488.57	3.39 30 0.008 0.006
1600.0	1582.6	3.231	0.000	0.000	0.00	0.000	1489.07	3.11 28 0.008 0.005
1700.0	1681.2	2.941	0.000	0.000	0.00	0.000	1489.57	2.82 35 0.004 0.001
1800.0	1779.6	2.782	0.000	0.000	0.00	0.000	1490.55	2.65 30 0.004 0.003
1900.0	1878.1	2.645	0.000	0.000	0.00	0.000	1491.62	2.51 32 0.006 0.002
2000.0	1976.4	2.522	0.000	0.000	0.00	0.000	1492.84	2.38 29 0.002 0.003
2050.0	2025.6	2.484	0.000	0.000	0.00	0.000	1493.48	2.33 168 0.003 0.004

SHIP : HNS COCK - Plessey
 STATION NUMBER : 6 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 31-JUL-1987 (DAY NUMBER 212)
 START TIME : 2010 UTC - Z
 CRUISE : 0812/87
 POSITION : 31:58.20S 159:45.20E
 CUST DEPTH : 2240 METRES
 BOTTOM DEPTH : 2325 METRES

PRESS	DEPTH	TDP	SAL	SIGMA-T	S-PA	G.A.	Sound	Pot.Temp
10.0	9.9	18.862	0.000	0.000	0.00	0.000	1519.36	18.86 53 0.017 0.005
20.0	19.9	18.869	0.000	0.000	0.00	0.000	1519.63	18.87 42 0.004 0.002
30.0	29.8	18.837	0.000	0.000	0.00	0.000	1519.57	18.83 42 0.028 0.015
40.0	39.7	18.108	0.000	0.000	0.00	0.000	1517.42	16.10 47 0.289 0.256
50.0	49.6	17.453	0.000	0.000	0.00	0.000	1515.82	17.44 51 0.129 0.124
60.0	59.5	17.145	0.000	0.000	0.00	0.000	1515.09	17.14 43 0.090 0.085
70.0	69.5	16.933	0.000	0.000	0.00	0.000	1514.60	16.92 42 0.054 0.051
80.0	79.4	16.801	0.000	0.000	0.00	0.000	1514.39	16.79 46 0.023 0.013
90.0	89.3	16.758	0.000	0.000	0.00	0.000	1514.46	16.74 48 0.007 0.006
100.0	99.3	16.735	0.000	0.000	0.00	0.000	1514.56	16.72 52 0.009 0.012
120.0	119.1	16.590	0.000	0.000	0.00	0.000	1514.46	16.57 49 0.033 0.029
140.0	139.0	16.513	0.000	0.000	0.00	0.000	1514.51	16.49 57 0.015 0.019
160.0	158.8	16.348	0.000	0.000	0.00	0.000	1514.25	16.32 45 0.020 0.014
180.0	178.7	16.015	0.000	0.000	0.00	0.000	1513.53	15.99 41 0.062 0.065
200.0	198.5	15.363	0.000	0.000	0.00	0.000	1511.66	15.33 39 0.152 0.179
220.0	218.3	14.775	0.000	0.000	0.00	0.000	1510.15	14.74 52 0.052 0.058
240.0	238.2	14.249	0.000	0.000	0.00	0.000	1508.82	14.21 42 0.025 0.046
260.0	258.0	13.923	0.000	0.000	0.00	0.000	1507.97	13.89 52 0.095 0.108
280.0	277.8	13.679	0.000	0.000	0.00	0.000	1507.50	13.54 47 0.019 0.029
300.0	297.7	13.471	0.000	0.000	0.00	0.000	1507.21	13.43 35 0.025 0.021
320.0	317.5	13.257	0.000	0.000	0.00	0.000	1506.72	13.21 38 0.052 0.057
340.0	337.3	12.920	0.000	0.000	0.00	0.000	1505.88	12.87 32 0.057 0.070
360.0	357.1	12.538	0.000	0.000	0.00	0.000	1504.84	12.49 31 0.042 0.047
380.0	377.0	12.170	0.000	0.000	0.00	0.000	1503.85	12.12 32 0.100 0.129
400.0	396.8	11.651	0.000	0.000	0.00	0.000	1502.31	11.50 32 0.058 0.059
420.0	416.6	11.254	0.000	0.000	0.00	0.000	1501.29	11.21 35 0.032 0.048
440.0	436.4	10.737	0.000	0.000	0.00	0.000	1499.63	10.58 29 0.039 0.039
460.0	456.2	10.363	0.000	0.000	0.00	0.000	1498.55	10.31 29 0.079 0.071
480.0	476.1	10.084	0.000	0.000	0.00	0.000	1497.87	10.03 25 0.010 0.010
500.0	495.9	9.788	0.000	0.000	0.00	0.000	1497.15	9.73 29 0.028 0.030
550.0	545.4	9.162	0.000	0.000	0.00	0.000	1495.59	9.10 33 0.034 0.028
600.0	594.9	8.715	0.000	0.000	0.00	0.000	1494.68	8.65 33 0.032 0.043
700.0	693.9	7.561	0.000	0.000	0.00	0.000	1491.86	7.49 32 0.028 0.025
800.0	792.8	6.751	0.000	0.000	0.00	0.000	1490.29	6.67 30 0.012 0.018
900.0	891.7	6.031	0.000	0.000	0.00	0.000	1489.09	5.95 36 0.014 0.010
1000.0	990.6	5.307	0.000	0.000	0.00	0.000	1487.78	5.22 30 0.029 0.024
1100.0	1089.4	4.696	0.000	0.000	0.00	0.000	1486.95	4.50 33 0.027 0.023
1200.0	1188.1	4.293	0.000	0.000	0.00	0.000	1486.99	4.29 35 0.011 0.009
1300.0	1286.8	3.945	0.000	0.000	0.00	0.000	1487.22	3.84 33 0.019 0.013
1400.0	1385.5	3.567	0.000	0.000	0.00	0.000	1487.31	3.46 31 0.005 0.002
1500.0	1484.1	3.262	0.000	0.000	0.00	0.000	1487.69	3.15 37 0.009 0.006
1600.0	1582.6	3.024	0.000	0.000	0.00	0.000	1488.36	2.91 40 0.007 0.004
1700.0	1681.2	2.833	0.000	0.000	0.00	0.000	1489.22	2.71 34 0.005 0.003
1800.0	1779.6	2.635	0.000	0.000	0.00	0.000	1490.05	2.50 33 0.005 0.004
1900.0	1878.1	2.479	0.000	0.000	0.00	0.000	1491.09	2.34 37 0.004 0.004
2000.0	1976.5	2.400	0.000	0.000	0.00	0.000	1492.42	2.26 32 0.003 0.004
2100.0	2074.8	2.317	0.000	0.000	0.00	0.000	1493.77	2.17 31 0.004 0.000
2200.0	2173.1	2.237	0.000	0.000	0.00	0.000	1495.12	2.08 39 0.003 0.000
2270.0	2241.9	2.215	0.000	0.000	0.00	0.000	1496.20	2.05 28 0.004 0.000

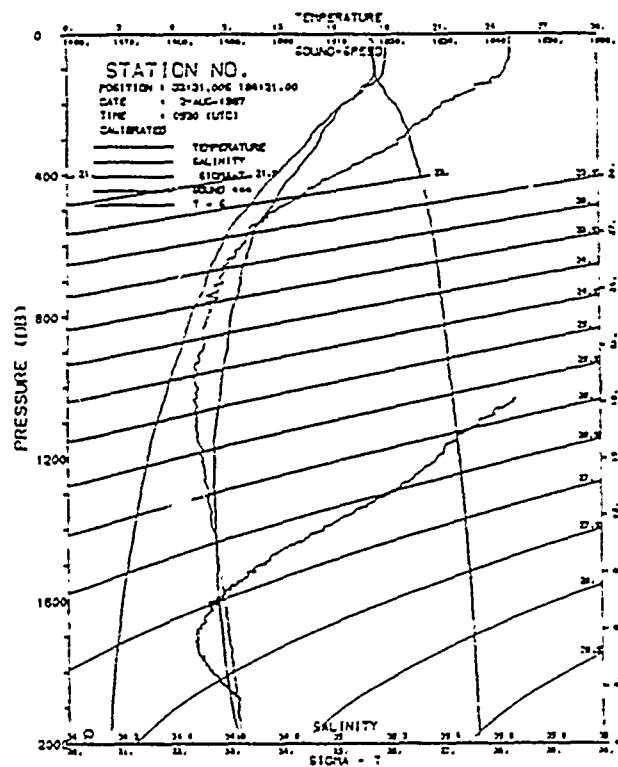
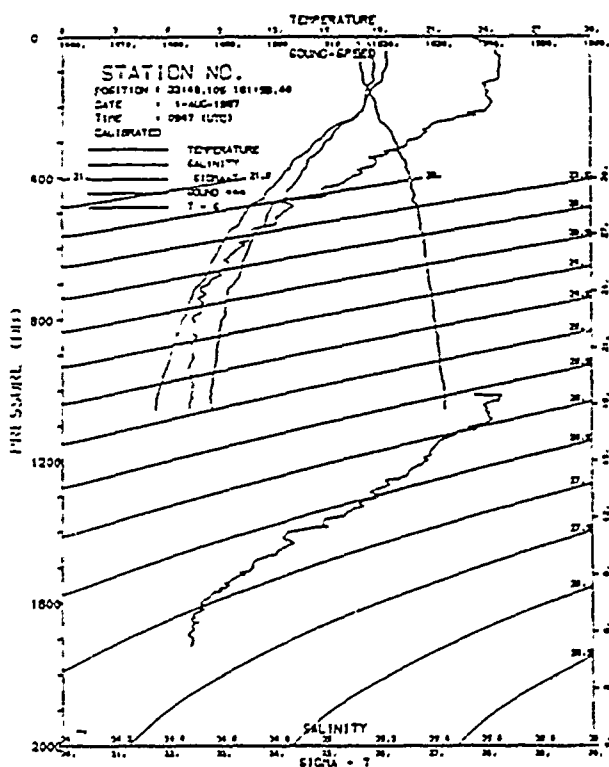


SHIP : HNS COOK - Fleetsy
 STATION NUMBER : 7 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 01-AUG-1987 (DAY NUMBER 213)
 START TIME : 0947 GMT - 2
 CRUISE : 0012/87
 POSITION : 32:49.10S 161:59.40E
 CUST DEPTH : 1043 METRES
 BOTTOM DEPTH : 1056 METRES

PRESS	DEPTH	TMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
10.0	9.9	18.472	0.000	0.000	0.00	0.000	1518.10	18.47
20.0	19.9	18.448	0.000	0.000	0.00	0.000	1518.25	18.44
30.0	29.8	18.507	0.000	0.000	0.00	0.000	1518.58	18.50
40.0	39.7	18.475	0.000	0.000	0.00	0.000	1518.67	18.47
50.0	49.6	18.448	0.000	0.000	0.00	0.000	1518.83	18.44
60.0	59.6	18.459	0.000	0.000	0.00	0.000	1518.98	18.45
70.0	69.5	18.462	0.000	0.000	0.00	0.000	1519.13	18.45
80.0	79.4	18.452	0.000	0.000	0.00	0.000	1519.30	18.44
90.0	89.3	18.422	0.000	0.000	0.00	0.000	1519.31	18.41
100.0	99.3	18.310	0.000	0.000	0.00	0.000	1519.16	18.29
110.0	109.1	18.221	0.000	0.000	0.00	0.000	1519.24	18.20
120.0	119.0	17.801	0.000	0.000	0.00	0.000	1518.28	17.78
130.0	128.8	17.508	0.000	0.000	0.00	0.000	1517.74	17.48
140.0	138.7	17.259	0.000	0.000	0.00	0.000	1517.36	17.23
150.0	148.5	17.108	0.000	0.000	0.00	0.000	1517.23	17.07
160.0	158.3	16.737	0.000	0.000	0.00	0.000	1515.31	16.70
170.0	168.2	16.210	0.000	0.000	0.00	0.000	1514.86	16.17
180.0	178.0	15.337	0.000	0.000	0.00	0.000	1512.47	15.30
190.0	187.8	14.918	0.000	0.000	0.00	0.000	1511.51	14.88
200.0	197.7	14.415	0.000	0.000	0.00	0.000	1510.12	14.37
210.0	207.5	14.106	0.000	0.000	0.00	0.000	1509.45	14.06
220.0	217.3	13.565	0.000	0.000	0.00	0.000	1507.83	13.52
230.0	227.2	13.077	0.000	0.000	0.00	0.000	1506.58	13.03
240.0	237.0	12.756	0.000	0.000	0.00	0.000	1505.77	12.70
250.0	246.8	12.428	0.000	0.000	0.00	0.000	1505.02	12.37
260.0	256.6	12.077	0.000	0.000	0.00	0.000	1504.09	12.02
270.0	266.4	11.603	0.000	0.000	0.00	0.000	1502.77	11.55
280.0	276.2	11.458	0.000	0.000	0.00	0.000	1502.47	11.41
290.0	286.0	10.551	0.000	0.000	0.00	0.000	1499.89	10.59
300.0	295.8	10.390	0.000	0.000	0.00	0.000	1499.25	10.33
310.0	305.6	9.547	0.000	0.000	0.00	0.000	1496.90	9.48
320.0	315.4	8.326	0.000	0.000	0.00	0.000	1495.42	8.86
330.0	325.2	7.757	0.000	0.000	0.00	0.000	1492.53	7.68
340.0	335.0	6.797	0.000	0.000	0.00	0.000	1490.37	6.72
350.0	344.8	6.107	0.000	0.000	0.00	0.000	1489.35	6.02
360.0	354.6	5.402	0.000	0.000	0.00	0.000	1488.18	5.31
370.0	364.4	5.258	0.000	0.000	0.00	0.000	1488.44	5.17

SHIP : HNS COOK - Fleetsy
 STATION NUMBER : 8 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 02-AUG-1987 (DAY NUMBER 214)
 START TIME : 0520 GMT - 2
 CRUISE : 0012/87
 POSITION : 32:31.00S 164:21.00E
 CUST DEPTH : 1989 METRES
 BOTTOM DEPTH : 3124 METRES

PRESS	DEPTH	TMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
0.0	0.0	18.108	0.000	0.000	0.00	0.000	1517.04	18.11
10.0	9.9	18.107	0.000	0.000	0.00	0.000	1517.13	18.11
20.0	19.9	18.025	0.000	0.000	0.00	0.000	1517.03	18.02
30.0	29.8	17.999	0.000	0.000	0.00	0.000	1517.14	17.99
40.0	39.7	17.995	0.000	0.000	0.00	0.000	1517.29	17.99
50.0	49.6	17.987	0.000	0.000	0.00	0.000	1517.43	17.98
60.0	59.6	17.976	0.000	0.000	0.00	0.000	1517.58	17.97
70.0	69.5	17.964	0.000	0.000	0.00	0.000	1517.70	17.95
80.0	79.4	17.934	0.000	0.000	0.00	0.000	1517.74	17.92
90.0	89.3	17.877	0.000	0.000	0.00	0.000	1517.75	17.86
100.0	99.3	17.846	0.000	0.000	0.00	0.000	1517.84	17.83
110.0	109.1	17.713	0.000	0.000	0.00	0.000	1517.74	17.59
120.0	119.0	17.318	0.000	0.000	0.00	0.000	1516.98	17.29
130.0	128.8	16.730	0.000	0.000	0.00	0.000	1515.34	16.70
140.0	138.7	16.242	0.000	0.000	0.00	0.000	1514.08	16.21
150.0	148.5	15.488	0.000	0.000	0.00	0.000	1512.01	15.46
160.0	158.3	15.032	0.000	0.000	0.00	0.000	1510.90	15.00
170.0	168.2	14.710	0.000	0.000	0.00	0.000	1510.22	14.67
180.0	178.0	14.248	0.000	0.000	0.00	0.000	1508.97	14.21
190.0	187.8	13.855	0.000	0.000	0.00	0.000	1508.02	13.81
200.0	197.7	13.658	0.000	0.000	0.00	0.000	1507.65	13.61
210.0	207.5	13.372	0.000	0.000	0.00	0.000	1507.04	13.33
220.0	217.3	12.956	0.000	0.000	0.00	0.000	1505.88	12.91
230.0	227.2	12.529	0.000	0.000	0.00	0.000	1504.71	12.48
240.0	237.0	12.144	0.000	0.000	0.00	0.000	1503.71	12.09
250.0	246.8	11.769	0.000	0.000	0.00	0.000	1502.65	11.72
260.0	256.6	11.307	0.000	0.000	0.00	0.000	1501.30	11.25
270.0	266.4	10.987	0.000	0.000	0.00	0.000	1500.50	10.93
280.0	276.2	10.658	0.000	0.000	0.00	0.000	1499.64	10.60
290.0	286.0	10.422	0.000	0.000	0.00	0.000	1499.07	10.36
300.0	295.8	10.030	0.000	0.000	0.00	0.000	1497.94	9.97
310.0	305.6	9.166	0.000	0.000	0.00	0.000	1495.50	9.10
320.0	315.4	8.685	0.000	0.000	0.00	0.000	1494.52	8.62
330.0	325.2	7.754	0.000	0.000	0.00	0.000	1492.61	7.68
340.0	335.0	6.894	0.000	0.000	0.00	0.000	1490.85	6.82
350.0	344.8	6.277	0.000	0.000	0.00	0.000	1490.01	6.19
360.0	354.6	5.572	0.000	0.000	0.00	0.000	1488.87	5.48
370.0	364.4	4.953	0.000	0.000	0.00	0.000	1488.00	4.86
380.0	374.2	4.457	0.000	0.000	0.00	0.000	1487.64	4.36
390.0	384.0	4.044	0.000	0.000	0.00	0.000	1487.58	3.94
400.0	393.8	3.673	0.000	0.000	0.00	0.000	1487.70	3.57
410.0	403.6	3.344	0.000	0.000	0.00	0.000	1487.98	3.23
420.0	413.4	3.012	0.000	0.000	0.00	0.000	1488.26	2.89
430.0	423.2	2.781	0.000	0.000	0.00	0.000	1488.97	2.66
440.0	433.0	2.554	0.000	0.000	0.00	0.000	1489.69	2.43
450.0	442.8	2.391	0.000	0.000	0.00	0.000	1490.66	2.26
460.0	452.6	2.279	0.000	0.000	0.00	0.000	1491.88	2.14
470.0	462.4	2.271	0.000	0.000	0.00	0.000	1492.00	2.13

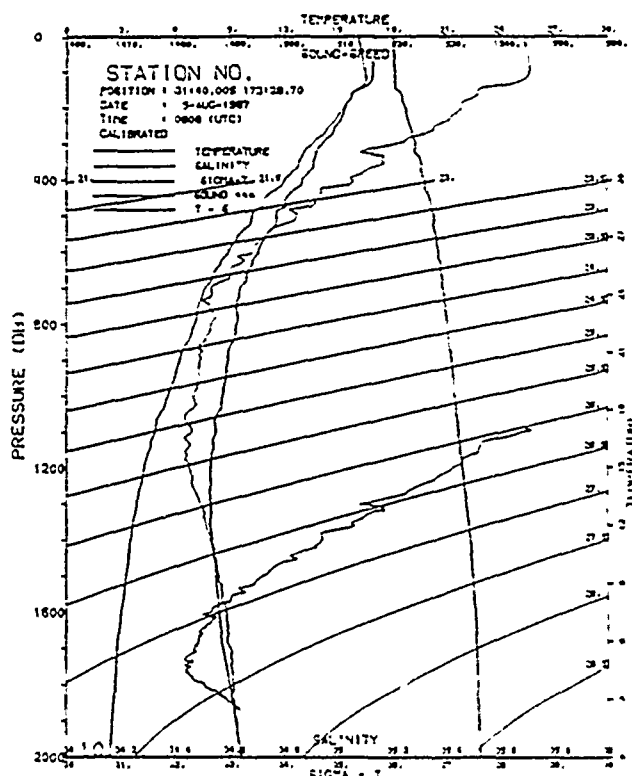
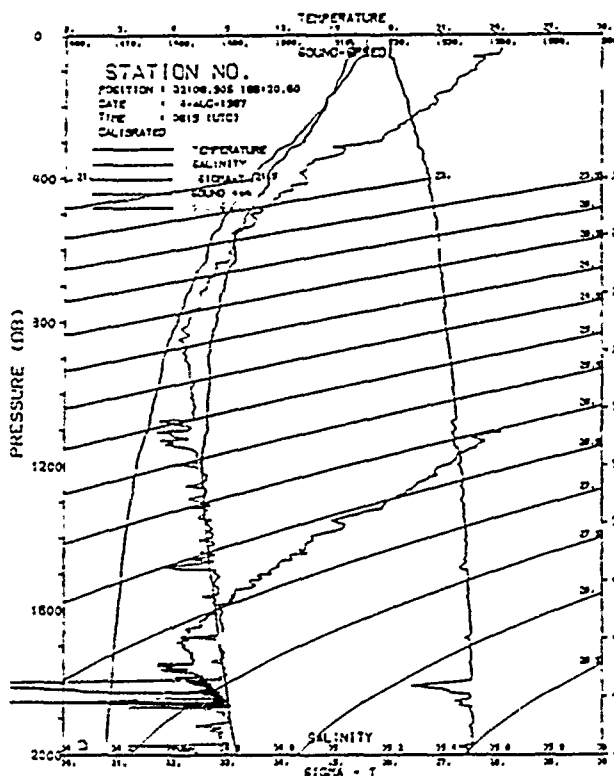


SHIP : HNS COOK - Plessey
 STATION NUMBER : 9 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 04-AUG-1987 (DAY NUMBER 216)
 START TIME : 0615 GMT - 2
 CRUISE : CK12/87
 POSITION : 31:09.905 173:29.60E
 CUST DEPTH : 2090 METRES
 BOTTOM DEPTH : 4005 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	16.773	0.000	0.000	0.00	0.000	1513.16	16.77
20.0	19.9	16.773	0.000	0.000	0.00	0.000	1513.24	16.77
30.0	29.8	16.773	0.000	0.000	0.00	0.000	1513.43	16.77
40.0	39.7	16.773	0.000	0.000	0.00	0.000	1513.59	16.77
50.0	49.6	16.779	0.000	0.000	0.00	0.000	1513.77	16.77
60.0	59.6	16.905	0.000	0.000	0.00	0.000	1513.21	16.99
70.0	69.5	16.951	0.000	0.000	0.00	0.000	1512.42	16.99
80.0	79.4	16.933	0.000	0.000	0.00	0.000	1512.18	16.99
90.0	89.4	16.916	0.000	0.000	0.00	0.000	1511.97	16.99
100.0	99.3	15.914	0.000	0.000	0.00	0.000	1511.88	15.92
120.0	119.1	15.637	0.000	0.000	0.00	0.000	1511.20	15.62
140.0	139.0	15.290	0.000	0.000	0.00	0.000	1510.47	15.27
160.0	158.8	15.022	0.000	0.000	0.00	0.000	1509.89	15.00
180.0	178.7	14.546	0.000	0.000	0.00	0.000	1508.69	14.52
200.0	198.5	14.420	0.000	0.000	0.00	0.000	1508.58	14.39
220.0	218.3	14.074	0.000	0.000	0.00	0.000	1508.56	14.39
240.0	238.2	13.752	0.000	0.000	0.00	0.000	1506.94	13.72
260.0	258.0	13.361	0.000	0.000	0.00	0.000	1505.97	13.32
280.0	277.9	13.018	0.000	0.000	0.00	0.000	1505.07	12.98
300.0	297.7	12.728	0.000	0.000	0.00	0.000	1504.39	12.69
320.0	317.5	11.945	0.000	0.000	0.00	0.000	1501.86	11.90
340.0	337.4	11.508	0.000	0.000	0.00	0.000	1501.06	11.56
360.0	357.2	11.049	0.000	0.000	0.00	0.000	1499.29	11.00
380.0	377.0	10.666	0.000	0.000	0.00	0.000	1498.33	10.62
400.0	396.8	10.449	0.000	0.000	0.00	0.000	1497.93	10.40
420.0	416.6	10.402	0.000	0.000	0.00	0.000	1498.01	10.35
440.0	436.5	10.050	0.000	0.000	0.00	0.000	1496.97	10.00
460.0	456.3	9.660	0.000	0.000	0.00	0.000	1495.86	9.61
480.0	476.1	9.337	0.000	0.000	0.00	0.000	1494.95	9.28
500.0	495.9	9.008	0.000	0.000	0.00	0.000	1494.02	8.95
520.0	515.4	8.336	0.000	0.000	0.00	0.000	1492.29	8.28
540.0	535.0	7.992	0.000	0.000	0.00	0.000	1491.85	7.93
560.0	554.7	7.047	0.000	0.000	0.00	0.000	1489.74	6.98
580.0	574.2	6.301	0.000	0.000	0.00	0.000	1488.40	6.23
600.0	593.9	5.505	0.000	0.000	0.00	0.000	1486.85	5.43
620.0	613.6	5.104	0.000	0.000	0.00	0.000	1486.91	5.02
640.0	633.4	4.682	0.000	0.000	0.00	0.000	1486.81	4.59
660.0	653.2	4.021	0.000	0.000	0.00	0.000	1485.84	3.93
680.0	673.0	3.720	0.000	0.000	0.00	0.000	1486.18	3.62
700.0	692.8	3.428	0.000	0.000	0.00	0.000	1486.62	3.32
720.0	712.6	3.234	0.000	0.000	0.00	0.000	1487.50	3.12
740.0	732.4	3.034	0.000	0.000	0.00	0.000	1488.32	2.92
760.0	752.2	2.849	0.000	0.000	0.00	0.000	1489.21	2.72
780.0	772.0	2.707	0.000	0.000	0.00	0.000	1490.25	2.58
800.0	791.8	2.512	0.000	0.000	0.00	0.000	1491.13	2.38
820.0	811.6	2.402	0.000	0.000	0.00	0.000	1492.34	2.26
840.0	831.4	2.293	0.000	0.000	0.00	0.000	1493.58	2.14
860.0	851.2	2.290	0.000	0.000	0.00	0.000	1493.65	2.14

SHIP : HNS COOK - Plessey
 STATION NUMBER : 10 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 05-AUG-1987 (DAY NUMBER 217)
 START TIME : 0608 GMT - 2
 CRUISE : CK12/87
 POSITION : 31:40.005 173:29.70E
 CUST DEPTH : 2011 METRES
 BOTTOM DEPTH : 2842 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.046	0.000	0.000	0.00	0.000	1514.04	17.04
20.0	19.9	17.043	0.000	0.000	0.00	0.000	1514.17	17.04
30.0	29.8	17.030	0.000	0.000	0.00	0.000	1514.30	17.03
40.0	39.7	17.020	0.000	0.000	0.00	0.000	1514.45	17.01
50.0	49.6	17.015	0.000	0.000	0.00	0.000	1514.62	17.01
60.0	59.6	17.002	0.000	0.000	0.00	0.000	1514.72	16.99
70.0	69.5	16.994	0.000	0.000	0.00	0.000	1514.84	16.98
80.0	79.4	16.982	0.000	0.000	0.00	0.000	1515.00	16.97
90.0	89.4	16.972	0.000	0.000	0.00	0.000	1515.11	16.96
100.0	99.3	16.965	0.000	0.000	0.00	0.000	1515.26	16.95
120.0	119.1	16.926	0.000	0.000	0.00	0.000	1515.45	16.91
140.0	139.0	16.624	0.000	0.000	0.00	0.000	1514.73	16.60
160.0	158.8	15.828	0.000	0.000	0.00	0.000	1512.55	15.80
180.0	178.7	15.586	0.000	0.000	0.00	0.000	1512.03	15.56
200.0	198.5	15.287	0.000	0.000	0.00	0.000	1511.45	15.25
220.0	218.4	15.076	0.000	0.000	0.00	0.000	1511.08	15.04
240.0	238.2	14.780	0.000	0.000	0.00	0.000	1510.40	14.74
260.0	258.0	14.392	0.000	0.000	0.00	0.000	1509.48	14.35
280.0	277.9	14.029	0.000	0.000	0.00	0.000	1508.48	13.99
300.0	297.7	13.578	0.000	0.000	0.00	0.000	1507.35	13.54
320.0	317.5	13.137	0.000	0.000	0.00	0.000	1506.19	13.09
340.0	337.4	12.945	0.000	0.000	0.00	0.000	1505.81	12.90
360.0	357.2	12.808	0.000	0.000	0.00	0.000	1505.71	12.75
380.0	377.0	12.432	0.000	0.000	0.00	0.000	1504.69	12.38
400.0	396.8	12.018	0.000	0.000	0.00	0.000	1503.58	11.97
420.0	416.7	11.791	0.000	0.000	0.00	0.000	1502.91	11.74
440.0	436.5	11.166	0.000	0.000	0.00	0.000	1502.08	11.11
460.0	456.3	10.868	0.000	0.000	0.00	0.000	1500.42	10.81
480.0	476.1	10.650	0.000	0.000	0.00	0.000	1499.72	10.59
500.0	495.9	10.251	0.000	0.000	0.00	0.000	1498.79	10.19
520.0	515.4	9.576	0.000	0.000	0.00	0.000	1496.99	9.51
540.0	535.0	8.967	0.000	0.000	0.00	0.000	1495.56	8.90
560.0	554.7	7.668	0.000	0.000	0.00	0.000	1492.13	7.60
580.0	574.2	7.061	0.000	0.000	0.00	0.000	1491.43	6.98
600.0	593.9	6.254	0.000	0.000	0.00	0.000	1489.87	6.17
620.0	613.6	5.606	0.000	0.000	0.00	0.000	1488.94	5.52
640.0	633.4	4.935	0.000	0.000	0.00	0.000	1487.80	4.84
660.0	653.2	4.277	0.000	0.000	0.00	0.000	1486.73	4.18
680.0	673.0	3.880	0.000	0.000	0.00	0.000	1485.84	3.78
700.0	692.8	3.515	0.000	0.000	0.00	0.000	1485.31	3.41
720.0	712.6	3.281	0.000	0.000	0.00	0.000	1487.71	3.17
740.0	732.4	3.012	0.000	0.000	0.00	0.000	1488.22	2.89
760.0	752.2	2.813	0.000	0.000	0.00	0.000	1489.09	2.69
780.0	772.0	2.690	0.000	0.000	0.00	0.000	1490.22	2.56
800.0	791.8	2.538	0.000	0.000	0.00	0.000	1491.23	2.40
820.0	811.6	2.406	0.000	0.000	0.00	0.000	1492.33	2.26
840.0	831.4	2.365	0.000	0.000	0.00	0.000	1492.67	2.22



SHIP : IMAS COOK - Plessey
 STATION NUMBER : 13 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 13-AUG-1987 (DAY NUMBER 225)
 START TIME : 0235 GMT - 2
 CRUISE : CR12/87
 POSITION : 30:29.40S 175:00.90W
 CAST DEPTH : 5147 METRES
 BOTTOM DEPTH : 5371 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.572	0.000	0.000	0.00	0.000	1515.66	17.57 47 0.002 0.005
20.0	19.9	17.572	0.000	0.000	0.00	0.000	1515.83	17.57 51 0.001 0.005
30.0	29.8	17.574	0.000	0.000	0.00	0.000	1516.00	17.57 49 0.004 0.005
40.0	39.7	17.575	0.000	0.000	0.00	0.000	1516.18	17.57 54 0.005 0.007
50.0	49.7	17.568	0.000	0.000	0.00	0.000	1516.33	17.56 49 0.005 0.004
60.0	59.6	17.570	0.000	0.000	0.00	0.000	1516.47	17.56 36 0.004 0.002
70.0	69.5	17.571	0.000	0.000	0.00	0.000	1516.63	17.56 40 0.002 0.004
80.0	79.4	17.572	0.000	0.000	0.00	0.000	1516.84	17.56 45 0.000 0.002
90.0	89.4	17.572	0.000	0.000	0.00	0.000	1516.99	17.56 47 0.002 0.004
100.0	99.3	17.558	0.000	0.000	0.00	0.000	1517.10	17.54 56 0.005 0.008
120.0	119.1	17.453	0.000	0.000	0.00	0.000	1517.01	17.43 47 0.031 0.059
140.0	139.0	16.767	0.000	0.000	0.00	0.000	1515.14	16.74 30 0.073 0.082
160.0	158.8	16.166	0.000	0.000	0.00	0.000	1513.58	16.14 47 0.071 0.069
180.0	178.7	15.583	0.000	0.000	0.00	0.000	1512.39	15.65 26 0.071 0.081
200.0	198.5	15.201	0.000	0.000	0.00	0.000	1511.14	15.17 36 0.064 0.052
220.0	218.4	14.796	0.000	0.000	0.00	0.000	1510.18	14.76 56 0.069 0.074
240.0	238.2	14.355	0.000	0.000	0.00	0.000	1509.05	14.32 51 0.061 0.073
260.0	258.1	14.003	0.000	0.000	0.00	0.000	1508.12	13.96 27 0.055 0.058
280.0	277.9	13.700	0.000	0.000	0.00	0.000	1507.48	13.66 47 0.018 0.020
300.0	297.7	13.238	0.000	0.000	0.00	0.000	1506.14	13.20 32 0.051 0.065
320.0	317.5	12.791	0.000	0.000	0.00	0.000	1504.98	12.75 34 0.037 0.028
340.0	337.4	12.404	0.000	0.000	0.00	0.000	1503.83	12.36 32 0.089 0.092
360.0	357.2	11.953	0.000	0.000	0.00	0.000	1502.63	11.91 38 0.073 0.070
380.0	377.1	11.478	0.000	0.000	0.00	0.000	1501.20	11.43 34 0.118 0.129
400.0	396.9	11.044	0.000	0.000	0.00	0.000	1499.94	10.99 32 0.048 0.051
420.0	416.7	10.626	0.000	0.000	0.00	0.000	1498.77	10.57 39 0.071 0.078
440.0	436.5	10.184	0.000	0.000	0.00	0.000	1497.52	10.13 34 0.017 0.018
460.0	456.3	9.746	0.000	0.000	0.00	0.000	1496.92	9.89 28 0.048 0.050
480.0	476.2	9.311	0.000	0.000	0.00	0.000	1495.69	9.46 28 0.014 0.011
500.0	496.0	8.876	0.000	0.000	0.00	0.000	1495.05	9.22 29 0.037 0.043
520.0	515.8	8.454	0.000	0.000	0.00	0.000	1493.11	8.49 34 0.070 0.073
540.0	535.6	8.027	0.000	0.000	0.00	0.000	1491.86	7.96 29 0.059 0.055
560.0	555.4	7.598	0.000	0.000	0.00	0.000	1489.46	6.91 34 0.013 0.016
580.0	575.2	7.172	0.000	0.000	0.00	0.000	1488.24	6.20 34 0.015 0.015
600.0	595.0	6.746	0.000	0.000	0.00	0.000	1487.32	5.56 35 0.019 0.014
620.0	614.8	6.321	0.000	0.000	0.00	0.000	1486.49	4.95 34 0.014 0.012
640.0	634.6	5.896	0.000	0.000	0.00	0.000	1485.98	4.40 24 0.005 0.005
660.0	654.4	5.471	0.000	0.000	0.00	0.000	1485.72	3.94 24 0.008 0.008
680.0	674.2	5.046	0.000	0.000	0.00	0.000	1485.01	3.59 36 0.004 0.004
700.0	694.0	4.621	0.000	0.000	0.00	0.000	1484.11	3.22 27 0.018 0.011
720.0	713.8	4.196	0.000	0.000	0.00	0.000	1483.66	2.94 27 0.006 0.005
740.0	733.6	3.771	0.000	0.000	0.00	0.000	1482.57	2.75 22 0.003 0.001
760.0	753.4	3.346	0.000	0.000	0.00	0.000	1481.50	2.57 29 0.005 0.005
780.0	773.2	2.921	0.000	0.000	0.00	0.000	1479.71	2.44 25 0.004 0.004
800.0	793.0	2.496	0.000	0.000	0.00	0.000	1478.05	2.36 24 0.003 0.001
820.0	812.8	2.071	0.000	0.000	0.00	0.000	1476.44	2.28 29 0.003 0.004
840.0	832.6	1.646	0.000	0.000	0.00	0.000	1474.87	2.21 32 0.006 0.003
860.0	852.4	1.221	0.000	0.000	0.00	0.000	1473.23	2.14 33 0.002 0.002
880.0	872.2	0.796	0.000	0.000	0.00	0.000	1471.67	2.06 33 0.000 0.002
900.0	892.0	0.371	0.000	0.000	0.00	0.000	1470.09	1.99 38 0.002 0.004
920.0	911.8	0.000	0.000	0.000	0.00	0.000	1468.53	1.92 30 0.001 0.005
940.0	931.6	0.000	0.000	0.000	0.00	0.000	1466.99	1.86 27 0.005 0.004

SHIP : IMAS COOK - Plessey
 STATION NUMBER : 14 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 15-AUG-1987 (DAY NUMBER 228)
 START TIME : 0220 GMT - 2
 CRUISE : CR12/87
 POSITION : 30:04.00S 170:40.00W
 CAST DEPTH : 1988 METRES
 BOTTOM DEPTH : 5658 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	17.082	0.000	0.000	0.00	0.000	1514.05	17.08 15 0.005 0.003
10.0	9.9	17.079	0.000	0.000	0.00	0.000	1514.16	17.08 58 0.004 0.004
20.0	19.9	17.062	0.000	0.000	0.00	0.000	1514.26	17.06 56 0.010 0.006
30.0	29.8	17.046	0.000	0.000	0.00	0.000	1514.39	17.04 49 0.001 0.004
40.0	39.7	17.016	0.000	0.000	0.00	0.000	1514.56	17.04 43 0.000 0.002
50.0	49.7	17.046	0.000	0.000	0.00	0.000	1514.74	17.04 39 0.000 0.004
60.0	59.6	17.046	0.000	0.000	0.00	0.000	1514.88	17.04 53 0.000 0.002
70.0	69.5	17.047	0.000	0.000	0.00	0.000	1515.07	17.04 44 0.003 0.005
80.0	79.4	17.047	0.000	0.000	0.00	0.000	1515.22	17.03 49 0.002 0.000
90.0	89.4	17.048	0.000	0.000	0.00	0.000	1515.39	17.03 46 0.004 0.004
100.0	99.3	17.053	0.000	0.000	0.00	0.000	1515.54	17.04 49 0.004 0.002
120.0	119.1	17.054	0.000	0.000	0.00	0.000	1515.87	17.03 46 0.003 0.001
140.0	139.0	17.049	0.000	0.000	0.00	0.000	1516.18	17.03 39 0.004 0.004
160.0	158.8	16.722	0.000	0.000	0.00	0.000	1515.15	16.70 48 0.286 0.408
180.0	178.7	15.716	0.000	0.000	0.00	0.000	1512.53	15.69 36 0.028 0.032
200.0	198.5	15.145	0.000	0.000	0.00	0.000	1511.64	15.31 60 0.105 0.112
220.0	218.4	15.048	0.000	0.000	0.00	0.000	1511.02	15.01 44 0.037 0.045
240.0	238.2	14.445	0.000	0.000	0.00	0.000	1510.00	14.61 64 0.034 0.036
260.0	258.1	14.379	0.000	0.000	0.00	0.000	1509.44	14.34 39 0.033 0.050
280.0	277.9	13.908	0.000	0.000	0.00	0.000	1508.11	13.87 49 0.079 0.116
300.0	297.7	13.280	0.000	0.000	0.00	0.000	1506.16	13.24 55 0.135 0.190
320.0	317.5	12.591	0.000	0.000	0.00	0.000	1504.19	12.55 36 0.059 0.069
340.0	337.4	12.106	0.000	0.000	0.00	0.000	1502.86	12.06 32 0.063 0.075
360.0	357.2	11.580	0.000	0.000	0.00	0.000	1501.20	11.53 34 0.089 0.095
380.0	377.1	10.924	0.000	0.000	0.00	0.000	1499.06	10.88 24 0.117 0.117
400.0	396.9	10.533	0.000	0.000	0.00	0.000	1498.16	10.48 28 0.018 0.019
420.0	416.7	10.219	0.000	0.000	0.00	0.000	1497.27	10.17 32 0.063 0.069
440.0	436.5	9.706	0.000	0.000	0.00	0.000	1495.70	9.66 33 0.043 0.042
460.0	456.3	9.258	0.000	0.000	0.00	0.000	1494.30	9.22 25 0.055 0.039
480.0	476.2	8.954	0.000	0.000	0.00	0.000	1493.49	8.90 27 0.048 0.053
500.0	496.0	8.669	0.000	0.000	0.00	0.000	1492.75	8.61 30 0.047 0.044
520.0	515.8	8.097	0.000	0.000	0.00	0.000	1491.40	8.04 27 0.019 0.017
540.0	535.6	7.604	0.000	0.000	0.00	0.000	1490.24	7.54 32 0.022 0.027
560.0	555.4	7.087	0.000	0.000	0.00	0.000	1489.10	6.82 24 0.011 0.009
580.0	575.2	6.302	0.000	0.000	0.00	0.000	1488.33	6.23 32 0.025 0.021
600.0	595.0	5.573	0.000	0.000	0.00	0.000	1487.38	5.59 34 0.023 0.022
620.0	614.8	4.972	0.000	0.000	0.00	0.000	1486.24	4.89 26 0.025 0.020
640.0	634.6	4.485	0.000	0.000	0.00	0.000	1485.89	4.40 28 0.016 0.012
660.0	654.4	4.012	0.000	0.000	0.00	0.000	1485.60	3.92 37 0.022 0.016
680.0	674.2	3.515	0.000	0.000	0.00	0.000	1485.25	3.42 30 0.007 0.006
700.0	694.0	3.193	0.000	0.000	0.00	0.000	1485.57	3.09 31 0.013 0.007
720.0	713.8	2.734	0.000	0.000	0.00	0.000	1486.17	2.83 29 0.010 0.005
740.0	733.6	2.361	0.000	0.000	0.00	0.000	1487.13	2.65 26 0.003 0.003
760.0	753.4	2.000	0.000	0.000	0.00	0.000	1488.31	2.52 30 0.005 0.000
780.0	773.2	1.519	0.000	0.000	0.00	0.000	1489.47	2.39 36 0.006 0.003
800.0	793.0	1.000	0.000	0.000	0.00	0.000	1490.83	2.30 34 0.003 0.004
820.0	812.8	0.431	0.000	0.000	0.00	0.000	1492.09	2.20 29 0.004 0.002
840.0	832.6	0.000	0.000	0.000	0.00	0.000	1492.20	2.19 83 0.005 0.005

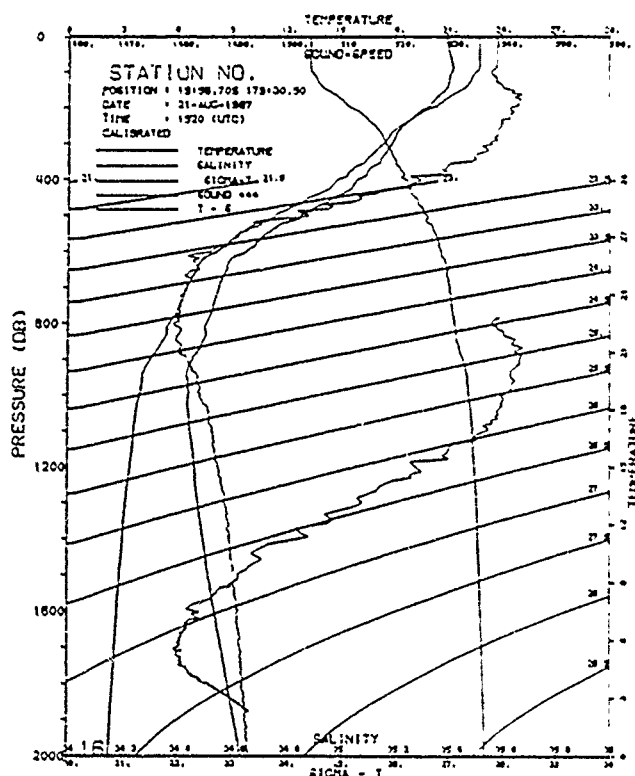
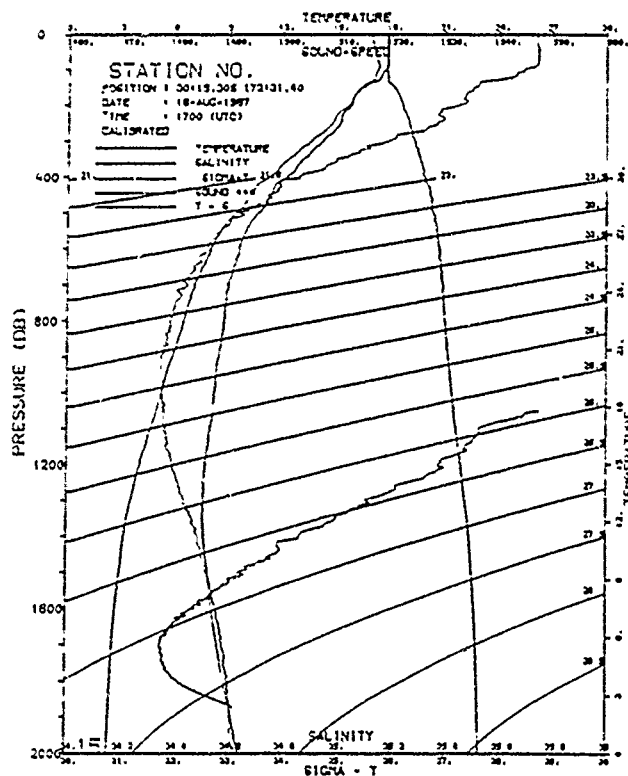
2700.0	2664.4	1.973	0.000	0.000	0.00	0.000	1502.36	1.77	35	0.004	0.001
2800.0	2762.5	1.935	0.000	0.000	0.00	0.000	1503.85	1.72	33	0.002	0.004
2900.0	2860.4	1.859	0.000	0.000	0.00	0.000	1505.31	1.64	34	0.004	0.002
3000.0	2956.4	1.794	0.000	0.000	0.00	0.000	1506.73	1.57	29	0.000	0.002
3100.0	3056.3	1.757	0.000	0.000	0.00	0.000	1508.27	1.52	22	0.004	0.002
3200.0	3154.2	1.714	0.000	0.000	0.00	0.000	1509.78	1.47	27	0.003	0.004
3300.0	3252.0	1.653	0.000	0.000	0.00	0.000	1511.27	1.40	29	0.004	0.004
3400.0	3349.8	1.574	0.000	0.000	0.00	0.000	1512.70	1.31	30	0.004	0.004
3500.0	3447.5	1.502	0.000	0.000	0.00	0.000	1514.08	1.23	31	0.003	0.003
3600.0	3545.2	1.420	0.000	0.000	0.00	0.000	1515.44	1.14	20	0.004	0.004
3700.0	3642.8	1.342	0.000	0.000	0.00	0.000	1516.81	1.06	18	0.005	0.003
3800.0	3740.5	1.274	0.000	0.000	0.00	0.000	1518.22	0.98	32	0.004	0.004
3900.0	3838.0	1.215	0.000	0.000	0.00	0.000	1519.71	0.91	25	0.004	0.000
4000.0	3935.2	1.157	0.000	0.000	0.00	0.000	1521.23	0.85	38	0.005	0.003
4100.0	4033.3	1.122	0.000	0.000	0.00	0.000	1522.79	0.80	38	0.004	0.003
4200.0	4130.4	1.083	0.000	0.000	0.00	0.000	1524.30	0.76	35	0.004	0.002
4300.0	4227.8	1.062	0.000	0.000	0.00	0.000	1525.00	0.72	20	0.004	0.004
4400.0	4325.2	1.041	0.000	0.000	0.00	0.000	1527.69	0.69	22	0.004	0.004
4500.0	4422.5	1.037	0.000	0.000	0.00	0.000	1529.40	0.67	35	0.004	0.004
4600.0	4519.7	1.029	0.000	0.000	0.00	0.000	1531.12	0.66	34	0.004	0.002
4700.0	4617.0	1.025	0.000	0.000	0.00	0.000	1532.87	0.64	23	0.003	0.003
4800.0	4714.1	1.026	0.000	0.000	0.00	0.000	1534.66	0.63	27	0.004	0.000
4900.0	4811.3	1.030	0.000	0.000	0.00	0.000	1536.40	0.62	31	0.004	0.003
5000.0	4908.4	1.032	0.000	0.000	0.00	0.900	1538.21	0.61	24	0.004	0.000
5100.0	5005.4	1.042	0.000	0.000	0.00	0.000	1539.98	0.61	19	0.004	0.003
5200.0	5102.4	1.050	0.000	0.000	0.00	0.000	1541.82	0.60	16	0.004	0.019
5300.0	5199.4	1.053	0.000	0.000	0.00	0.000	1543.59	0.59	25	0.004	0.002
5400.0	5296.3	1.063	0.000	0.000	0.00	0.000	1545.36	0.59	31	0.004	0.003
5450.0	5344.8	1.070	0.000	0.000	0.00	0.000	1546.23	0.59	115	0.004	0.000

SHIP : HMAS COOK - Plessey
 STATION NUMBER : 15 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 16-AUG-1987 (DAY NUMBER 228)
 START TIME : 1700 GMT - Z
 CRUISE : CR12/87
 POSITION : 30:15.30S 172:11.40W
 CAST DEPTH : 1997 METRES
 BOTTOM DEPTH : 5750 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	17.764	0.000	0.000	0.00	0.000	1516.16	17.76 7 0.000 0.000
10.0	9.9	17.753	0.000	0.000	0.00	0.000	1516.29	17.76 52 0.003 0.004
20.0	19.9	17.764	0.000	0.000	0.00	0.000	1516.47	17.76 51 0.000 0.003
30.0	29.8	17.763	0.000	0.000	0.00	0.000	1516.60	17.76 45 0.002 0.004
40.0	39.7	17.764	0.000	0.000	0.00	0.000	1516.79	17.76 45 0.000 0.005
50.0	49.7	17.764	0.000	0.000	0.00	0.000	1516.97	17.76 31 0.000 0.003
60.0	59.6	17.764	0.000	0.000	0.00	0.000	1517.13	17.75 47 0.001 0.004
70.0	69.5	17.765	0.000	0.000	0.00	0.000	1517.30	17.75 57 0.002 0.004
80.0	79.4	17.771	0.000	0.000	0.00	0.000	1517.47	17.76 33 0.004 0.003
90.0	89.4	17.764	0.000	0.000	0.00	0.000	1517.61	17.75 38 0.003 0.006
100.0	99.3	17.655	0.000	0.000	0.00	0.000	1517.31	17.64 43 0.070 0.089
120.0	119.1	17.389	0.000	0.000	0.00	0.000	1516.87	17.37 51 0.028 0.038
140.0	139.0	16.698	0.000	0.000	0.00	0.000	1514.86	16.67 43 0.092 0.078
160.0	158.8	16.151	0.000	0.000	0.00	0.000	1513.55	16.13 31 0.056 0.081
180.0	178.7	15.810	0.000	0.000	0.00	0.000	1512.83	15.78 41 0.032 0.036
200.0	198.5	15.572	0.000	0.000	0.00	0.000	1512.39	15.54 40 0.058 0.075
220.0	218.4	15.047	0.000	0.000	0.00	0.000	1510.98	15.01 40 0.054 0.052
240.0	238.2	14.813	0.000	0.000	0.00	0.000	1510.63	14.78 56 0.028 0.031
260.0	258.1	14.504	0.000	0.000	0.00	0.000	1509.89	14.47 75 0.077 0.086
280.0	277.9	14.074	0.000	0.000	0.00	0.000	1508.69	14.03 51 0.089 0.087
300.0	297.7	13.544	0.000	0.000	0.00	0.000	1507.23	13.50 49 0.079 0.091
320.0	317.6	13.010	0.000	0.000	0.00	0.000	1505.69	12.97 34 0.048 0.039
340.0	337.4	12.611	0.000	0.000	0.00	0.000	1504.57	12.56 32 0.089 0.116
360.0	357.2	12.070	0.000	0.000	0.00	0.000	1503.04	12.02 32 0.077 0.078
380.0	377.1	11.759	0.000	0.000	0.00	0.000	1502.26	11.71 29 0.035 0.045
400.0	396.9	11.235	0.000	0.000	0.00	0.000	1500.67	11.18 29 0.076 0.068
420.0	416.7	10.636	0.000	0.000	0.00	0.000	1498.74	10.58 28 0.067 0.057
440.0	436.5	10.343	0.000	0.000	0.00	0.000	1498.12	10.29 30 0.033 0.039
460.0	456.4	10.048	0.000	0.000	0.00	0.000	1497.36	9.99 27 0.017 0.017
480.0	476.2	9.817	0.000	0.000	0.00	0.000	1496.75	9.76 27 0.063 0.062
500.0	496.0	9.361	0.000	0.000	0.00	0.000	1495.33	9.30 24 0.087 0.077
550.0	545.5	8.590	0.000	0.000	0.00	0.000	1493.25	8.53 25 0.025 0.032
600.0	595.0	8.029	0.000	0.000	0.00	0.000	1491.94	7.97 27 0.011 0.008
700.0	694.0	7.109	0.000	0.000	0.00	0.000	1489.97	7.04 32 0.007 0.006
800.0	793.0	6.509	0.000	0.000	0.00	0.000	1489.17	6.43 32 0.015 0.016
900.0	891.9	5.857	0.000	0.000	0.00	0.000	1488.18	5.78 32 0.025 0.023
1000.0	990.8	5.263	0.000	0.000	0.00	0.000	1487.40	5.18 27 0.018 0.016
1100.0	1089.6	4.671	0.000	0.000	0.00	0.000	1486.67	4.58 36 0.018 0.017
1200.0	1188.4	4.050	0.000	0.000	0.30	0.000	1485.81	3.96 30 0.001 0.008
1300.0	1287.1	3.566	0.000	0.000	0.00	0.000	1485.46	3.47 26 0.009 0.006
1400.0	1385.8	3.185	0.000	0.000	0.00	0.000	1485.57	3.08 32 0.006 0.004
1500.0	1484.4	2.960	0.000	0.000	0.00	0.000	1486.34	2.85 33 0.013 0.007
1600.0	1583.0	2.760	0.000	0.000	0.00	0.000	1487.17	2.65 28 0.005 0.001
1700.0	1681.5	2.611	0.000	0.000	0.00	0.000	1488.23	2.49 36 0.004 0.000
1800.0	1780.0	2.505	0.000	0.000	0.00	0.000	1489.44	2.38 27 0.005 0.003
1900.0	1878.5	2.427	0.000	0.000	0.00	0.000	1490.79	2.29 31 0.005 0.004
2000.0	1976.9	2.360	0.000	0.000	0.00	0.000	1492.18	2.22 58 0.002 0.000
2020.0	1996.6	2.342	0.000	0.000	0.00	0.000	1492.46	2.20 50 0.003 0.000

SHIP : HMAS COOK - Plessey
 STATION NUMBER : 16 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 21-AUG-1987 (DAY NUMBER 233)
 START TIME : 1520 GMT - Z
 CRUISE : CR12/87
 POSITION : 19:56.70S 179:30.50W
 CAST DEPTH : 2392 METRES
 BOTTOM DEPTH : 2417 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	22.761	0.000	0.000	0.00	0.000	1529.66	22.76 8 0.000 0.004
10.0	9.9	22.759	0.000	0.000	0.00	0.000	1529.73	22.76 43 0.003 0.007
20.0	19.9	22.761	0.000	0.000	0.00	0.000	1529.91	22.76 49 0.000 0.004
30.0	29.8	22.763	0.000	0.000	0.00	0.000	1530.09	22.76 52 0.004 0.003
40.0	39.8	22.770	0.000	0.000	0.00	0.000	1530.28	22.76 52 0.003 0.004
50.0	49.7	22.771	0.000	0.000	0.00	0.000	1530.46	22.76 41 0.000 0.003
60.0	59.6	22.771	0.000	0.000	0.00	0.000	1530.63	22.76 42 0.000 0.004
70.0	69.6	22.772	0.000	0.000	0.00	0.000	1530.80	22.76 43 0.003 0.004
80.0	79.5	22.758	0.000	0.000	0.00	0.000	1530.90	22.74 38 0.009 0.011
90.0	89.4	22.735	0.000	0.000	0.00	0.000	1531.01	22.72 28 0.009 0.023
100.0	99.4	22.570	0.000	0.000	0.00	0.000	1530.71	22.55 42 0.069 0.074
120.0	119.2	22.306	0.000	0.000	0.00	0.000	1530.39	22.28 43 0.005 0.004
140.0	139.1	22.047	0.000	0.000	0.00	0.000	1530.05	22.02 53 0.038 0.042
160.0	159.0	21.409	0.000	0.000	0.00	0.000	1528.65	21.38 46 0.142 0.130
180.0	178.8	20.765	0.000	0.000	0.00	0.000	1527.31	20.73 63 0.073 0.079
200.0	198.7	20.091	0.000	0.000	0.00	0.000	1525.71	20.06 52 0.175 0.176
220.0	218.5	19.284	0.000	0.000	0.00	0.000	1523.80	19.24 58 0.113 0.111
240.0	238.4	18.621	0.000	0.000	0.00	0.000	1522.19	18.58 49 0.096 0.092
260.0	258.3	18.082	0.000	0.000	0.00	0.000	1520.96	18.04 35 0.063 0.066
280.0	278.1	17.728	0.000	0.000	0.00	0.000	1520.27	17.68 42 0.029 0.027
300.0	298.0	17.380	0.000	0.000	0.00	0.000	1519.53	17.33 37 0.073 0.062
320.0	317.8	16.970	0.000	0.000	0.00	0.000	1518.64	16.92 30 0.031 0.036
340.0	337.6	16.516	0.000	0.000	0.00	0.000	1517.56	16.46 25 0.059 0.054
360.0	357.5	16.054	0.000	0.000	0.00	0.000	1516.23	16.00 35 0.170 0.180
380.0	377.3	15.477	0.000	0.000	0.00	0.000	1514.86	15.42 31 0.043 0.024
400.0	397.2	14.877	0.000	0.000	0.00	0.000	1513.13	14.82 25 0.061 0.048
420.0	417.0	14.491	0.000	0.000	0.00	0.000	1512.28	14.43 28 0.033 0.027
440.0	436.8	13.820	0.000	0.000	0.00	0.000	1510.16	13.76 31 0.113 0.147
460.0	456.7	13.002	0.000	0.000	0.00	0.000	1507.79	12.94 34 0.072 0.091
480.0	476.5	12.167	0.000	0.000	0.00	0.000	1505.17	12.10 32 0.026 0.045
500.0	496.3	11.377	0.000	0.000	0.00	0.000	1502.71	11.31 33 0.039 0.048
550.0	545.9	9.439	0.000	0.000	0.00	0.000	1496.29	9.38 28 0.091 0.071
600.0	595.5	8.192	0.000	0.000	0.00	0.000	1492.43	8.13 25 0.084 0.081
700.0	694.6	6.555	0.000	0.000	0.00	0.000	1487.73	6.49 26 0.020 0.018
800.0	793.6	5.586	0.000	0.000	0.00	0.000	1485.45	5.52 24 0.038 0.040
900.0	892.6	4.523	0.000	0.000	0.00	0.000	1482.81	4.45 33 0.039 0.033
1000.0	991.5	3.932	0.000	0.000	0.00	0.000	1482.09	3.86 36 0.008 0.008
1100.0	1090.4	3.617	0.000	0.000	0.00	0.000	1482.51	3.53 27 0.008 0.003
1200.0	1189.2	3.427	0.000	0.000	0.00	0.000	1483.35	3.34 25 0.006 0.005
1300.0	1288.0	3.179	0.000	0.000	0.00	0.000	1483.99	3.08 33 0.004 0.003
1400.0	1386.8	2.877	0.000	0.000	0.00	0.000	1485.05	2.93 32 0.004 0.003
1500.0	1485.5	2.872	0.000	0.000	0.00	0.000	1486.02	2.76 39 0.005 0.003
1600.0	1584.2	2.735	0.000	0.000	0.00	0.000	1487.12	2.62 31 0.000 0.004
1700.0	1682.8	2.611	0.000	0.000	0.00	0.000	1488.27	2.49 29 0.004 0.004
1800.0	1781.3	2.498	0.000	0.000	0.00	0.000	1489.46	2.37 32 0.005 0.005
1900.0	1879.9	2.379	0.000	0.000	0.00	0.000	1490.61	2.24 35 0.003 0.003
2000.0	1978.3	2.290	0.000	0.000	0.00	0.000	1491.93	2.15 26 0.000 0.000
2100.0	2076.8	2.219	0.000	0.000	0.00	0.000	1493.29	2.07 32 0.004 0.004
2200.0	2175.1	2.129	0.000	0.000	0.00	0.000	1494.62	1.97 30 0.003 0.004
2300.0	2273.5	2.080	0.000	0.000	0.00	0.000	1496.10	1.92 26 0.004 0.004
2400.0	2371.8	2.044	0.000	0.000	0.00	0.000	1497.60	1.87 39 0.005 0.003
2420.0	2391.4	2.027	0.000	0.000	0.00	0.000	1497.91	1.85 86 0.009 0.006

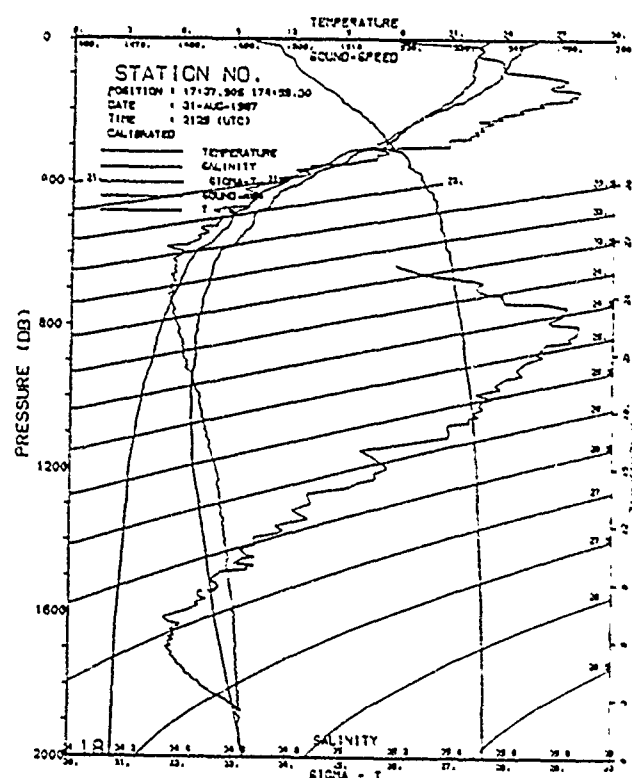
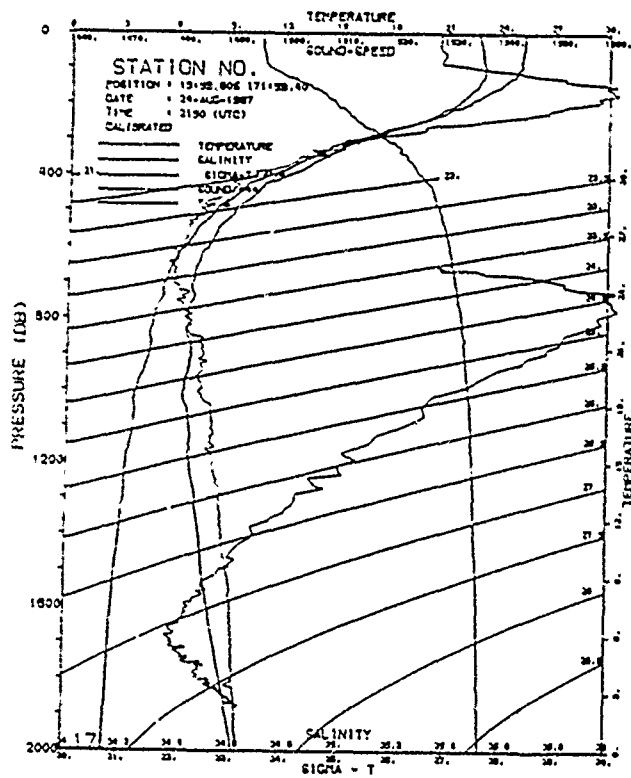


SHIP : HMAS COOK - Plessey
 STATION NUMBER : 17 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 24-AUG-1987 (DAY NUMBER 236)
 START TIME : 2150 GMT = Z
 CRUISE : CR12/87
 POSITION : 15:59.60S 171:59.40W
 CAST DEPTH : 1967 METRES
 BOTTOM DEPTH : 6433 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	25.234	0.000	0.000	0.00	0.000	1535.64	25.23
20.0	19.9	25.216	0.000	0.000	0.00	0.000	1535.79	25.21
30.0	29.8	25.208	0.000	0.000	0.00	0.000	1535.93	25.20
40.0	39.8	25.207	0.000	0.000	0.00	0.000	1536.11	25.20
50.0	49.7	25.167	0.000	0.000	0.00	0.000	1536.18	25.16
60.0	59.6	25.122	0.000	0.000	0.00	0.000	1536.24	25.11
70.0	69.7	25.084	0.000	0.000	0.00	0.000	1536.31	25.07
80.0	79.5	25.047	0.000	0.000	0.00	0.000	1536.38	25.03
90.0	89.5	25.048	0.000	0.000	0.00	0.000	1536.61	25.03
100.0	99.4	25.011	0.000	0.000	0.00	0.000	1536.72	24.99
120.0	119.3	24.702	0.000	0.000	0.00	0.000	1536.54	24.68
140.0	139.1	24.082	0.000	0.000	0.00	0.000	1535.50	24.05
160.0	159.0	23.429	0.000	0.000	0.00	0.000	1534.31	23.40
180.0	178.9	22.596	0.000	0.000	0.00	0.000	1532.70	22.66
200.0	198.7	22.040	0.000	0.000	0.00	0.000	1531.25	22.00
220.0	218.6	20.919	0.000	0.000	0.00	0.000	1528.48	20.88
240.0	238.4	20.005	0.000	0.000	0.00	0.000	1526.07	19.96
260.0	258.3	18.649	0.000	0.000	0.00	0.000	1522.13	18.60
280.0	278.2	17.133	0.000	0.000	0.00	0.000	1518.05	17.09
300.0	298.0	15.790	0.000	0.000	0.00	0.000	1513.92	15.74
320.0	317.9	14.481	0.000	0.000	0.00	0.000	1510.24	14.43
340.0	337.7	13.706	0.000	0.000	0.00	0.000	1507.98	13.66
360.0	357.6	12.901	0.000	0.000	0.00	0.000	1505.50	12.85
380.0	377.4	12.179	0.000	0.000	0.00	0.000	1503.35	12.13
400.0	397.3	11.183	0.000	0.000	0.00	0.000	1500.16	11.13
420.0	417.1	10.227	0.000	0.000	0.00	0.000	1496.91	10.18
440.0	436.9	9.638	0.000	0.000	0.00	0.000	1495.29	9.59
460.0	456.8	9.212	0.000	0.000	0.00	0.000	1494.03	9.16
480.0	476.6	8.661	0.000	0.000	0.00	0.000	1492.18	8.61
500.0	496.5	8.199	0.000	0.000	0.00	0.000	1490.80	8.15
550.0	546.0	7.183	0.000	0.000	0.00	0.000	1487.76	7.13
600.0	595.6	6.555	0.000	0.000	0.00	0.000	1486.09	6.50
700.0	694.7	5.438	0.000	0.000	0.00	0.000	1483.26	5.38
800.0	793.8	4.791	0.000	0.000	0.00	0.000	1482.33	4.73
900.0	892.8	4.562	0.000	0.000	0.00	0.000	1481.13	4.49
1000.0	991.7	3.817	0.000	0.000	0.00	0.000	1481.78	3.77
1100.0	1090.6	3.680	0.000	0.000	0.00	0.000	1482.79	3.60
1200.0	1189.5	3.136	0.000	0.000	0.00	0.000	1483.00	3.25
1300.0	1288.3	3.195	0.000	0.000	0.00	0.000	1484.07	3.10
1400.0	1387.1	3.016	0.000	0.000	0.00	0.000	1484.94	2.92
1500.0	1485.8	2.769	0.000	0.000	0.00	0.000	1485.57	2.66
1600.0	1584.5	2.634	0.000	0.000	0.00	0.000	1486.68	2.52
1700.0	1683.1	2.535	0.000	0.000	0.00	0.000	1487.97	2.41
1800.0	1781.7	2.452	0.000	0.000	0.00	0.000	1489.26	2.32
1900.0	1880.3	2.310	0.000	0.000	0.00	0.000	1490.44	2.20
1990.0	1968.9	2.151	0.000	0.000	0.00	0.000	1491.61	2.11

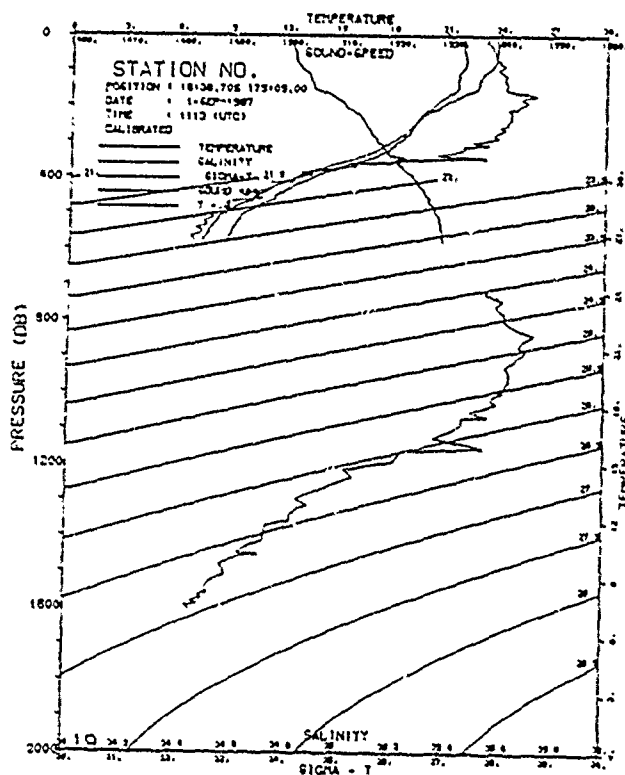
SHIP : HMAS COOK - Plessey
 STATION NUMBER : 18 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 31-AUG-1987 (DAY NUMBER 243)
 START TIME : 2125 GMT = Z
 CRUISE : CR12/87
 POSITION : 17:37.90S 174:59.30W
 CAST DEPTH : 2035 METRES
 BOTTOM DEPTH : 2370 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	25.635	0.000	0.000	0.00	0.000	1536.28	25.63
10.0	9.9	25.531	0.000	0.000	0.00	0.000	1536.05	25.53
20.0	19.9	24.841	0.000	0.000	0.00	0.000	1534.90	24.84
30.0	29.8	24.721	0.000	0.000	0.00	0.000	1534.89	24.71
40.0	39.8	24.589	0.000	0.000	0.00	0.000	1534.73	24.58
50.0	49.7	24.290	0.000	0.000	0.00	0.000	1534.15	24.28
60.0	59.6	24.102	0.000	0.000	0.00	0.000	1534.00	24.09
70.0	69.6	24.068	0.000	0.000	0.00	0.000	1534.06	24.05
80.0	79.5	23.914	0.000	0.000	0.00	0.000	1533.83	23.90
90.0	89.4	23.735	0.000	0.000	0.00	0.000	1533.57	23.72
100.0	99.4	23.655	0.000	0.000	0.00	0.000	1533.67	23.63
120.0	119.2	23.344	0.000	0.000	0.00	0.000	1533.29	23.32
140.0	139.1	22.620	0.000	0.000	0.00	0.000	1531.83	22.59
160.0	159.0	21.997	0.000	0.000	0.00	0.000	1530.51	21.97
180.0	178.8	21.296	0.000	0.000	0.00	0.000	1528.75	21.26
200.0	198.7	20.284	0.000	0.000	0.00	0.000	1526.26	20.25
220.0	218.6	19.312	0.000	0.000	0.00	0.000	1523.80	19.27
240.0	238.4	18.619	0.000	0.000	0.00	0.000	1522.09	18.58
260.0	258.3	17.950	0.000	0.000	0.00	0.000	1520.48	17.91
280.0	278.1	17.432	0.000	0.000	0.00	0.000	1519.19	17.38
300.0	298.0	16.714	0.000	0.000	0.00	0.000	1517.44	16.67
320.0	317.8	15.053	0.000	0.000	0.00	0.000	1510.52	14.35
340.0	337.7	14.402	0.000	0.000	0.00	0.000	1507.10	13.79
360.0	357.5	13.439	0.000	0.000	0.00	0.000	1504.26	12.34
380.0	377.4	12.387	0.000	0.000	0.00	0.000	1502.19	11.68
400.0	397.2	11.734	0.000	0.000	0.00	0.000	1499.30	10.80
420.0	417.1	10.849	0.000	0.000	0.00	0.000	1497.61	10.22
440.0	436.9	10.273	0.000	0.000	0.00	0.000	1496.52	9.81
460.0	456.7	9.868	0.000	0.000	0.00	0.000	1496.52	9.81
480.0	476.6	9.336	0.000	0.000	0.00	0.000	1494.62	9.28
500.0	496.4	8.833	0.000	0.000	0.00	0.000	1493.30	8.78
550.0	546.0	8.077	0.000	0.000	0.00	0.000	1491.19	8.02
600.0	595.6	6.821	0.000	0.000	0.00	0.000	1487.16	5.76
700.0	694.6	5.819	0.000	0.000	0.00	0.000	1484.88	5.78
800.0	793.7	5.000	0.000	0.000	0.00	0.000	1483.16	4.93
900.0	892.7	4.506	0.000	0.000	0.00	0.000	1482.05	4.43
1000.0	991.6	3.932	0.000	0.000	0.00	0.000	1482.17	3.86
1100.0	1090.5	3.559	0.000	0.000	0.00	0.000	1482.29	3.18
1200.0	1189.4	3.251	0.000	0.000	0.00	0.000	1482.67	3.15
1300.0	1288.2	3.142	0.000	0.000	0.00	0.000	1483.65	3.05
1400.0	1387.0	2.992	0.000	0.000	0.00	0.000	1484.91	2.89
1500.0	1485.7	2.815	0.000	0.000	0.00	0.000	1485.84	2.71
1600.0	1584.4	2.634	0.000	0.000	0.00	0.000	1486.66	2.52
1700.0	1683.0	2.553	0.000	0.000	0.00	0.000	1488.06	2.43
1800.0	1781.6	2.485	0.000	0.000	0.00	0.000	1489.16	2.36
1900.0	1880.1	2.442	0.000	0.000	0.00	0.000	1490.94	2.31
2000.0	1978.6	2.373	0.000	0.000	0.00	0.000	1492.36	2.23
2030.0	2037.7	2.339	0.000	0.000	0.00	0.000	1493.08	2.19



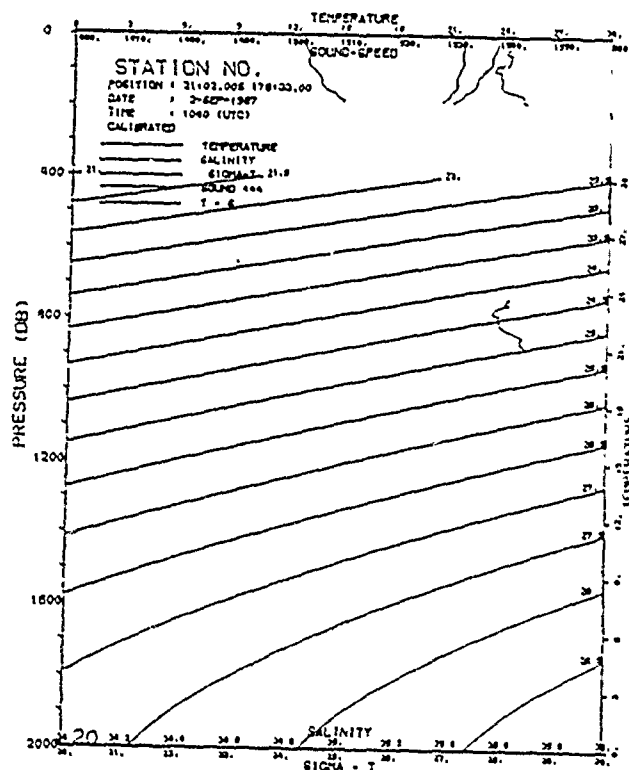
SHIP : HWAS COOK - Plessey
 STATION NUMBER : 19 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 01-SEP-1987 (DAY NUMBER 244)
 START TIME : 1113 GMT - Z
 CRUISE : C012/87
 POSITION : 18:38.70S 175:05.00E
 CAST DEPTH : 576 METRES
 BOTTOM DEPTH : 2582 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	24.046	0.000	0.000	0.00	0.000	1531.05	24.04 43 0.005 0.004
20.0	19.9	23.962	0.000	0.000	0.00	0.000	1532.97	23.96 58 0.045 0.038
30.0	29.8	23.866	0.000	0.000	0.00	0.000	1534.93	23.86 55 0.014 0.011
40.0	39.8	23.807	0.000	0.000	0.00	0.000	1532.95	23.80 60 0.024 0.020
50.0	49.7	23.759	0.000	0.000	0.00	0.000	1533.02	23.75 51 0.007 0.004
60.0	59.6	23.752	0.000	0.000	0.00	0.000	1533.15	23.74 39 0.000 0.002
70.0	69.6	23.733	0.000	0.000	0.00	0.000	1533.27	23.72 52 0.005 0.012
80.0	79.5	23.673	0.000	0.000	0.00	0.000	1533.29	23.66 56 0.069 0.071
90.0	89.4	23.512	0.000	0.000	0.00	0.000	1533.07	23.49 53 0.055 0.062
100.0	99.4	23.266	0.000	0.000	0.00	0.000	1532.55	23.25 49 0.098 0.110
120.0	119.2	22.910	0.000	0.000	0.00	0.000	1532.05	22.89 47 0.209 0.012
140.0	139.1	22.727	0.000	0.000	0.00	0.000	1531.90	22.70 52 0.016 0.015
160.0	159.0	22.455	0.000	0.000	0.00	0.000	1530.94	22.22 50 0.195 0.176
180.0	178.8	21.364	0.000	0.000	0.00	0.000	1527.48	20.64 52 0.095 0.110
200.0	198.7	20.582	0.000	0.000	0.00	0.000	1525.32	19.78 61 0.128 0.129
220.0	218.6	19.818	0.000	0.000	0.00	0.000	1524.34	19.28 70 0.044 0.052
240.0	238.4	19.328	0.000	0.000	0.00	0.000	1523.48	18.89 58 0.086 0.099
260.0	258.3	18.933	0.000	0.000	0.00	0.000	1522.60	18.48 35 0.091 0.114
280.0	278.1	18.532	0.000	0.000	0.00	0.000	1520.85	17.81 35 0.136 0.199
300.0	298.0	17.864	0.000	0.000	0.00	0.000	1519.33	17.20 39 0.157 0.148
320.0	317.8	17.249	0.000	0.000	0.00	0.000	1516.92	16.33 22 0.167 0.082
340.0	337.7	16.382	0.000	0.000	0.00	0.000	1512.32	14.85 36 0.261 0.361
360.0	357.5	14.904	0.000	0.000	0.00	0.000	1508.59	13.64 32 0.178 0.229
380.0	377.4	13.699	0.000	0.000	0.00	0.000	1505.09	12.56 28 0.124 0.146
400.0	397.2	12.618	0.000	0.000	0.00	0.000	1501.98	11.56 34 0.194 0.190
420.0	417.0	11.619	0.000	0.000	0.00	0.000	1499.72	10.81 35 0.095 0.119
440.0	436.9	10.861	0.000	0.000	0.00	0.000	1498.04	10.21 35 0.014 0.018
460.0	456.7	10.262	0.000	0.000	0.00	0.000	1494.91	9.32 36 0.115 0.106
480.0	476.6	9.370	0.000	0.000	0.00	0.000	1492.44	8.58 35 0.114 0.109
500.0	496.4	8.632	0.000	0.000	0.00	0.000	1490.04	7.70 37 0.022 0.014
520.0	516.2	7.752	0.000	0.000	0.00	0.000	1489.18	7.36 16 0.011 0.009
540.0	536.0	7.422	0.000	0.000	0.00	0.000		
560.0	555.8	7.422	0.000	0.000	0.00	0.000		



SHIP : HWAS COOK - Plessey
 STATION NUMBER : 20 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 02-SEP-1987 (DAY NUMBER 245)
 START TIME : 1040 GMT - Z
 CRUISE : C012/87
 POSITION : 21:02.00S 178:33.00E
 CAST DEPTH : 189 METRES
 BOTTOM DEPTH : 1690 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	23.600	0.000	0.000	0.00	0.000	1531.95	23.60 1 0.000 0.000
10.0	9.9	23.600	0.000	0.000	0.00	0.000	1532.00	23.60 78 0.000 0.003
20.0	19.9	23.599	0.000	0.000	0.00	0.000	1532.17	23.60 71 0.001 0.006
30.0	29.8	23.555	0.000	0.000	0.00	0.000	1532.19	23.55 68 0.037 0.037
40.0	39.7	23.482	0.000	0.000	0.00	0.000	1532.19	23.47 78 0.024 0.029
50.0	49.7	23.358	0.000	0.000	0.00	0.000	1532.02	23.35 80 0.034 0.032
60.0	59.6	23.319	0.000	0.000	0.00	0.000	1532.10	23.31 84 0.004 0.005
70.0	69.6	23.311	0.000	0.000	0.00	0.000	1532.26	23.30 73 0.005 0.005
80.0	79.5	23.292	0.000	0.000	0.00	0.000	1532.36	23.28 76 0.029 0.056
90.0	89.4	23.083	0.000	0.000	0.00	0.000	1531.94	23.06 69 0.054 0.066
100.0	99.4	22.873	0.000	0.000	0.00	0.000	1531.54	22.85 63 0.067 0.060
120.0	119.2	22.506	0.000	0.000	0.00	0.000	1530.95	22.48 73 0.041 0.036
140.0	139.1	22.419	0.000	0.000	0.00	0.000	1531.06	22.39 66 0.027 0.029
160.0	159.0	21.936	0.000	0.000	0.00	0.000	1530.14	21.90 69 0.123 0.099
180.0	178.8	21.393	0.000	0.000	0.00	0.000	1529.07	21.36 53 0.116 0.114
190.0	188.7	21.121	0.000	0.000	0.00	0.000	1528.47	21.08 67 0.015 0.018

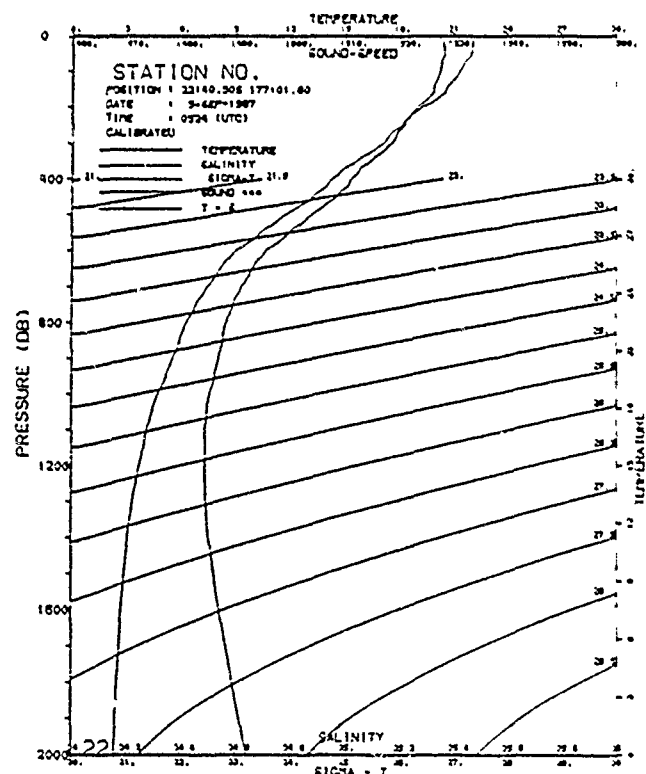
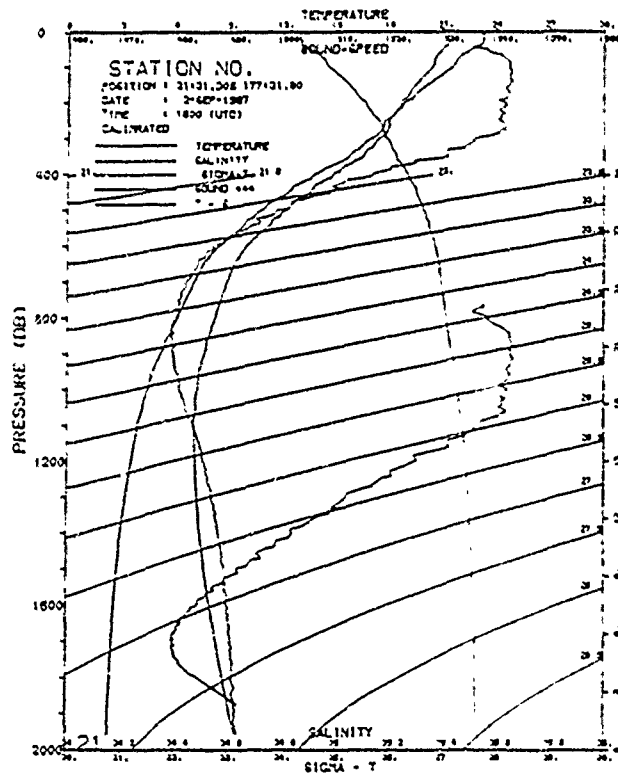


SHIP : HMS COOK - Plessey
 STATION NUMBER : 21 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 02-SEP-1987 (DAY NUMBER 245)
 START TIME : 1600 GMT - 2
 CRUISE : CK12/87
 POSITION : 21:31.10S 177:11.80E
 CAST DEPTH : 1941 METRES
 BOTTOM DEPTH : 3662 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	23.155	0.000	0.000	0.00	0.000	1530.77	23.15
20.0	19.9	23.127	0.000	0.000	0.00	0.000	1530.87	23.12
30.0	29.8	23.090	0.000	0.000	0.00	0.000	1530.92	23.08
40.0	39.7	23.000	0.000	0.000	0.00	0.000	1530.83	22.99
50.0	49.7	22.576	0.000	0.000	0.00	0.000	1529.93	22.57
60.0	59.6	22.105	0.000	0.000	0.00	0.000	1529.38	22.29
70.0	69.6	21.969	0.000	0.000	0.00	0.000	1528.73	21.96
80.0	79.5	21.761	0.000	0.000	0.00	0.000	1528.39	21.75
90.0	89.4	21.676	0.000	0.000	0.00	0.000	1528.34	21.66
100.0	99.4	21.511	0.000	0.000	0.00	0.000	1528.08	21.50
120.0	119.2	20.990	0.000	0.000	0.00	0.000	1526.95	20.97
140.0	139.1	20.396	0.000	0.000	0.00	0.000	1525.67	20.37
160.0	158.9	19.837	0.000	0.000	0.00	0.000	1524.43	19.81
180.0	178.8	19.442	0.000	0.000	0.00	0.000	1523.67	19.41
200.0	198.7	18.814	0.000	0.000	0.00	0.000	1522.21	18.78
220.0	218.5	18.500	0.000	0.000	0.00	0.000	1521.61	18.46
240.0	238.4	18.061	0.000	0.000	0.00	0.000	1520.65	18.02
260.0	258.2	17.685	0.000	0.000	0.00	0.000	1519.94	17.64
280.0	278.1	17.474	0.000	0.000	0.00	0.000	1519.61	17.43
300.0	297.9	16.984	0.000	0.000	0.00	0.000	1518.30	16.93
320.0	317.8	16.464	0.000	0.000	0.00	0.000	1517.05	16.41
340.0	337.6	15.904	0.000	0.000	0.00	0.000	1515.58	15.85
360.0	357.5	15.464	0.000	0.000	0.00	0.000	1514.37	15.41
380.0	377.3	14.533	0.000	0.000	0.00	0.000	1511.63	14.48
400.0	397.1	13.828	0.000	0.000	0.00	0.000	1509.65	13.77
420.0	417.0	13.180	0.000	0.000	0.00	0.000	1507.70	13.12
440.0	436.8	12.521	0.000	0.000	0.00	0.000	1505.90	12.46
460.0	456.6	12.047	0.000	0.000	0.00	0.000	1504.45	11.99
480.0	476.5	11.302	0.000	0.000	0.00	0.000	1502.10	11.24
500.0	496.3	10.852	0.000	0.000	0.00	0.000	1500.78	10.79
520.0	516.1	9.663	0.000	0.000	0.00	0.000	1497.27	9.60
540.0	535.9	8.458	0.000	0.000	0.00	0.000	1493.51	8.39
560.0	555.4	7.061	0.000	0.000	0.00	0.000	1489.77	6.99
580.0	575.1	6.145	0.000	0.000	0.00	0.000	1487.77	6.07
600.0	594.5	5.185	0.000	0.000	0.00	0.000	1485.56	5.11
620.0	613.9	4.473	0.000	0.000	0.00	0.000	1484.32	4.39
640.0	633.3	3.871	0.000	0.000	0.00	0.000	1483.52	3.79
660.0	652.7	3.536	0.000	0.000	0.00	0.000	1483.83	3.45
680.0	672.1	3.235	0.000	0.000	0.00	0.000	1484.23	3.14
700.0	691.5	2.989	0.000	0.000	0.00	0.000	1484.85	2.89
720.0	710.9	2.797	0.000	0.000	0.00	0.000	1485.74	2.69
740.0	730.3	2.645	0.000	0.000	0.00	0.000	1486.78	2.53
760.0	749.7	2.514	0.000	0.000	0.00	0.000	1487.90	2.40
780.0	769.1	2.447	0.000	0.000	0.00	0.000	1489.24	2.32
800.0	788.5	2.350	0.000	0.000	0.00	0.000	1490.51	2.22
820.0	807.9	2.310	0.000	0.000	0.00	0.000	1491.28	2.17

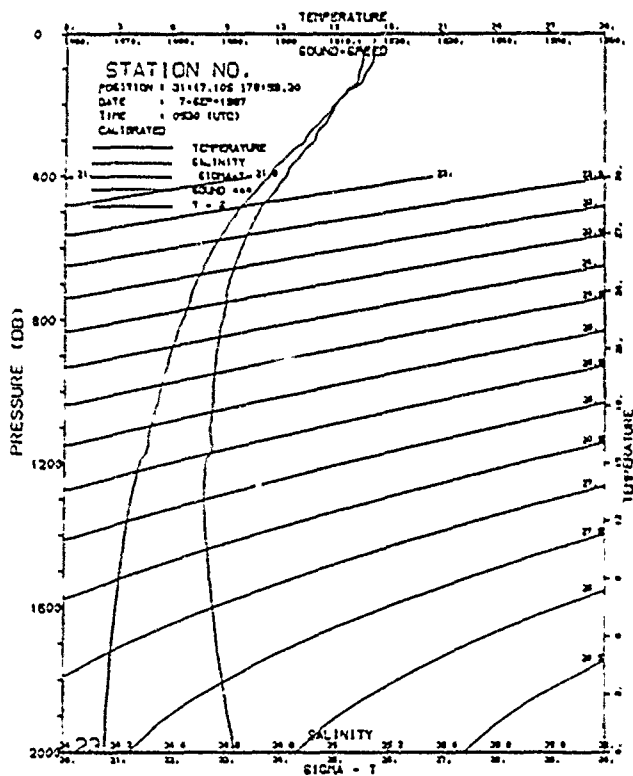
SHIP : HMS COOK - Plessey
 STATION NUMBER : 22 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 05-SEP-1987 (DAY NUMBER 248)
 START TIME : 0524 GMT - 2
 CRUISE : CK12/87
 POSITION : 21:40.50S 177:01.60E
 CAST DEPTH : 1998 METRES
 BOTTOM DEPTH : 4257 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	22.071	0.000	0.000	0.00	0.000	1527.95	22.07
20.0	19.9	22.073	0.000	0.000	0.00	0.000	1528.13	22.07
30.0	29.8	22.067	0.000	0.000	0.00	0.000	1528.28	22.06
40.0	39.7	22.043	0.000	0.000	0.00	0.000	1528.40	22.04
50.0	49.7	21.999	0.000	0.000	0.00	0.000	1528.42	21.99
60.0	59.6	21.923	0.000	0.000	0.00	0.000	1528.36	21.91
70.0	69.5	21.679	0.000	0.000	0.00	0.000	1527.97	21.67
80.0	79.5	21.562	0.000	0.000	0.00	0.000	1527.80	21.55
90.0	89.4	21.482	0.000	0.000	0.00	0.000	1527.83	21.46
100.0	99.3	21.330	0.000	0.000	0.00	0.000	1527.58	21.31
120.0	119.2	21.075	0.000	0.000	0.00	0.000	1527.25	21.05
140.0	139.1	20.583	0.000	0.000	0.00	0.000	1525.57	20.56
160.0	158.9	20.518	0.000	0.000	0.00	0.000	1525.18	20.49
180.0	178.8	20.006	0.000	0.000	0.00	0.000	1522.48	19.22
200.0	198.6	19.252	0.000	0.000	0.00	0.000	1522.29	18.66
220.0	218.5	18.700	0.000	0.000	0.00	0.000	1522.23	18.19
240.0	238.4	18.234	0.000	0.000	0.00	0.000	1521.23	17.63
260.0	258.2	17.867	0.000	0.000	0.00	0.000	1520.43	17.07
280.0	278.1	17.427	0.000	0.000	0.00	0.000	1519.48	16.51
300.0	297.9	17.133	0.000	0.000	0.00	0.000	1518.26	16.08
320.0	317.7	16.607	0.000	0.000	0.00	0.000	1517.52	15.55
340.0	337.6	15.909	0.000	0.000	0.00	0.000	1515.58	15.85
360.0	357.4	15.400	0.000	0.000	0.00	0.000	1514.24	15.14
380.0	377.3	14.764	0.000	0.000	0.00	0.000	1512.62	14.21
400.0	397.1	14.308	0.000	0.000	0.00	0.000	1511.41	14.25
420.0	416.9	14.013	0.000	0.000	0.00	0.000	1510.75	13.95
440.0	436.8	13.449	0.000	0.000	0.00	0.000	1509.11	13.39
460.0	456.6	13.031	0.000	0.000	0.00	0.000	1507.95	12.97
480.0	476.4	12.400	0.000	0.000	0.00	0.000	1506.13	12.34
500.0	496.3	11.781	0.000	0.000	0.00	0.000	1504.24	11.72
520.0	516.1	10.400	0.000	0.000	0.00	0.000	1500.05	10.33
540.0	535.9	9.019	0.000	0.000	0.00	0.000	1495.66	8.65
560.0	555.4	7.440	0.000	0.000	0.00	0.000	1491.27	7.17
580.0	575.1	6.322	0.000	0.000	0.00	0.000	1490.50	6.25
600.0	594.5	5.530	0.000	0.000	0.00	0.000	1490.98	5.45
620.0	613.9	4.745	0.000	0.000	0.00	0.000	1490.42	4.66
640.0	633.3	4.127	0.000	0.000	0.00	0.000	1489.59	4.04
660.0	652.7	3.706	0.000	0.000	0.00	0.000	1488.73	3.61
680.0	672.1	3.387	0.000	0.000	0.00	0.000	1487.73	3.25
700.0	691.5	3.084	0.000	0.000	0.00	0.000	1486.51	2.90
720.0	710.9	2.901	0.000	0.000	0.00	0.000	1485.11	2.78
740.0	730.3	2.740	0.000	0.000	0.00	0.000	1483.18	2.50
760.0	749.7	2.626	0.000	0.000	0.00	0.000	1481.18	2.37
780.0	769.1	2.517	0.000	0.000	0.00	0.000	1480.59	2.29
800.0	788.5	2.429	0.000	0.000	0.00	0.000	1480.88	2.20
820.0	807.9	2.341	0.000	0.000	0.00	0.000	1480.28	2.12
840.0	827.3	2.260	0.000	0.000	0.00	0.000	1479.43	2.04



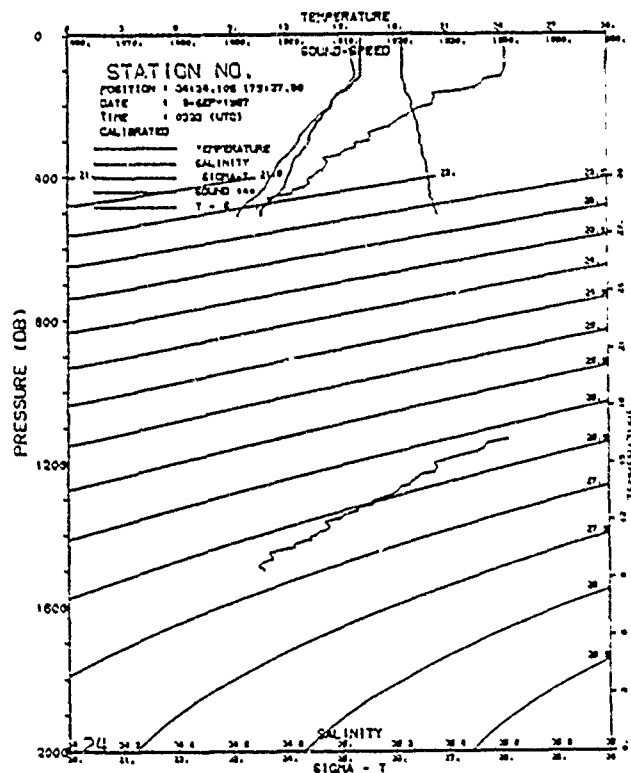
SHIP : HMAS COOK - Plessey
 STATION NUMBER : 23 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 07-SEP-1987 (DAY NUMBER 250)
 START TIME : 0530 GMT - 2
 CRUISE : 032/87
 POSITION : 31:17.105 175:59.20E
 CAST DEPTH : 1993 METRES
 BOTTOM DEPTH : 4054 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.188	0.000	0.000	0.00	0.000	1514.54	17.19 12 0.001 0.004
20.0	19.9	17.174	0.000	0.000	0.00	0.000	1514.57	17.17 79 0.014 0.003
30.0	29.8	17.137	0.000	0.000	0.00	0.000	1514.64	17.13 88 0.001 0.003
40.0	39.7	17.131	0.000	0.000	0.00	0.000	1514.79	17.12 59 0.005 0.004
50.0	49.6	17.127	0.000	0.000	0.00	0.000	1514.93	17.12 40 0.000 0.005
60.0	59.6	17.118	0.000	0.000	0.00	0.000	1515.08	17.11 90 0.004 0.005
70.0	69.5	17.110	0.000	0.000	0.00	0.000	1515.21	17.10 80 0.005 0.005
80.0	79.4	17.094	0.000	0.000	0.00	0.000	1515.12	17.02 54 0.026 0.003
90.0	89.4	16.972	0.000	0.000	0.00	0.000	1515.07	16.96 45 0.035 0.003
100.0	99.3	15.839	0.000	0.000	0.00	0.000	1514.80	16.82 50 0.049 0.002
120.0	119.1	16.603	0.000	0.000	0.00	0.000	1514.42	16.58 51 0.030 0.002
140.0	139.0	16.445	0.000	0.000	0.00	0.000	1514.18	16.42 39 0.052 0.005
160.0	158.9	15.750	0.000	0.000	0.00	0.000	1512.27	15.72 48 0.026 0.005
180.0	178.7	15.396	0.000	0.000	0.00	0.000	1511.40	15.37 44 0.080 0.005
200.0	198.5	14.992	0.000	0.000	0.00	0.000	1510.42	14.96 51 0.080 0.005
220.0	218.4	14.711	0.000	0.000	0.00	0.000	1509.84	14.68 47 0.037 0.002
240.0	238.2	14.317	0.000	0.000	0.00	0.000	1508.86	14.28 47 0.034 0.004
260.0	258.0	14.017	0.000	0.000	0.00	0.000	1508.10	13.98 40 0.079 0.000
280.0	277.9	13.563	0.000	0.000	0.00	0.000	1506.90	13.52 50 0.062 0.006
300.0	297.7	13.351	0.000	0.000	0.00	0.000	1506.58	13.31 39 0.015 0.002
320.0	317.5	12.855	0.000	0.000	0.00	0.000	1505.06	12.81 32 0.068 0.002
340.0	337.4	12.439	0.000	0.000	0.00	0.000	1503.98	12.39 37 0.046 0.005
360.0	357.2	12.067	0.000	0.000	0.00	0.000	1502.95	12.02 37 0.061 0.004
380.0	377.0	11.610	0.000	0.000	0.00	0.000	1501.68	11.56 38 0.058 0.004
400.0	396.9	11.420	0.000	0.000	0.00	0.000	1501.32	11.37 29 0.032 0.005
420.0	416.7	10.994	0.000	0.000	0.00	0.000	1500.10	10.94 27 0.034 0.004
440.0	436.5	10.716	0.000	0.000	0.00	0.000	1499.39	10.66 33 0.054 0.004
460.0	456.3	10.312	0.000	0.000	0.00	0.000	1498.25	10.26 28 0.035 0.001
480.0	476.1	9.897	0.000	0.000	0.00	0.000	1496.94	9.84 33 0.056 0.000
500.0	495.9	9.603	0.000	0.000	0.00	0.000	1496.28	9.55 35 0.036 0.002
520.0	515.5	8.948	0.000	0.000	0.00	0.000	1494.60	8.89 30 0.034 0.005
540.0	535.0	8.321	0.000	0.000	0.00	0.000	1493.04	8.26 32 0.031 0.000
560.0	554.0	7.307	0.000	0.000	0.00	0.000	1490.71	7.24 31 0.017 0.000
580.0	572.9	6.577	0.000	0.000	0.00	0.000	1489.43	6.50 32 0.027 0.002
600.0	591.8	5.895	0.000	0.000	0.00	0.000	1488.32	5.81 31 0.016 0.003
1000.0	990.7	5.340	0.000	0.000	0.00	0.000	1487.74	5.25 31 0.021 0.004
1100.0	1089.5	4.803	0.000	0.000	0.00	0.000	1487.22	4.71 31 0.019 0.000
1200.0	1188.3	4.209	0.000	0.000	0.00	0.000	1486.43	4.11 37 0.018 0.004
1300.0	1287.0	3.123	0.000	0.000	0.00	0.000	1486.13	3.62 32 0.014 0.006
1400.0	1385.7	3.103	0.000	0.000	0.00	0.000	1486.49	3.10 27 0.009 0.000
1500.0	1484.3	3.137	0.000	0.000	0.00	0.000	1487.01	3.03 27 0.009 0.000
1600.0	1582.9	2.876	0.000	0.000	0.00	0.000	1487.74	2.78 32 0.008 0.003
1700.0	1681.4	2.491	0.000	0.000	0.00	0.000	1488.53	2.57 27 0.005 0.004
1800.0	1779.7	2.554	0.000	0.000	0.00	0.000	1489.64	2.43 30 0.002 0.000
1900.0	1878.1	2.411	0.000	0.000	0.00	0.000	1490.68	2.28 35 0.003 0.000
2000.0	1976.7	2.349	0.000	0.000	0.00	0.000	1491.95	2.17 31 0.001 0.001
2010.0	1986.6	2.302	0.000	0.000	0.00	0.000	1492.00	2.16 14 0.001 0.001



SHIP : HMAS COOK - Plessey
 STATION NUMBER : 24 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 08-SEP-1987 (DAY NUMBER 251)
 START TIME : 0323 GMT - 2
 CRUISE : 032/87
 POSITION : 34:24.105 175:27.80E
 CAST DEPTH : 514 METRES
 BOTTOM DEPTH : 1059 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	16.217	0.000	0.000	0.00	0.000	1511.50	16.21 6 0.000 0.000
20.0	19.9	16.217	0.000	0.000	0.00	0.000	1511.62	16.21 33 0.000 0.004
30.0	29.8	16.216	0.000	0.000	0.00	0.000	1511.77	16.21 48 0.002 0.004
40.0	39.7	16.216	0.000	0.000	0.00	0.000	1511.95	16.21 57 0.002 0.003
50.0	49.6	16.218	0.000	0.000	0.00	0.000	1512.11	16.21 52 0.003 0.004
60.0	59.6	16.217	0.000	0.000	0.00	0.000	1512.29	16.21 56 0.000 0.004
70.0	69.5	16.217	0.000	0.000	0.00	0.000	1512.43	16.21 44 0.000 0.003
80.0	79.4	16.217	0.000	0.000	0.00	0.000	1512.60	16.20 50 0.000 0.004
90.0	89.3	16.217	0.000	0.000	0.00	0.000	1512.75	16.20 53 0.002 0.002
100.0	99.3	16.217	0.000	0.000	0.00	0.000	1512.92	16.20 47 0.000 0.001
120.0	119.1	16.193	0.000	0.000	0.00	0.000	1513.11	16.17 56 0.013 0.024
140.0	139.0	15.759	0.000	0.000	0.00	0.000	1512.04	15.74 50 0.031 0.047
160.0	158.8	15.417	0.000	0.000	0.00	0.000	1511.15	15.39 49 0.109 0.121
180.0	178.6	14.741	0.000	0.000	0.00	0.000	1509.27	14.71 48 0.059 0.080
200.0	198.5	14.502	0.000	0.000	0.00	0.000	1508.89	14.47 46 0.010 0.009
220.0	218.3	14.094	0.000	0.000	0.00	0.000	1507.76	14.06 50 0.056 0.055
240.0	238.1	13.748	0.000	0.000	0.00	0.000	1506.88	13.71 51 0.099 0.137
260.0	258.0	13.352	0.000	0.000	0.00	0.000	1505.92	13.32 46 0.038 0.043
280.0	277.8	12.980	0.000	0.000	0.00	0.000	1504.94	12.94 49 0.088 0.095
300.0	297.6	12.808	0.000	0.000	0.00	0.000	1504.71	12.77 27 0.009 0.007
320.0	317.5	12.473	0.000	0.000	0.00	0.000	1503.85	12.43 26 0.021 0.026
340.0	337.3	12.143	0.000	0.000	0.00	0.000	1502.97	12.10 29 0.045 0.043
360.0	357.1	11.681	0.000	0.000	0.00	0.000	1501.69	11.63 32 0.019 0.031
380.0	376.9	11.488	0.000	0.000	0.00	0.000	1501.34	11.44 31 0.034 0.030
400.0	396.7	11.224	0.000	0.000	0.00	0.000	1500.70	11.17 30 0.036 0.024
420.0	416.6	10.999	0.000	0.000	0.00	0.000	1500.22	10.95 28 0.007 0.007
440.0	436.4	10.728	0.000	0.000	0.00	0.000	1499.17	10.67 25 0.075 0.256
460.0	456.2	10.306	0.000	0.000	0.00	0.000	1499.11	10.25 27 0.138 0.148
480.0	476.0	9.807	0.000	0.000	0.00	0.000	1496.68	9.75 34 0.263 0.751
500.0	495.8	9.455	0.000	0.000	0.00	0.000	1495.83	9.40 38 0.045 0.243
510.0	505.7	9.382	0.000	0.000	0.00	0.000	1495.66	9.32 128 0.004 0.321

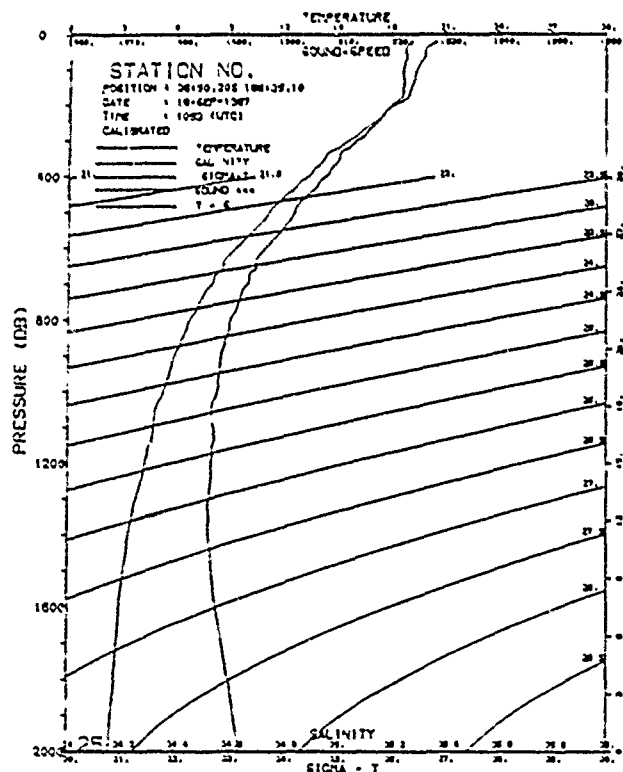


SHIP : IPAS COOK - Plessey
 STATION NUMBER : 25 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 16-SEP-1987 (DAY NUMBER 259)
 START TIME : 1051 GMT = 2
 CRUISE : CK12/87
 POSITION : 26.50, 205 166:35.10E
 CAST DEPTH : 1994 METRES
 BOTTOM DEPTH : 3583 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
20.0	19.9	20.479	0.000	0.000	0.00	0.000	1523.95	20.48
30.0	29.8	20.198	0.000	0.000	0.00	0.000	1523.32	20.19
40.0	39.7	19.904	0.000	0.000	0.00	0.000	1522.71	19.90
50.0	49.7	19.849	0.000	0.000	0.00	0.000	1522.72	19.84
60.0	59.6	19.838	0.000	0.000	0.00	0.000	1522.86	19.83
70.0	69.5	19.758	0.000	0.000	0.00	0.000	1522.77	19.75
80.0	79.5	19.598	0.000	0.000	0.00	0.000	1522.52	19.58
90.0	89.4	19.487	0.000	0.000	0.00	0.000	1522.36	19.47
100.0	99.3	19.382	0.000	0.000	0.00	0.000	1522.20	19.36
120.0	119.2	19.253	0.000	0.000	0.00	0.000	1522.25	19.24
140.0	139.0	19.184	0.000	0.000	0.30	0.000	1522.30	19.14
160.0	158.9	18.993	0.000	0.000	0.00	0.000	1522.13	18.96
180.0	178.7	18.856	0.000	0.000	0.00	0.000	1522.07	18.82
200.0	198.6	18.153	0.000	0.000	0.00	0.000	1520.17	18.12
220.0	218.4	17.645	0.000	0.000	0.00	0.000	1519.02	17.61
240.0	238.3	17.287	0.000	0.000	0.00	0.000	1518.18	17.25
260.0	258.1	16.688	0.000	0.000	0.00	0.000	1516.73	16.65
280.0	278.0	16.199	0.000	0.000	0.00	0.000	1515.52	16.15
300.0	297.8	15.598	0.000	0.000	0.00	0.000	1513.85	15.55
320.0	317.7	15.083	0.000	0.000	0.00	0.000	1512.45	15.03
340.0	337.5	14.378	0.000	0.000	0.00	0.000	1510.55	14.33
360.0	357.3	14.156	0.000	0.000	0.00	0.000	1510.16	14.10
380.0	377.2	13.712	0.000	0.000	0.00	0.000	1509.00	13.66
400.0	397.0	13.426	0.000	0.000	0.00	0.000	1508.25	13.37
420.0	416.8	12.857	0.000	0.000	0.00	0.000	1506.70	12.80
440.0	436.5	12.516	0.000	0.000	0.00	0.000	1505.84	12.46
460.0	456.3	11.999	0.000	0.000	0.00	0.000	1504.37	11.94
480.0	476.1	11.523	0.000	0.000	0.00	0.000	1502.91	11.46
500.0	496.1	11.205	0.000	0.000	0.00	0.000	1502.20	11.14
550.0	545.7	10.389	0.000	0.000	0.00	0.000	1499.97	10.32
600.0	595.2	9.355	0.000	0.000	0.00	0.000	1496.92	9.29
700.0	694.2	8.067	0.000	0.000	0.00	0.000	1493.66	7.99
800.0	793.2	6.830	0.000	0.000	0.00	0.000	1490.36	6.76
900.0	892.2	5.965	0.000	0.000	0.00	0.000	1488.65	5.88
1000.0	991.1	5.370	0.000	0.000	0.00	0.000	1487.95	5.28
1100.0	1089.9	4.803	0.000	0.000	0.00	0.000	1487.28	4.71
1200.0	1188.7	4.317	0.000	0.000	0.00	0.000	1486.96	4.22
1300.0	1287.4	3.810	0.000	0.000	0.00	0.000	1486.53	3.72
1400.0	1386.2	3.402	0.000	0.000	0.00	0.000	1486.51	3.30
1500.0	1484.8	3.119	0.000	0.000	0.00	0.000	1487.00	3.01
1600.0	1583.4	2.921	0.000	0.000	0.00	0.000	1487.15	2.79
1700.0	1682.0	2.782	0.000	0.000	0.00	0.000	1488.40	2.66
1800.0	1780.5	2.655	0.000	0.000	0.00	0.000	1490.05	2.53
1900.0	1879.0	2.492	0.000	0.000	0.00	0.000	1491.03	2.36
2000.0	1977.4	2.359	0.000	0.000	0.00	0.000	1492.18	2.23
2100.0	2075.7	2.165	0.000	0.000	0.00	0.000	1492.35	2.12

SHIP : IPAS COOK - Plessey
 STATION NUMBER : 26 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 16-SEP-1987 (DAY NUMBER 259)
 START TIME : 2113 GMT = 2
 CRUISE : CK12/87
 POSITION : 27:22.00S 165:18.00E
 CAST DEPTH : 3272 METRES
 BOTTOM DEPTH : 3293 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	19.327	0.000	0.000	0.00	0.000	1520.60	19.33
10.0	9.9	19.265	0.000	0.000	0.00	0.000	1520.51	19.26
20.0	19.9	19.213	0.000	0.000	0.00	0.000	1520.54	19.21
30.0	29.8	19.175	0.000	0.000	0.00	0.000	1520.63	19.17
40.0	39.7	19.158	0.000	0.000	0.00	0.000	1520.74	19.15
50.0	49.7	19.108	0.000	0.000	0.00	0.000	1520.71	19.10
60.0	59.6	18.974	0.000	0.000	0.00	0.000	1520.49	18.96
70.0	69.5	18.900	0.000	0.000	0.00	0.000	1520.50	18.89
80.0	79.5	18.837	0.000	0.000	0.00	0.000	1520.44	18.82
90.0	89.4	18.723	0.000	0.000	0.00	0.000	1520.27	18.71
100.0	99.3	18.600	0.000	0.000	0.00	0.000	1520.05	18.58
120.0	119.2	18.459	0.000	0.000	0.00	0.000	1520.00	18.44
140.0	139.0	18.187	0.000	0.000	0.00	0.000	1519.47	18.16
160.0	158.9	17.701	0.000	0.000	0.00	0.000	1518.34	17.67
180.0	178.7	17.463	0.000	0.000	0.00	0.000	1517.91	17.43
200.0	198.6	17.012	0.000	0.000	0.00	0.000	1516.86	16.98
220.0	218.4	16.745	0.000	0.000	0.00	0.000	1516.37	16.71
240.0	238.3	16.362	0.000	0.000	0.00	0.000	1515.53	16.32
260.0	258.1	15.890	0.000	0.000	0.00	0.000	1514.34	15.85
280.0	278.0	15.446	0.000	0.000	0.00	0.000	1513.17	15.40
300.0	297.8	14.912	0.000	0.000	0.00	0.000	1511.77	14.87
320.0	317.6	14.464	0.000	0.000	0.00	0.000	1510.62	14.42
340.0	337.5	13.892	0.000	0.000	0.00	0.000	1509.04	13.84
360.0	357.3	13.302	0.000	0.000	0.00	0.000	1507.36	13.25
380.0	377.1	12.977	0.000	0.000	0.00	0.000	1506.60	12.92
400.0	397.0	12.623	0.000	0.000	0.00	0.000	1505.65	12.57
420.0	416.8	12.235	0.000	0.000	0.00	0.000	1504.68	12.19
440.0	436.6	11.815	0.000	0.000	0.00	0.000	1503.74	11.82
460.0	456.5	11.395	0.000	0.000	0.00	0.000	1502.23	11.34
480.0	476.3	11.090	0.000	0.000	0.00	0.000	1501.51	11.03
500.0	496.1	10.688	0.000	0.000	0.00	0.000	1500.35	10.63
550.0	545.6	9.780	0.000	0.000	0.00	0.000	1497.78	9.72
600.0	595.2	8.878	0.000	0.000	0.00	0.000	1495.23	8.81
700.0	694.2	7.499	0.000	0.000	0.00	0.000	1491.50	7.43
800.0	793.2	6.577	0.000	0.000	0.00	0.000	1489.51	6.50
900.0	892.1	6.016	0.000	0.000	0.00	0.000	1488.92	5.93
1000.0	991.0	5.225	0.000	0.000	0.00	0.000	1487.40	5.14
1100.0	1089.9	4.625	0.000	0.000	0.00	0.000	1486.65	4.53
1200.0	1188.6	4.182	0.000	0.000	0.00	0.000	1486.50	4.09
1300.0	1287.4	3.870	0.000	0.000	0.00	0.000	1486.84	3.77
1400.0	1386.1	3.431	0.000	0.000	0.00	0.000	1486.67	3.33
1500.0	1484.8	3.138	0.000	0.000	0.00	0.000	1487.16	3.03
1600.0	1583.4	2.902	0.000	0.000	0.00	0.000	1488.84	2.79
1700.0	1681.9	2.771	0.000	0.000	0.00	0.000	1488.92	2.65
1800.0	1780.4	2.603	0.000	0.000	0.00	0.000	1489.41	2.47
1900.0	1878.9	2.494	0.000	0.000	0.00	0.000	1491.11	2.36
2000.0	1977.3	2.382	0.000	0.000	0.00	0.000	1492.32	2.24
2100.0	2075.7	2.290	0.000	0.000	0.00	0.000	1493.63	2.14
2200.0	2174.1	2.258	0.000	0.000	0.00	0.000	1494.97	2.05
2300.0	2272.3	2.137	0.000	0.000	0.00	0.000	1496.30	1.97
2400.0	2370.6	2.077	0.000	0.000	0.00	0.000	1497.74	1.90
2500.0	2468.8	2.052	0.000	0.000	0.00	0.000	1499.15	1.87
2600.0	2566.9	2.025	0.000	0.000	0.00	0.000	1500.93	1.83
2700.0	2665.1	1.997	0.000	0.000	0.00	0.000	1502.49	1.80
2800.0	2763.1	1.979	0.000	0.000	0.00	0.000	1504.16	1.77
2900.0	2861.1	1.964	0.000	0.000	0.00	0.000	1505.78	1.75
3000.0	2959.1	1.955	0.000	0.000	0.00	0.000	1507.48	1.73
3100.0	3057.1	1.946	0.000	0.000	0.00	0.000	1509.12	1.71
3200.0	3154.9	1.931	0.000	0.000	0.00	0.000	1510.39	1.68
3300.0	3252.8	1.929	0.000	0.000	0.00	0.000	1512.43	1.67
3320.0	3272.4	1.926	0.000	0.000	0.00	0.000	1512.81	1.67

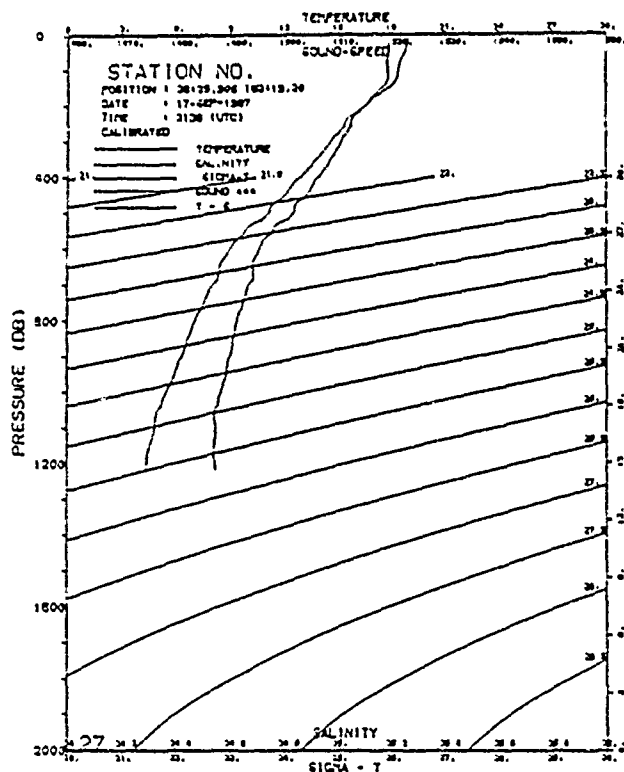


SHIP : MPAS COOK - Plessey
 STATION NUMBER : 27 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 17-SEP-1987 (DAY NUMBER 260)
 START TIME : 2138 GMT - 2
 CRUISE : 0012.87
 POSITION : 20:25.90S 161:19.20E
 CUST DEPTH : 1212 METRES
 BOTTOM DEPTH : 1233 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	18.892	0.000	0.000	0.00	0.000	1519.36	18.89 3 0.020 0.000
20.0	19.9	18.846	0.000	0.000	0.00	0.000	1519.43	18.84 37 0.006 0.000
30.0	29.8	18.825	0.000	0.000	0.00	0.000	1519.53	18.82 51 0.013 0.000
40.0	39.7	18.769	0.000	0.000	0.00	0.000	1519.55	18.76 50 0.016 0.001
50.0	49.7	18.716	0.000	0.000	0.00	0.000	1519.58	18.71 54 0.011 0.003
60.0	59.6	18.509	0.000	0.000	0.00	0.000	1519.39	18.50 48 0.033 0.004
70.0	69.5	18.517	0.000	0.000	0.00	0.000	1519.31	18.50 39 0.027 0.004
80.0	79.4	18.449	0.000	0.000	0.00	0.000	1519.27	18.44 50 0.010 0.003
90.0	89.4	18.404	0.000	0.000	0.00	0.000	1519.31	18.39 50 0.012 0.004
100.0	99.3	18.377	0.000	0.000	0.00	0.000	1519.40	18.36 42 0.011 0.003
120.0	119.2	18.308	0.000	0.000	0.00	0.000	1519.51	18.29 50 0.013 0.001
140.0	139.0	18.081	0.000	0.000	0.00	0.000	1519.10	18.06 47 0.074 0.000
160.0	158.9	17.504	0.000	0.000	0.00	0.000	1517.68	17.48 43 0.067 0.000
180.0	178.7	16.907	0.000	0.000	0.00	0.000	1516.19	16.88 38 0.047 0.002
200.0	198.6	16.554	0.000	0.000	0.00	0.000	1515.35	16.52 45 0.099 0.000
220.0	218.4	16.038	0.000	0.000	0.00	0.000	1514.05	16.00 30 0.088 0.000
240.0	238.3	15.496	0.000	0.000	0.00	0.000	1512.68	15.46 47 0.064 0.003
260.0	258.1	15.331	0.000	0.000	0.00	0.000	1512.52	15.29 50 0.038 0.002
280.0	277.9	14.982	0.000	0.000	0.00	0.000	1511.67	14.94 45 0.043 0.000
300.0	297.8	14.594	0.000	0.000	0.00	0.000	1510.76	14.55 46 0.018 0.000
320.0	317.6	14.287	0.000	0.000	0.00	0.000	1510.09	14.24 35 0.021 0.002
340.0	337.5	13.991	0.000	0.000	0.00	0.000	1509.40	13.94 27 0.019 0.000
360.0	357.3	13.607	0.000	0.000	0.00	0.000	1508.43	13.56 25 0.025 0.003
380.0	377.1	13.282	0.000	0.000	0.00	0.000	1507.57	13.23 31 0.060 0.003
400.0	396.9	12.926	0.000	0.000	0.00	0.000	1506.67	12.87 32 0.058 0.004
420.0	416.7	12.493	0.000	0.000	0.00	0.000	1505.55	12.44 30 0.027 0.000
440.0	436.5	12.214	0.000	0.000	0.00	0.000	1504.90	12.16 30 0.037 0.000
460.0	456.4	11.871	0.000	0.000	0.00	0.000	1503.96	11.81 21 0.036 0.000
480.0	476.2	11.286	0.000	0.000	0.00	0.000	1502.18	11.22 30 0.048 0.002
500.0	496.1	11.135	0.000	0.000	0.00	0.000	1501.97	11.07 27 0.045 0.004
520.0	515.8	9.826	0.000	0.000	0.00	0.000	1497.95	9.76 32 0.026 0.000
540.0	535.6	8.989	0.000	0.000	0.00	0.000	1495.60	8.92 31 0.020 0.000
560.0	555.4	8.255	0.000	0.000	0.00	0.000	1493.62	7.98 31 0.038 0.004
580.0	575.1	7.761	0.000	0.000	0.00	0.000	1491.39	6.98 31 0.025 0.004
600.0	594.8	6.328	0.000	0.000	0.00	0.200	1490.12	6.24 33 0.042 0.000
1000.0	990.3	5.432	0.000	0.000	0.00	0.000	1488.40	5.39 29 0.027 0.000
1100.0	1089.8	4.855	0.000	0.000	0.00	0.000	1487.55	4.76 31 0.004 0.000
1200.0	1188.6	4.401	0.000	0.000	0.00	0.000	1487.38	4.30 32 0.004 0.000
1223.0	1200.3	4.345	0.000	0.000	0.00	0.000	1487.45	4.25 61 0.009 0.000

SHIP : MPAS COOK - Plessey
 STATION NUMBER : 28 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 18-SEP-1987 (DAY NUMBER 261)
 START TIME : 0800 GMT - 2
 CRUISE : 0012.87
 POSITION : 20:15.90S 161:15.10E
 CUST DEPTH : 1395 METRES
 BOTTOM DEPTH : 1431 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	20.152	0.000	0.000	0.00	0.000	1522.95	20.15 44 0.054 0.042
20.0	19.9	20.042	0.000	0.000	0.00	0.000	1522.84	20.04 48 0.030 0.031
30.0	29.8	19.963	0.000	0.000	0.00	0.000	1522.80	19.96 56 0.019 0.020
40.0	39.7	19.802	0.000	0.000	0.00	0.000	1522.49	19.79 55 0.060 0.058
50.0	49.7	19.711	0.000	0.000	0.00	0.000	1522.40	19.70 43 0.017 0.023
60.0	59.6	19.626	0.000	0.000	0.00	0.000	1522.31	19.62 43 0.020 0.020
70.0	69.5	19.545	0.000	0.000	0.00	0.000	1522.23	19.53 52 0.027 0.027
80.0	79.4	19.475	0.000	0.000	0.00	0.000	1522.23	19.46 46 0.011 0.009
90.0	89.4	19.430	0.000	0.000	0.00	0.000	1522.24	19.41 42 0.020 0.023
100.0	99.3	19.310	0.000	0.000	0.00	0.000	1522.08	19.29 53 0.019 0.036
120.0	119.2	19.215	0.000	0.000	0.00	0.000	1522.09	19.19 46 0.021 0.026
140.0	139.0	19.115	0.000	0.000	0.00	0.000	1522.18	19.09 57 0.006 0.006
160.0	158.9	19.066	0.000	0.000	0.00	0.000	1522.37	19.04 49 0.006 0.003
180.0	178.7	19.009	0.000	0.000	0.00	0.000	1522.54	18.98 42 0.210 1.550
200.0	198.6	18.889	0.000	0.000	0.00	0.000	1522.47	18.85 47 0.025 0.000
220.0	218.4	18.725	0.000	0.000	0.00	0.000	1522.36	18.69 51 0.039 0.000
240.0	238.2	18.557	0.000	0.000	0.00	0.000	1521.85	18.41 52 0.042 0.002
260.0	258.1	17.971	0.000	0.000	0.00	0.000	1520.72	17.93 55 0.055 0.000
280.0	277.9	17.684	0.000	0.000	0.00	0.000	1520.23	17.64 60 0.035 0.002
300.0	297.8	17.163	0.000	0.000	0.00	0.000	1518.85	17.11 37 0.066 0.004
320.0	317.6	16.520	0.000	0.000	0.00	0.000	1517.16	16.47 28 0.080 0.002
340.0	337.4	15.969	0.000	0.000	0.00	0.000	1515.81	15.91 32 0.034 0.003
360.0	357.3	15.565	0.000	0.000	0.00	0.000	1514.80	15.51 28 0.058 0.112
380.0	377.1	15.020	0.000	0.000	0.00	0.000	1513.37	14.96 25 0.270 0.378
400.0	396.9	14.642	0.000	0.000	0.00	0.000	1512.49	14.58 28 0.045 0.267
420.0	416.7	14.412	0.000	0.000	0.00	0.000	1512.10	14.35 36 0.036 0.255
440.0	436.5	13.898	0.000	0.000	0.00	0.000	1510.72	13.83 32 0.047 0.050
460.0	456.4	13.528	0.000	0.000	0.00	0.000	1509.79	13.49 29 0.093 0.111
480.0	476.2	12.956	0.000	0.000	0.00	0.000	1508.08	12.89 30 0.058 0.610
500.0	496.0	12.145	0.000	0.000	0.00	0.000	1505.58	12.08 32 0.062 0.859
520.0	515.8	11.059	0.000	0.000	0.00	0.000	1502.60	10.99 39 0.024 0.323
540.0	535.6	10.053	0.000	0.000	0.00	0.000	1499.70	9.98 32 0.025 0.022
560.0	555.4	8.414	0.000	0.000	0.00	0.000	1495.08	8.34 35 0.085 0.373
580.0	575.1	7.326	0.000	0.000	0.00	0.000	1492.53	7.25 29 0.030 0.023
600.0	594.8	6.450	0.000	0.000	0.00	0.000	1490.68	6.37 36 0.021 0.027
1000.0	990.9	5.710	0.000	0.000	0.00	0.000	1489.40	5.62 36 0.027 0.015
1100.0	1089.7	5.103	0.000	0.000	0.00	0.000	1488.52	5.01 34 0.3612 1.149
1200.0	1188.5	4.519	0.000	0.000	0.00	0.000	1487.90	4.42 30 0.006 0.200
1300.0	1287.2	4.055	0.000	0.000	0.00	0.000	1487.63	3.95 32 0.005 0.203
1400.0	1385.9	3.669	0.000	0.000	0.00	0.000	1487.71	3.46 48 0.007 0.702
1410.0	1395.8	3.655	0.000	0.000	0.00	0.000	1487.77	3.55 38 0.000 0.000



STATION NO. : 19-60-1367
 POSITION : 30-38.306 138-13.36
 DATE : 19-60-1367
 TIME : 0804 (UTC)
 CALIBRATION :
 TEMPERATURE :
 SALINITY :
 SOUND :
 SIGMA-T :

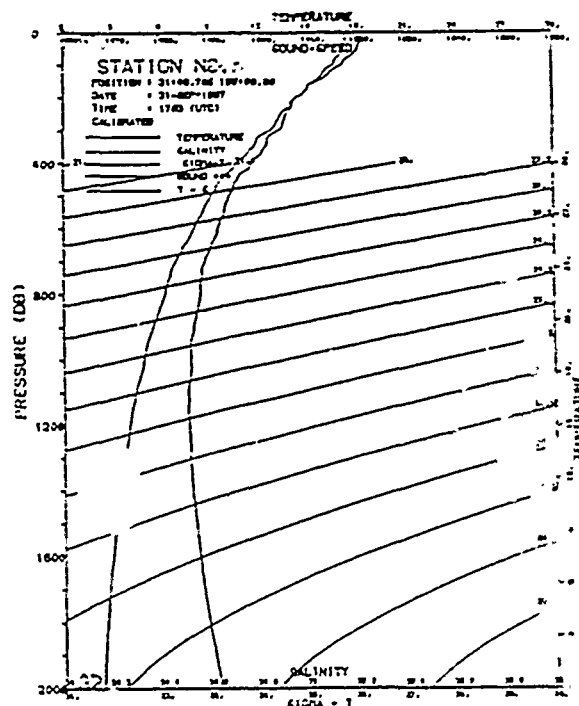
DEPTH (M)	TEMP (C)	SAL (PPT)	SIGMA-T	TEMP (F)	SAL (PPT)	SIGMA-T
0.0	19.753	35.000	1.020	67.55	35.000	1.020
10.0	19.556	35.000	1.020	67.20	35.000	1.020
20.0	19.360	35.000	1.020	66.85	35.000	1.020
30.0	19.164	35.000	1.020	66.50	35.000	1.020
40.0	18.968	35.000	1.020	66.15	35.000	1.020
50.0	18.772	35.000	1.020	65.80	35.000	1.020
60.0	18.576	35.000	1.020	65.45	35.000	1.020
70.0	18.380	35.000	1.020	65.10	35.000	1.020
80.0	18.184	35.000	1.020	64.75	35.000	1.020
90.0	17.988	35.000	1.020	64.40	35.000	1.020
100.0	17.792	35.000	1.020	64.05	35.000	1.020
110.0	17.596	35.000	1.020	63.70	35.000	1.020
120.0	17.400	35.000	1.020	63.35	35.000	1.020
130.0	17.204	35.000	1.020	63.00	35.000	1.020
140.0	17.008	35.000	1.020	62.65	35.000	1.020
150.0	16.812	35.000	1.020	62.30	35.000	1.020
160.0	16.616	35.000	1.020	61.95	35.000	1.020
170.0	16.420	35.000	1.020	61.60	35.000	1.020
180.0	16.224	35.000	1.020	61.25	35.000	1.020
190.0	16.028	35.000	1.020	60.90	35.000	1.020
200.0	15.832	35.000	1.020	60.55	35.000	1.020
210.0	15.636	35.000	1.020	60.20	35.000	1.020
220.0	15.440	35.000	1.020	59.85	35.000	1.020
230.0	15.244	35.000	1.020	59.50	35.000	1.020
240.0	15.048	35.000	1.020	59.15	35.000	1.020
250.0	14.852	35.000	1.020	58.80	35.000	1.020
260.0	14.656	35.000	1.020	58.45	35.000	1.020
270.0	14.460	35.000	1.020	58.10	35.000	1.020
280.0	14.264	35.000	1.020	57.75	35.000	1.020
290.0	14.068	35.000	1.020	57.40	35.000	1.020
300.0	13.872	35.000	1.020	57.05	35.000	1.020
310.0	13.676	35.000	1.020	56.70	35.000	1.020
320.0	13.480	35.000	1.020	56.35	35.000	1.020
330.0	13.284	35.000	1.020	56.00	35.000	1.020
340.0	13.088	35.000	1.020	55.65	35.000	1.020
350.0	12.892	35.000	1.020	55.30	35.000	1.020
360.0	12.696	35.000	1.020	54.95	35.000	1.020
370.0	12.500	35.000	1.020	54.60	35.000	1.020
380.0	12.304	35.000	1.020	54.25	35.000	1.020
390.0	12.108	35.000	1.020	53.90	35.000	1.020
400.0	11.912	35.000	1.020	53.55	35.000	1.020
410.0	11.716	35.000	1.020	53.20	35.000	1.020
420.0	11.520	35.000	1.020	52.85	35.000	1.020
430.0	11.324	35.000	1.020	52.50	35.000	1.020
440.0	11.128	35.000	1.020	52.15	35.000	1.020
450.0	10.932	35.000	1.020	51.80	35.000	1.020
460.0	10.736	35.000	1.020	51.45	35.000	1.020
470.0	10.540	35.000	1.020	51.10	35.000	1.020
480.0	10.344	35.000	1.020	50.75	35.000	1.020
490.0	10.148	35.000	1.020	50.40	35.000	1.020
500.0	9.952	35.000	1.020	50.05	35.000	1.020
510.0	9.756	35.000	1.020	49.70	35.000	1.020
520.0	9.560	35.000	1.020	49.35	35.000	1.020
530.0	9.364	35.000	1.020	49.00	35.000	1.020
540.0	9.168	35.000	1.020	48.65	35.000	1.020
550.0	8.972	35.000	1.020	48.30	35.000	1.020
560.0	8.776	35.000	1.020	47.95	35.000	1.020
570.0	8.580	35.000	1.020	47.60	35.000	1.020
580.0	8.384	35.000	1.020	47.25	35.000	1.020
590.0	8.188	35.000	1.020	46.90	35.000	1.020
600.0	7.992	35.000	1.020	46.55	35.000	1.020
610.0	7.796	35.000	1.020	46.20	35.000	1.020
620.0	7.600	35.000	1.020	45.85	35.000	1.020
630.0	7.404	35.000	1.020	45.50	35.000	1.020
640.0	7.208	35.000	1.020	45.15	35.000	1.020
650.0	7.012	35.000	1.020	44.80	35.000	1.020
660.0	6.816	35.000	1.020	44.45	35.000	1.020
670.0	6.620	35.000	1.020	44.10	35.000	1.020
680.0	6.424	35.000	1.020	43.75	35.000	1.020
690.0	6.228	35.000	1.020	43.40	35.000	1.020
700.0	6.032	35.000	1.020	43.05	35.000	1.020
710.0	5.836	35.000	1.020	42.70	35.000	1.020
720.0	5.640	35.000	1.020	42.35	35.000	1.020
730.0	5.444	35.000	1.020	42.00	35.000	1.020
740.0	5.248	35.000	1.020	41.65	35.000	1.020
750.0	5.052	35.000	1.020	41.30	35.000	1.020
760.0	4.856	35.000	1.020	40.95	35.000	1.020
770.0	4.660	35.000	1.020	40.60	35.000	1.020
780.0	4.464	35.000	1.020	40.25	35.000	1.020
790.0	4.268	35.000	1.020	39.90	35.000	1.020
800.0	4.072	35.000	1.020	39.55	35.000	1.020
810.0	3.876	35.000	1.020	39.20	35.000	1.020
820.0	3.680	35.000	1.020	38.85	35.000	1.020
830.0	3.484	35.000	1.020	38.50	35.000	1.020
840.0	3.288	35.000	1.020	38.15	35.000	1.020
850.0	3.092	35.000	1.020	37.80	35.000	1.020
860.0	2.896	35.000	1.020	37.45	35.000	1.020
870.0	2.700	35.000	1.020	37.10	35.000	1.020
880.0	2.504	35.000	1.020	36.75	35.000	1.020
890.0	2.308	35.000	1.020	36.40	35.000	1.020
900.0	2.112	35.000	1.020	36.05	35.000	1.020
910.0	1.916	35.000	1.020	35.70	35.000	1.020
920.0	1.720	35.000	1.020	35.35	35.000	1.020
930.0	1.524	35.000	1.020	35.00	35.000	1.020
940.0	1.328	35.000	1.020	34.65	35.000	1.020
950.0	1.132	35.000	1.020	34.30	35.000	1.020
960.0	0.936	35.000	1.020	33.95	35.000	1.020
970.0	0.740	35.000	1.020	33.60	35.000	1.020
980.0	0.544	35.000	1.020	33.25	35.000	1.020
990.0	0.348	35.000	1.020	32.90	35.000	1.020
1000.0	0.152	35.000	1.020	32.55	35.000	1.020

STATION NO. : 19-60-1367
 POSITION : 30-38.306 138-13.36
 DATE : 19-60-1367
 TIME : 0804 (UTC)
 CALIBRATION :
 TEMPERATURE :
 SALINITY :
 SOUND :
 SIGMA-T :

DEPTH	TEMP	SAL	SIGMA-T	TEMP	SAL	SIGMA-T	TEMP	SIGMA-T
0.0	19.753	35.000	1.020	67.55	35.000	1.020	19.753	35.000
10.0	19.556	35.000	1.020	67.20	35.000	1.020	19.556	35.000
20.0	19.360	35.000	1.020	66.85	35.000	1.020	19.360	35.000
30.0	19.164	35.000	1.020	66.50	35.000	1.020	19.164	35.000
40.0	18.968	35.000	1.020	66.15	35.000	1.020	18.968	35.000
50.0	18.772	35.000	1.020	65.80	35.000	1.020	18.772	35.000
60.0	18.576	35.000	1.020	65.45	35.000	1.020	18.576	35.000
70.0	18.380	35.000	1.020	65.10	35.000	1.020	18.380	35.000
80.0	18.184	35.000	1.020	64.75	35.000	1.020	18.184	35.000
90.0	17.988	35.000	1.020	64.40	35.000	1.020	17.988	35.000
100.0	17.792	35.000	1.020	64.05	35.000	1.020	17.792	35.000
110.0	17.596	35.000	1.020	63.70	35.000	1.020	17.596	35.000
120.0	17.400	35.000	1.020	63.35	35.000	1.020	17.400	35.000
130.0	17.204	35.000	1.020	63.00	35.000	1.020	17.204	35.000
140.0	17.008	35.000	1.020	62.65	35.000	1.020	17.008	35.000
150.0	16.812	35.000	1.020	62.30	35.000	1.020	16.812	35.000
160.0	16.616	35.000	1.020	61.95	35.000	1.020	16.616	35.000
170.0	16.420	35.000	1.020	61.60	35.000	1.020	16.420	35.000
180.0	16.224	35.000	1.020	61.25	35.000	1.020	16.224	35.000
190.0	16.028	35.000	1.020	60.90	35.000	1.020	16.028	35.000
200.0	15.832	35.000	1.020	60.55	35.000	1.020	15.832	35.000
210.0	15.636	35.000	1.020	60.20	35.000	1.020	15.636	35.000
220.0	15.440	35.000	1.020	59.85	35.000	1.020	15.440	35.000
230.0	15.244	35.000	1.020	59.50	35.000	1.020	15.244	35.000
240.0	15.048	35.000	1.020	59.15	35.000	1.020	15.048	35.000
250.0	14.852	35.000	1.020	58.80	35.000	1.020	14.852	35.000
260.0	14.656	35.000	1.020	58.45	35.000	1.020	14.656	35.000
270.0	14.460	35.000	1.020	58.10	35.000	1.020	14.460	35.000
280.0	14.264	35.000	1.020	57.75	35.000	1.020	14.264	35.000
290.0	14.068	35.000	1.020	57.40	35.000	1.020	14.068	35.000
300.0	13.872	35.000	1.020	57.05	35.000	1.020	13.872	35.000
310.0	13.676	35.000	1.020	56.70	35.000	1.020	13.676	35.000
320.0	13.480	35.000	1.020	56.35	35.000	1.020	13.480	35.000
330.0	13.284	35.000	1.020	56.00	35.000	1.020	13.284	35.000
340.0	13.088	35.000	1.020	55.65	35.000	1.020	13.088	35.000
350.0	12.892	35.000	1.020	55.30	35.000	1.020	12.892	35.000
360.0	12.696	35.000	1.020	54.95	35.000	1.020	12.696	35.000
370.0	12.500	35.000	1.020	54.60	35.000	1.020	12.500	35.000
380.0	12.304	35.000	1.020	54.25	35.000	1.020	12.304	35.000
390.0	12.108	35.000	1.020	53.90	35.000	1.020	12.108	35.000
400.0	11.912	35.000	1.020	53.55	35.000	1.020	11.912	35.000
410.0	11.716	35.000	1.020	53.20	35.000	1.020	11.716	35.000
420.0	11.520	35.000	1.020	52.85	35.000	1.020	11.520	35.000
430.0	11.324	35.000	1.020	52.50	35.000	1.020	11.324	35.000
440.0	11.128	35.000	1.020	52.15	35.000	1.020	11.128	35.000
450.0	10.932	35.000	1.020	51.80	35.000	1.020	10.932	35.000
460.0	10.736	35.000	1.020	51.45	35.000	1.020	10.736	35.000
470.0	10.540	35.000	1.020	51.10	35.000	1.020	10.540	35.000
480.0	10.344	35.000	1.020	50.75	35.000	1.020	10.344	35.000
490.0	10.148	35.000	1.020	50.40	35.000	1.020	10.148	35.000
500.0	9.952	35.000	1.020	50.05	35.000	1.020	9.952	35.000
510.0	9.756	35.000	1.020	49.70	35.000	1.020	9.756	35.000
520.0	9.560	35.000	1.020	49.35	35.000	1.020	9.560	35.000
530.0	9.364	35.000	1.020	49.00	35.000	1.020	9.364	35.000
540.0	9.168	35.000	1.020	48.65	35.000	1.020	9.168	35.000
550.0	8.972	35.000	1.020	48.30	35.000	1.020	8.972	35.000
560.0	8.776	35.000	1.020	47.95	35.000	1.020	8.776	35.000
570.0	8.580	35.000	1.020	47.60	35.000	1.020	8.580	35.000
580.0	8.384	35.000	1.020	47.25	35.000	1.020	8.384	35.000
590.0	8.188	35.000	1.020	46.90	35.000	1.020	8.188	35.000
600.0	7.992	35.000	1.020	46.55	35.000	1.020	7.992	35.000

JOE	1 1966 CUM - 17.0000
JOHN ALLEN	2 15 17.0000 THE CHURCH
JOHN ALLEN	3 15 17.0000 THE CHURCH
JOE	4 15.0000 CUM 17.0000
JOHN ALLEN	5 15.0000 CUM -
JOHN	6 15.0000 CUM -
JOHN ALLEN	7 15.0000 CUM -
JOHN ALLEN	8 15.0000 CUM -
JOHN ALLEN	9 15.0000 CUM -
JOHN ALLEN	10 15.0000 CUM -

1986	1987	1988	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000
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Seamap 2 - Route B - Winter

PART B - WINTER SURVEYS FOR SEAMAP SOUTH PACIFIC ROUTE B**DATA FOR SEAMAP SURVEY TWO (RANRL 6/85) - ROUTE B - WINTER**

Surface: Sea State, Swell Height and Wind Vectors
Surface Temperature and Salinity

Subsurface: Bathymetry
Temperature and Salinity Cross-sections
Nansen Station Data Listing and Profiles
VCTOD Data Listings and Profiles
Currents

Additional data from other sources

DATA FOR SEAMAP SURVEY FOUR (RANRL 17/86) - ROUTE B - WINTER

Surface: Sea State, Swell Height and Wind Vectors
Surface Temperature and Salinity

Subsurface: Bathymetry
Temperature and Salinity Cross-sections
Nansen Station Data Data Listings and Profiles
VCTOD Data Listings and Profiles
Currents

Additional data from other sources

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PART B - WINTER SURVEYS FOR SEAMAP SOUTH PACIFIC ROUTE B

Part B presents data from two surveys made to complete Route B Winter. These are SEAMAP 4 (RANRL 17/86) and SEAMAP 2 (RANRL 6/85). Track plots are shown in Figures 51(a), 51(b) (SEAMAP 2); 73 and 85 (SEAMAP 4).

Data for SEAMAP survey two (RANRL 6/85) - route B - winter

Data is presented for a survey made in south hemispheric winter along the route from Sydney - Dunedin - Chatham Island - Cook Strait - Auckland, from 1 August to 25 September 1985 (figure 51). An uncalibrated test VCTOD station was also made in the Kermadec Trench at 31°52'S, 177°15'W, and a partial XBT section from 26°S, 167°E (on the Norfolk Ridge) to the Newcastle area (figure 51(b)). This XBT section lies on route A, not route B, but is included here as part of the cruise. The survey, designated as RANRL 6/85, and SEAMAP 2 was the second cruise of the SEAMAP series made by Maritime Systems Division on the naval oceanographic research vessel HMAS Cook.

Surface parameters

Sea state, swell height, and wind vectors

Four-hourly observations made by bridge watchkeepers are shown in figures 52 and 53, these being a subset of hourly observations. Table 1 (page 5) shows the sea conditions associated with the sea state values. Winds up to 30 kn were encountered in the Tasman Sea from Sydney to south of New Zealand, and up to 40 kn east of New Zealand. Sea states of 4 and 5 and three metre swells were common, with up to sea state 8 east of New Zealand, and 6 to 8 m swell. The rough to very rough sea conditions caused the cruise track to be revised considerably.

Text continued on page 97

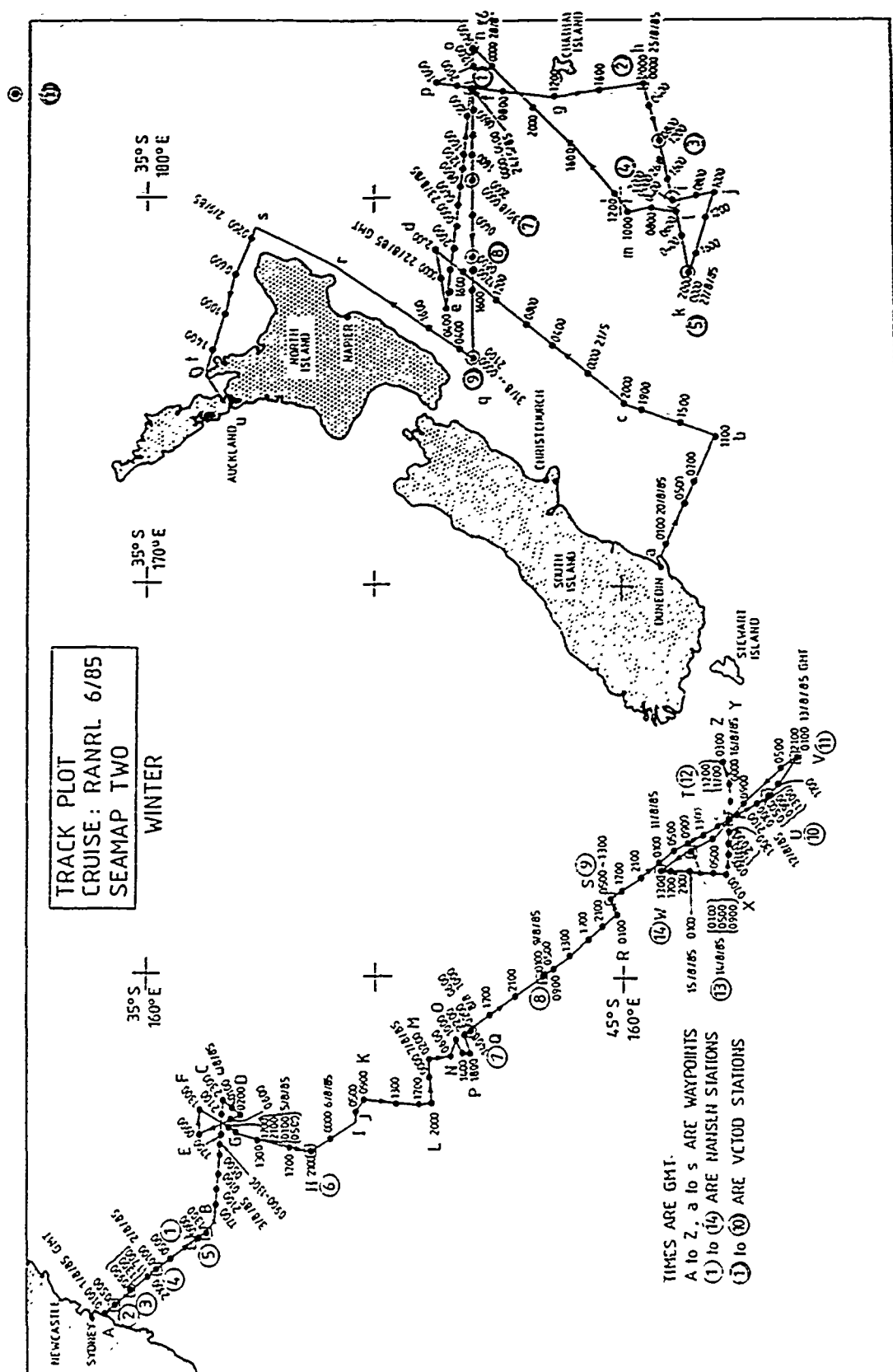


Figure 51(a). Track plot and oceanographic station positions for SEAMAP 2 (RANRL 6/85) winter survey on route B in the South Pacific Ocean, 1 August 1985 to 25 September 1985

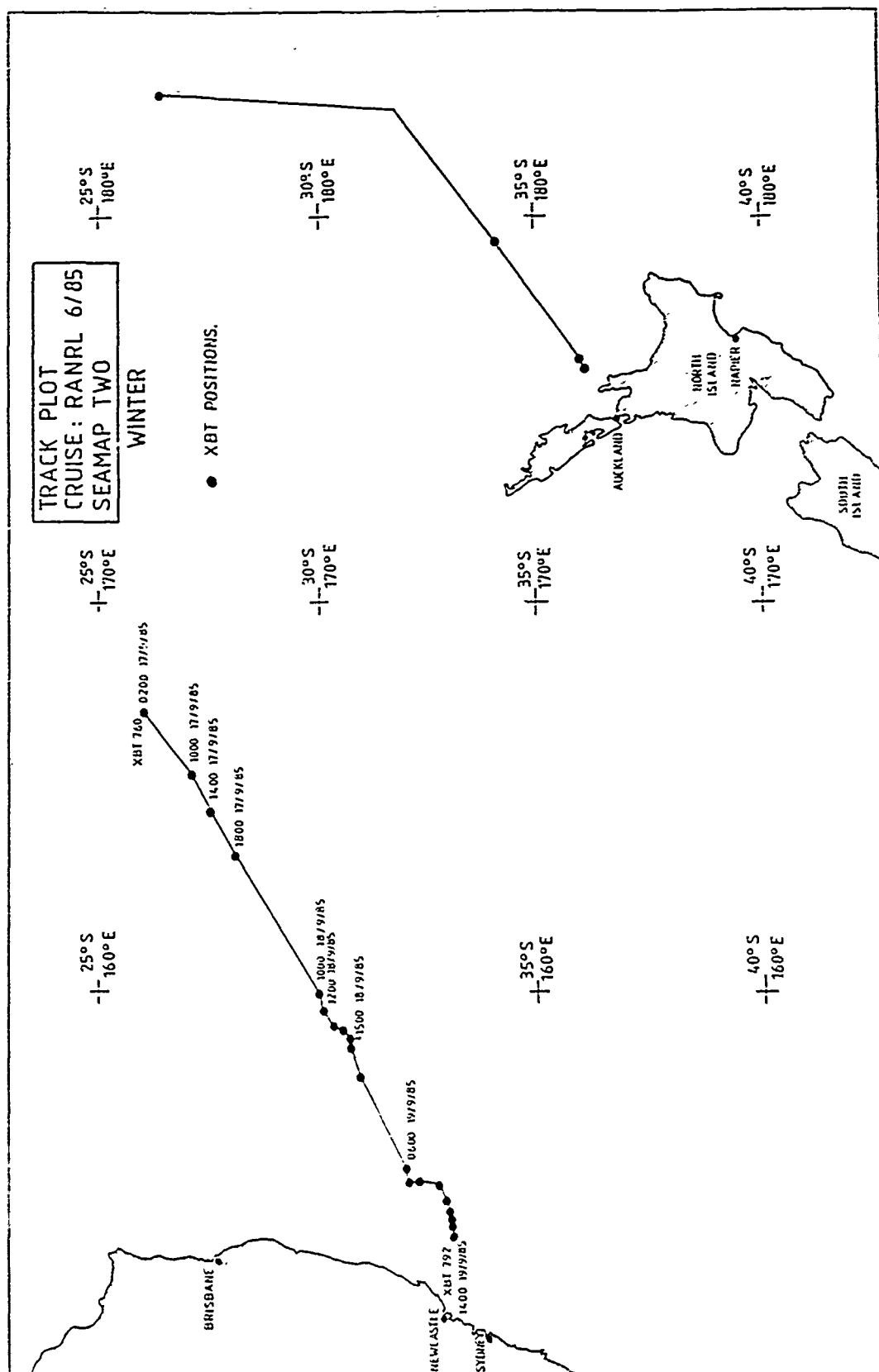


Figure 51(b). Track plot for HMAS Cook and XBT positions after SEAMAP 2 (RANRL 6/85) - return from Auckland to Sydney - September 1985

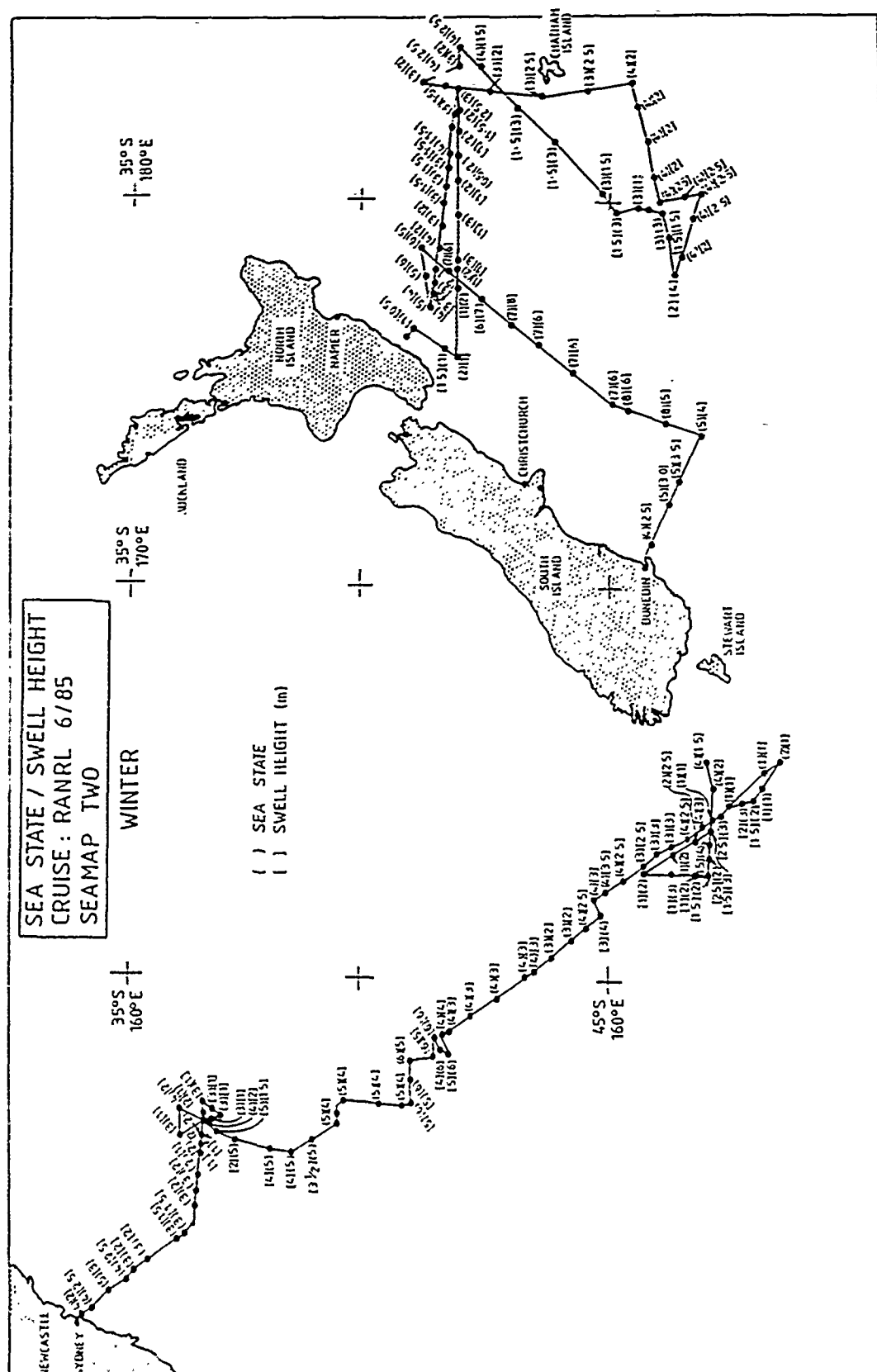


Figure 52. Sea state and swell height for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)

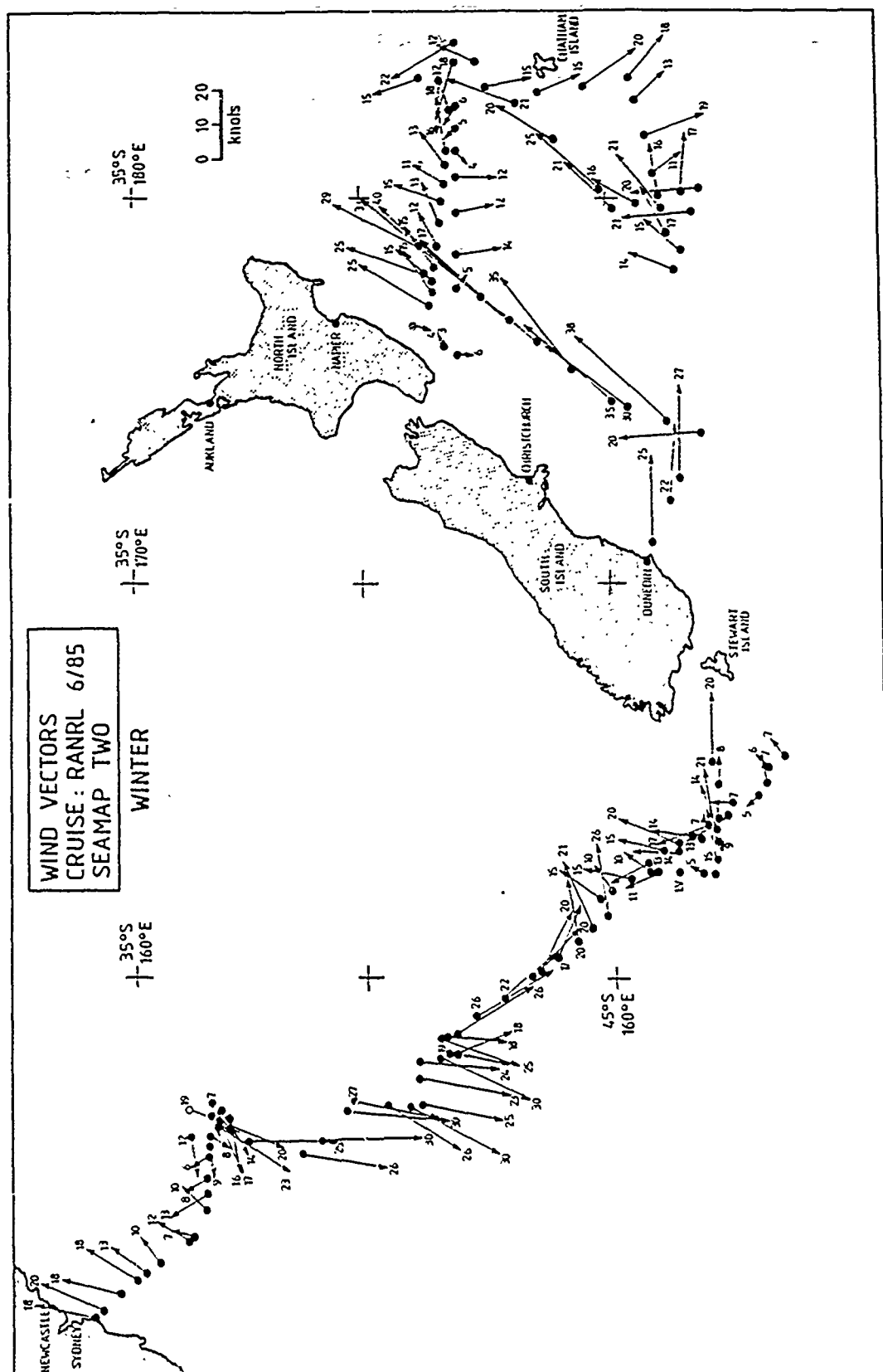


Figure 53. Wind vectors for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)

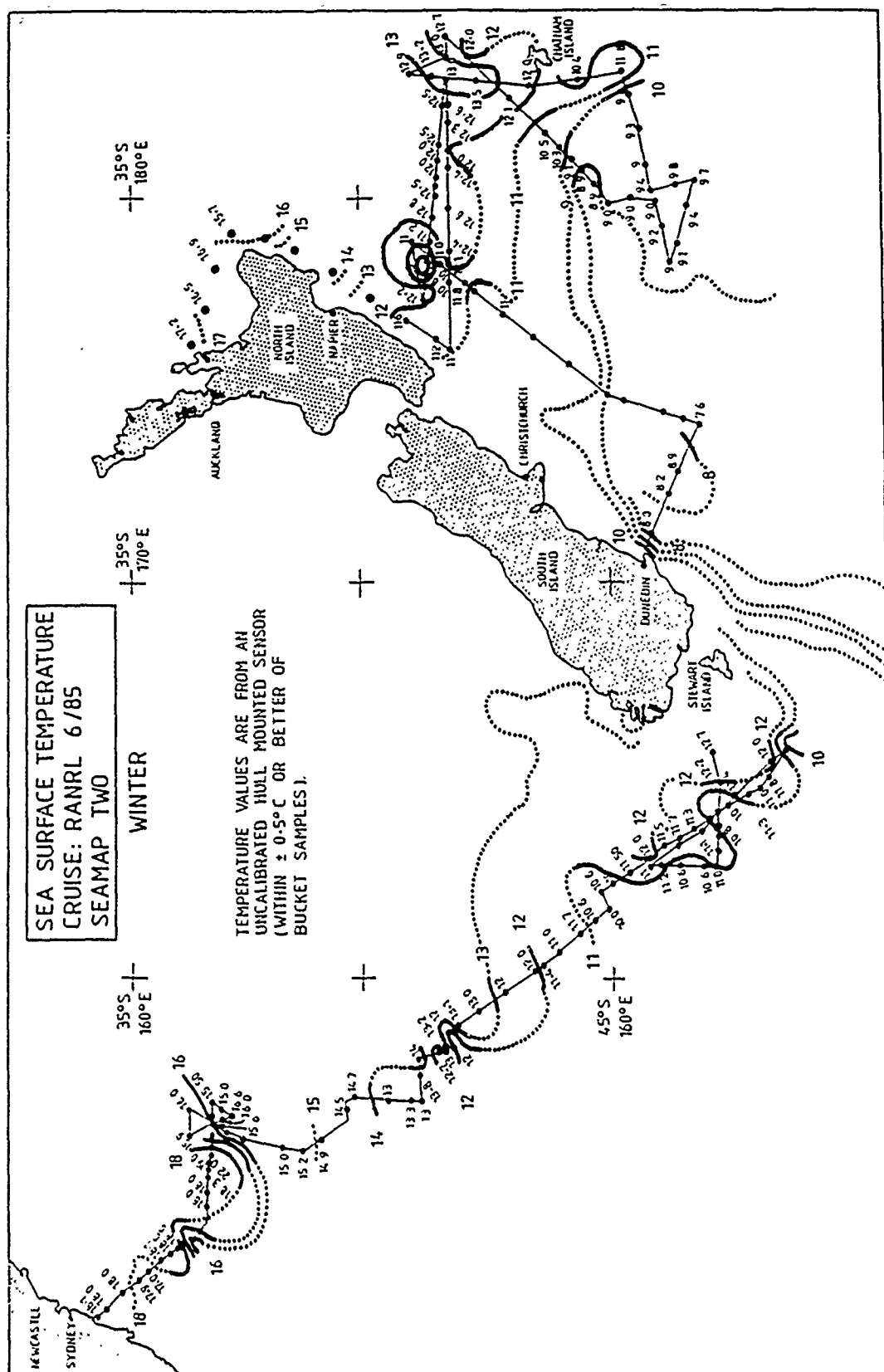


Figure 54. Sea surface temperature for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)

Surface temperature and salinity (figures 54 and 55)

Sydney to south of New Zealand

Fronts are crossed before waypoint B and near points E and G, where the highest SSTs for the cruise are seen. A meandering pattern occurs south-west of South Island, with warmer waters from 163°E to near the most southern part of the track. Two CSIRO Aspendale satellite images are available for the east Australian area (figures 57(a) and (b)), for 29 July. These show a rather confused picture, but the main front of the EAC is seen well seawards, and north of the cruise track. RMC Wellington satellite derived SST contours for 12 August and 19 August (figure 56) define the southern extent of the warmer waters south west of New Zealand.

The few surface salinities generally decrease with temperature from north-west to south-east along the track except for the southern extremity, where the lowest temperatures for the track are associated with higher salinities (figure 55).

Dunedin to Auckland

RMC Wellington SST contours for 19, 26 August and 2 September 1985 (figure 56) clearly show the Subtropical Convergence southeast and east of New Zealand as a surface front centred near the 10 C isotherm. (Additional SST values are shown on XBT sections.) It appears to act as a dynamic boundary to eastward movement of the warm waters south-west of South Island. (These warm waters go north with the Subtropical Convergence as the Southland Current.) The Subtropical Convergence about Chatham Rise appears to have a double structure, with fronts both north and south of the rise. A warm tongue is seen coming from the north along 177 W across 42 S (figure 54).

The few sparse surface salinity samples generally show higher salinities with higher temperatures, with the higher salinity and temperature waters coming from the north.

Text continued on page 107

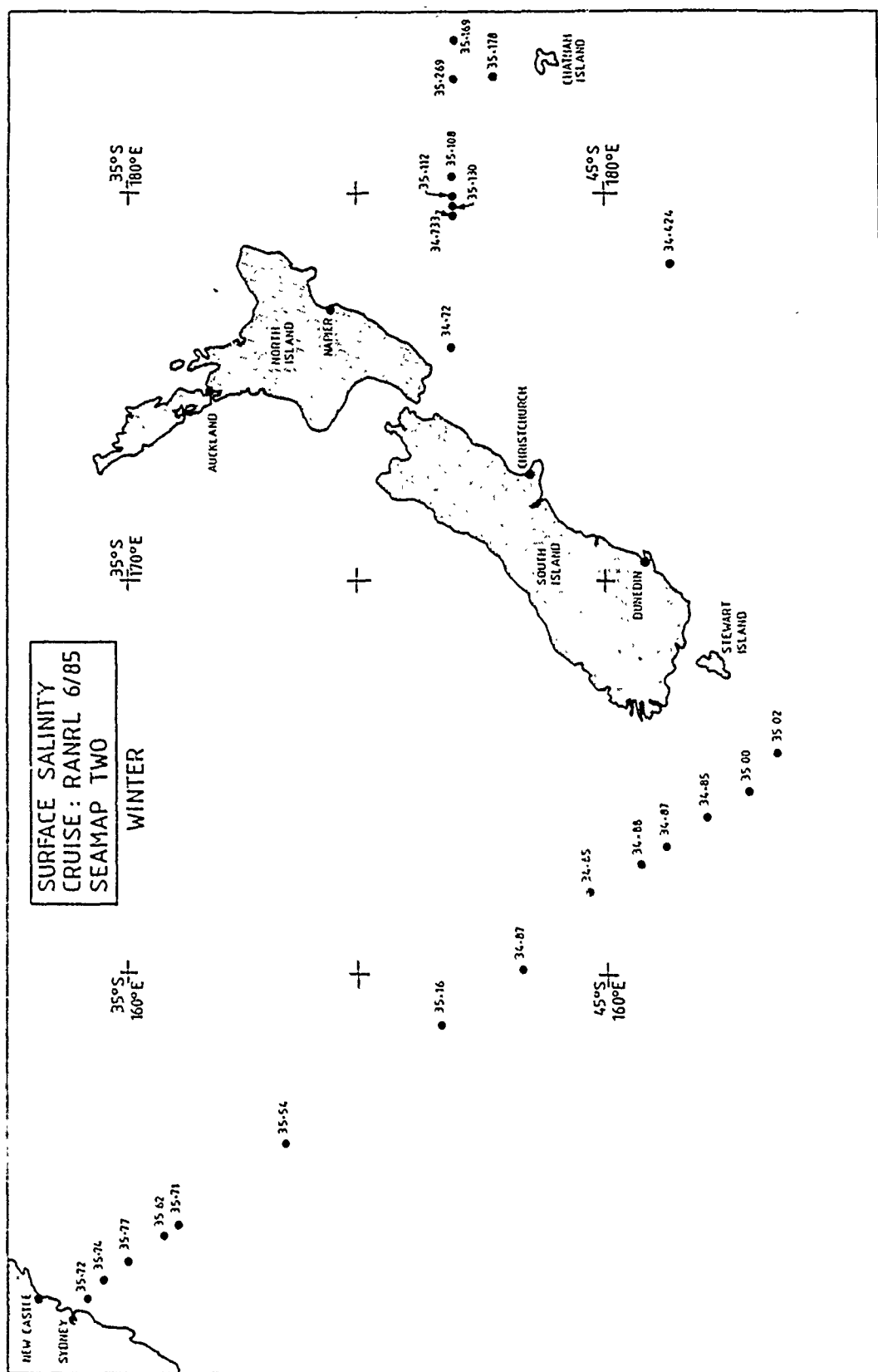


Figure 55. Sea surface salinity values for SEAMAP route B in winter 1985 on survey SEAMAP 2 (RANRL 6/85)

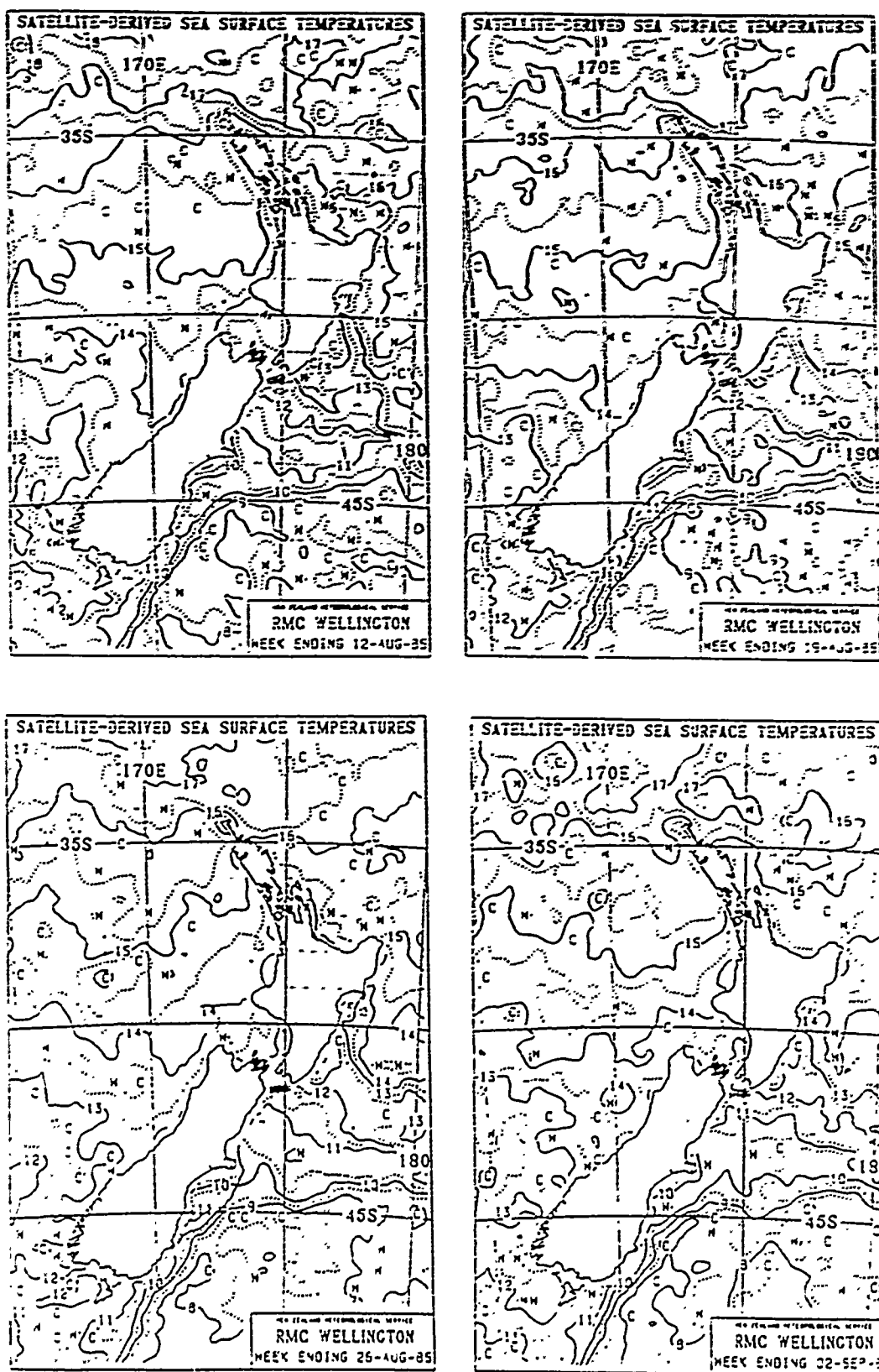


Figure 56. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 12, 19, 26 August and 2 September 1985 coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

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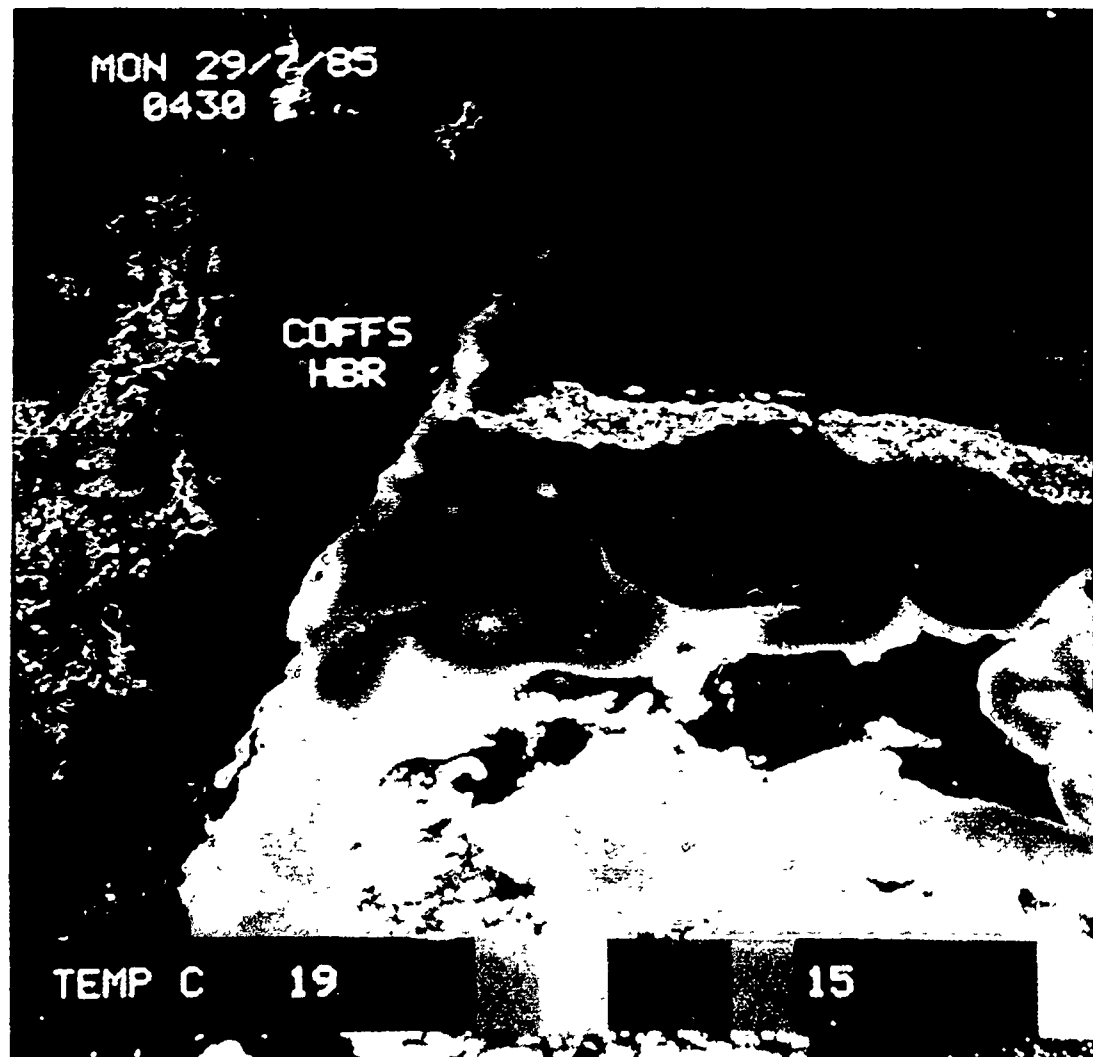


Figure 57(a). Sea surface temperature patterns derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 29 July. Coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

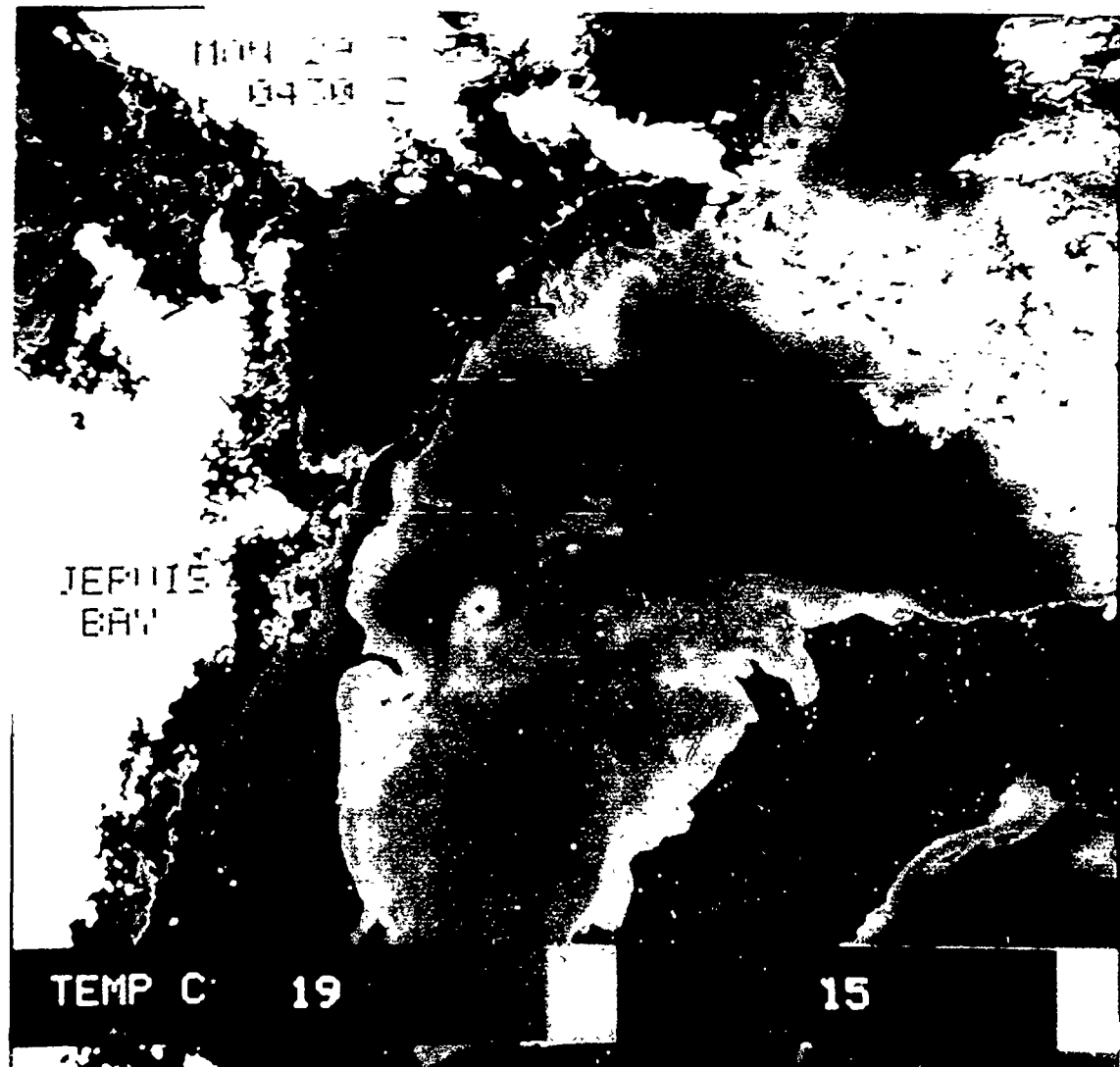


Figure 57(b). Sea surface temperature patterns derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 29 July. Coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

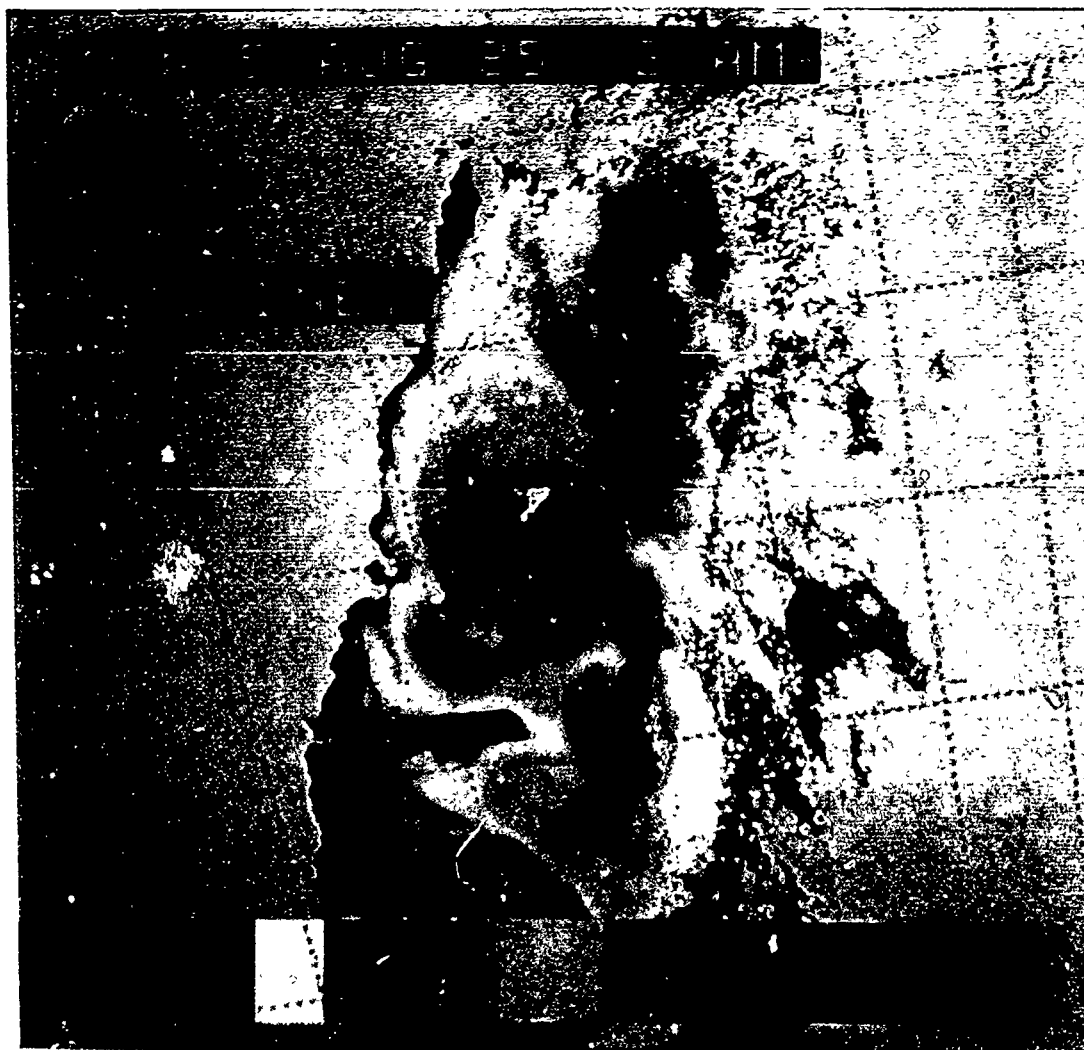


Figure 57(c). Sea surface temperature patterns derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 5 August 1985. Coinciding with sections of SEAMAP 2 winter survey (RANRL 6/85) route B

Subsurface parameters

Bathymetry

Smoothed interpretations showing major features are given in figures 59 and 64.

XBT/Nansen/VCTOD cross-sections

XBT temperature cross-sections

Cross-sections of XBT data are shown in figures 58, 60, 62 and 64. Gaps in sections were caused by periods of seismic profiling, when XBT wires would have fouled the towed streamer (or eel).

Sydney to south of New Zealand (figure 58)

The first warm water meander of the East Australian Current is crossed from Sydney to waypoint B, with a second eddy or meander between B and G on the western side and north of the Gascoyne Seamount. The first meander has warmer waters on its interior near the edges consistent with the advection of warmer water. A broad, weaker meander is crossed from H to L. Deep mixed layers are seen for the section except at the frontal areas of the warm core meanders. The warmer surface waters south-west of South Island have subsurface penetration to over 300 m, appearing as broad weak flows.

Dunedin to Auckland (Figures 60 and 62)

Several short XBT sections were taken in periods of calmer weather. The Southland Current (and Subtropical Convergence) are crossed from waypoints a to b. A front is crossed from waypoints h to i where warmer waters from the north meet the Subtropical Convergence. A strong front is seen at waypoint n which is presumably a northward extension of the Subtropical Convergence about the eastern side of the Chatham Rise. This apparent front appears in the section from information from only one XBT. After point n the warm tongue from the north seen in SST (figure 54) is crossed, then waters of uniform surface temperature occur until cooler waters are met before waypoint q as New Zealand is approached. Waters become warmer northward from waypoint q to s, with the East Cape Current crossed before waypoint s, and again between s and t (where it is known as the East Auckland Current).

Text continued on page 115

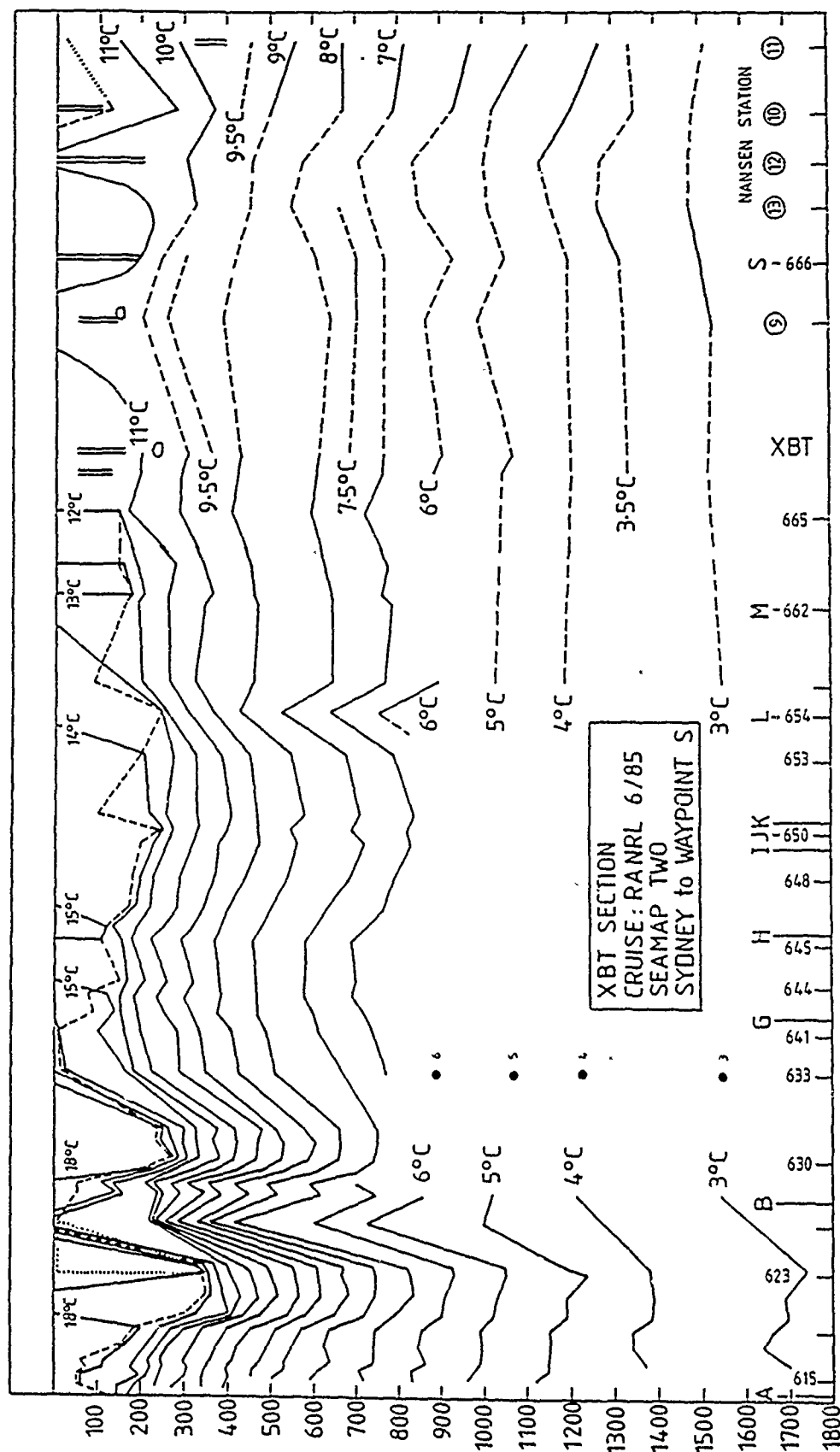
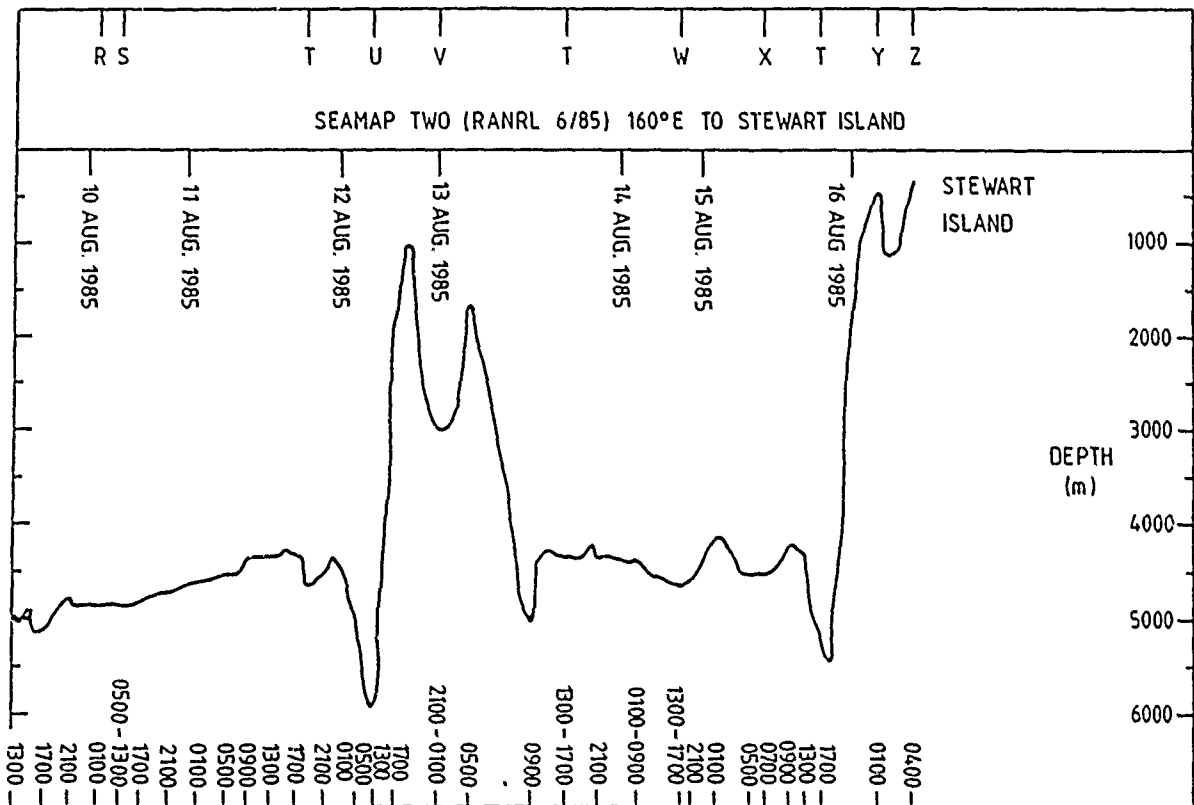


Figure 58. XBT temperature section from Sydney to Nansen station 11 ($48^{\circ}15'S$, $165^{\circ}45'E$) for 1 to 13 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B



Seamap 2 - Route B - Winter

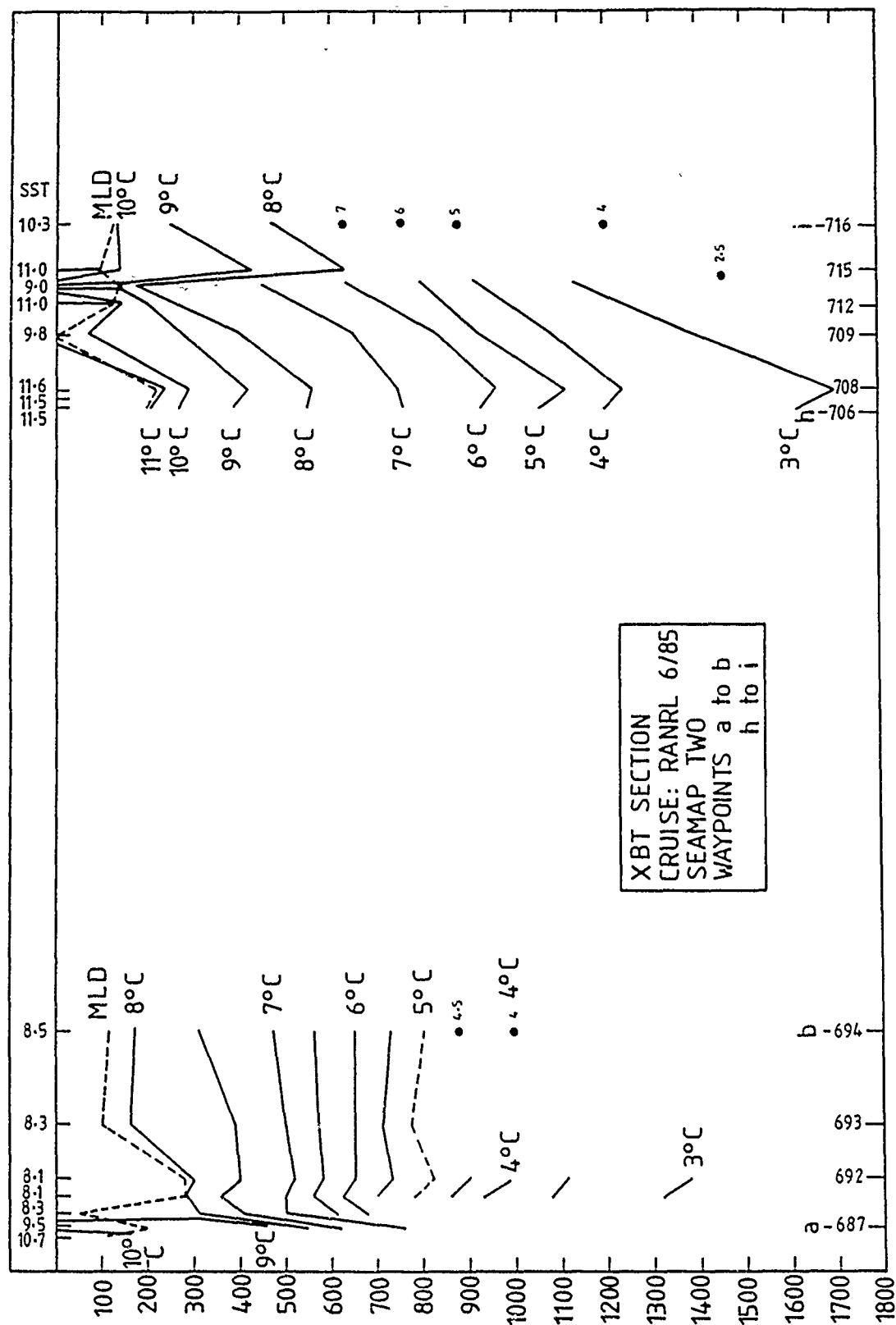


Figure 60. XBT temperature sections from waypoint a to way point b for 20 August, and waypoint h to waypoint i on 25 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B

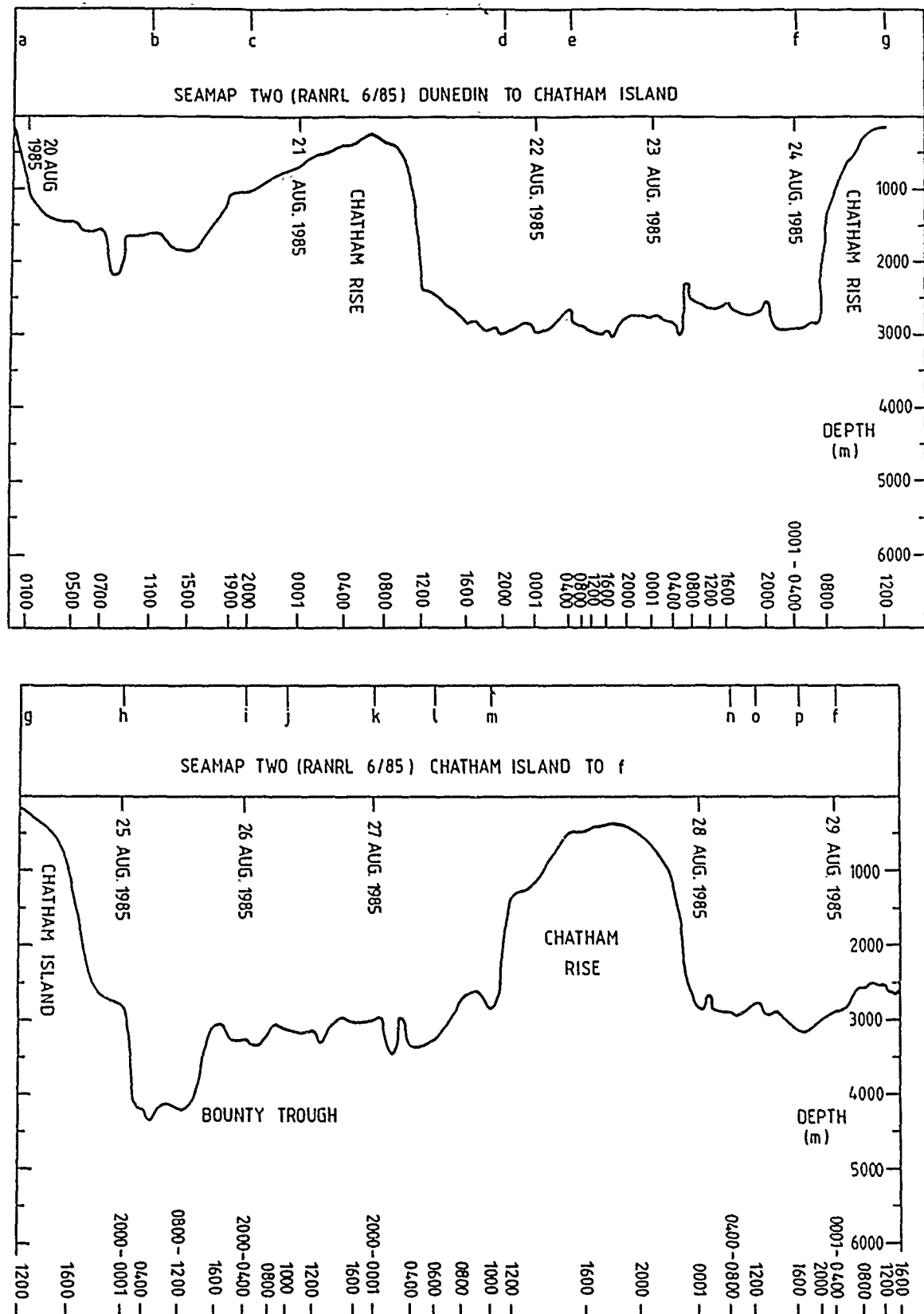


Figure 61. Bathymetry from waypoint a to waypoint p. Winter survey SEAMAP 2 (RANRL 6/85) route B

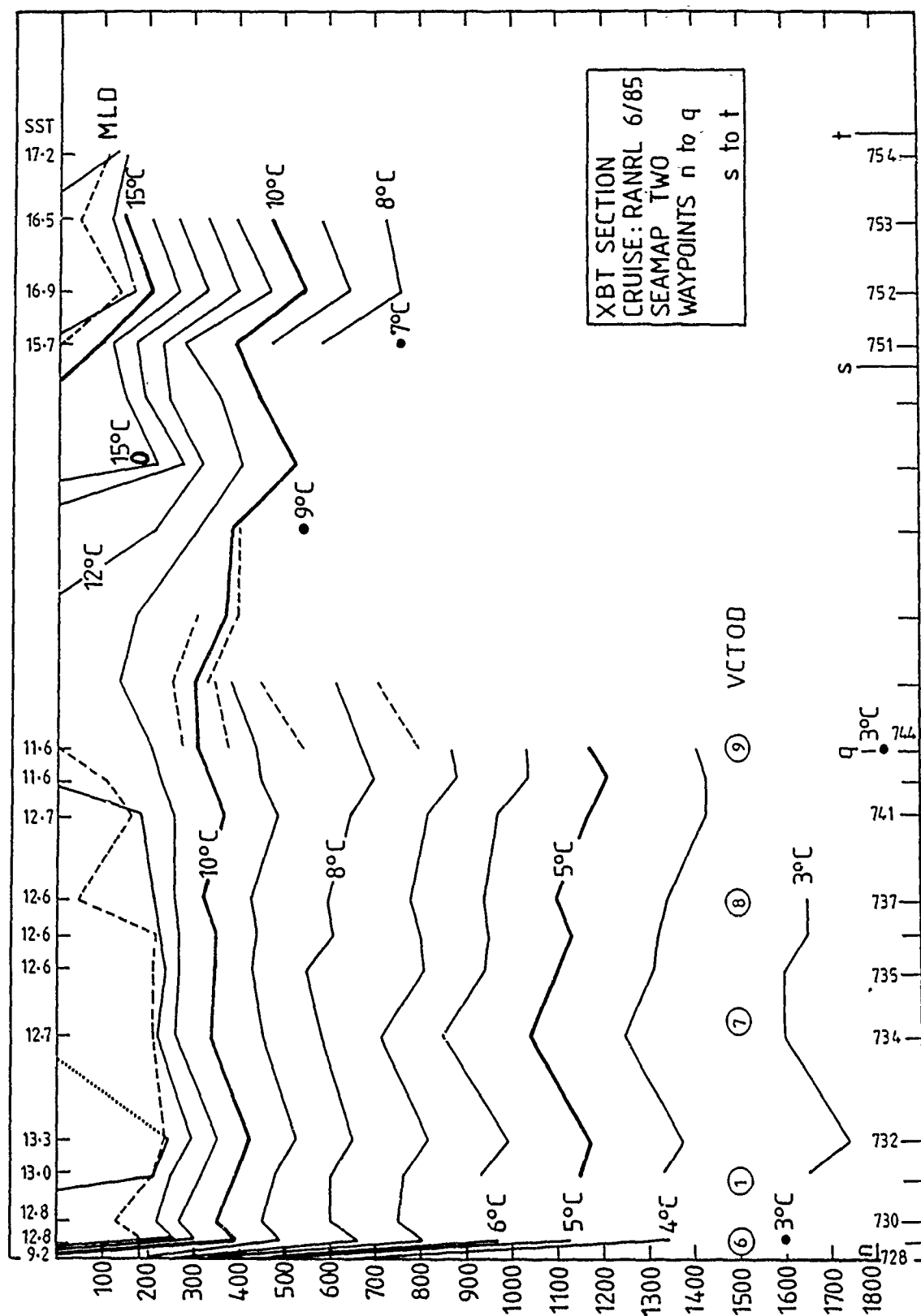


Figure 62. XBT temperature section from waypoint n to way-point t for 28 August to 3 September 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B

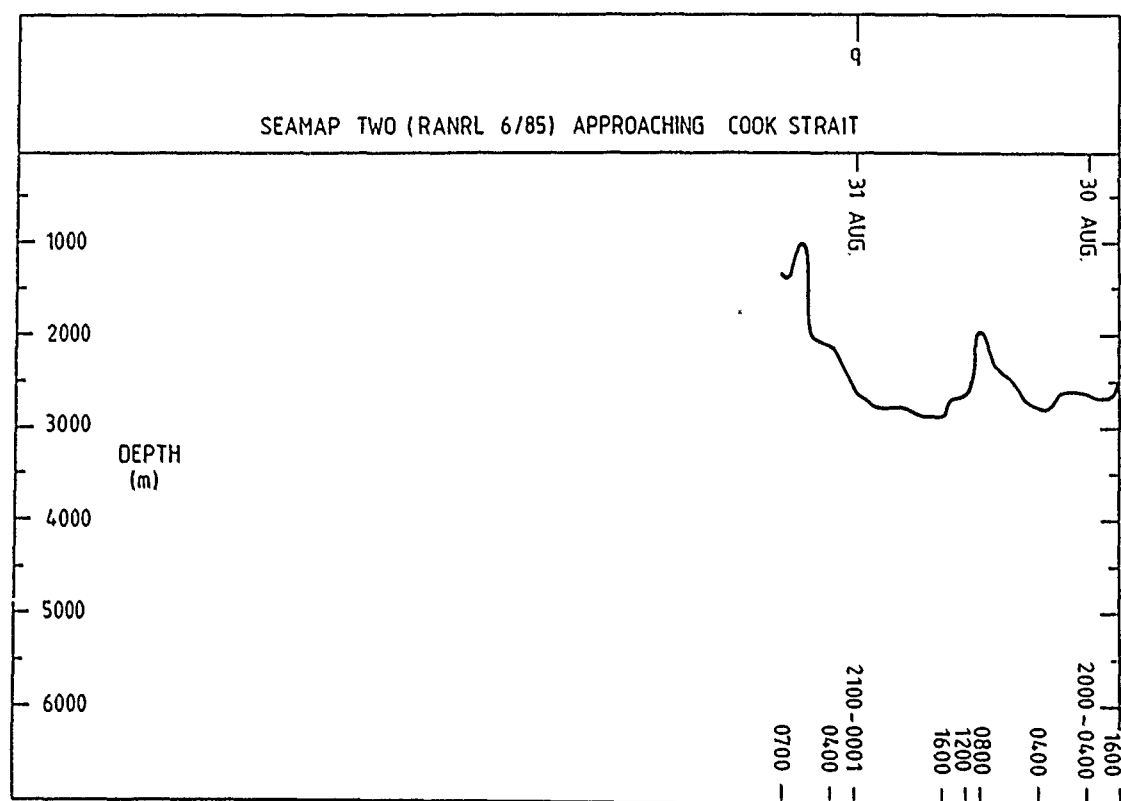


Figure 63. Bathymetry from VCTOD station 8 to station 9. Winter survey SEAMAP 2 (RANRL 6/85) route B

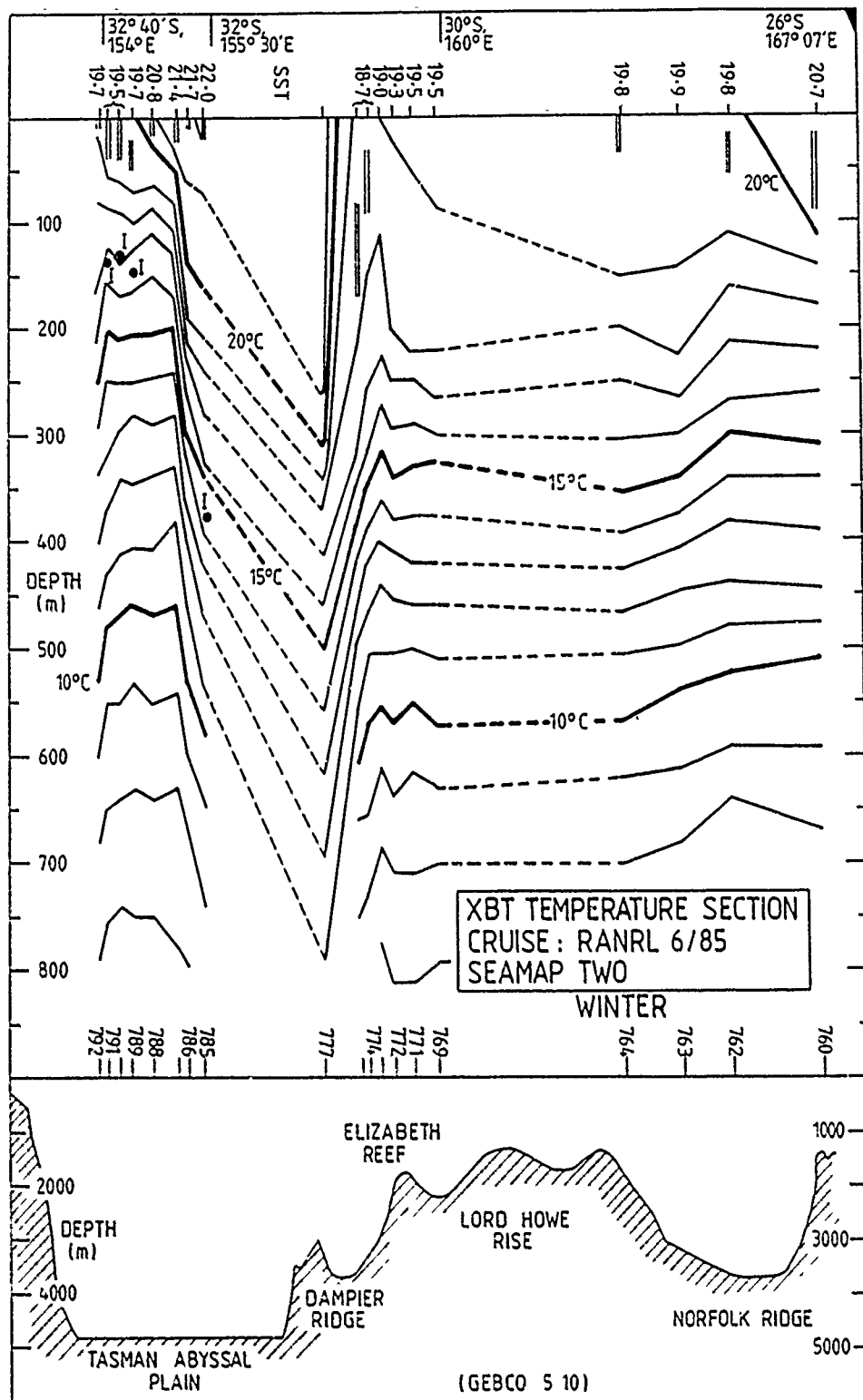


Figure 64(a). XBT temperature section from XBT 760 to XBT 792 for 17 to 19 September 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. See figure 51(b) for XBT positions

Figure 64(b). Bathymetry from XBT 760 to XBT 792. Winter survey SEAMAP 2 (RANRL 6/85) route B

Norfolk Ridge to Australia (figure 64)

Warmer waters occur west of the Norfolk Ridge at the start of the section. Warm waters of the EAC are crossed between Lord Howe Rise and the coast, but a gap in data prevents comments on the structure, as it could be one or more meanders.

Nansen/VCTOD salinity, temperature, (and oxygen) sections

Sydney to south of New Zealand

A planned Nansen section to bottom from Sydney to south of New Zealand was not able to be made because of rough weather. A deep section was completed at the southern end of the track across the Puysegur Trench. Salinity, temperature, and oxygen were sampled (figures 65, 66 and 67). The Nansen temperature section reveals little information not described in the XBT section, except across the Puysegur Trench. Antarctic Bottom Water (AABW) is seen on the western lip of the trench in temperature (and potential temperature). The path of the AABW is uncertain but it may be returning south after having journeyed round the Tasman Abyssal Plain. Potential temperature indicates that the AABW is spilling over the lip into the trench. Note that the Nansen bottle samples extend to 5780 m, beyond the limits of the diagrams.

The salinity in the Puysegur Trench is uniform to within limits of measurement between 34.720 to 34.724 PSU. The AABW appears to have been sampled on its eastern edge. AABW salinity at 4310 and 4510 m is 34.713 PSU. A local salinity maximum is seen about 2500 m above the Puysegur Trench (North Atlantic Deep Water eg Wyrski, 1962). Traces of it also appear at station 3, deeper than 2000 m. This water enters the Tasman Sea from the east, its presence here indicating deeper southward flow around the Snares Shelf and Campbell Plateau. The Antarctic Intermediate Water (AAIW) mass is seen as a salinity minimum about 1000 m, with lower salinity values in the south, where it has undergone a lesser amount of mixing on its northward journey. Highest salinities for this section are seen in the warm waters of the EAC. An oxygen minimum apparently extends along the section at 1600 m, which is partially interrupted by doming above the Atlantic Deep Water over the Puysegur Trench. The minimum marks the lower bounds of the AAIW. A local oxygen minimum occurs over the Puysegur Trench which is displaced on the west by slightly more oxygenated AABW water.

Text continued on page 119

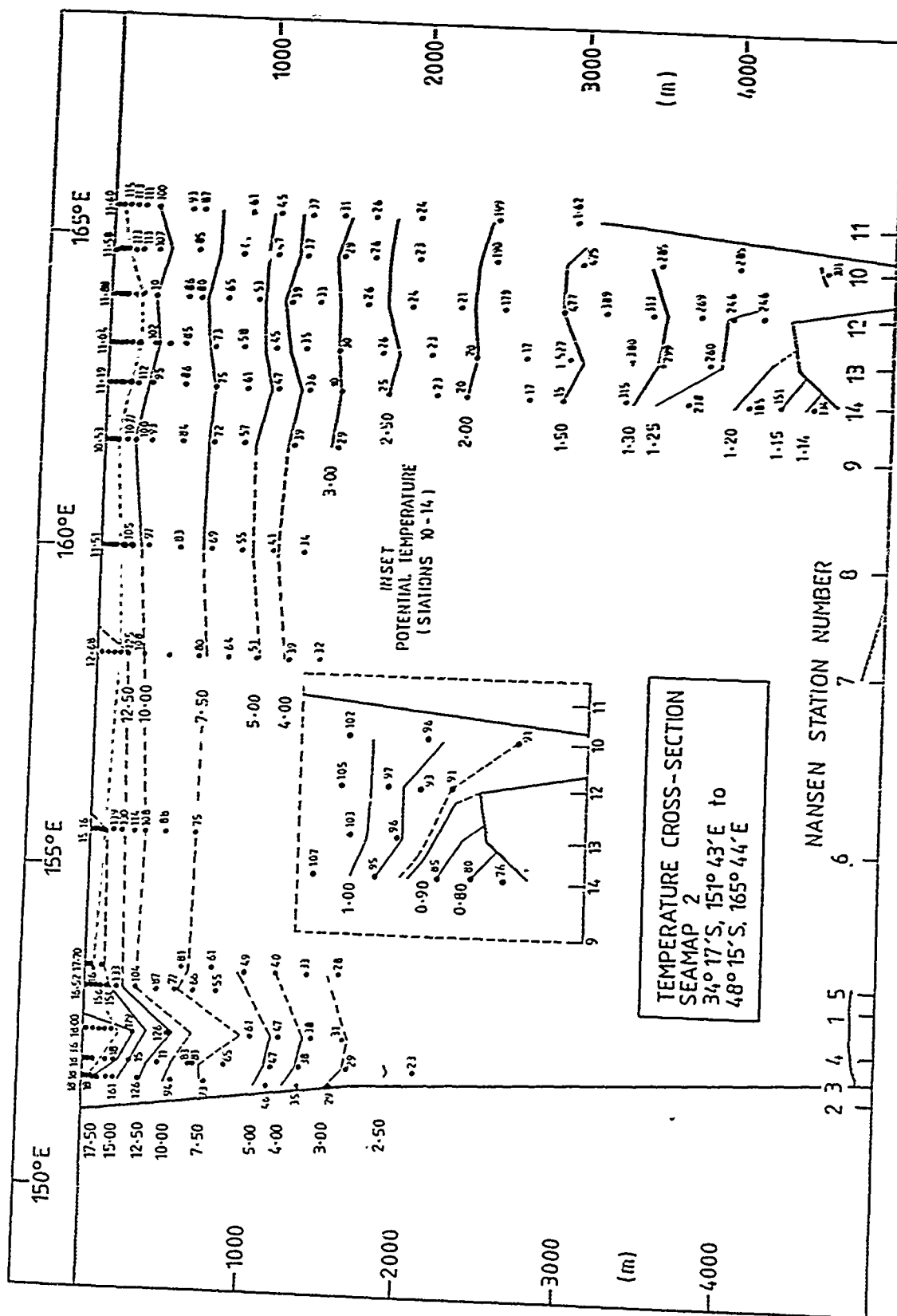


Figure 65. NANSEN temperature section from Nansen station 1 to station 11 for 1 to 11 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. (See figure 59 for more detailed bathymetry)

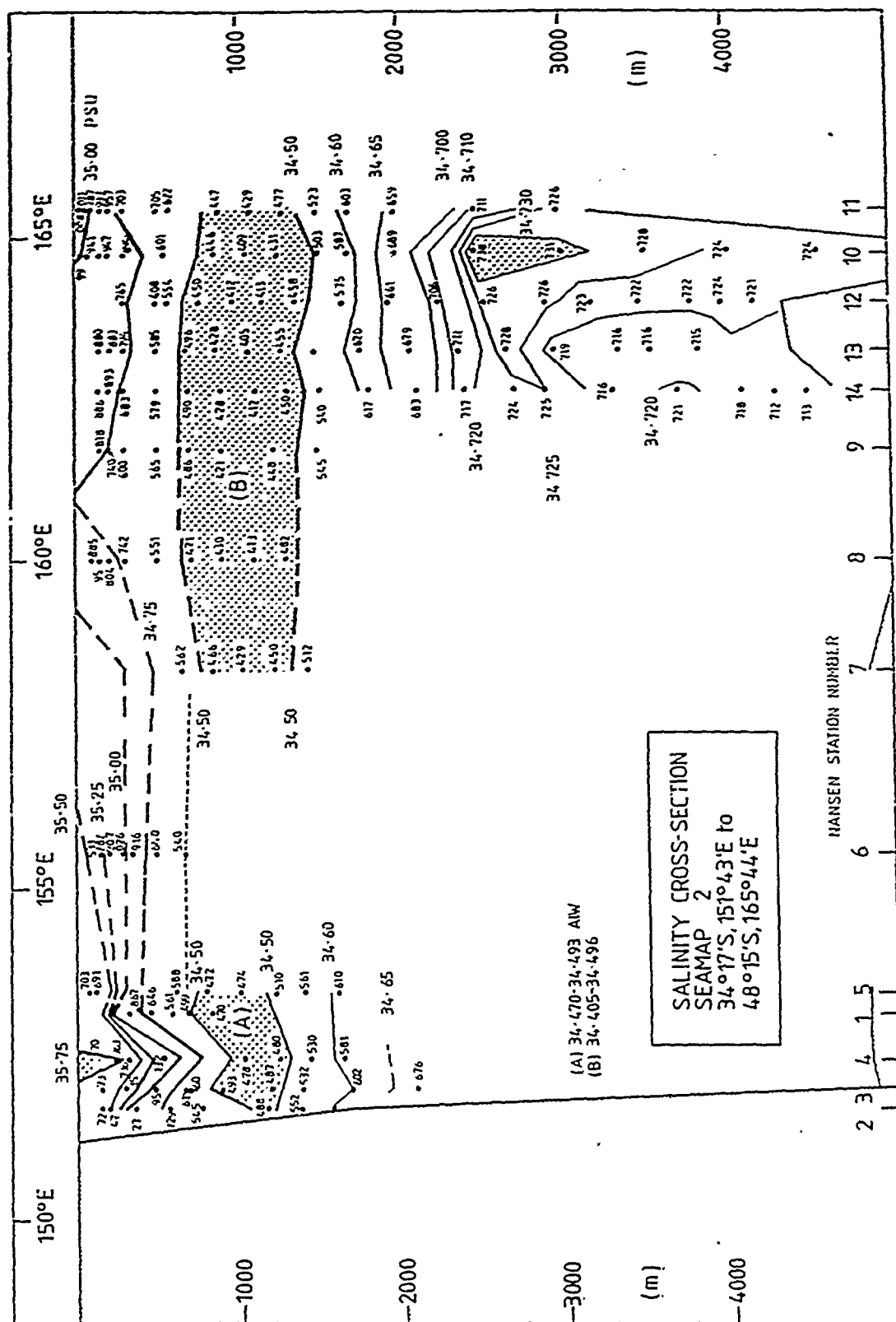


Figure 66. NANSEN salinity section from station 1 to station 11 for 1 to 11 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. (See figure 59 for more detailed bathymetry)

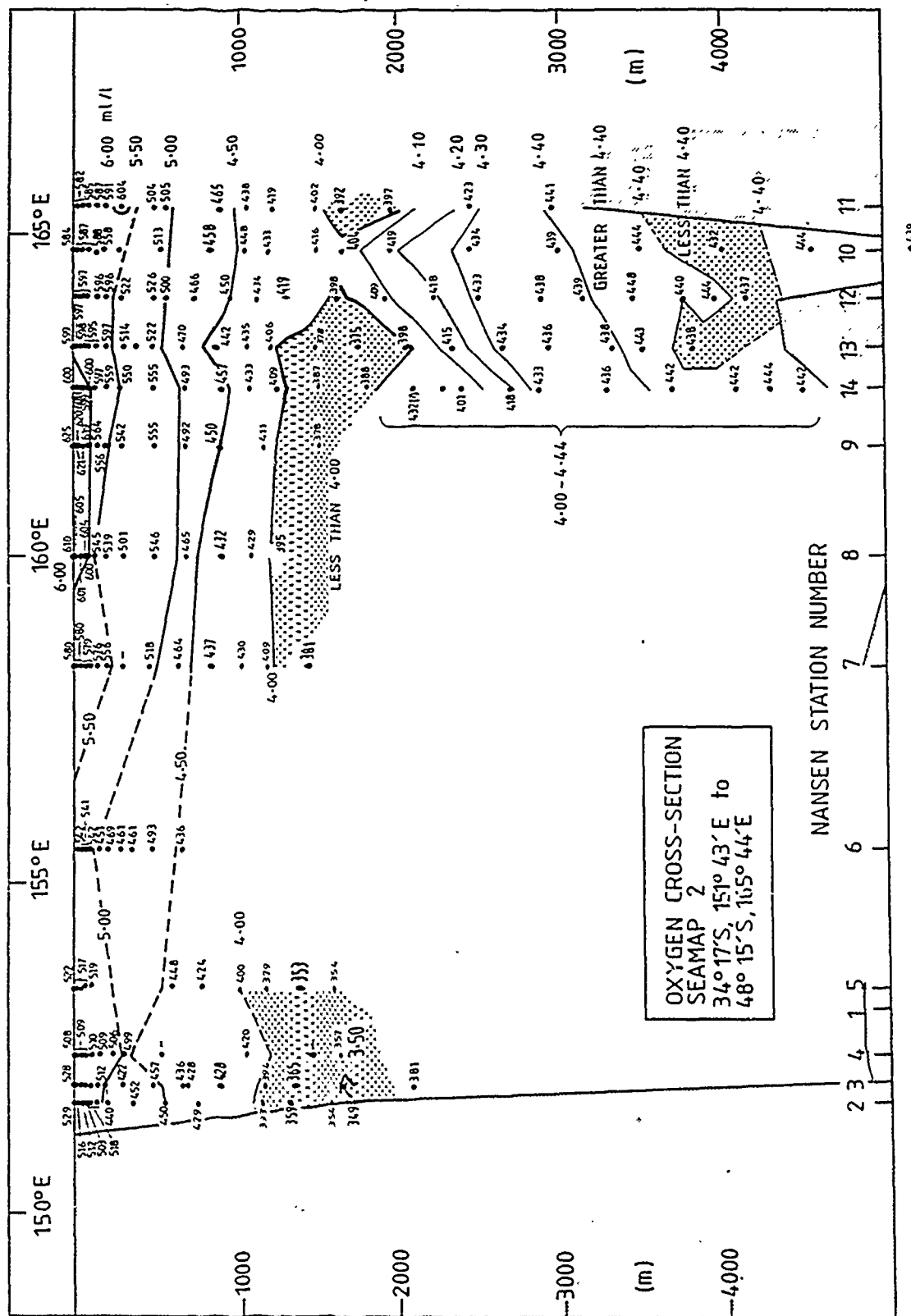


Figure 67. NANSEN oxygen section from Nansen station 1 to station 11 for 1 to 11 August 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B. (See figure 59 for more detailed bathymetry)

Dunedin to Auckland (and Kermadec Trench)

A temperature section has been drawn for the few scattered VCTOD stations by joining them with straight lines in an anti-clockwise direction (figure 68). Isotherms plunge from station 3 to 2 at the Subtropical Convergence and from 5 to 2 at depths greater than 1000 m. Isotherms of temperature lower than 2°C tend to follow the smoothed bottom contour from stations 6 to 9. The salinity section (figure 69) is more revealing. Iso-halines plunge between stations 3 and 2 from the surface in the Subtropical Convergence. A surface salinity maximum occurs between stations 6, 1 and 7, related to warmer northern waters. Two branches of the AAIW meet between stations 6 and 7, resulting in local maxima and minima. One branch comes from the north, and the other from around the Chatham Rise (Wyrski, 1962). There is a slight subsurface salinity maximum from stations 5 to 2, formed by water at higher latitudes than water contributing to the AAIW (eg Pickard and Emery, 1982).

Nansen station data and profiles

Tables and profiles are given on pages 124 to 135 for the 14 stations taken in the Tasman Sea (See figure 51 for locations). Temperature-salinity curves (figure 71) show the AAIW salinity minimum values rising from south to north, and the deep recurvature due to AABW, with stations generally having maximum salinity values at the surface. Temperature-oxygen curves are shown in figure 72. Mixed layers observed in the stations range from 40 m (station 1) to 255 m (station 4). Because of the discrete sampling, mixed layer depths are underestimated. Corresponding sonic layer depths are 40 m and 308 m. Deepest values tend to occur in the south (stations 10 to 14) with all sonic layer depths over 200 m. A pronounced temperature inversion occurs in station 9 at 150 m (This may be Bass Strait Water?). Geostrophic currents will be discussed after the VCTOD profiles.

VCTOD station data tables and profiles

Tables and profiles for 10 stations taken east of New Zealand are given on pages 136 to 143. See figure 51 for locations. Complex profiles are seen, with salinity and temperature perturbations occurring. In particular station 1 shows a pronounced intermediate level salinity maximum, rather than the simple smooth minimum usually seen. Temperature perturbations occur in the pen plots made on HMAS Cook for station 1 at 260 m, 340 m, 370 to 450 m, perhaps 820 m and 900 m, 1200 m, and maybe 1250 m with salinity maxima and minima from 800 and 900 to 1300 m. Temperature perturbations occur in station 2 at 320 m, 550 m, 570 m, 640 m, 800 m, and 900 to 1550 m, with very large perturbations between 1100 and 1200 m. Temperature perturbations occur in station 3 at 240 m, perhaps 1000 m and 1060 m, and 1200 m, with salinity

Text continued on page 122

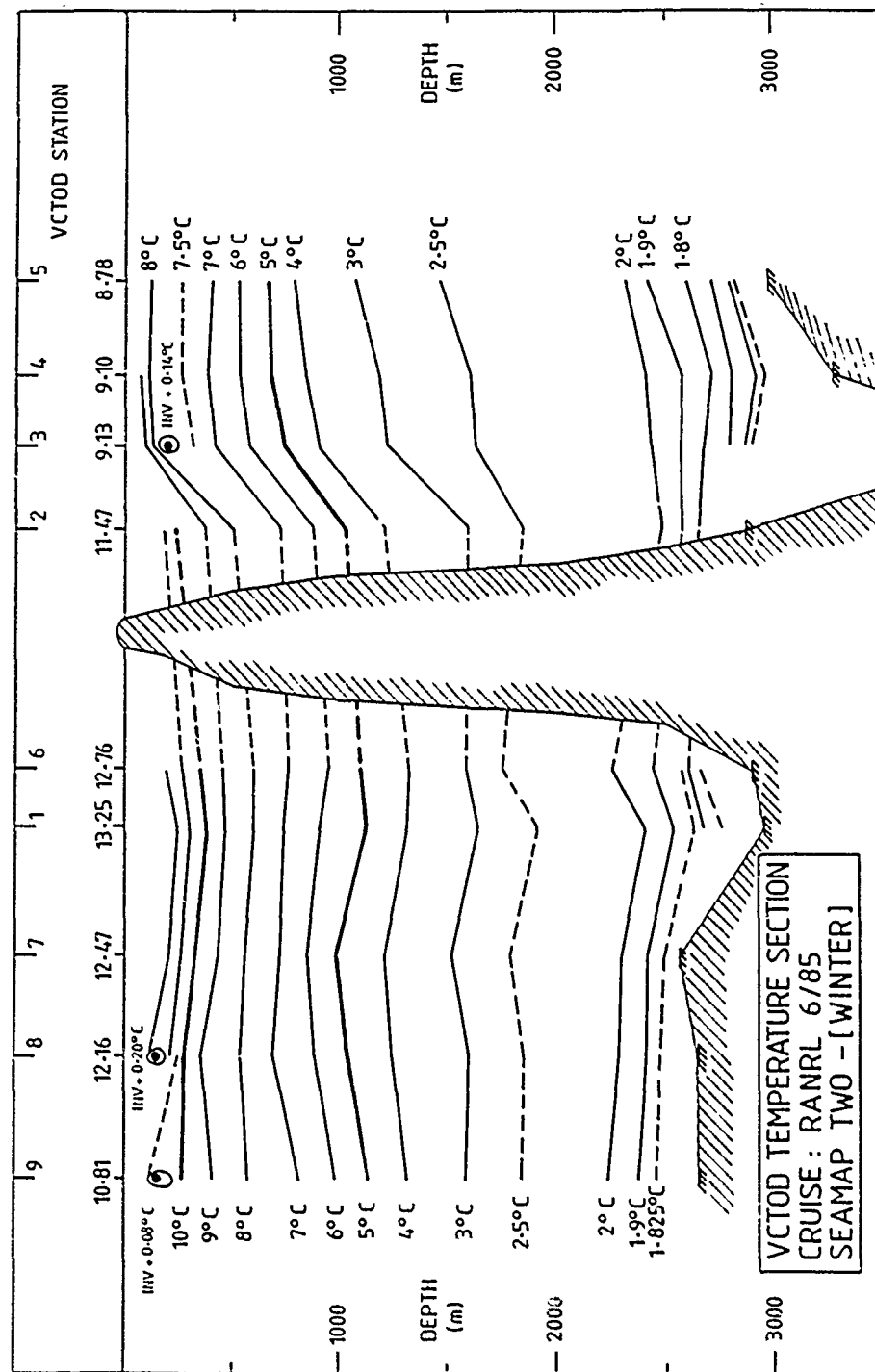
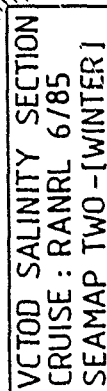


Figure 68. VCTOD temperature section from VCTOD stations 1 to 9 for 28 to 31 August 1985. The section is constructed with straight lines connecting the station pairs. See figure 61 for more detailed bathymetry. Winter survey SEAMAP 2 (RANRL 6/85) route B



Seamap 2 - Route B - Winter

reversals from 500 to 900 m. Temperature perturbations occur in station 4 at 200 m, and maybe 950 m, and 1070 m. Temperature perturbations occur in station 5 at 900 to 1000 m, 1080 m, 1200 m; in station 6 at 250 m, 300 to 400 m, perhaps 1480 m, in station 7 from 260 to 370 m; in station 8 at 160 m (large) to 200 m, 425 m, 520 m; in station 9 at 100 to 300 m, 425 m, 550 m, 700 m; in station 10 at 750 m, 950 m.

Many inversions remain unchecked. Smaller perturbations could be instrumental structure (eg Pingree, 1973) however the deeper perturbations can be explained in terms of meeting and mixing of various water masses, but this will not be done in this data report. See Hamilton (1990).

Currents

Surface components of geostrophic current calculated between Nansen station pairs are shown in figure 70. The currents are given with respect to an assumed depth of no motion of 600 m in the Tasman Sea, this being a depth attained at all Nansen stations. Highest values relative to 600 m are 37 cm/s in the second meander or eddy of the EAC. Away from the EAC, surface currents have only one-twentieth or less of this speed. This does not take into account the level of no motion changing across the Tasman or from north to south. Also some stations are very widely spaced, which prevents proper resolution of the current structure. However the direction of the geostrophic surface currents matches those which can be inferred from the patterns of the surface isotherms (figure 54).

East of New Zealand geostrophic currents are calculated relative to a 2000 dbar assumed level of no motion. A current of one third of a knot is calculated to the south between stations 2 and 3, the Subtropical Convergence, with one-eighth knot north between stations 6 and 1, and one-eighth knot south between 1 and 7. The latter currents correspond with a warm meander from the north (figure 54). Since isotherms generally run at right angles to the station pairs, these currents are expected to be equivalent to current vectors.

Additional data for the cruise period

During 1 to 31 July 1985 HMAS Brisbane transited from Sydney to northwest of New Zealand, and later from northeast of New Zealand along the east coast, and south of New Zealand, to the vicinity of Tasmania, deploying XBT at intervals. Not many of these were retained after digitising, and were presumably of low quality.

Text continued on page 124

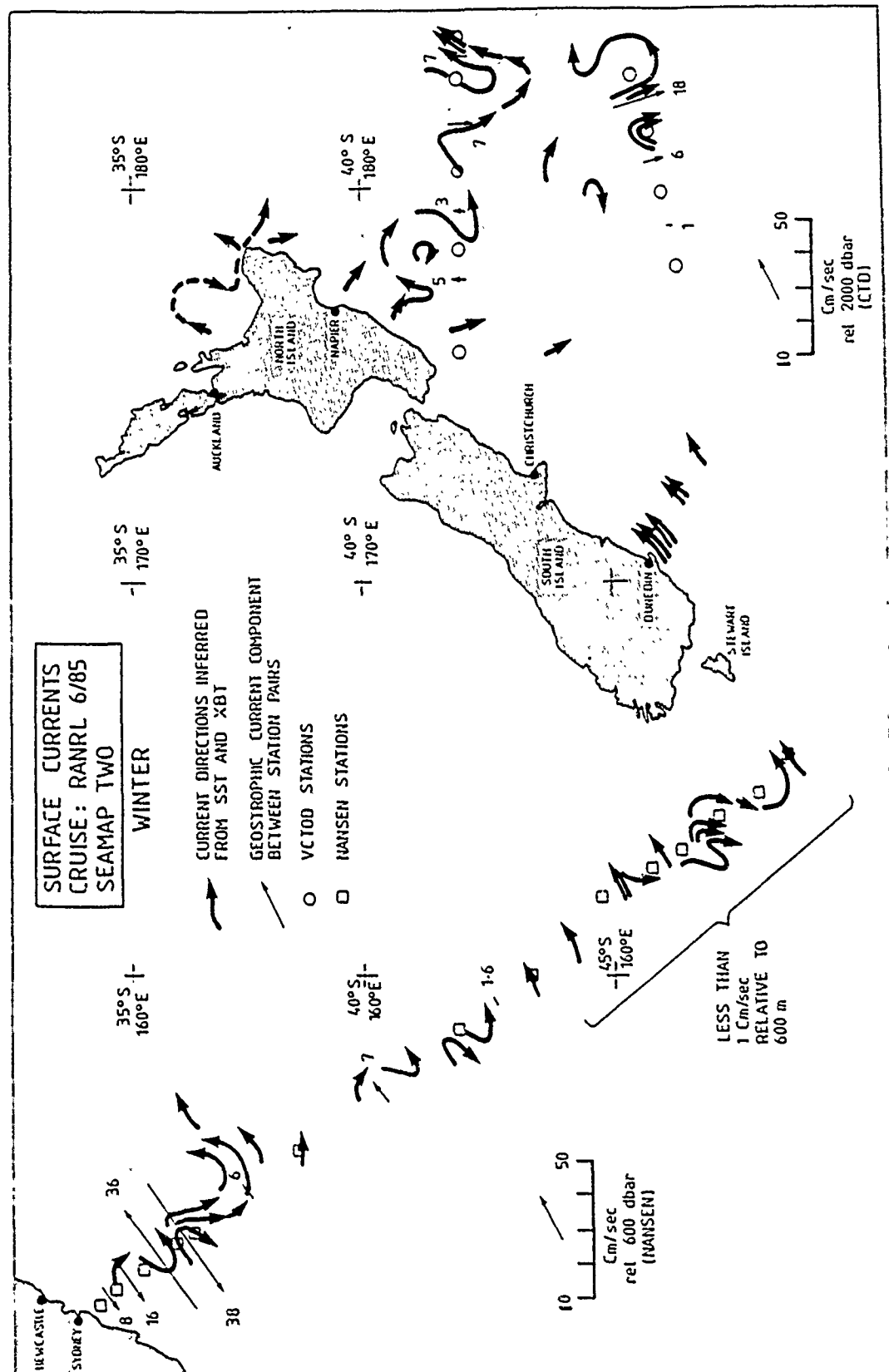


Figure 70. Surface current directions inferred from Nansen, VCTOD, XBT, and sea surface temperature data, 1 August to 2 September 1985. Winter survey SEAMAP 2 (RANRL 6/85) route B

LISTINGS AND PROFILES OF NANSEN DATA GATHERED ON WINTER SURVEY SEAMAP 2 (RANRL 6/85) ARE GIVEN ON FOLLOWING PAGES 125 TO 135.

Nansen stations 1 to 14 were occupied in the Tasman Sea from Sydney to south of New Zealand August 1985. (See figure 51(a) for Nansen station positions.)

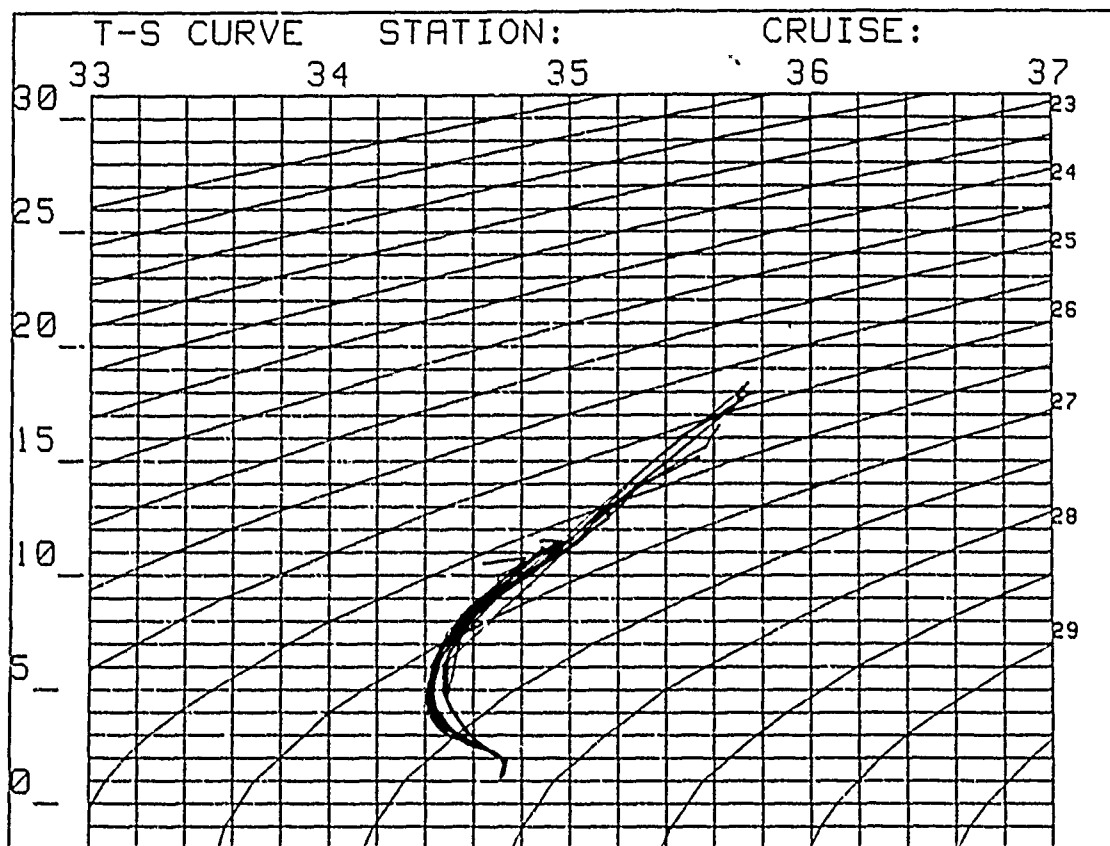


Figure 71. Temperature-Salinity curves for Nansen stations 1 to 14. Winter survey SEAMAP 2 (RANRL 6/85) route B

Text continued on page 136

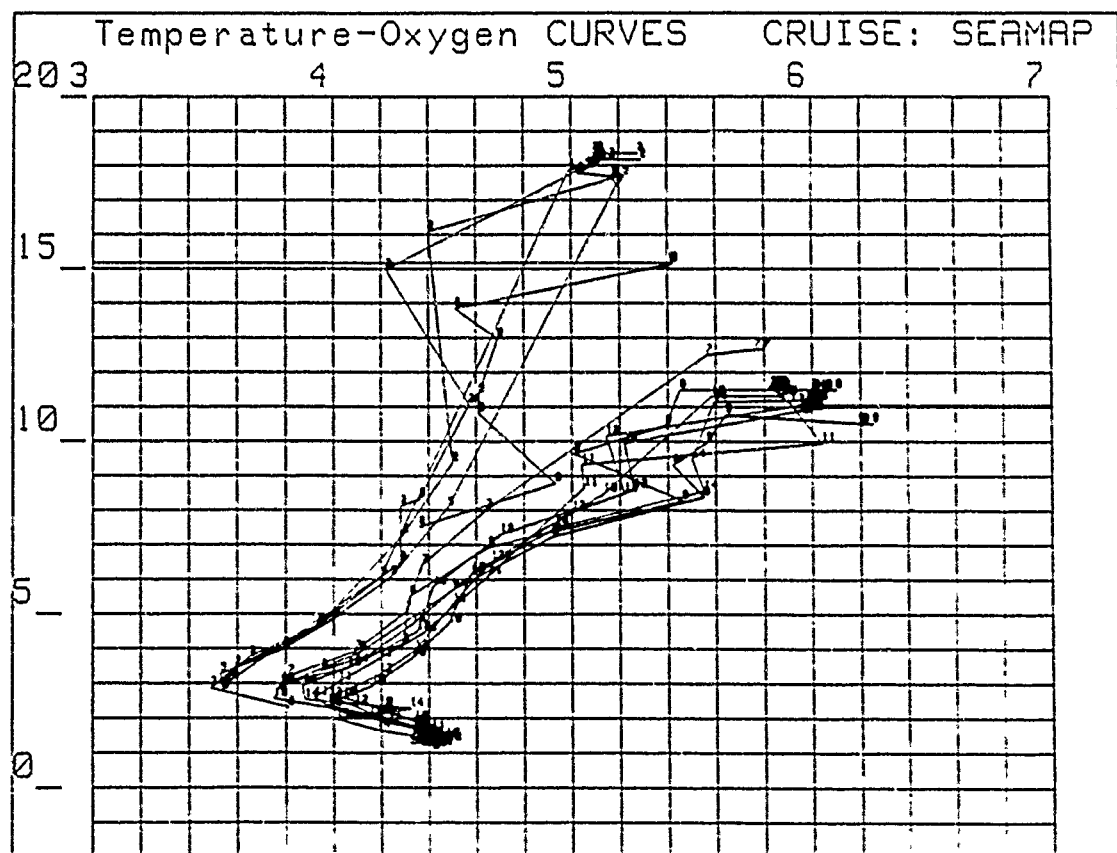
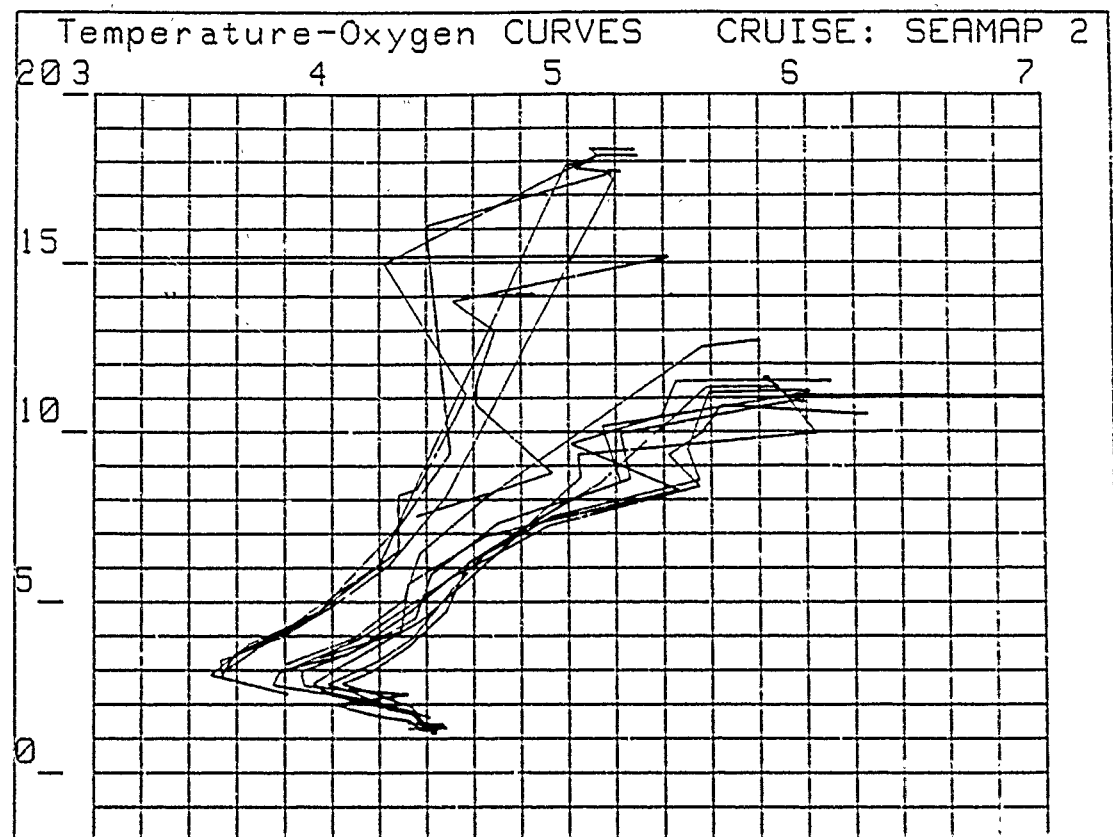
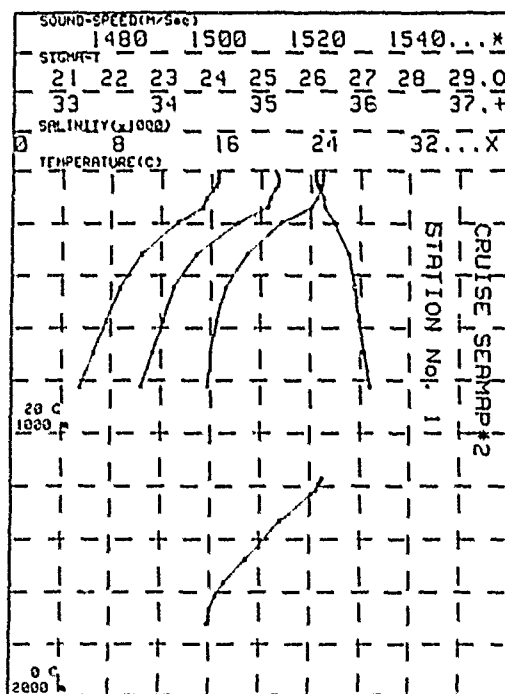
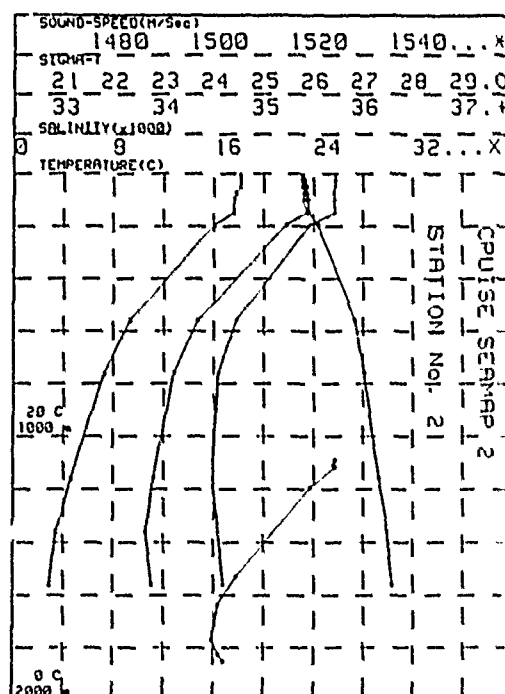


Figure 72. Temperature-Oxygen curves for Nansen stations 1 to 14. Winter survey SEAMAP 2 (RANRL 6/85) route B

STATION 1		38.578	153.056	SEAMAP#2					
DATE= 23/07/1988		TIME= 103500Y			DEPTH= 4847				
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	CL	POT.TEMP	S.S		
m	°C	Ppt		CL/T	M/L	°C	M/Sec	Dyn.η	
088	0	18.520	35.620	26.105	189.7	0.00	18.52	1512.9	
088	20	18.550	35.623	26.100	190.8	0.00	18.55	1513.3	
088	40	18.530	35.620	26.102	191.2	0.00	18.52	1513.5	
088	58	18.350	35.611	26.138	188.5	0.00	18.34	1513.3	
088	73	18.080	35.590	26.184	184.5	0.00	18.07	1512.7	
088	107	15.630	35.586	26.268	177.5	0.00	15.61	1511.8	
088	140	15.360	35.517	26.281	176.2	0.00	15.34	1511.5	
088	200	13.310	35.204	26.400	158.7	0.00	13.28	1505.4	
088	321	10.440	34.867	26.772	133.5	0.00	10.40	1497.1	
088	449	8.700	34.646	26.868	123.8	0.00	8.65	1492.5	
088	575	7.670	34.561	26.978	116.5	0.00	7.61	1490.5	
088	694	6.830	34.499	27.075	107.8	0.00	6.56	1486.4	
088	825	5.520	34.470	27.194	98.5	0.00	5.45	1486.1	
ISL	0	18.52	35.62	26.105	189.7	0.00	18.52	1512.9	0.000
ISL	10	18.54	35.62	26.102	190.4	0.00	18.54	1513.1	.018
ISL	25	18.55	35.62	26.101	190.9	0.00	18.54	1513.4	.048
ISL	50	18.46	35.62	26.117	190.2	0.00	18.45	1513.5	.095
ISL	75	18.05	35.59	26.191	183.9	0.00	18.04	1512.8	.142
ISL	100	15.71	35.57	26.256	178.4	0.00	15.69	1512.0	.187
ISL	150	14.99	35.46	26.327	173.1	0.00	14.97	1510.4	.278
ISL	200	13.31	35.20	26.488	158.7	0.00	13.28	1505.4	.359
ISL	250	11.98	35.05	26.626	146.4	0.00	11.95	1501.5	.436
ISL	300	10.85	34.92	26.735	136.7	0.00	10.82	1498.2	.507
ISL	400	9.28	34.71	26.847	127.2	0.00	9.24	1493.9	.638
ISL	500	8.29	34.61	26.923	121.0	0.00	8.24	1491.7	.763
ISL	600	7.45	34.55	26.987	114.8	0.00	7.39	1490.1	.880
ISL	800	5.73	34.47	27.170	98.8	0.00	5.66	1486.5	1.064

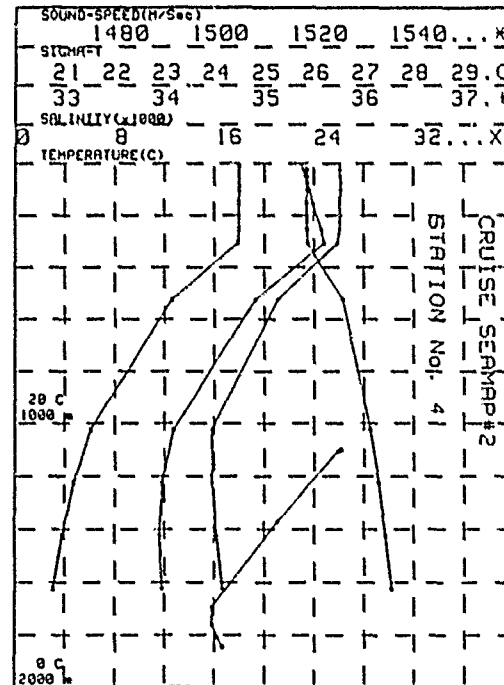
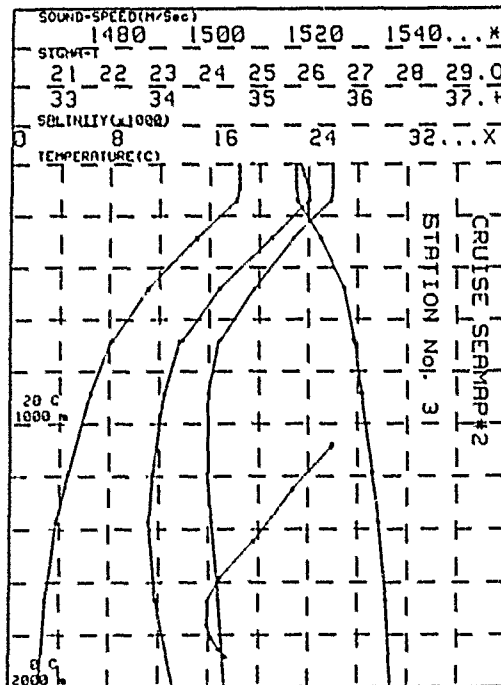


STATION 2		34.178	151.436	SEAMAP 2					
DATE= 01/08/89		TIME= 1310EST			DEPTH= 1700				
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	CL/T	POT.TEMP	S.S		
m	°C	Ppt		CL/T	M/L	°C	M/Sec	Dyn.η	
088	0	18.180	35.718	25.778	220.7	5.28	18.18	1517.9	
088	25	18.190	35.719	25.777	221.7	5.18	18.19	1518.3	
088	50	18.170	35.718	25.779	222.3	5.12	18.16	1518.7	
088	75	17.780	35.687	25.861	215.4	5.03	17.77	1517.9	
088	100	17.670	35.715	25.902	212.3	5.18	17.65	1518.0	
088	148	17.650	35.719	25.910	213.1	5.18	17.62	1518.8	
088	195	16.090	35.467	26.087	197.5	4.40	16.06	1514.6	
088	560	9.380	34.729	26.845	130.7	4.50	9.32	1497.0	
088	980	7.280	34.545	27.020	115.0	4.29	7.21	1492.1	
088	1180	4.810	34.488	27.314	88.8	3.93	4.51	1487.9	
088	1368	3.450	34.552	27.485	69.3	3.59	3.35	1486.5	
088	1580	2.900	34.600	27.575	60.5	3.54	2.79	1487.8	
ISL	0	18.18	35.72	25.778	220.7	5.28	18.18	1517.9	0.000
ISL	10	18.19	35.72	25.778	221.2	5.23	18.18	1518.1	.022
ISL	25	18.19	35.72	25.777	221.7	5.18	18.19	1518.3	.055
ISL	50	18.17	35.72	25.779	222.3	5.12	18.16	1518.7	.111
ISL	75	17.78	35.70	25.861	215.4	5.03	17.77	1517.9	.184
ISL	100	17.67	35.71	25.902	212.3	5.18	17.65	1518.0	.219
ISL	150	17.58	35.71	25.918	212.4	5.14	17.55	1518.6	.325
ISL	200	15.97	35.45	26.101	196.2	4.40	15.94	1514.2	.427
ISL	250	14.84	35.32	26.237	184.3	4.42	14.80	1511.2	.523
ISL	300	13.78	35.20	26.363	173.2	4.43	13.73	1508.3	.615
ISL	400	11.86	34.99	26.582	154.0	4.46	11.81	1503.3	.784
ISL	500	10.23	34.81	26.759	138.3	4.48	10.17	1499.1	.935
ISL	600	8.92	34.66	26.881	127.5	4.48	8.86	1495.8	1.066
ISL	800	7.00	34.54	27.046	112.6	4.27	6.92	1491.6	1.306
ISL	1000	5.82	34.51	27.188	99.3	4.13	5.54	1489.4	1.518
ISL	1308	3.73	34.53	27.442	73.7	3.84	3.63	1484.7	1.778
ISL	1508	3.00	34.58	27.557	62.2	3.58	2.89	1487.0	1.915



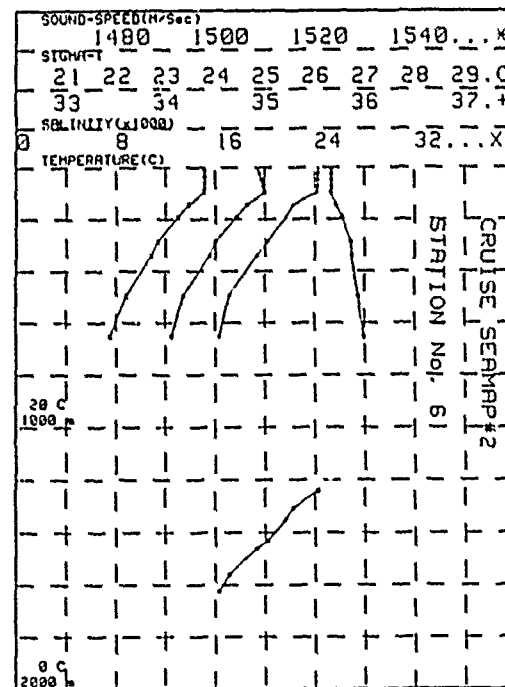
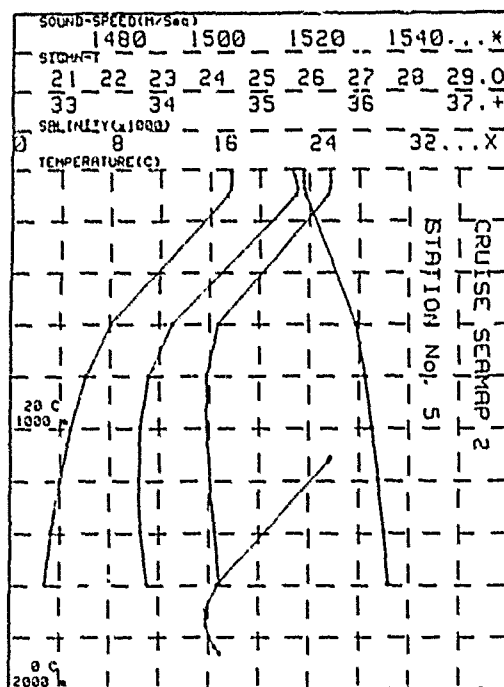
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m	°C	Ppt	CL/T	M/L	°C	M/Sec	M/Sec		
085	0	35.360	25.741	223.3	5.28	18.36	1518.4		
085	23	35.370	25.741	224.4	5.09	18.37	1518.8		
085	47	35.360	25.739	225.1	5.10	18.35	1519.2		
085	71	35.360	25.743	226.1	5.11	18.37	1519.6		
085	94	35.370	25.729	226.9	5.10	18.35	1520.0		
085	142	35.360	25.727	227.8	5.12	18.38	1520.2		
085	287	35.360	25.747	228.8	4.72	14.84	1512.5		
085	482	35.360	25.747	229.0	4.57	11.01	1502.1		
085	680	35.360	25.747	229.0	4.36	8.25	1494.8		
085	887	35.360	25.747	229.0	4.28	8.05	1494.2		
085	1187	35.360	25.747	229.0	4.28	8.05	1494.2		
085	1373	35.360	25.747	229.0	4.28	8.05	1494.2		
085	1670	35.360	25.747	229.0	4.28	8.05	1494.2		
085	2061	35.360	25.747	229.0	4.28	8.05	1494.2		
ISL	0	35.36	25.74	223.3	5.28	18.36	1518.4	0.000	
ISL	10	35.37	25.74	223.3	5.17	18.36	1518.4	.022	
ISL	25	35.37	25.74	224.4	5.09	18.36	1518.8	.058	
ISL	50	35.36	25.74	225.2	5.10	18.36	1519.2	.112	
ISL	75	35.36	25.74	226.1	5.11	18.37	1519.6	.166	
ISL	100	35.37	25.74	226.9	5.11	18.38	1520.0	.220	
ISL	150	35.36	25.72	227.8	5.04	17.97	1519.8	.338	
ISL	200	35.37	25.74	228.8	4.84	16.84	1517.1	.446	
ISL	250	35.37	25.74	229.0	4.78	15.73	1514.6	.547	
ISL	300	35.37	25.74	229.0	4.78	14.64	1511.7	.641	
ISL	400	35.37	25.74	229.0	4.48	12.51	1506.1	.812	
ISL	500	35.37	25.74	229.0	4.35	10.99	1501.4	.961	
ISL	600	35.37	25.74	229.0	4.44	10.03	1497.8	1.097	
ISL	800	35.37	25.74	229.0	4.28	7.08	1492.2	1.342	
ISL	1000	35.37	25.74	229.0	4.17	5.69	1490.0	1.559	
ISL	1300	35.37	25.74	229.0	4.17	3.98	1486.1	1.832	
ISL	1500	35.37	25.74	229.0	4.17	3.21	1480.3	1.979	
ISL	2000	35.37	25.74	229.0	4.17	2.21	1482.8	2.219	

STATION 4 35.108 152.27E SEAMAP#2									
DATE= 02/08/1985 TIME= 0025GMT DEPTH= 4834									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT_TEMP	S.S	DYN.	
m	°C	Ppt	CL/T	M/L	°C	M/Sec	M/Sec		
085	0	35.787	25.661	212.9	5.08	18.00	1517.4		
085	28	35.784	25.661	213.8	5.08	17.99	1517.8		
085	51	35.787	25.663	214.4	5.08	17.98	1518.2		
085	77	35.774	25.668	214.8	5.08	17.98	1518.7		
085	103	35.770	25.668	215.8	5.10	17.97	1519.1		
085	154	35.785	25.662	218.0	5.09	17.96	1519.9		
085	255	35.763	25.662	221.3	5.04	17.94	1521.5		
085	308	35.736	25.668	222.4	4.99	17.82	1522.1		
085	525	35.132	26.581	158.0	0.00	12.50	1508.2		
085	1025	34.478	27.126	106.5	4.20	8.01	1491.8		
085	1225	34.480	27.293	89.9	0.00	4.64	1486.5		
085	1425	34.530	27.431	78.1	0.00	3.71	1489.1		
085	1625	34.581	27.543	64.5	3.57	.98	1489.4		
ISL	0	35.77	25.661	212.9	5.08	18.00	1517.4	0.000	
ISL	10	35.77	25.661	213.3	5.09	17.99	1517.8	.021	
ISL	25	35.76	25.661	213.7	5.09	17.99	1517.8	.053	
ISL	50	35.77	25.663	214.4	5.09	17.98	1518.2	.107	
ISL	75	35.77	25.668	214.7	5.09	17.98	1518.6	.160	
ISL	100	35.77	25.668	215.8	5.10	17.97	1519.0	.214	
ISL	150	35.77	25.662	217.9	5.09	17.96	1519.8	.323	
ISL	200	35.76	25.662	219.7	5.08	17.95	1520.8	.432	
ISL	250	35.76	25.663	221.2	5.06	17.94	1521.5	.542	
ISL	300	35.74	25.664	222.2	5.03	17.96	1522.0	.653	
ISL	400	35.48	26.506	182.0	2.37	15.38	1515.7	.863	
ISL	500	35.19	26.516	184.1	.36	13.03	1509.8	1.043	
ISL	600	34.97	26.675	149.3	.83	11.25	1504.8	1.199	
ISL	800	34.66	26.904	127.9	2.31	8.40	1497.2	1.479	
ISL	1000	34.48	27.103	108.8	3.99	6.24	1492.2	1.718	
ISL	1300	34.50	27.348	84.5	0.00	4.27	1489.3	2.007	
ISL	1500	34.55	27.478	71.5	.92	3.41	1489.2	2.183	



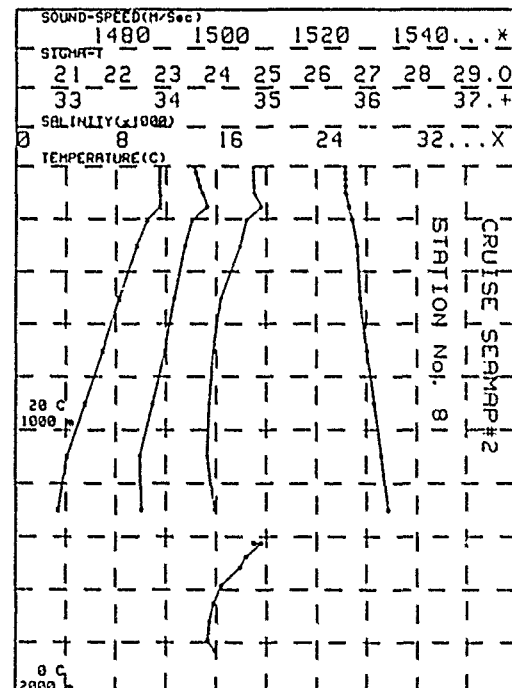
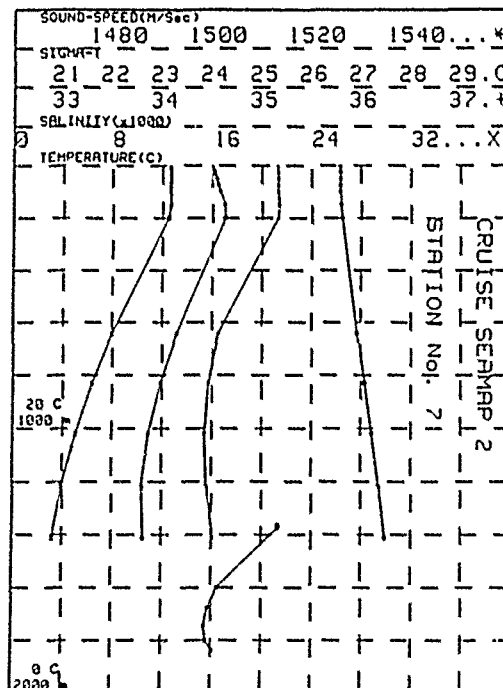
STATION 5 36.165 153.27E SEAMAP 2									
DATE: 02/08/85 TIME: 1040GMT DEPTH: 4827									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT.TEMP	S.S	Dym.m	
m	°C	Ppt	CL/T	M/L	°C	M/Sec			
0	17.700	35.708	25.889	210.2	5.22	17.70	1516.5		
25	17.730	35.709	25.883	211.8	5.17	17.73	1517.0		
50	17.710	35.714	25.882	211.7	5.17	17.70	1517.3		
75	17.670	35.703	25.892	212.4	5.17	17.66	1517.6		
100	17.450	35.681	25.937	208.8	5.19	17.43	1517.4		
800	8.080	34.588	26.936	121.1	4.48	8.02	1487.9		
800	8.080	34.472	27.125	103.6	4.24	8.01	1487.9		
997	4.870	34.474	27.273	89.7	4.00	4.79	1486.3		
1195	4.000	34.510	27.396	77.9	3.79	3.81	1486.8		
1395	3.270	34.581	27.510	64.7	3.53	3.17	1486.3		
1595	2.780	34.610	27.584	58.5	3.54	2.87	1487.7		
ISL 0	17.70	35.71	25.888	210.2	5.22	17.70	1516.5	0.000	
ISL 10	17.72	35.71	25.885	210.9	5.19	17.72	1516.7	.021	
ISL 25	17.73	35.71	25.883	211.6	5.17	17.73	1517.0	.053	
ISL 50	17.71	35.71	25.882	211.7	5.17	17.70	1517.3	.106	
ISL 75	17.67	35.70	25.892	212.4	5.17	17.66	1517.6	.158	
ISL 100	17.45	35.68	25.937	208.8	5.19	17.43	1517.4	.211	
ISL 150	16.23	35.53	26.072	197.3	5.11	16.21	1514.0	.314	
ISL 200	15.08	35.38	26.196	186.3	5.04	15.05	1510.9	.411	
ISL 250	13.98	35.24	26.316	176.0	4.96	13.95	1506.0	.505	
ISL 300	12.85	35.11	26.429	166.3	4.89	12.91	1501.2	.594	
ISL 400	11.08	34.88	26.630	148.7	4.75	11.03	1500.2	.759	
ISL 500	9.45	34.72	26.799	133.6	4.61	9.40	1496.0	.907	
ISL 600	8.08	34.59	26.838	121.1	4.48	8.02	1492.8	1.036	
ISL 800	6.08	34.47	27.125	103.6	4.24	6.01	1487.9	1.281	
ISL 1000	4.86	34.47	27.273	89.5	4.00	4.77	1486.3	1.454	
ISL 1300	3.59	34.54	27.458	71.7	3.82	3.48	1486.1	1.696	
ISL 1500	2.98	34.59	27.557	62.0	3.54	2.87	1486.8	1.830	

STATION 6 36.355 155.30E SEAMAP#2									
DATE: 05/06/1986 TIME: 2135GMT DEPTH: 9999									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT.TEMP	S.S	Dym.m	
m	°C	Ppt	CL/T	M/L	°C	M/Sec			
0	15.180	35.530	26.353	166.2	0.00	15.18	1508.6		
25	15.180	35.537	26.347	167.5	5.42	15.18	1509.0		
48	15.170	35.536	26.348	168.1	5.41	15.16	1509.4		
74	15.160	35.533	26.348	168.8	5.41	15.15	1509.8		
97	15.180	35.532	26.346	168.8	5.42	15.15	1510.1		
148	13.850	35.282	26.457	162.2	4.51	13.83	1506.4		
183	12.980	35.207	26.558	151.8	4.48	12.95	1504.2		
288	11.370	35.028	26.728	137.4	4.61	11.33	1500.0		
348	10.618	34.916	26.745	136.8	4.61	10.77	1498.8		
437	8.790	34.640	26.870	126.5	4.93	8.74	1493.6		
654	7.520	34.540	26.983	117.1	4.56	7.45	1491.2		
ISL 0	15.18	35.54	26.353	166.2	0.00	15.18	1508.6	0.000	
ISL 10	15.17	35.54	26.350	166.8	2.83	15.17	1508.8	.017	
ISL 25	15.18	35.54	26.347	167.5	5.42	15.18	1509.0	.042	
ISL 50	15.17	35.54	26.348	168.1	5.41	15.16	1509.4	.064	
ISL 75	15.16	35.53	26.348	168.8	5.42	15.15	1509.8	.128	
ISL 100	15.07	35.51	26.352	169.2	5.33	15.05	1509.9	.186	
ISL 150	13.77	35.28	26.449	161.3	4.53	13.75	1506.2	.251	
ISL 200	12.83	35.19	26.577	150.2	4.68	12.81	1503.8	.329	
ISL 250	11.82	35.10	26.682	141.1	4.63	11.80	1501.4	.402	
ISL 300	11.25	35.00	26.731	137.4	4.61	11.21	1499.8	.472	
ISL 400	9.96	34.79	26.793	132.8	4.83	9.92	1496.5	.608	
ISL 500	8.76	34.54	26.872	126.3	4.93	8.70	1493.5	.737	
ISL 600	7.87	34.53	26.946	120.2	4.68	7.81	1491.7	.881	

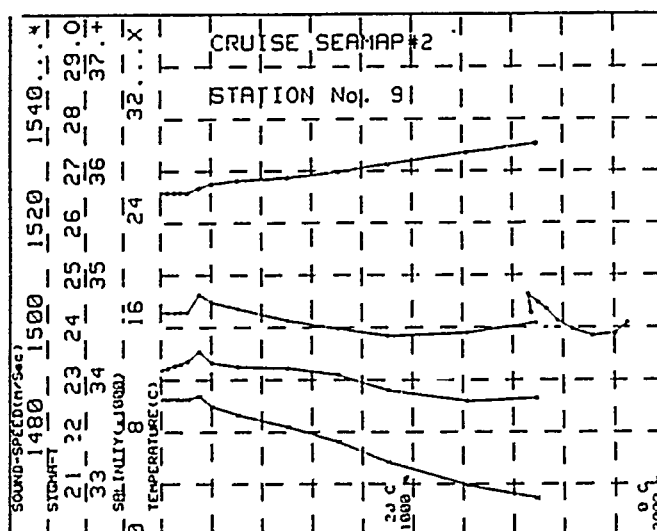
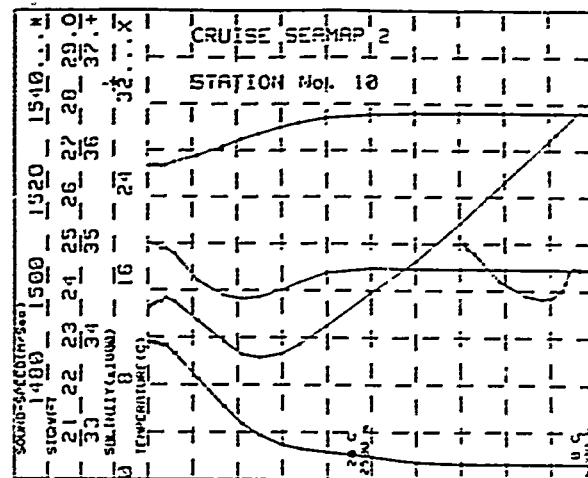


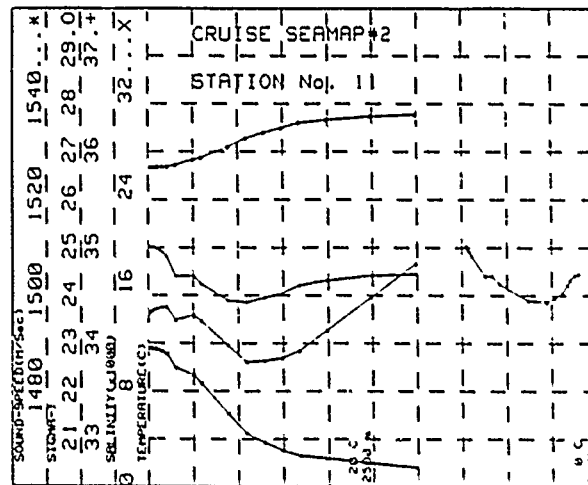
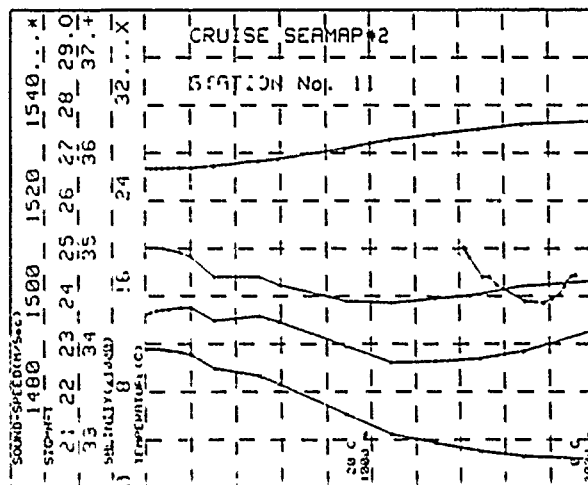
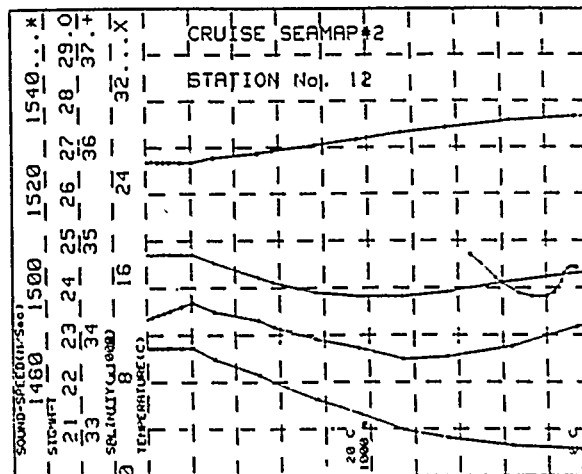
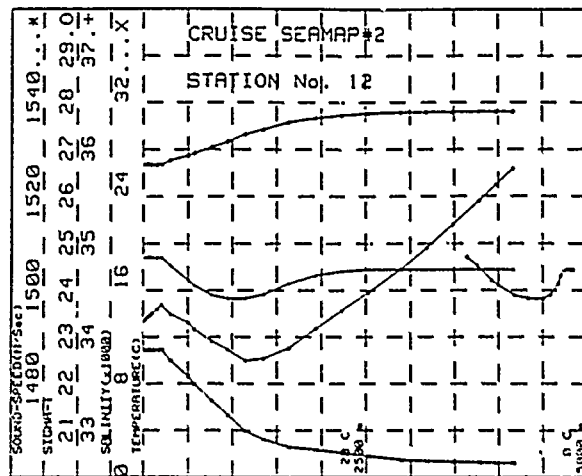
STATION 7 41.30S 158.30E SEAMAP 2 DEPTH= 4800									
DATE= 08/08/85 TIME= 0244GMT									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT.TEMP	S.S	Dyn.η	
m	°C	Ppt	CL/T	ML/L	°C	N/Sec			
OBS 0	12.000	35.159	26.581	144.6	5.80	12.00	1500.0		
OBS 25	12.090	35.185	26.583	145.0	5.80	12.09	1500.4		
OBS 50	12.090	35.189	26.586	145.3	5.80	12.08	1500.9		
OBS 75	12.080	35.187	26.587	145.8	5.79	12.07	1501.2		
OBS 100	12.080	35.185	26.585	146.7	5.79	12.07	1501.6		
OBS 150	12.070	35.171	26.592	147.4	5.78	12.05	1502.4		
OBS 200	12.500	35.184	26.625	148.0	5.58	12.47	1502.7		
OBS 844	8.010	34.582	26.929	122.7	4.64	7.94	1495.0		
OBS 831	6.410	34.498	27.078	109.1	4.37	6.33	1489.7		
OBS 1020	5.050	34.429	27.217	95.8	4.30	4.98	1487.3		
OBS 1217	3.930	34.450	27.358	81.6	4.09	3.84	1486.0		
OBS 1413	3.200	34.512	27.477	69.6	3.81	3.10	1486.3		
ISL 0	12.08	35.18	26.581	144.6	5.80	12.08	1500.0	0.000	
ISL 10	12.09	35.18	26.582	144.7	5.80	12.08	1500.2	.014	
ISL 25	12.09	35.17	26.583	145.0	5.80	12.09	1500.4	.036	
ISL 50	12.09	35.17	26.586	145.3	5.80	12.08	1500.9	.072	
ISL 75	12.08	35.17	26.587	145.8	5.79	12.07	1501.2	.109	
ISL 100	12.08	35.17	26.585	146.7	5.79	12.07	1501.6	.145	
ISL 150	12.07	35.17	26.592	147.4	5.78	12.05	1502.4	.219	
ISL 200	12.50	35.18	26.620	148.0	5.58	12.47	1502.7	.292	
ISL 250	11.95	35.07	26.652	144.0	5.44	11.91	1501.4	.365	
ISL 300	11.40	34.98	26.684	141.9	5.32	11.37	1500.3	.438	
ISL 400	10.38	34.83	26.751	137.1	5.10	10.31	1498.0	.574	
ISL 500	9.38	34.70	26.821	131.7	4.90	9.30	1495.8	.707	
ISL 600	8.41	34.60	26.895	125.6	4.71	8.35	1493.8	.834	
ISL 800	6.48	34.48	27.054	111.3	4.40	6.58	1490.2	1.071	
ISL 1000	5.18	34.43	27.202	97.0	4.21	5.10	1487.5	1.280	
ISL 1300	3.57	34.47	27.409	78.3	3.98	3.48	1486.1	1.539	

STATION 8 43.18S 159.50E SEAMAP#2 DEPTH= 5020									
DATE= 08/08/1985 TIME= 0248GMT									
DEPTH	TEMP	SALINITY	SIGMA-T	A.S.V	OX	POT.TEMP	S.S	Dyn.η	
m	°C	Ppt	CL/T	ML/L	°C	N/Sec			
OBS 0	11.510	34.874	26.564	144.2	6.10	11.51	1495.6		
OBS 28	11.500	34.875	26.587	144.8	6.08	11.50	1496.0		
OBS 92	11.490	34.878	26.581	144.8	6.01	11.48	1496.4		
OBS 77	11.400	34.805	26.596	144.9	6.04	11.47	1496.8		
OBS 105	11.510	34.882	26.593	145.9	6.00	11.50	1497.3		
OBS 155	11.490	34.852	26.649	141.8	5.45	11.47	1498.2		
OBS 205	10.470	34.804	26.718	138.1	5.39	10.45	1495.2		
OBS 305	9.850	34.742	26.810	129.1	5.01	9.82	1493.8		
OBS 505	8.280	34.551	26.879	125.3	5.48	8.23	1491.7		
OBS 705	6.940	34.471	27.011	114.5	4.85	6.87	1489.7		
OBS 904	5.520	34.430	27.182	100.4	4.32	5.44	1487.3		
OBS 1100	4.130	34.413	27.308	85.8	4.29	4.04	1484.8		
OBS 1300	3.580	34.482	27.436	73.2	3.95	3.28	1485.1		
ISL 0	11.51	34.87	26.584	144.2	6.10	11.51	1495.6	0.000	
ISL 10	11.51	34.87	26.585	144.4	6.09	11.50	1495.8	.014	
ISL 25	11.50	34.87	26.587	144.8	6.08	11.50	1496.0	.036	
ISL 50	11.49	34.88	26.581	144.8	6.01	11.48	1496.4	.072	
ISL 75	11.48	34.88	26.596	144.9	6.04	11.47	1496.7	.108	
ISL 100	11.51	34.88	26.593	145.9	6.02	11.49	1497.3	.145	
ISL 150	11.49	34.85	26.642	142.3	5.48	11.47	1498.1	.217	
ISL 200	10.55	34.82	26.712	138.6	5.40	10.53	1495.4	.287	
ISL 250	10.09	34.78	26.784	132.5	5.17	10.08	1494.5	.354	
ISL 300	9.69	34.75	26.808	128.4	5.02	9.65	1493.9	.420	
ISL 400	9.00	34.64	26.835	128.1	5.22	8.95	1492.8	.548	
ISL 500	8.31	34.55	26.877	125.4	5.45	8.26	1491.8	.674	
ISL 600	7.65	34.51	26.930	120.8	5.02	7.59	1490.8	.797	
ISL 800	6.28	34.45	27.064	107.9	4.45	6.19	1486.8	1.028	
ISL 1000	4.78	34.42	27.234	93.0	4.31	4.68	1485.8	1.227	
ISL 1300	3.38	34.48	27.438	73.2	3.95	3.28	1485.1	1.478	

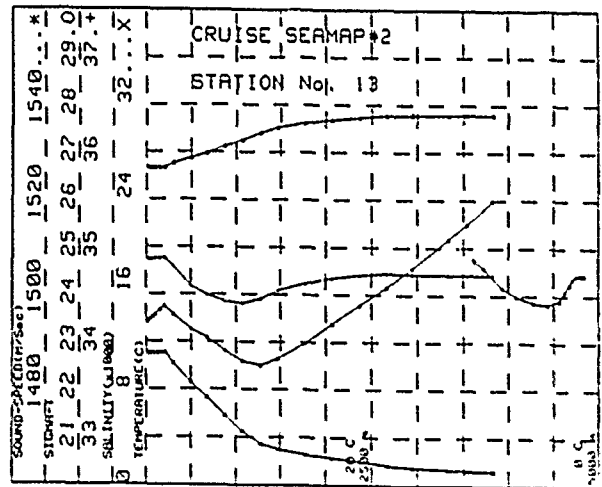
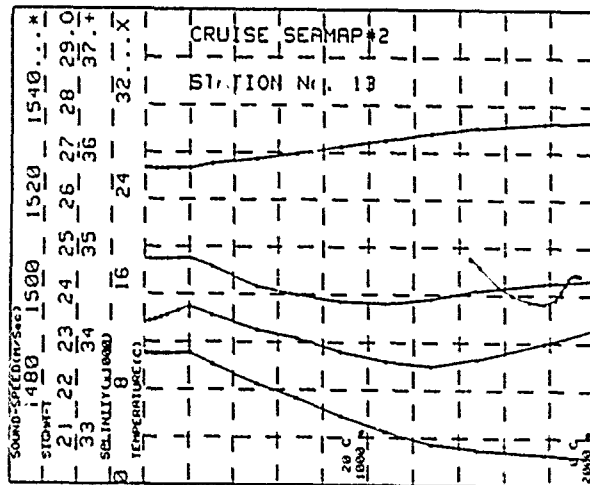
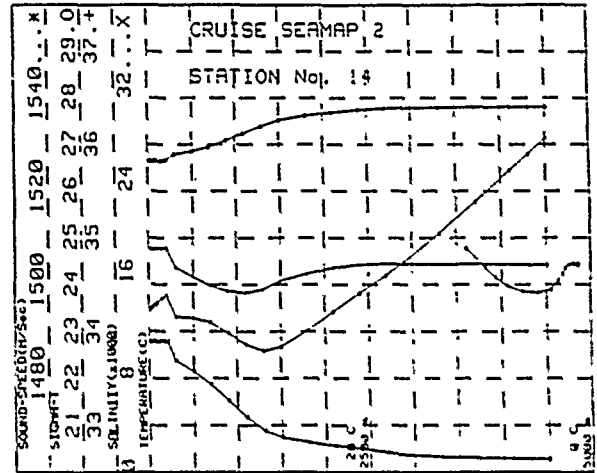
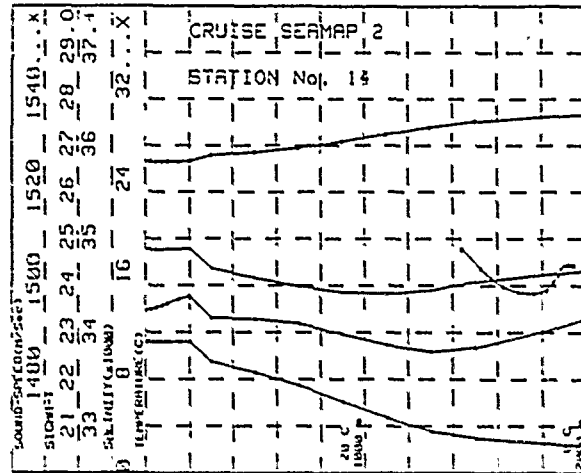


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Seamap 2 - Route B - Winter



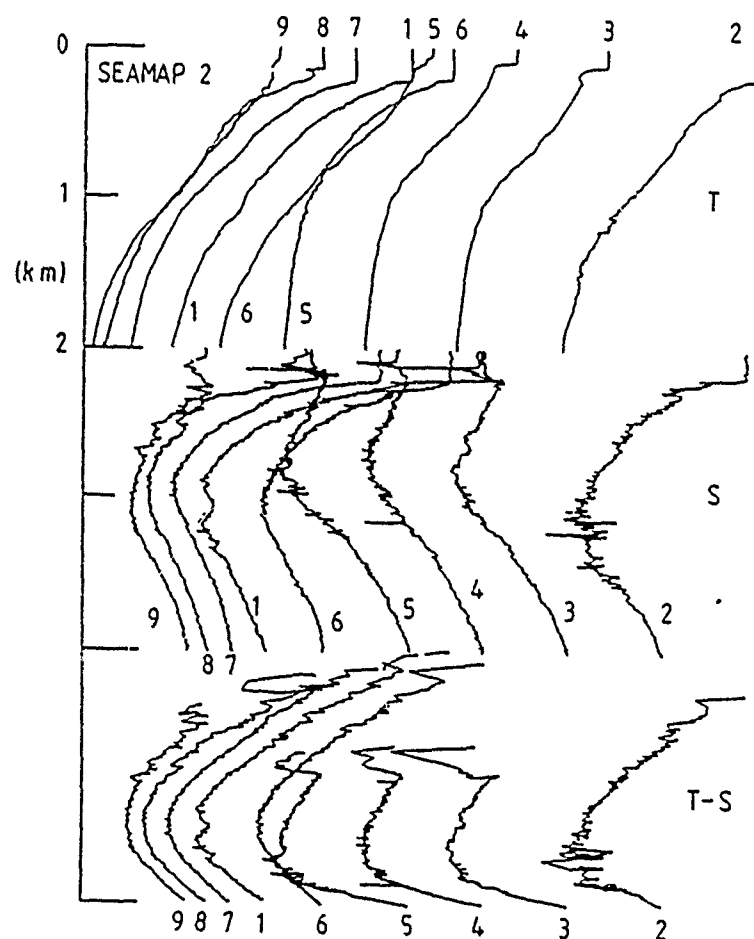
LISTINGS AND PROFILES OF CTD DATA GATHERED ON WINTER SURVEY SEAMAP 2
(RANRL 6/85) ARE GIVEN ON FOLLOWING PAGES.

THE STATIONS WERE TAKEN NORTH AND SOUTH OF THE CHATHAM RISE, WITH AN
ADDITIONAL UNCALIBRATED STATION IN THE KERMADEC TRENCH.

(See figure 51(a) for VCTOD station positions.)

CALIBRATION DATA OBTAINED FROM NISKIN BOTTLES MOUNTED IN A ROSETTE SAMPLER
1 m ABOVE THE CTD IS SHOWN ON PAGE 143.

SHOWN BELOW ARE OFFSET PROFILES FOR VCTOD STATIONS 1 TO 9



Text continued on page 145

SHIP : HRS COOK - Fleceay
 STATION NUMBER : 1 (THROUGH THE CRUISE)
 DATE : 24-AUG-1985 (DAY NUMBER 236)
 START TIME : 0000 GMT - 5
 CRUISE : 0006/85
 POSITION : 45:23.455 176:50.15W
 CAST DEPTH : 2725 METRES
 BOTTOM DEPTH : 2969 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	13.247	35.177	26.481	154.01	0.000	1501.60	13.25 14 0.005 0.005
10.0	9.9	13.244	35.168	26.482	154.15	0.154	1501.71	13.24 16 0.002 0.004
20.0	19.8	13.240	35.175	26.480	154.60	0.308	1501.85	13.24 13 0.004 0.004
30.0	29.8	13.242	35.180	26.484	154.51	0.463	1502.03	13.24 19 0.002 0.004
40.0	39.7	13.243	35.181	26.485	154.74	0.618	1502.19	13.24 18 0.000 0.004
50.0	49.6	13.250	35.183	26.485	155.00	0.773	1502.35	13.24 16 0.004 0.004
60.0	59.5	13.253	35.182	26.484	155.38	0.928	1502.52	13.25 17 0.000 0.004
70.0	69.4	13.253	35.177	26.481	155.91	1.083	1502.68	13.24 21 0.000 0.004
80.0	79.4	13.253	35.181	26.482	156.03	1.239	1502.86	13.24 19 0.000 0.006
90.0	89.3	13.245	35.178	26.482	156.31	1.395	1502.98	13.23 11 0.003 0.003
100.0	99.2	13.246	35.181	26.485	156.27	1.552	1503.14	13.23 13 0.004 0.005
120.0	119.0	13.251	35.180	26.483	157.08	1.865	1503.47	13.23 13 0.004 0.002
140.0	138.9	13.248	35.179	26.482	157.67	2.180	1503.79	13.23 12 0.005 0.003
160.0	158.7	13.253	35.177	26.479	158.46	2.496	1504.12	13.23 18 0.000 0.005
180.0	178.5	13.253	35.175	26.478	159.09	2.813	1504.45	13.23 14 0.000 0.005
200.0	198.3	13.253	35.181	26.482	159.26	3.132	1504.80	13.23 21 0.004 0.004
220.0	218.2	13.259	35.018	26.464	161.33	3.453	1505.00	12.69 18 0.241 0.238
240.0	238.0	12.165	35.016	26.570	151.52	3.762	1501.55	12.13 19 0.038 0.045
260.0	257.8	11.859	34.956	26.582	150.72	4.064	1500.79	11.83 21 0.069 0.079
280.0	277.6	11.604	34.946	26.622	147.29	4.360	1500.19	11.57 16 0.057 0.063
300.0	297.4	11.197	34.888	26.653	144.64	4.654	1499.05	11.16 22 0.009 0.042
320.0	317.2	10.895	34.843	26.673	143.09	4.941	1498.26	10.86 21 0.050 0.045
340.0	337.1	10.608	34.801	26.696	141.18	5.226	1497.55	10.57 17 0.027 0.016
360.0	356.9	10.361	34.758	26.701	140.91	5.507	1496.97	10.32 21 0.096 0.096
380.0	376.7	10.164	34.713	26.747	136.88	5.785	1496.56	10.12 16 0.005 0.006
400.0	396.5	9.918	34.724	26.751	136.73	6.059	1495.95	9.87 21 0.049 0.051
420.0	416.3	9.612	34.687	26.774	134.78	6.330	1495.14	9.56 19 0.045 0.050
440.0	436.1	9.420	34.686	26.805	132.07	6.597	1494.80	9.37 21 0.014 0.013
460.0	455.9	9.225	34.654	26.811	131.71	6.860	1494.34	9.17 18 0.050 0.030
480.0	475.7	9.059	34.654	26.838	129.34	7.120	1494.07	8.91 20 0.025 0.029
500.0	495.5	8.817	34.630	26.858	127.62	7.378	1493.49	8.78 17 0.022 0.018
520.0	515.3	8.582	34.581	26.886	125.49	7.631	1492.64	8.53 20 0.017 0.017
540.0	535.1	8.367	34.556	26.912	123.50	7.879	1492.29	8.31 19 0.012 0.014
560.0	554.8	8.180	34.524	26.937	121.54	8.121	1491.75	8.09 17 0.013 0.012
580.0	574.6	8.007	34.484	26.961	119.34	8.357	1491.25	7.84 17 0.013 0.012
600.0	594.4	7.848	34.439	26.983	117.01	8.587	1490.41	7.59 21 0.026 0.019
620.0	614.2	7.698	34.388	27.003	114.74	8.811	1489.62	7.34 21 0.013 0.012
640.0	634.0	7.556	34.334	27.020	112.41	9.029	1488.62	7.09 20 0.009 0.011
660.0	653.8	7.422	34.277	27.034	110.03	9.241	1487.34	6.84 20 0.006 0.008
680.0	673.6	7.295	34.218	27.044	107.60	9.448	1485.84	6.59 19 0.015 0.015
700.0	693.4	7.175	34.157	27.050	105.13	9.650	1484.14	6.34 19 0.015 0.015
720.0	713.2	7.059	34.094	27.053	102.61	9.847	1482.24	6.09 19 0.010 0.010
740.0	733.0	6.946	34.030	27.053	100.04	10.039	1480.14	5.84 19 0.010 0.010
760.0	752.8	6.836	33.964	27.050	97.42	10.226	1477.84	5.59 19 0.010 0.010
780.0	772.6	6.728	33.897	27.044	94.75	10.409	1475.34	5.34 19 0.011 0.010
800.0	792.4	6.622	33.829	27.034	92.03	10.587	1472.64	5.09 19 0.010 0.010
820.0	812.2	6.517	33.760	27.020	89.26	10.760	1469.74	4.84 19 0.010 0.010
840.0	832.0	6.412	33.690	27.003	86.44	10.928	1466.64	4.59 19 0.010 0.010
860.0	851.8	6.307	33.619	26.983	83.57	11.091	1463.34	4.34 19 0.010 0.010
880.0	871.6	6.202	33.548	26.961	80.65	11.249	1459.84	4.09 19 0.010 0.010
900.0	891.4	6.097	33.477	26.937	77.68	11.402	1456.14	3.84 19 0.010 0.010
920.0	911.2	5.992	33.406	26.912	74.66	11.550	1452.24	3.59 19 0.010 0.010
940.0	931.0	5.887	33.335	26.886	71.59	11.693	1448.14	3.34 19 0.010 0.010
960.0	950.8	5.782	33.264	26.861	68.47	11.831	1443.84	3.09 19 0.010 0.010
980.0	970.6	5.677	33.193	26.836	65.30	11.964	1439.34	2.84 19 0.010 0.010
1000.0	990.4	5.572	33.122	26.811	62.08	12.092	1434.64	2.59 19 0.010 0.010
1020.0	1010.2	5.467	33.051	26.786	58.81	12.215	1429.74	2.34 19 0.010 0.010
1040.0	1030.0	5.362	32.980	26.761	55.49	12.333	1424.64	2.09 19 0.010 0.010
1060.0	1049.8	5.257	32.909	26.736	52.12	12.446	1419.34	1.84 19 0.010 0.010
1080.0	1069.6	5.152	32.838	26.711	48.70	12.554	1413.84	1.59 19 0.010 0.010
1100.0	1089.4	5.047	32.767	26.686	45.23	12.657	1408.14	1.34 19 0.010 0.010
1120.0	1109.2	4.942	32.696	26.661	41.71	12.755	1402.24	1.09 19 0.010 0.010
1140.0	1129.0	4.837	32.625	26.636	38.14	12.848	1396.14	0.84 19 0.010 0.010
1160.0	1148.8	4.732	32.554	26.611	34.52	12.936	1389.84	0.59 19 0.010 0.010
1180.0	1168.6	4.627	32.483	26.586	30.85	13.019	1383.34	0.34 19 0.010 0.010
1200.0	1188.4	4.522	32.412	26.561	27.13	13.097	1376.64	0.09 19 0.010 0.010
1220.0	1208.2	4.417	32.341	26.536	23.36	13.170	1369.74	-0.16 19 0.010 0.010
1240.0	1228.0	4.312	32.270	26.511	19.54	13.238	1362.64	-0.41 19 0.010 0.010
1260.0	1247.8	4.207	32.199	26.486	15.67	13.301	1355.34	-0.66 19 0.010 0.010
1280.0	1267.6	4.102	32.128	26.461	11.75	13.359	1347.84	-0.91 19 0.010 0.010
1300.0	1287.4	3.997	32.057	26.436	7.78	13.412	1340.14	-1.16 19 0.010 0.010
1320.0	1307.2	3.892	31.986	26.411	3.76	13.460	1332.24	-1.41 19 0.010 0.010
1340.0	1327.0	3.787	31.915	26.386	-0.27	13.503	1324.14	-1.66 19 0.010 0.010
1360.0	1346.8	3.682	31.844	26.361	-4.29	13.541	1315.84	-1.91 19 0.010 0.010
1380.0	1366.6	3.577	31.773	26.336	-8.26	13.574	1307.34	-2.16 19 0.010 0.010
1400.0	1386.4	3.472	31.702	26.311	-12.18	13.602	1298.64	-2.41 19 0.010 0.010
1420.0	1406.2	3.367	31.631	26.286	-16.05	13.625	1289.74	-2.66 19 0.010 0.010
1440.0	1426.0	3.262	31.560	26.261	-19.88	13.643	1280.64	-2.91 19 0.010 0.010
1460.0	1445.8	3.157	31.489	26.236	-23.66	13.656	1271.34	-3.16 19 0.010 0.010
1480.0	1465.6	3.052	31.418	26.211	-27.39	13.664	1261.84	-3.41 19 0.010 0.010
1500.0	1485.4	2.947	31.347	26.186	-31.07	13.667	1252.14	-3.66 19 0.010 0.010
1520.0	1505.2	2.842	31.276	26.161	-34.70	13.665	1242.24	-3.91 19 0.010 0.010
1540.0	1525.0	2.737	31.205	26.136	-38.28	13.658	1232.14	-4.16 19 0.010 0.010
1560.0	1544.8	2.632	31.134	26.111	-41.81	13.646	1221.84	-4.41 19 0.010 0.010
1580.0	1564.6	2.527	31.063	26.086	-45.29	13.629	1211.34	-4.66 19 0.010 0.010
1600.0	1584.4	2.422	30.992	26.061	-48.72	13.607	1200.64	-4.91 19 0.010 0.010
1620.0	1604.2	2.317	30.921	26.036	-52.10	13.580	1189.74	-5.16 19 0.010 0.010
1640.0	1624.0	2.212	30.850	26.011	-55.43	13.548	1178.64	-5.41 19 0.010 0.010
1660.0	1643.8	2.107	30.779	25.986	-58.71	13.511	1167.34	-5.66 19 0.010 0.010
1680.0	1663.6	2.002	30.708	25.961	-61.94	13.469	1155.84	-5.91 19 0.010 0.010
1700.0	1683.4	1.897	30.637	25.936	-65.12	13.422	1144.14	-6.16 19 0.010 0.010
1720.0	1703.2	1.792	30.566	25.911	-68.25	13.370	1132.24	-6.41 19 0.010 0.010
1740.0	1723.0	1.687	30.495	25.886	-71.33	13.313	1120.14	-6.66 19 0.010 0.010
1760.0	1742.8	1.582	30.424	25.861	-74.36	13.251	1107.84	-6.91 19 0.010 0.010
1780.0	1762.6	1.477	30.353	25.836	-77.34	13.184	1095.34	-7.16 19 0.010 0.010
1800.0	1782.4	1.372	30.282	25.811	-80.27	13.112	1082.64	-7.41 19 0.010 0.010
1820.0	1802.2	1.267	30.211	25.786	-83.15	13.035	1069.74	-7.66 19 0.010 0.010
1840.0	1822.0	1.162	30.140	25.761	-85.98	12.953	1056.64	-7.91 19 0.010 0.010
1860.0	1841.8	1.057	30.069	25.736	-88.76	12.866	1043.34	-8.16 19 0.010 0.010
1880.0	1861.6	0.952	29.998	25.711	-91.49	12.774	1029.84	-8.41 19 0.010 0.010
1900.0	1881.4	0.847	29.927	25.686	-94.17	12.677	1016.14	-8.66 19 0.010 0.010
1920.0	1901.2	0.742	29.856	25.661	-96.80	12.575	1002.24	-8.91 19 0.010 0.010
1940.0	1921.0	0.637	29.785	25.636	-99.38	12.468	988.14	-9.16 19 0.010 0.010
1960.0	1940.8	0.532	29.714	25.611	-101.91	12.356	973.84	-9.41 19 0.010 0.010
1980.0	1960.6	0.427	29.643	25.586	-104.39			

SHIP : HRS COOK - Plessey
 STATION NUMBER : 3 (THROUGH THE CRUISE)
 STATION NUMBER : 3 (THROUGH THE YEAR)
 DATE : 25-AUG-1985 (DAY NUMBER 237)
 START TIME : 0842 GMT - 2
 CRUISE : C596/85
 POSITION : 45:43.00N 178:26.00W
 CAST DEPTH : 2917 METRES
 BOTTOM DEPTH : 4169 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	9.129	34.386	26.617	141.13	0.000	1486.59	9.12 15 0.003 0.004
10.0	9.9	9.134	34.382	26.613	141.66	0.141	1486.73	9.13 20 0.003 0.003
20.0	19.8	9.135	34.382	26.613	141.85	0.283	1486.90	9.13 20 0.003 0.004
30.0	29.8	9.137	34.380	26.611	142.27	0.425	1487.09	9.13 19 0.000 0.003
40.0	39.7	9.137	34.381	26.611	142.40	0.568	1487.25	9.13 16 0.000 0.005
50.0	49.6	9.136	34.380	26.611	142.63	0.710	1487.40	9.13 13 0.002 0.002
60.0	59.5	9.126	34.385	26.616	142.72	0.853	1487.54	9.12 16 0.004 0.002
70.0	69.4	9.119	34.389	26.621	142.10	0.995	1487.67	9.11 16 0.003 0.000
80.0	79.3	9.123	34.383	26.616	142.75	1.137	1487.86	9.11 20 0.003 0.004
90.0	89.2	9.118	34.390	26.622	142.36	1.280	1487.99	9.11 15 0.002 0.001
100.0	99.2	9.117	34.387	26.620	142.77	1.422	1488.16	9.11 16 0.000 0.000
120.0	119.0	8.831	34.280	26.581	146.71	1.710	1487.04	8.82 16 0.304 0.321
140.0	138.8	7.993	34.368	26.779	128.13	1.990	1484.57	7.98 16 0.021 0.017
160.0	158.6	7.849	34.372	26.803	126.37	2.233	1484.25	7.83 17 0.037 0.035
180.0	178.4	7.784	34.397	26.813	123.67	2.483	1484.53	7.77 18 0.019 0.024
200.0	198.3	7.686	34.435	26.847	122.64	2.729	1485.28	7.87 16 0.032 0.036
220.0	218.1	7.917	34.456	26.859	121.92	2.974	1485.74	7.89 20 0.018 0.016
240.0	237.9	7.807	34.440	26.863	121.85	3.219	1485.50	7.78 14 0.005 0.004
260.0	257.7	7.780	34.440	26.867	121.74	3.462	1485.80	7.75 18 0.010 0.009
280.0	277.5	7.687	34.437	26.878	121.01	3.705	1485.75	7.66 17 0.010 0.010
300.0	297.3	7.618	34.429	26.882	120.86	3.947	1485.81	7.59 19 0.011 0.011
320.0	317.1	7.541	34.426	26.890	120.38	4.190	1485.84	7.51 16 0.013 0.014
340.0	336.9	7.445	34.413	26.894	120.29	4.428	1485.76	7.41 19 0.024 0.024
360.0	356.7	7.357	34.416	26.909	119.16	4.667	1485.79	7.32 17 0.013 0.012
380.0	376.5	7.254	34.408	26.917	118.59	4.905	1485.60	7.22 19 0.014 0.011
400.0	396.3	7.166	34.400	26.923	118.26	5.142	1485.64	7.13 19 0.020 0.019
420.0	416.1	7.081	34.394	26.931	117.70	5.378	1485.64	7.04 17 0.016 0.015
440.0	435.9	6.968	34.390	26.943	116.84	5.612	1485.53	6.93 20 0.021 0.018
460.0	455.7	6.901	34.391	26.951	116.00	5.845	1485.60	6.86 17 0.017 0.014
480.0	475.5	6.822	34.390	26.963	115.38	6.076	1485.58	6.78 22 0.018 0.020
500.0	495.3	6.696	34.384	26.975	114.38	6.306	1485.42	6.65 19 0.017 0.016
520.0	515.1	6.548	34.364	27.001	112.29	6.533	1485.00	6.33 18 0.013 0.011
540.0	534.8	6.017	34.349	27.036	109.20	7.427	1484.33	5.96 15 0.018 0.015
560.0	554.6	5.506	34.335	27.089	104.77	8.495	1483.96	5.45 17 0.025 0.022
580.0	574.4	4.725	34.310	27.162	97.62	9.508	1482.30	4.64 13 0.017 0.015
600.0	594.2	4.046	34.341	27.257	88.35	10.499	1481.29	3.98 19 0.007 0.013
620.0	614.0	3.633	34.360	27.314	82.93	11.297	1481.07	3.56 16 0.026 0.031
640.0	633.8	3.286	34.400	27.380	76.63	12.094	1481.32	3.21 21 0.005 0.009
660.0	653.6	3.065	34.437	27.430	72.05	12.841	1481.04	2.98 14 0.004 0.004
680.0	673.4	2.890	34.498	27.496	66.90	13.535	1481.01	2.80 18 0.012 0.009
700.0	693.2	2.721	34.511	27.520	63.87	14.189	1481.96	2.62 18 0.005 0.004
720.0	713.0	2.634	34.516	27.556	60.79	14.809	1485.28	2.53 14 0.000 0.005
740.0	732.8	2.544	34.581	27.592	57.81	15.399	1486.55	2.43 20 0.003 0.002
760.0	752.6	2.446	34.609	27.631	55.18	15.964	1487.87	2.34 18 0.003 0.002
780.0	772.4	2.401	34.622	27.642	53.51	16.507	1489.34	2.28 19 0.000 0.003
800.0	792.2	2.332	34.653	27.664	51.44	17.031	1493.73	2.20 19 0.003 0.003
820.0	812.0	2.280	34.674	27.688	49.72	17.537	1494.21	2.14 20 0.000 0.005
840.0	831.8	2.228	34.686	27.703	48.55	18.027	1493.67	2.08 22 0.002 0.002
860.0	851.6	2.179	34.713	27.728	46.49	18.501	1495.17	2.02 18 0.002 0.003
880.0	871.4	2.130	34.729	27.744	45.15	18.960	1496.65	1.97 20 0.003 0.002
900.0	891.2	2.054	34.728	27.750	44.68	19.410	1496.03	1.88 18 0.003 0.002
920.0	911.0	2.004	34.737	27.762	43.63	19.850	1496.43	1.81 15 0.005 0.003
940.0	930.8	1.905	34.738	27.770	42.77	20.279	1500.75	1.72 19 0.001 0.004
960.0	950.6	1.814	34.741	27.779	41.74	20.701	1502.05	1.62 21 0.001 0.004
980.0	970.4	1.731	34.740	27.785	41.00	21.114	1501.05	1.53 14 0.004 0.004
1000.0	990.2	1.643	34.745	27.795	39.78	21.519	1504.70	1.43 23 0.000 0.002
1020.0	1010.0	1.592	34.736	27.791	39.90	21.798	1505.59	1.38 18 0.000 0.003

SHIP : HRS COOK - Plessey
 STATION NUMBER : 4 (THROUGH THE CRUISE)
 STATION NUMBER : 4 (THROUGH THE YEAR)
 DATE : 25-AUG-1985 (DAY NUMBER 238)
 START TIME : 0150 GMT - 2
 CRUISE : C596/85
 POSITION : 46:01.06S 179:53.50W
 CAST DEPTH : 2861 METRES
 BOTTOM DEPTH : 3280 METRES

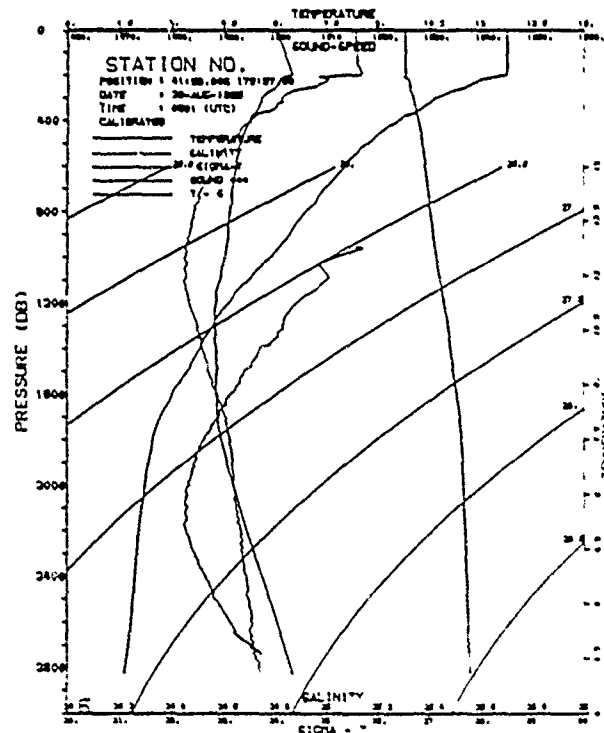
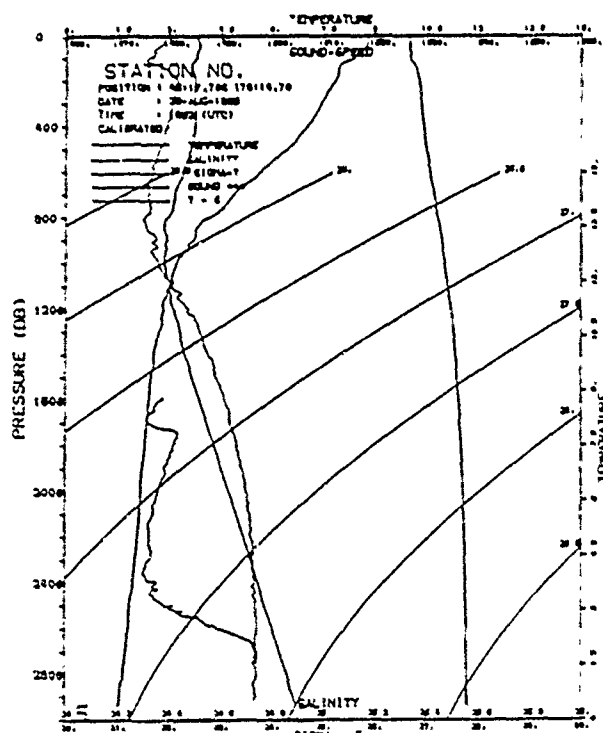
PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	9.100	34.422	26.650	138.02	0.000	1496.51	9.10 8 0.004 0.003
10.0	9.9	9.103	34.414	26.643	138.80	0.138	1496.64	9.10 18 0.004 0.004
20.0	19.8	9.101	34.413	26.643	139.06	0.277	1496.83	9.10 19 0.005 0.004
30.0	29.8	9.098	34.417	26.647	138.87	0.416	1496.99	9.09 22 0.003 0.003
40.0	39.7	9.087	34.414	26.646	139.14	0.555	1497.10	9.08 17 0.003 0.003
50.0	49.6	9.077	34.414	26.647	139.22	0.694	1497.23	9.07 19 0.003 0.004
60.0	59.5	9.076	34.413	26.646	139.46	0.834	1497.41	9.07 22 0.000 0.004
70.0	69.4	9.074	34.405	26.644	140.20	0.974	1497.53	9.07 0 0.004 0.002
80.0	79.3	9.064	34.411	26.647	139.81	1.114	1497.67	9.06 17 0.002 0.003
90.0	89.2	8.868	34.368	26.541	140.51	1.254	1497.07	8.86 24 0.191 0.199
100.0	99.2	8.292	34.332	26.706	134.45	1.391	1494.91	8.28 15 0.146 0.121
120.0	119.0	7.986	34.407	26.810	124.85	1.647	1494.31	7.97 15 0.009 0.009
140.0	138.8	7.973	34.426	26.827	123.57	1.895	1494.60	7.96 14 0.003 0.007
160.0	158.6	7.902	34.431	26.842	122.50	2.141	1494.69	7.89 20 0.009 0.009
180.0	178.4	7.861	34.447	26.859	121.11	2.385	1494.88	7.84 22 0.003 0.004
200.0	198.3	7.789	34.443	26.868	120.68	2.627	1494.92	7.77 26 0.011 0.008
220.0	218.1	7.736	34.442	26.875	120.34	2.868	1495.00	7.71 15 0.004 0.004
240.0	237.9	7.695	34.445	26.884	119.81	3.107	1495.22	7.67 23 0.010 0.008
260.0	257.7	7.616	34.435	26.887	119.76	3.347	1495.20	7.59 18 0.014 0.010
280.0	277.5	7.529	34.406	26.877	121.04	3.587	1495.16	7.50 15 0.015 0.030
300.0	297.3	7.451	34.429	26.906	118.52	3.826	1495.21	7.42 22 0.007 0.008
320.0	317.1	7.359	34.423	26.914	118.04	4.063	1495.17	7.33 26 0.014 0.021
340.0	336.9	7.284	34.411	26.915	118.16	4.299	1495.18	7.25 11 0.012 0.014
360.0	356.7	7.174	34.407	26.928	117.21	4.535	1495.08	7.14 17 0.014 0.013
380.0	376.5	7.075	34.411	26.945	115.83	4.768	1495.02	7.04 21 0.019 0.015
400.0	396.3	6.979	34.397	26.947	115.85	4.999	1494.94	6.94 10 0.012 0.012
420.0	416.1	6.868	34.399	26.964	114.48	5.230	1494.82	6.83 18 0.013 0.009
440.0	435.9	6.783	34.400	26.976	113.51	5.458	1494.83	6.74 15 0.016 0.016
460.0	455.7	6.660	34.393	26.987	112.67	5.684	1494.58	6.62 15 0.014 0.015
480.0	475.5	6.499	34.385	27.003	111.32	5.908	1494.34	6.46 17 0.027 0.021
500.0	495.3	6.318	34.386	27.026	109.16	6.129	1493.99	6.27 20 0.013 0.006
520.0	515.1	6.030	34.371	27.052	107.12	6.347	1493.61	5.98 14 0.017 0.014
540.0	534.8	5.633	34.354	27.080	103.79	7.203	1492.78	5.58 15 0.023 0.014
560.0	554.6	4.911	34.340	27.162	96.92	8.211	1491.50	4.85 17 0.009 0.009
580.0	574.4	4.393	34.341	27.220	91.56	9.161	1490.99	4.33 19 0.024 0.019
600.0	594.2	3.791	34.373	27.309	82.99	10.035	1490.16	3.73 22 0.005 0.004
620.0	614.0	3.179	34.389	27.362	77.79	10.843	1490.01	3.12 20 0.010 0.006
640.0	633.8	2.848	34.439	27.420	72.64	11.593	1490.97	3.11 19 0.007 0.003
660.0	653.6	2.016	34.467	27.458	69.31	12.309	1491.90	2.93 12 0.008 0.007
680.0	673.4	2.817	34.515	27.515	64.06	12.972	1492.76	2.73 19 0.004 0.004
700.0	693.2	2.696	34.548	27.551	60.85	13.597	1493.07	2.60 14 0.004 0.002
720.0	713.0	2.607	34.573	27.579	56.50	14.195	1495.19	2.50 21 0.004 0.004
740.0	732.8	2.523	34.604	27.611	55.78	14.766	1496.51	2.41 20 0.000 0.002
760.0	752.6	2.448	34.623	27.633	54.00	15.315	1497.88	2.33 18 0.005 0.003
780.0	772.4	2.381	34.644	27.659	51.85	15.840	1499.28	2.26 18 0.000 0.003
800.0	792.2	2.328	34.648	27.679	50.31	16.346	1500.76	2.25 8 0.004 0.004
820.0	812.0	2.278	34.690	27.701	48.51	16.836	1502.19	2.14 23 0.004 0.004
840.0	831.8	2.230	34.731	27.725	46.74	17.312	1503.49	2.04 23 0.004 0.004
860.0	851.6	2.182	34.772	27.749	45.00	17.780	1504.86	1.94 23 0.003 0.003
880.0	871.4	2.134	34.813	27.773	43.29	18.236	1506.30	1.84 23 0.003 0.003
900.0	891.2	2.086	34.854	27.797	41.64	18.687	1507.78	1.74 23 0.004 0.002
920.0	911.0	2.038	34.895	27.821	39.97	19.132	1509.30	1.64 23 0.004 0.002
940.0	930.8	1.990	34.936	27.845	38.34	19.571	1510.85	1.54 23 0.004 0.002
960.0	950.6	1.942	34.977	27.869	36.70	20.005	1512.43	1.44 23 0.000 0.001
980.0	970.4	1.894	35.018	27.893	35.09	20.434	1514.04	1.34 23 0.000 0.001
1000.0	990.2	1.846	35.059	27.917	33.49	20.858	1515.68	1.24 23 0.000 0.001
1020.0	1010.0	1.798	35.100	27.941	31.89	21.278	1517.35	1.14 23 0.000 0.001
1040.0	1029.8	1.750	35.141	27.965	30.30	21.693	1519.04	1.04 23 0.000 0.001
1060.0	1049.6	1.702	35.182	27.989	28.72	22.104	1520.76	0.94 23 0.000 0.001
1080.0	1069.4	1.654	35.223	28.013	27.15	22.511	1522.50	0.84 23 0.000 0.001
1100.0	1089.2	1.606	35.264	28.037	25.59	22.914	1524.26	0.74 23 0.000 0.001
1120.0	1109.0	1.558	35.305	28.061	24.04	23.313	1526.04	0.64 23 0.000 0.001
1140.0	1128.8	1.510	35.346	28.085	22.50	23.708	1527.84	0.54 23 0.000 0.001
1160.0	1148.6	1.462	35.387	28.109	20.97	24.100	1529.66	0.44 23 0.000 0.001
1180.0	1168.4	1.414	35.428	28.133	19.45	24.488	1531.50	0.34 23 0.000 0.001
1200.0	1188.2	1.366	35.469	28.157	17.94	24.873	1533.36	0.24 23 0.000 0.001
1220.0	1208.0	1.318	35.510	28.181	16.44	25.255	1535.24	0.14 23 0.000 0.001
1240.0	1227.8	1.270	35.551	28.205	14.95	25.634	1537.14	0.04 23 0.000 0.001
1260.0	1247.6	1.222	35.592	28.229	13.47	26.010	1539.06	0.04 23 0.000 0.001
1280.0	1267.4	1.174	35.633	28.253	11.99	26.383	1541.00	0.04 23 0.000 0.001
1300.0	1287.2	1.126	35.674	28.277	10.53	26.753	1542.96	0.04 23 0.000 0.001
1320.0	1307.0	1.078	35.715	28.301	9.08	27.120	1544.94	0.04 23 0.000 0.001
1340.0	1326.8	1.030	35.756	28.325	7.64	27.484	1546.94	0.04 23 0.000 0.001
1360.0	1346.6	0.982	35.797	28.349	6.21	27.845	1548.96	0.04 23 0.000 0.001
1380.0	1366.4	0.934	35.838	28.373	4.79	28.203	1551.00	0.04 23 0.000 0.001
1400.0	1386.2	0.886	35.879	28.397	3.38	28.558	1553.06	0.04 23 0.000 0.001
1420.0	1406.0	0.838	35.920	28.421	1.98	28.910	1555.14	0.04 23 0.000 0.001
1440.0	1425.8	0.790	35.961	28.445	0.59	29.259	1557.24	0.04 23 0.000 0.001
1460.0	1445.6	0.742	36.002	28.469	-0.80	29.605	1559.36	0.04 23 0.000 0.001
1480.0	1465.4	0.694	36.043	28.493	-2.20	29.948	1561.50	0.04 23 0.000 0.001
1500.0	1485.2	0.646	36.084	28.517	-3.61	30.288	1563.66	0.04 23 0.000 0.001
1520.0	1505.0	0.598	36.125	28.541	-5.03	30.625	1565.84	0.04 23 0.000 0.001
1540.0	1524.8	0.550	36.166	28.565	-6.46	30.959	1568.04	0.04 23 0.000 0.001
1560.0	1544.6	0.502	36.207	28.589	-7.90	31.290	1570.26	0.04 23 0.000 0.001
1580.0	1564.4	0.454	36.248	28.613	-9.35	31.618	1572.50	0.04 23 0.000 0.001
1600.0	1584.2	0.406	36.289	28.637	-10.80	31.943	1574.76	0.04 23 0.000 0.001
1620.0	1604.0	0.358	36.330	28.661	-12.26	32.266	1577.04	0.04 23 0.000 0.001
1640.0	1623.8	0.310	36.371	28.685	-13.73	32.586	1579.34	0.04 23 0.000 0.001
1660.0	1643.6	0.262	36.412	28.709	-15.21	32.903	1581.66	0.04 23 0.000 0.001
1680.0	1663.4	0.214	36.453	28.733	-16.70	33.217	1583.99	0.04 23 0.000 0.001
1700.0	1683.2	0.166	36.494	28.757	-18.19	33.528	1586.34	0.04 23 0.000 0.001
1720.0	1703.0	0.118	36.535	28.781	-19.69	33.837	1588.70	0.04 23 0.000 0.001
1740.0	1722.8	0.070	36.576	28.805	-21.20	34.143	1591.08	0.04 23 0.000 0.001
1760.0	1742.6	0.022	36.617	28.829	-22.72	34.447	1593.48	0.04 23 0.000 0.001
1780.0	1762.4	-0.026	36.658	28.853	-24.25	34.748	1595.90	0.04 23 0.000 0.001
1800.0	1782.2	-0.074	36.699	28.877	-25.79	35.047	1598.34	0.04 23 0.000 0.001
1820.0	1802.0	-0.122	36.740	28.901	-27.34	35.343	1600.80	0.04 23 0.000 0.001
1840.0	1821.8	-0.170	36.781	28.925	-28.90	35.637	1603.28	0.04 23 0.000 0.001
1860.0	1841.6	-0.218	36.822	28.949	-30.47	35.928	1605.78	0.04 23 0.000 0.001
1880.0	1861.4	-0.266	36.863	28.973	-32.05	36.217	1608.30	0.04 23 0.000 0.001
1900.0	1881.2	-0.314	36.904	28.997	-33.64	36.503	1610.84	0.04 23 0.000 0.001
1920.0	1901.0	-0.362	36.945	29.021	-35.24	36.787	1613.40	0.04 23 0.000 0.001
1940.0	1920.8	-0.410	36.986	29.045	-36.85	37.068	1615.98	0.04 23 0.000 0.001
1960.0	1940.6	-0.458	37.027	29.069	-38.47	37.347	1618.58	0.04 23 0.000 0.001
1980.0	1960.4	-0.506	37.068	29.093	-40.10	37.624	1621.20	0.04 23 0.000 0.001
2000.0	1980.2	-0.554	37.109	29.117	-41.74	37.899	1623.84	0.04 23 0.000 0.001
2020.0	2000.0	-0.602	37.150	29.141	-43.39	38.172	1626.50	0.04 23 0.000 0.001
2040.0	2019.8	-0.650	37.191	29.165	-45.05	38.443	1629.18	0.04 23 0.000 0.001
2060.0	2039.6	-0.698	37.232	29.189				

SHIP 1 HRS COC - Primary
STATION NUMBER 1 5 (THROUGH THE CRUISE)
STATION NUMBER 1 5 (THROUGH THE YEAR)
DATE 1 26-AUG-1985 (DAY NUMBER 238)
START TIME 1 1852 GMT - 2
CRUISE 1 CROK/85
POSITION 1 45:17.70S 178:14.70E
CAST DEPTH 1 2091 METRES
BOTTOM DEPTH 1 2973 METRES

PRESS	DEPTH	TOW	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	8.783	34.327	26.665	136.55	0.000	1485.21	8.78
10.0	9.9	8.783	34.376	26.664	136.90	0.137	1485.33	8.78
20.0	19.8	8.783	34.379	26.667	136.75	0.273	1485.53	8.78
30.0	29.8	8.784	34.382	26.669	136.77	0.410	1485.70	8.78
40.0	39.7	8.784	34.378	26.666	137.22	0.547	1485.85	8.78
50.0	49.6	8.736	34.364	26.662	137.75	0.685	1485.80	8.73
60.0	59.5	8.650	34.351	26.665	137.65	0.822	1485.60	8.64
70.0	69.4	8.530	34.342	26.673	136.72	0.960	1485.34	8.52
80.0	79.3	8.423	34.340	26.690	135.63	1.096	1485.32	8.47
90.0	89.2	8.449	34.346	26.693	135.56	1.231	1485.38	8.44
100.0	99.2	8.411	34.329	26.685	136.47	1.367	1485.34	8.40
110.0	109.0	8.116	34.326	26.728	132.67	1.504	1484.53	8.10
120.0	118.8	7.966	34.373	26.787	127.30	1.641	1484.39	7.95
130.0	128.6	7.933	34.405	26.817	124.90	1.778	1484.63	7.92
140.0	138.4	7.909	34.422	26.833	123.65	1.915	1484.90	7.89
150.0	148.3	7.890	34.420	26.833	122.70	2.052	1485.01	7.83
160.0	158.1	7.738	34.433	26.871	120.72	2.189	1484.87	7.72
170.0	167.9	7.645	34.427	26.873	120.75	2.326	1484.91	7.64
180.0	177.7	7.572	34.420	26.881	120.31	2.463	1484.94	7.55
190.0	187.5	7.516	34.420	26.889	119.81	2.600	1484.96	7.49
200.0	197.3	7.432	34.417	26.899	119.14	2.737	1484.96	7.40
210.0	207.1	7.373	34.419	26.909	118.53	2.874	1485.08	7.34
220.0	216.9	7.290	34.407	26.912	118.52	3.011	1485.08	7.26
230.0	226.7	7.200	34.409	26.925	117.47	3.148	1485.05	7.17
240.0	236.5	7.112	34.398	26.929	117.37	3.285	1485.01	7.08
250.0	246.3	7.018	34.401	26.945	116.10	3.422	1484.97	6.98
260.0	256.1	6.922	34.385	26.946	116.23	3.559	1484.95	6.88
270.0	265.9	6.804	34.389	26.955	114.62	3.696	1484.76	6.76
280.0	275.7	6.718	34.389	26.976	113.22	3.833	1484.77	6.68
290.0	285.5	6.607	34.381	26.985	113.12	3.970	1484.64	6.56
300.0	295.3	6.454	34.366	26.993	112.45	4.107	1484.33	6.41
310.0	305.1	6.268	34.354	27.019	108.30	4.244	1483.46	6.26
320.0	314.9	6.042	34.342	27.070	105.63	4.381	1482.96	6.05
330.0	324.7	5.785	34.325	27.155	97.57	4.518	1481.22	5.82
340.0	334.5	5.498	34.311	27.219	91.30	4.655	1479.91	5.62
350.0	344.3	5.181	34.354	27.300	83.20	4.792	1479.74	5.37
360.0	354.1	4.829	34.362	27.355	78.16	4.929	1479.26	5.16
370.0	363.9	4.451	34.401	27.403	73.03	5.066	1480.08	4.97
380.0	373.7	4.054	34.484	27.467	66.13	5.203	1481.07	4.77
390.0	383.5	3.638	34.525	27.531	62.26	5.340	1482.21	4.53
400.0	393.3	3.200	34.557	27.570	58.72	5.477	1483.23	4.27
410.0	403.1	2.742	34.587	27.601	56.12	5.614	1484.40	4.00
420.0	412.9	2.263	34.620	27.633	53.42	5.751	1485.90	3.71
430.0	422.7	1.763	34.640	27.653	51.84	5.888	1487.41	3.42
440.0	432.5	1.240	34.671	27.684	49.19	6.025	1488.82	3.13
450.0	442.3	0.693	34.693	27.706	47.38	6.162	1490.25	2.84
460.0	452.1	0.112	34.706	27.721	46.17	6.299	1491.68	2.55
470.0	461.9	-0.463	34.723	27.737	45.06	6.436	1493.24	2.26
480.0	471.7	-1.038	34.727	27.746	44.34	6.573	1494.64	1.97
490.0	481.5	-1.613	34.733	27.754	43.74	6.710	1496.13	1.68
500.0	491.3	-2.188	34.740	27.756	42.87	6.847	1497.50	1.39
510.0	501.1	-2.763	34.745	27.770	41.40	6.984	1498.75	1.10
520.0	510.9	-3.338	34.750	27.785	40.87	7.121	1500.26	0.81
530.0	520.7	-3.913	34.742	27.784	40.87	7.258	1501.46	0.52
540.0	530.5	-4.488	34.746	27.775	39.43	7.395	1502.96	0.23
550.0	540.3	-5.063	34.746	27.801	38.76	7.532	1504.26	0.00
560.0	550.1	-5.638	34.742	27.800	38.80	7.669	1504.80	0.00

SHIP 1 HRS COC - Primary
STATION NUMBER 1 6 (THROUGH THE CRUISE)
STATION NUMBER 1 6 (THROUGH THE YEAR)
DATE 1 28-AUG-1985 (DAY NUMBER 240)
START TIME 1 0601 GMT - 2
CRUISE 1 CROK/85
POSITION 1 41:59.00S 175:57.00E
CAST DEPTH 1 2783 METRES
BOTTOM DEPTH 1 3909 METRES

PRESS	DEPTH	TOW	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	12.756	35.120	26.536	148.82	0.000	1500.08	12.75
10.0	9.9	12.755	35.114	26.530	149.58	0.149	1500.20	12.75
20.0	19.8	12.748	35.120	26.537	149.20	0.299	1500.38	12.75
30.0	29.8	12.750	35.119	26.535	149.63	0.448	1500.53	12.75
40.0	39.7	12.756	35.114	26.531	150.34	0.598	1500.70	12.75
50.0	49.6	12.758	35.121	26.536	150.12	0.748	1500.87	12.75
60.0	59.5	12.758	35.115	26.531	150.83	0.899	1501.03	12.75
70.0	69.4	12.758	35.118	26.534	150.85	1.050	1501.19	12.75
80.0	79.4	12.758	35.117	26.533	151.19	1.201	1501.40	12.75
90.0	89.3	12.758	35.124	26.538	150.91	1.352	1501.55	12.75
100.0	99.2	12.758	35.125	26.538	151.16	1.503	1501.71	12.74
110.0	109.0	12.760	35.123	26.537	151.84	1.654	1501.86	12.74
120.0	118.8	12.758	35.126	26.540	152.09	1.805	1502.02	12.74
130.0	128.6	12.768	35.125	26.537	152.90	1.956	1502.17	12.74
140.0	138.4	12.753	35.132	26.545	152.59	2.107	1502.32	12.73
150.0	148.3	12.753	35.132	26.545	152.48	2.258	1502.47	12.73
160.0	158.1	11.947	35.012	26.609	147.26	2.409	1502.62	11.92
170.0	167.9	11.742	34.977	26.621	146.58	2.560	1502.77	11.71
180.0	177.7	11.478	34.927	26.631	145.90	2.711	1502.92	11.49
190.0	187.5	11.021	34.856	26.660	143.44	2.862	1503.07	10.99
200.0	197.3	10.674	34.831	26.703	139.63	3.013	1503.22	10.49
210.0	207.1	10.554	34.832	26.725	137.97	3.164	1503.37	10.52
220.0	216.9	10.335	34.810	26.746	136.31	3.315	1503.52	10.29
230.0	226.7	10.122	34.779	26.759	135.34	3.466	1503.67	10.06
240.0	236.5	9.760	34.726	26.779	133.55	3.617	1503.82	9.72
250.0	246.3	9.602	34.708	26.791	132.70	3.768	1503.97	9.56
260.0	256.1	9.295	34.681	26.805	131.65	3.919	1504.12	9.35
270.0	265.9	8.996	34.665	26.825	129.98	4.070	1504.27	9.15
280.0	275.7	8.697	34.663	26.850	127.85	4.221	1504.42	8.98
290.0	285.5	8.478	34.646	26.862	126.37	4.372	1504.57	8.81
300.0	295.3	8.259	34.632	26.867	126.71	4.523	1504.72	8.64
310.0	305.1	8.040	34.593	26.902	123.08	4.674	1504.87	8.29
320.0	314.9	7.821	34.574	26.928	122.05	4.825	1505.02	8.02
330.0	324.7	7.449	34.521	26.978	118.06	4.976	1505.17	7.38
340.0	334.5	6.925	34.491	27.029	114.05	5.127	1505.32	6.85
350.0	344.3	6.428	34.474	27.082	109.58	5.278	1505.47	6.34
360.0	354.1	5.843	34.456	27.143	103.96	5.429	1505.62	5.75
370.0	363.9	5.260	34.452	27.215	96.93	5.580	1505.77	5.13
380.0	373.7	4.650	34.474	27.299	88.80	5.731	1505.92	4.55
390.0	383.5	4.036	34.505	27.374	81.30	5.882	1506.07	4.07
400.0	393.3	3.423	34.523	27.424	76.42	6.033	1506.22	3.73
410.0	403.1	2.809	34.545	27.477	71.13	6.184	1506.37	3.37
420.0	412.9	2.196	34.570	27.546	63.76	6.335	1506.52	2.91
430.0	422.7	1.583	34.610	27.603	57.66	6.486	1506.67	2.55
440.0	432.5	0.970	34.627	27.634	54.49	6.637	1506.82	2.14
450.0	442.3	0.357	34.639	27.635	52.57	6.788	1506.97	2.21
460.0	452.1	-0.256	34.640	27.640	51.60	6.939	1507.12	1.90
470.0	461.9	-0.843	34.652	27.641	50.14	7.090	1507.27	1.59
480.0	471.7	-1.430	34.669	27.702	48.22	7.241	1507.42	1.28
490.0	481.5	-2.017	34.676	27.712	47.35	7.392	1507.57	0.97
500.0	491.3	-2.604	34.693	27.730	45.82	7.543	1507.72	0.66
510.0	501.1	-3.191	34.699	27.739	45.09	7.694	1507.87	0.35
520.0	510.9	-3.778	34.705	27.752	43.89	7.845	1508.02	0.04
530.0	520.7	-4.365	34.715	27.763	42.90	7.996	1508.17	0.00
540.0	530.5	-4.952	34.742	27.791	40.02	8.147	1508.32	0.00
550.0	540.3	-5.539	34.746	27.796	39.51	8.298	1508.47	0.00

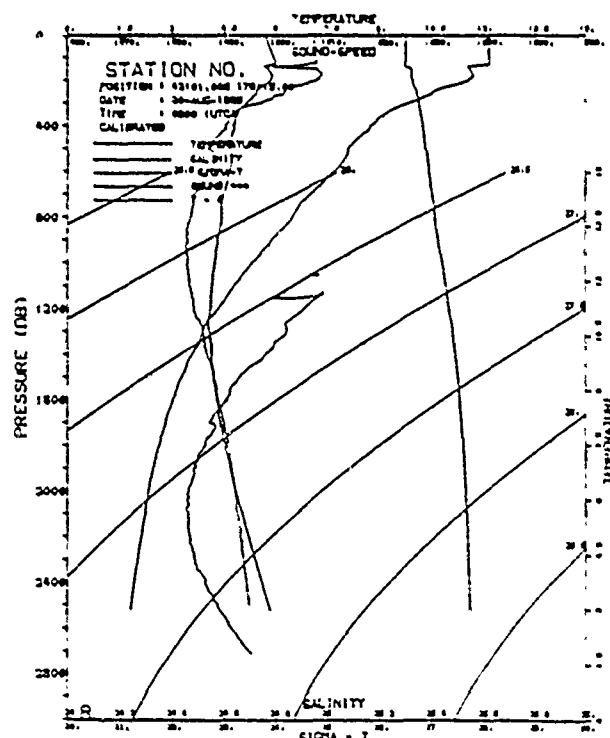
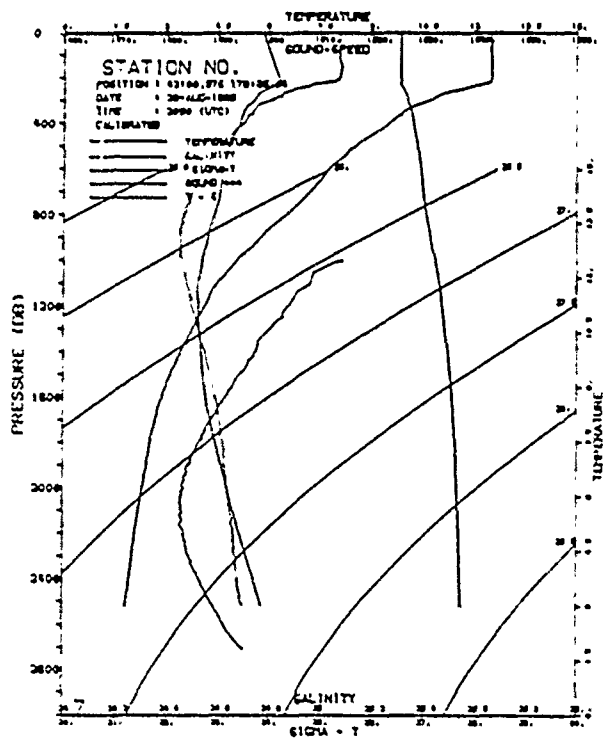


SHIP : HNS COOK - Plessey
 STATION NUMBER : 7 (THROUGH THE CRUISE)
 STATION NUMBER : 7 (THROUGH THE YEAR)
 DATE : 29-AUG-1985 (DAY NUMBER 241)
 START TIME : 2050 GMT - 5
 CRUISE : C105-85
 POSITION : 2100.575 17 11.31W
 CAST DEPTH : 2480 METRES
 BOTTOM DEPTH : 2556 METRES

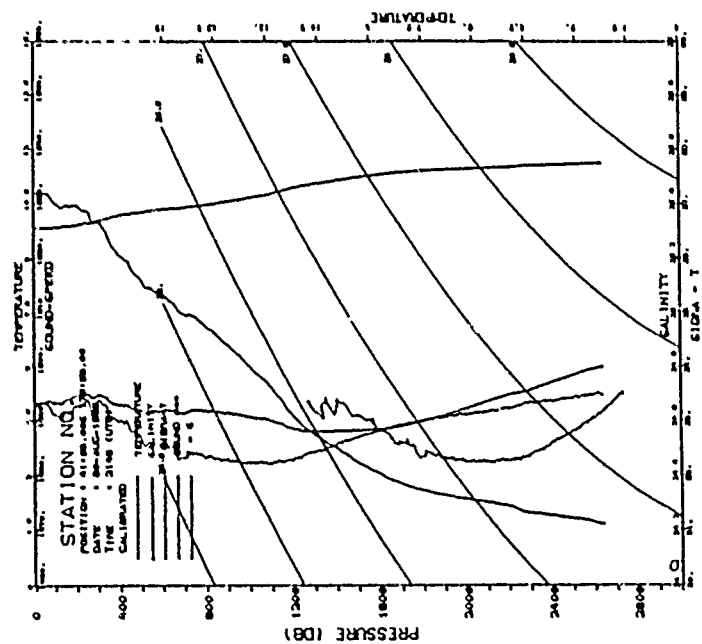
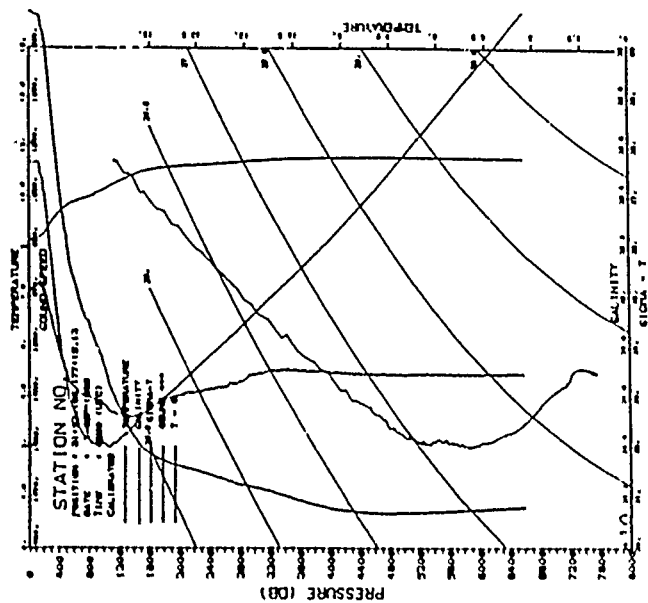
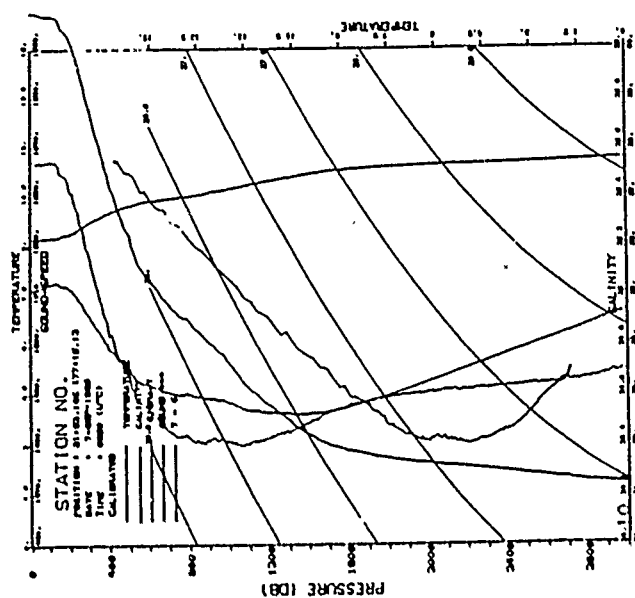
PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	12.455	35.096	26.567	145.87	0.000	1498.90	12.46
10.0	9.9	12.470	35.091	26.562	146.61	0.146	1498.98	12.47
20.0	19.8	12.475	35.079	26.559	147.12	0.293	1499.17	12.47
30.0	29.8	12.475	35.081	26.561	147.21	0.440	1499.34	12.47
40.0	39.7	12.475	35.080	26.560	147.58	0.588	1499.48	12.47
50.0	49.6	12.475	35.081	26.561	147.70	0.735	1499.66	12.47
60.0	59.5	12.475	35.083	26.562	147.85	0.883	1499.84	12.47
70.0	69.4	12.475	35.086	26.564	147.88	1.031	1500.02	12.47
80.0	79.4	12.479	35.081	26.560	148.60	1.179	1500.17	12.47
90.0	89.3	12.483	35.079	26.558	149.04	1.328	1500.34	12.47
100.0	99.2	12.481	35.084	26.561	148.93	1.477	1500.49	12.47
110.0	109.0	12.485	35.080	26.558	149.76	1.776	1500.84	12.47
120.0	118.9	12.485	35.082	26.563	149.78	2.076	1501.12	12.47
130.0	128.8	12.485	35.080	26.561	150.24	2.375	1501.45	12.46
140.0	138.7	12.493	35.085	26.560	151.12	2.672	1501.82	12.47
150.0	148.6	12.494	35.083	26.558	151.79	2.980	1502.15	12.47
160.0	158.5	12.494	35.059	26.551	152.92	3.284	1502.20	12.41
170.0	168.4	11.896	34.964	26.593	149.24	3.589	1500.36	11.81
180.0	178.3	11.299	34.885	26.613	145.63	3.896	1498.67	11.23
190.0	188.2	10.935	34.857	26.676	141.86	4.174	1497.79	10.90
200.0	198.1	10.672	34.815	26.691	140.81	4.457	1497.14	10.64
210.0	208.0	10.295	34.762	26.716	138.64	4.737	1496.06	10.26
220.0	217.9	10.030	34.753	26.754	135.28	5.010	1495.45	9.99
230.0	227.8	9.852	34.743	26.777	133.46	5.279	1495.15	9.81
240.0	237.7	9.658	34.722	26.793	132.15	5.545	1494.72	9.61
250.0	247.6	9.513	34.710	26.808	131.06	5.809	1494.51	9.47
260.0	257.5	9.348	34.686	26.816	130.52	6.070	1494.19	9.20
270.0	267.4	9.110	34.667	26.810	128.46	6.339	1493.63	8.96
280.0	277.3	8.900	34.646	26.858	127.01	6.585	1493.14	8.74
290.0	287.2	8.599	34.670	26.877	125.41	6.817	1492.73	8.45
300.0	297.1	8.558	34.615	26.887	124.68	7.087	1492.49	8.50
310.0	307.0	8.166	34.582	26.921	121.94	7.702	1491.82	8.11
320.0	316.9	7.774	34.548	26.952	119.36	8.305	1491.10	7.71
330.0	326.8	7.242	34.510	26.925	115.82	8.480	1490.43	7.17
340.0	336.7	6.546	34.470	27.051	110.14	10.610	1489.49	6.47
350.0	346.6	5.782	34.450	27.153	101.63	11.566	1488.12	5.71
360.0	356.5	5.091	34.459	27.243	92.90	12.613	1486.96	5.01
370.0	366.4	4.494	34.493	27.322	85.15	13.535	1486.16	4.41
380.0	376.3	4.125	34.501	27.376	80.09	14.358	1486.30	4.03
390.0	386.2	3.775	34.520	27.434	74.51	15.129	1486.50	3.68
400.0	396.1	3.411	34.554	27.489	69.11	15.850	1486.74	3.33
410.0	406.0	3.125	34.574	27.531	64.62	16.520	1487.12	3.02
420.0	415.9	2.814	34.595	27.578	60.68	17.145	1487.75	2.76
430.0	425.8	2.693	34.609	27.601	57.98	17.735	1488.61	2.57
440.0	435.7	2.525	34.627	27.629	55.20	18.301	1489.58	2.40
450.0	445.6	2.411	34.630	27.640	54.30	18.846	1490.84	2.30
460.0	455.5	2.358	34.646	27.663	52.08	19.378	1492.01	2.17
470.0	465.4	2.189	34.658	27.683	50.18	19.892	1493.20	2.04
480.0	475.3	2.096	34.665	27.696	48.95	20.388	1494.47	1.94
490.0	485.2	2.020	34.674	27.710	47.64	20.870	1495.84	1.86
500.0	495.1	1.943	34.686	27.728	46.29	21.339	1497.19	1.77
510.0	505.0	1.852	34.698	27.741	44.61	21.794	1498.50	1.67
520.0	514.9	1.825	34.708	27.751	43.61	22.083	1499.71	1.65

SHIP : HNS COOK - Plessey
 STATION NUMBER : 8 (THROUGH THE CRUISE)
 STATION NUMBER : 8 (THROUGH THE YEAR)
 DATE : 30-AUG-1985 (DAY NUMBER 242)
 START TIME : 0900 GMT - 5
 CRUISE : C105-85
 POSITION : 42101.005 178115.00E
 CAST DEPTH : 2473 METRES
 BOTTOM DEPTH : 2645 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	12.161	34.955	26.523	149.99	0.000	1497.94	12.16
10.0	9.9	12.161	34.954	26.523	150.30	0.150	1498.07	12.16
20.0	19.8	12.161	34.954	26.523	150.52	0.301	1498.24	12.16
30.0	29.8	12.161	34.955	26.524	150.70	0.451	1498.39	12.16
40.0	39.7	12.162	34.955	26.524	150.96	0.602	1498.58	12.16
50.0	49.6	12.165	34.955	26.523	151.25	0.753	1498.74	12.16
60.0	59.5	12.171	34.952	26.522	151.66	0.905	1498.93	12.16
70.0	69.4	12.177	34.955	26.521	151.97	1.056	1499.09	12.17
80.0	79.4	12.181	34.954	26.519	152.36	1.209	1499.27	12.17
90.0	89.3	12.181	34.960	26.524	152.21	1.361	1499.43	12.17
100.0	99.2	12.181	34.957	26.522	152.66	1.513	1499.59	12.17
110.0	109.0	12.213	34.968	26.524	152.94	1.819	1500.04	12.20
120.0	118.9	11.540	34.970	26.516	154.90	2.127	1497.16	11.52
130.0	128.8	11.611	34.971	26.630	143.75	2.419	1498.96	11.65
140.0	138.7	11.739	34.981	26.625	144.75	2.707	1499.38	11.72
150.0	148.6	11.566	34.963	26.643	143.40	2.995	1499.05	11.54
160.0	158.5	11.172	34.899	26.666	141.55	3.280	1497.92	11.14
170.0	168.4	10.892	34.845	26.710	137.62	3.561	1496.56	10.46
180.0	178.3	10.502	34.830	26.733	135.87	3.843	1496.20	10.47
190.0	188.2	10.202	34.790	26.753	134.19	4.104	1495.40	10.17
200.0	198.1	9.853	34.744	26.777	132.15	4.371	1494.42	9.82
210.0	208.0	9.465	34.669	26.783	131.75	4.635	1493.24	9.43
220.0	217.9	9.225	34.617	26.805	129.90	4.897	1492.71	9.19
230.0	227.8	9.029	34.622	26.818	128.98	5.156	1492.28	8.99
240.0	237.7	8.907	34.622	26.837	127.46	5.412	1492.15	8.87
250.0	247.6	8.763	34.608	26.848	126.72	5.666	1491.92	8.72
260.0	257.5	8.695	34.601	26.856	126.27	5.919	1491.93	8.64
270.0	267.4	8.506	34.587	26.873	124.88	6.170	1491.58	8.46
280.0	277.3	8.364	34.564	26.876	124.75	6.420	1491.34	8.32
290.0	287.2	8.239	34.556	26.889	123.77	6.668	1491.20	8.19
300.0	297.1	8.124	34.543	26.897	123.31	6.916	1491.01	8.07
310.0	307.0	7.998	34.567	26.934	120.48	7.232	1491.43	7.94
320.0	316.9	7.711	34.536	26.952	119.76	7.521	1491.10	7.65
330.0	326.8	7.513	34.481	27.013	114.19	7.855	1489.87	7.35
340.0	336.7	6.889	34.476	27.025	108.93	8.191	1489.56	6.41
350.0	346.6	5.882	34.458	27.147	102.30	8.453	1489.80	5.80
360.0	356.5	5.104	34.465	27.216	95.92	8.725	1489.09	5.22
370.0	366.4	4.780	34.473	27.283	89.53	9.033	1489.50	4.59
380.0	376.3	4.327	34.492	27.348	83.26	9.319	1489.19	4.23
390.0	386.2	3.895	34.524	27.418	76.35	9.572	1489.28	3.79
400.0	396.1	3.513	34.541	27.465	70.10	9.801	1489.55	3.46
410.0	406.0	3.273	34.561	27.511	67.22	10.078	1489.78	3.16
420.0	415.9	3.024	34.580	27.550	63.14	10.324	1489.82	2.79
430.0	425.8	2.809	34.606	27.588	59.62	10.541	1489.40	2.69
440.0	435.7	2.626	34.617	27.613	57.16	10.724	1489.28	2.50
450.0	445.6	2.446	34.636	27.643	54.31	10.880	1491.20	2.31
460.0	455.5	2.314	34.650	27.666	51.87	11.011	1492.30	2.12
470.0	465.4	2.221	34.651	27.678	50.68	11.925	1493.61	2.01
480.0	475.3	2.113	34.666	27.695	49.11	12.021	1494.83	1.76
490.0	485.2	2.013	34.680	27.714	47.25	12.901	1496.13	1.55
500.0	495.1	1.921	34.694	27.732	45.46	13.365	1497.40	1.75
510.0	505.0	1.835	34.703	27.747	44.02	13.813	1498.72	1.56
520.0	514.9	1.819	34.707	27.751	43.61	21.900	1498.94	1.64



Seamap 2 - Route B - Winter



Listings of Niskin bottle/rosette samples taken for VCTOD stations 1 to 9. SEAMAP 2 (RANRL 6/85) winter survey route B.

STATION 1										STATION 2										STATION 3										STATION 4										STATION 5										STATION 6										STATION 7										STATION 8										STATION 9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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01/10/1985										DATE= 02/10/1985										DATE= 03/10/1985										DATE= 04/10/1985										DATE= 05/10/1985										DATE= 06/10/1985										DATE= 07/10/1985										DATE= 08/10/1985										DATE= 09/10/1985										DATE= 10/10/1985										DATE= 11/10/1985										DATE= 12/10/1985										DATE= 13/10/1985										DATE= 14/10/1985										DATE= 15/10/1985										DATE= 16/10/1985										DATE= 17/10/1985										DATE= 18/10/1985										DATE= 19/10/1985										DATE= 20/10/1985										DATE= 21/10/1985										DATE= 22/10/1985										DATE= 23/10/1985										DATE= 24/10/1985										DATE= 25/10/1985										DATE= 26/10/1985										DATE= 27/10/1985										DATE= 28/10/1985										DATE= 29/10/1985										DATE= 30/10/1985										DATE= 31/10/1985										DATE= 01/11/1985										DATE= 02/11/1985										DATE= 03/11/1985										DATE= 04/11/1985										DATE= 05/11/1985										DATE= 06/11/1985										DATE= 07/11/1985										DATE= 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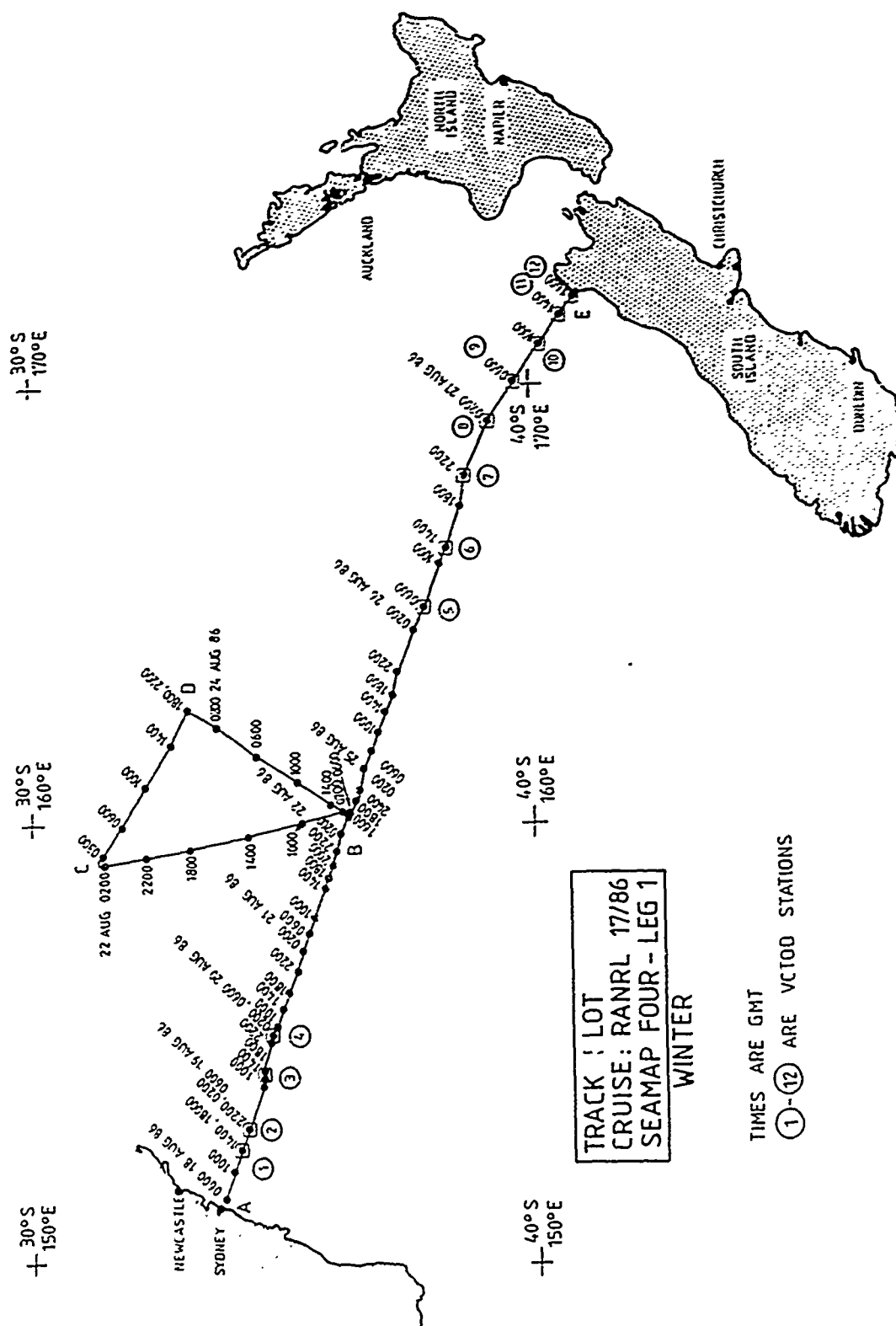


Figure 73. Track plot and oceanographic station positions for SEAMAP four (RANRL 17/86). Leg one winter survey on route B in the south west Pacific Ocean, 18 to 27 August 1986

Data for SEAMAP survey four (RANRL 17/86) - route B - winter

Survey SEAMAP 4 was made in south hemispheric winter from Sydney to Cook Strait and return (figures 73 and 85) from 18 August to 9 September 1986. Acoustic and geophysical data for the survey are given in other sources (see Appendix I). Survey SEAMAP 4 (or RANRL 17/86) was the fourth of the SEAMAP cruise series made by Ocean Sciences Group RANRL on the naval oceanographic research vessel HMAS Cook.

Surface parameters

Sea state, swell height, and wind vectors

Four-hourly observations made by bridge watchkeepers are shown in figures 75, 76 and 86, 87 these being a subset of hourly values. Table 1 (on page 5) shows the sea conditions associated with the sea state values. Swell on leg 1 was often 2 to 3 m, and usually less than 2 m on leg 2. Sea states 3 and 4 were common on leg 1 (slight to moderate seas). Wind strengths on leg 2 ranged up to 26 kn, being mostly less than 20 kn on leg 1. Sea state 4 was common on leg 2 with sea state 5 on leaving New Zealand (moderate to rough seas).

Text continued on page 148

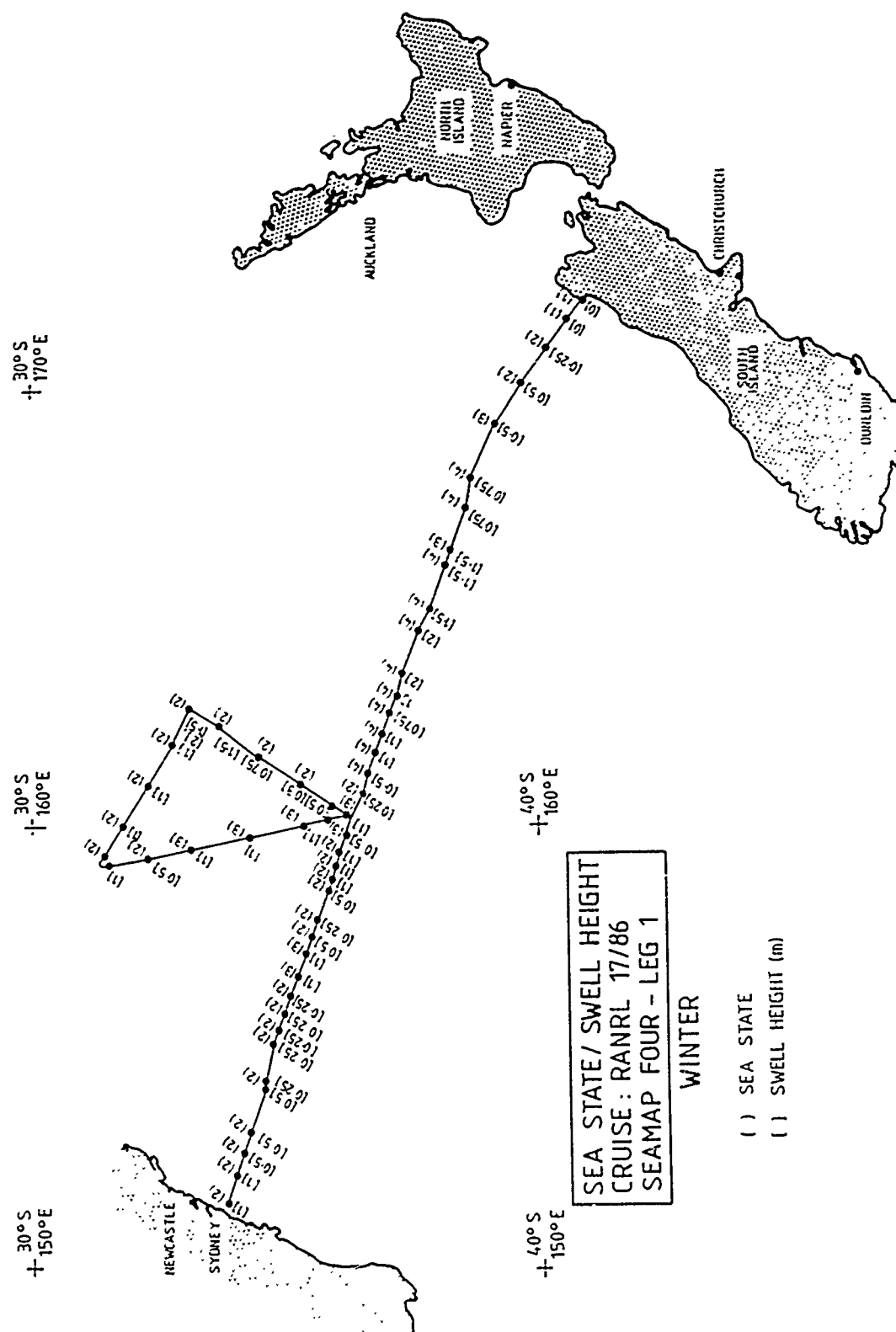


Figure 74. Sea state and swell height for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

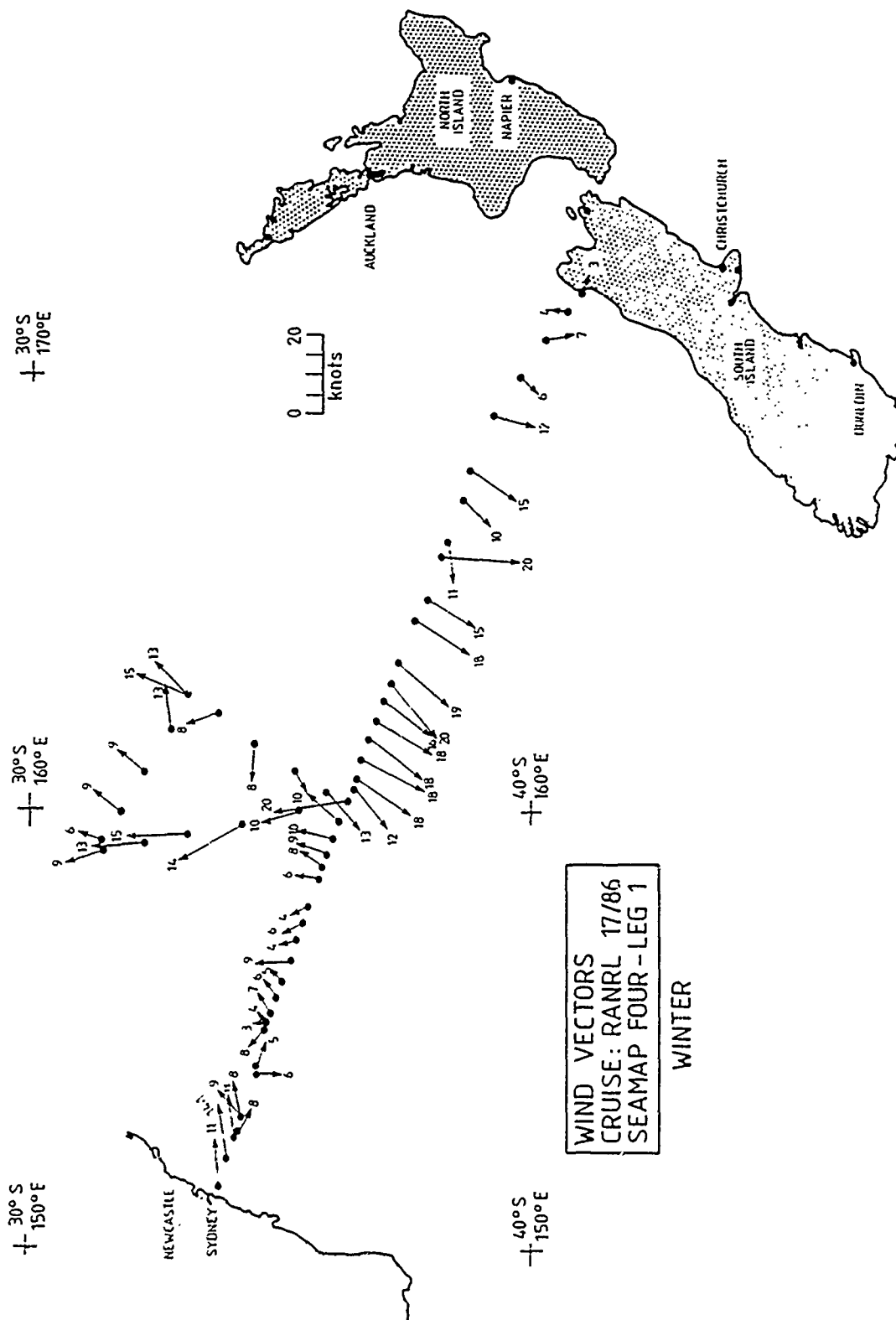


Figure 75. Wind vectors for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

Surface temperature and salinity

Sea Surface temperature (SST) (figures 76 and 88)

On both legs a front is crossed east of Sydney and frontal activity is seen from Sydney to 160°E. East of 160°E surface temperatures became fairly uniform, with coolest temperatures occurring off New Zealand. SST contours on leg 1 turn north along the western flank of the Lord Howe Rise. A cloud affected infra-red image from CSIRO Aspendale for 13 August (figure 77) shows the East Australian Current leaving the coast at about 34°30'S, 151°E and heading east to south-east; which confirms the speculative SST contours. A cloud affected image for 10 September (figure 89) is of some use along the track to 155°E, and shows more detail farther north. RMC Wellington satellite derived SST contours for 1 September and 8 September 1986 (figure 78) show details for 165°E to New Zealand. The general patterns along the cruise track in the RMC images show little frontal activity except perhaps off New Zealand.

Sea surface salinity (figures 79 and 90)

Surface salinity on leg 1 is fairly uniform to 160°E (35.66 ± 0.05 PSU), with salinity decreasing from 36°30'S, 161°E to New Zealand. Bucket temperatures drop by over 2.5°C across Cook Strait, and salinity falls below 35 PSU in eastern Cook Strait. Temperature taken from a tap mounted in the thermo-salinograph input, which is lower than the hull sensors, shows strong surface cooling was occurring. Leg 2 salinity is similar to leg 1, but lower values are seen near 38°S, 167°E possibly related to northward movement of cooler southern waters into the Bellona Gap.

Text continued on page 155

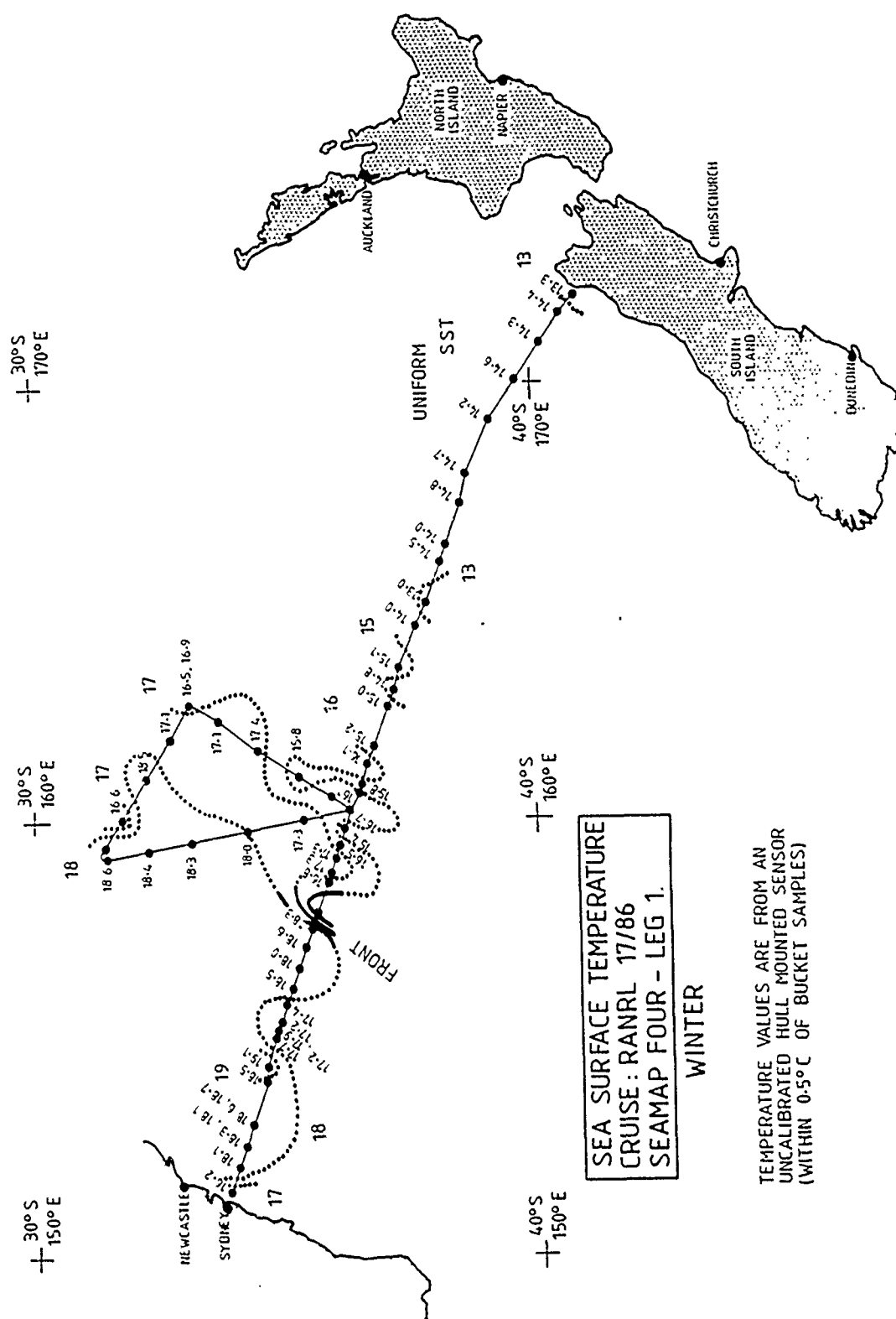


Figure 76. Sea surface temperature for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86). Also see figure 79 for surface bucket values

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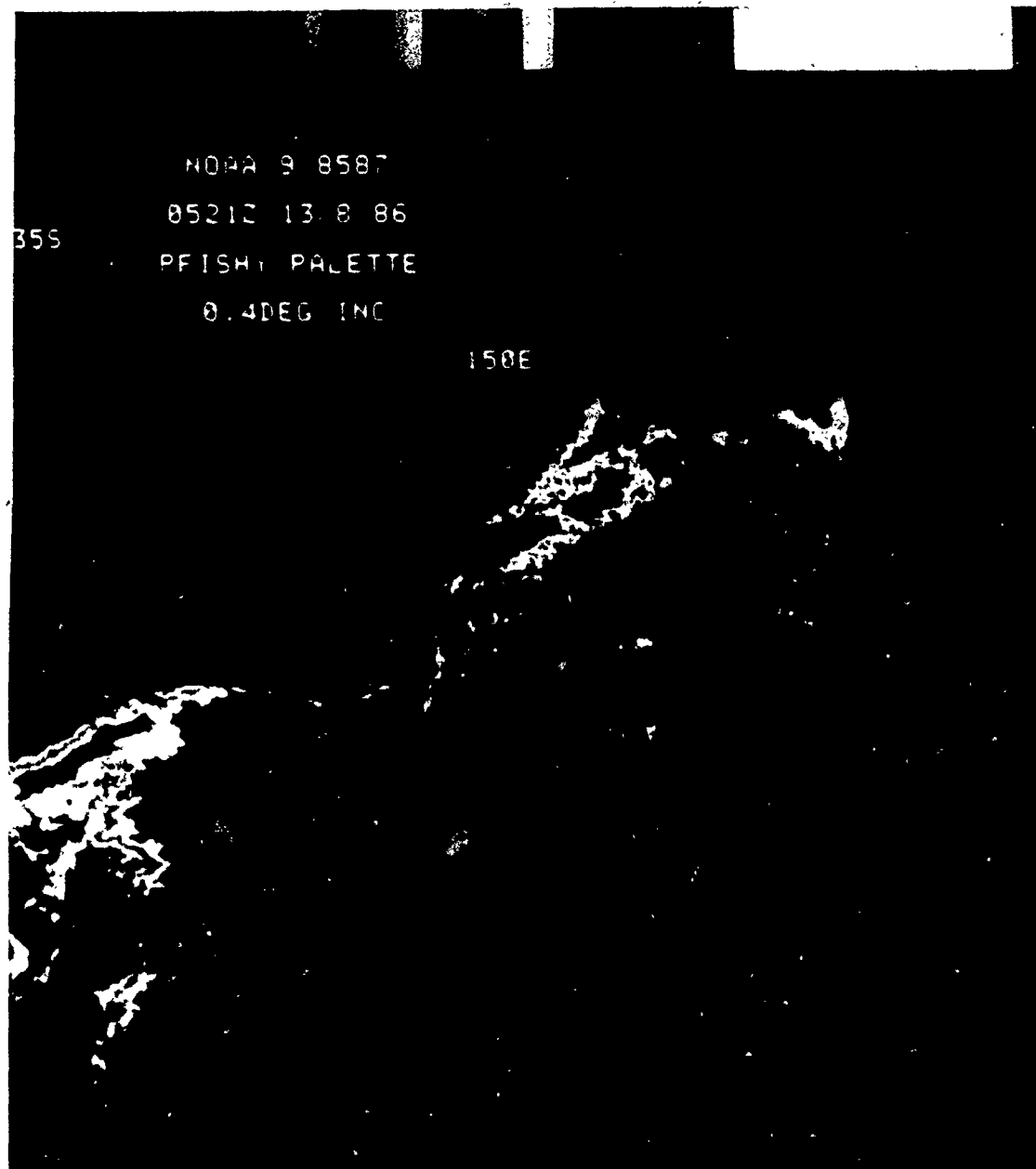


Figure 77. Sea surface temperature contours derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 13 August 1986. Coinciding with sections of SEAMAP 4 winter survey (RANRL 17/86) route A

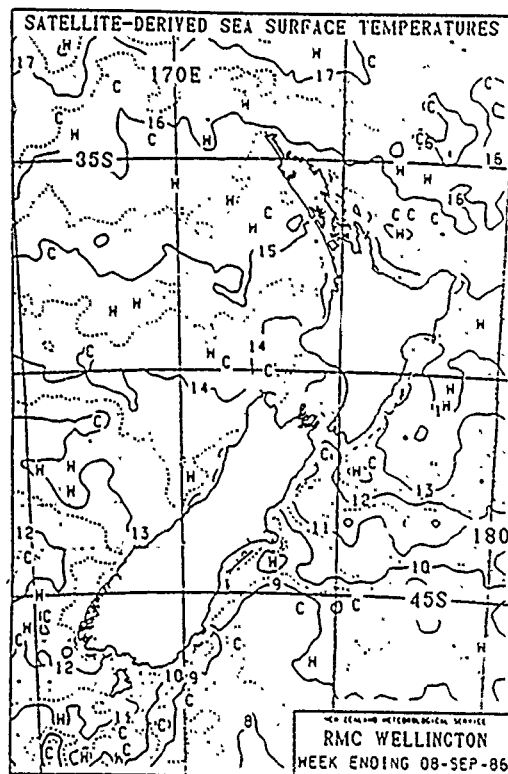
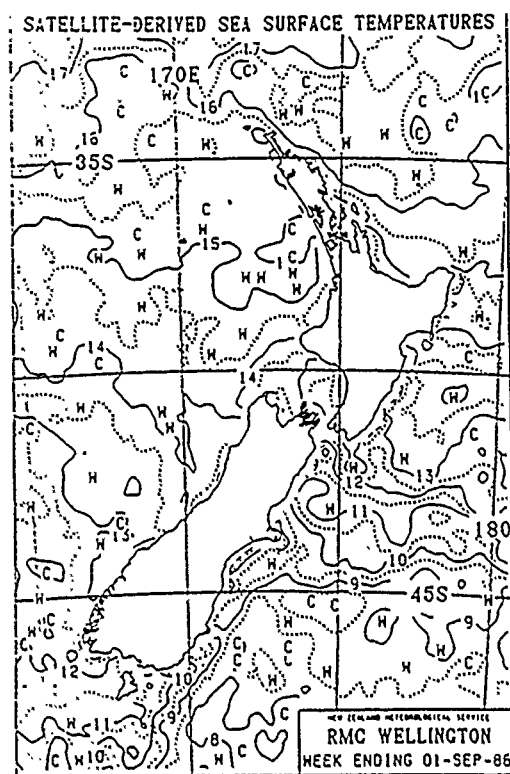


Figure 78. Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 1, 8 September 1986. Coinciding with SEAMAP 4 winter survey (RANRL 17/86) route A

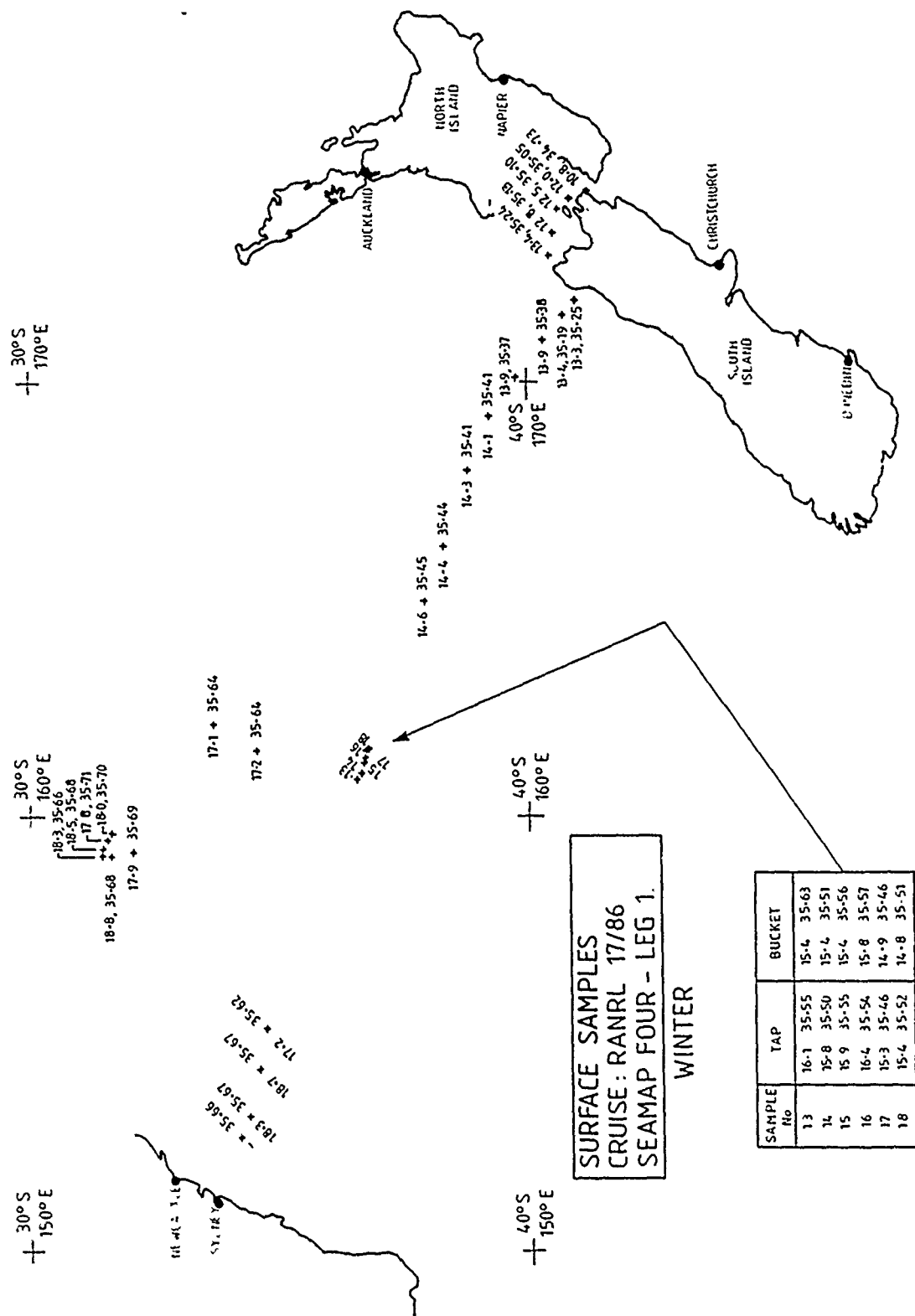


Figure 79. Sea surface salinity values for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

Subsurface parameters

Bathymetry

Smoothed interpretations showing major features are shown in figures 81 and 92. Also see figure 83.

XBT/Nansen/VCTOD cross-sections

XBT temperature cross-sections

Cross-sections of XBT data are shown in figures 80, 82 and 91. Gaps occurred during periods of seismic profiling.

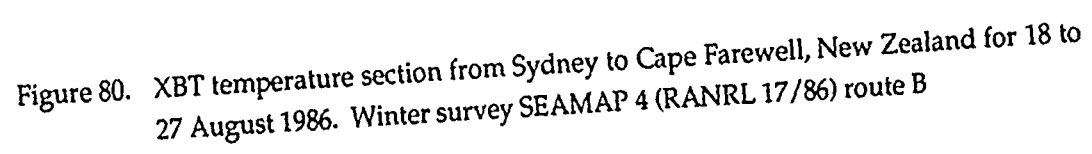
Sydney to New Zealand (leg 1) (figure 80)

The first meander of the EAC is crossed from Sydney to 154°E. Several warm core features are crossed from 162°E into New Zealand. These appear to be located on the western flank of a southward projecting spur of the Lord Howe Rise at 38°S, 165°E; in the Bellona gap west of the Challenger Plateau; and west of a higher area on the Challenger Plateau. There are indications of northward flow off the New Zealand coast.

Lord Howe Island detour (leg 1) (figure 82)

Warmest surface waters are situated about Lord Howe Island, and are not associated with signs of frontal activity. Contours from waypoints C to D tend to follow bottom contours. The frontal activity in SST contours near point B is also seen as subsurface features.

Text continued on page 160



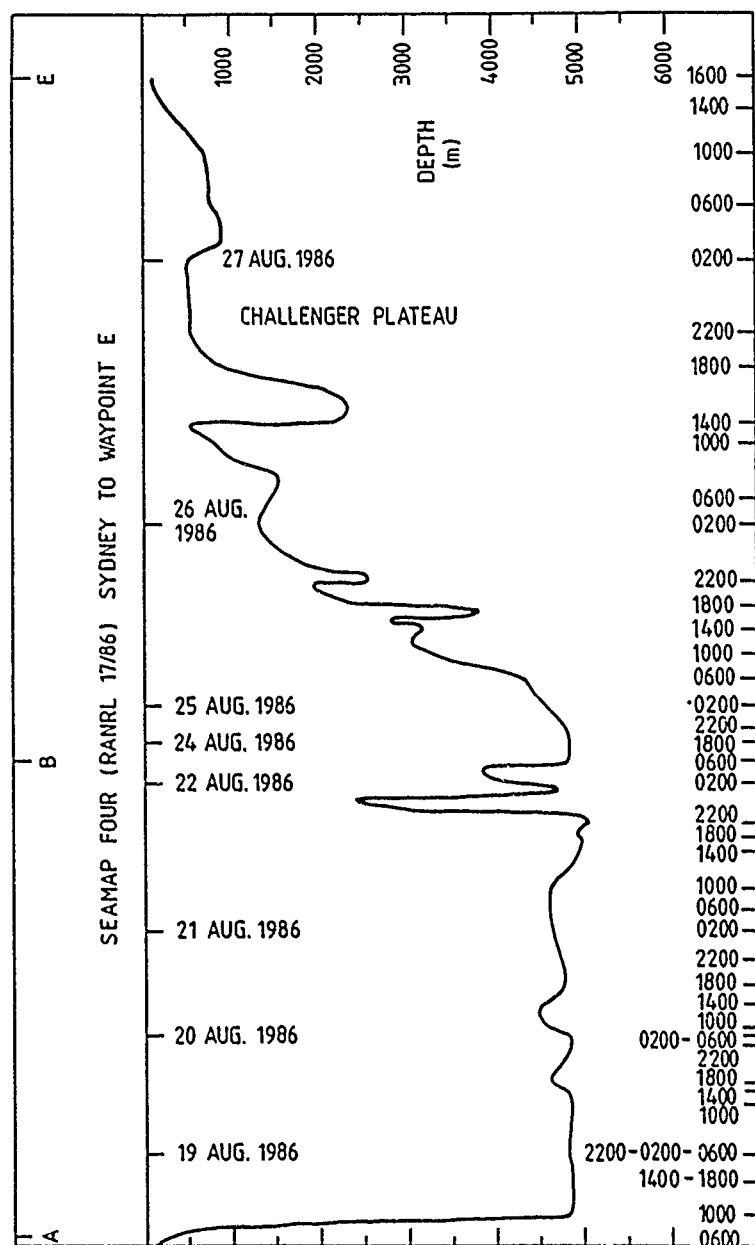


Figure 81. Bathymetry from Sydney to Cape Farewell, New Zealand for 18 to 27 August 1986. (via waypoints B,C,D). Winter survey SEAMAP 4 (RANRL 17/86) route B

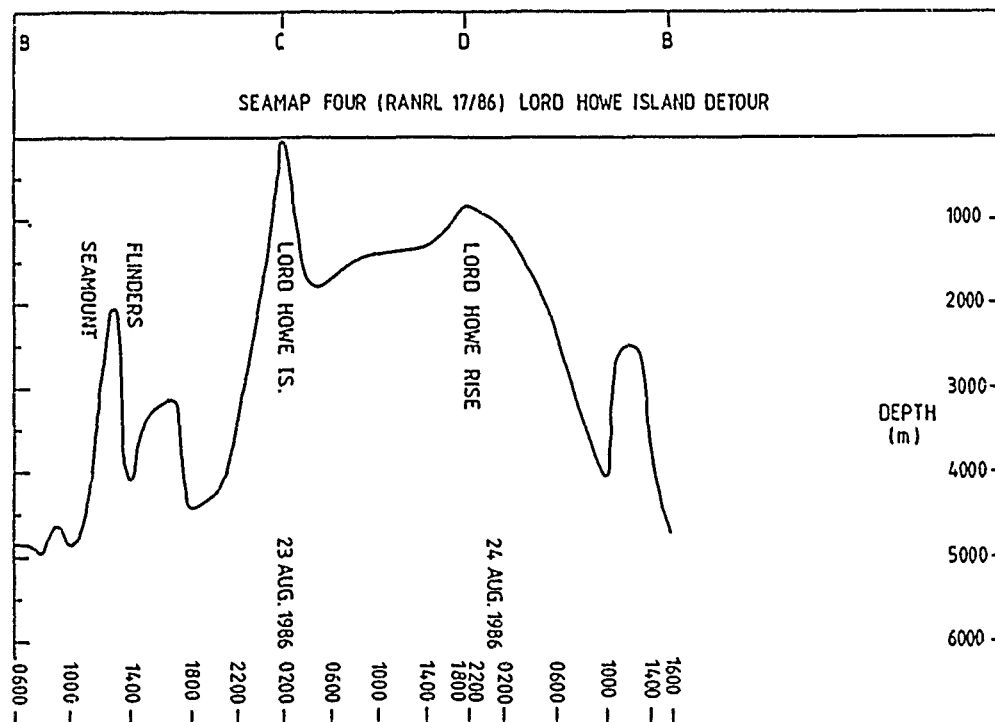
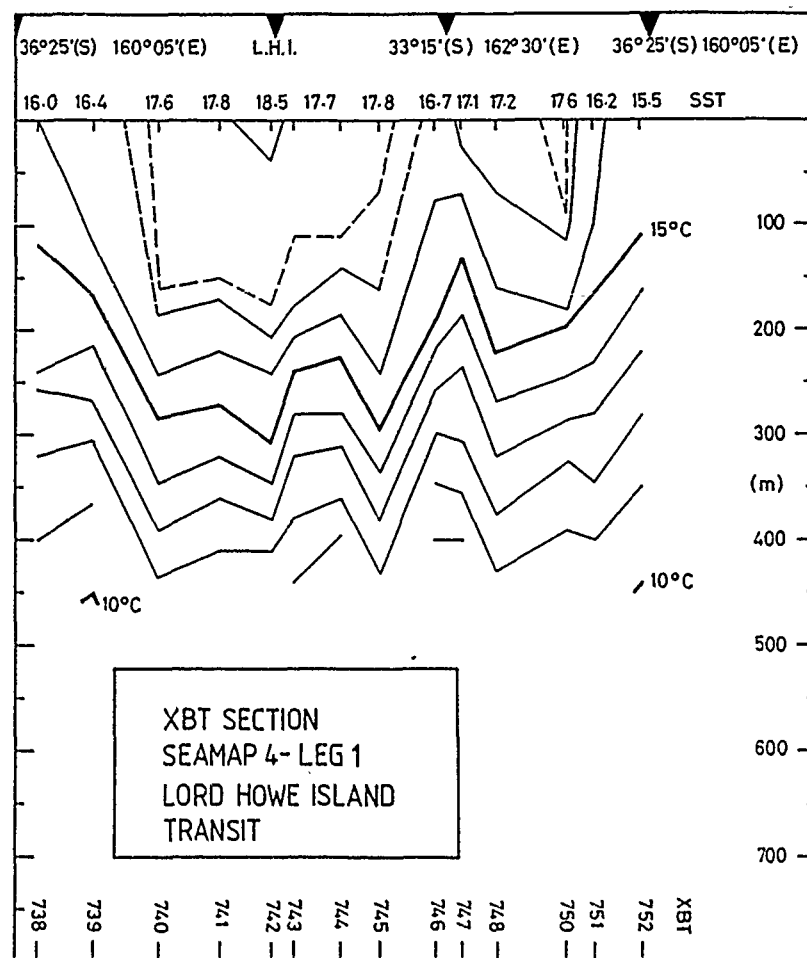


Figure 82. XBT temperature section and bathymetry from waypoint B to waypoints C and D and return to B (around Lord Howe Island). For 22 to 24 August 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B

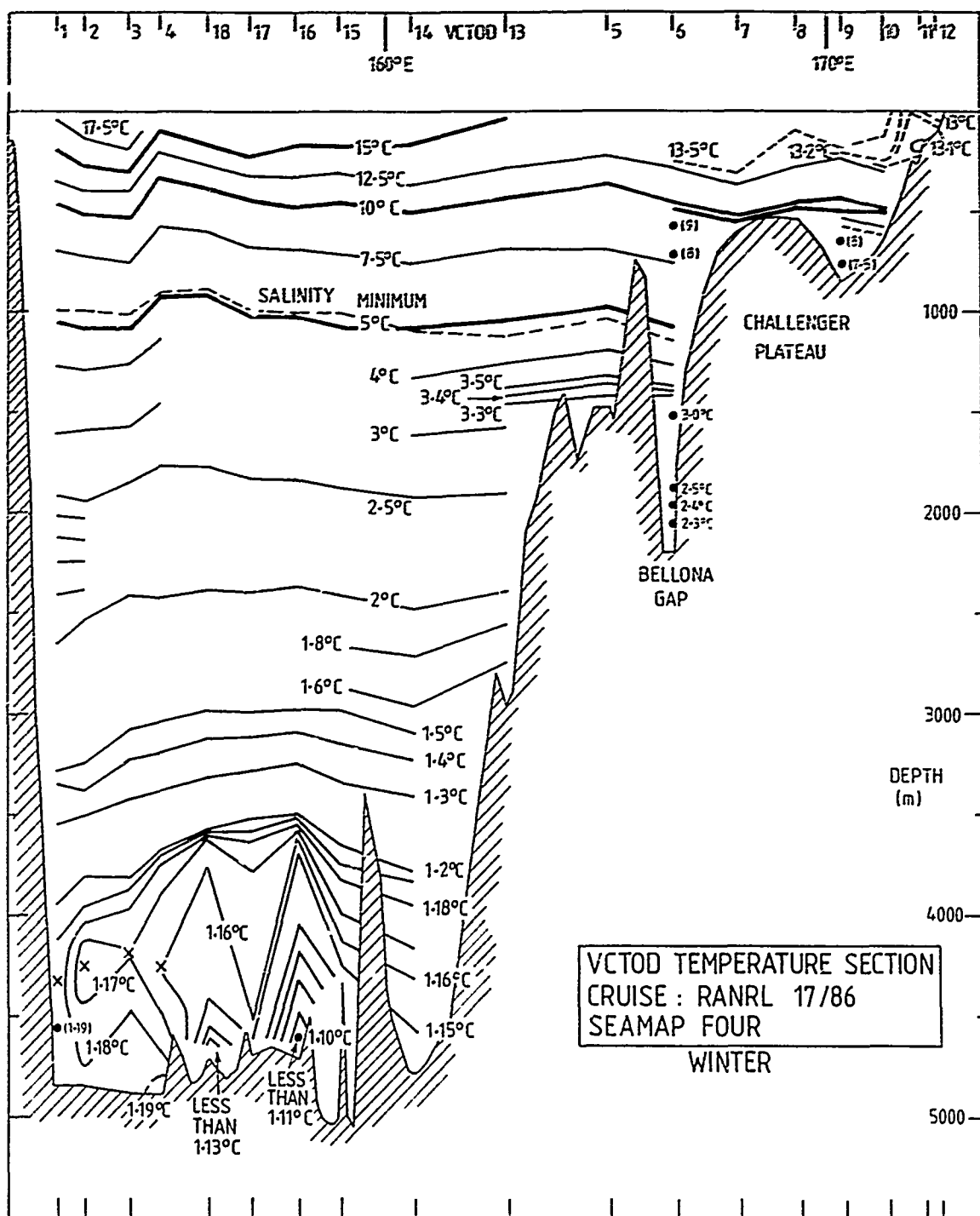


Figure 83. VCTOD temperature section from Sydney to south of Cape Farewell, New Zealand for 18 to 27 August 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B. (x on the diagram marks the deep temperature minimum values, except those occurring at the bottom)

New Zealand to Sydney (leg 2) (figure 91)

The first warm core meander of the EAC is seen from Sydney to 154°E. A second is located at 156°E, west of a seamount. A third is sited south of two seamounts over a deep hole at 160°E. Warmer surface waters to 40 m at 162°30'E are south of a spur of the Lord Howe Rise, but do not have marked subsurface expression. A slightly warmer feature is sited at 169°30'E, but is poorly defined.

VCTOD temperature and salinity sections

A VCTOD temperature section formed from stations taken on both legs is shown in figure 83. Antarctic Bottom Water (AABW) is seen at several sites from the Tasman Abyssal Plain to the base of the Lord Howe Rise. Coldest temperature is just on 1.10°C for station 16. The rather complicated patterns shown by the AABW will be left for more detailed analysis in subsequent reports. The AABW has been seen on other RANRL cruises besides the SEAMAP series. Some other observations are given in Mulhearn, Hamilton, and Scott (1988). The temperature at stations 11 and 12 increases with depth, leading to a maximum temperature at the bottom of the cast (230 m) for station 11 and at about 150 m for station 12. Isotherms between stations 9 and 10 slope upwards to the east to about 200 m, and slope downwards below this to the limits of the casts.

The inner glass sleeve of the conductivity sensor was found to be cracked on completion of this cruise so that no profiles or calibrated salinity values are available. The salinity data is pressure affected. Calibrations for other sensors have remained the same during the period of use of the instrument to within the accuracies of Table 3 on page 11.

Nansen station data listings and profiles

Nansen stations were not occupied on this cruise.

VCTOD station data listings and profiles

Eighteen VCTOD stations were occupied at sites shown in figures 73 and 85. Listings and profiles are given on pages 177 to 187. Temperature sections have been discussed earlier. The salinity (conductivity) sensor was not working properly for this cruise, so that neither salinity profile shapes or absolute values are given. Data from a single Nansen bottle strung above the VCTOD at each station are shown on page 176, as are concurrent surface bucket measurements.

Stations to 163°E (1 to 4, 13 to 18)

Stations 1 to 3 have surface mixed layer depths of 10, 30 and 100 m and sonic layer depths of 120, approximately 170, and 150 m, respectively. Stations 13 and 14 have no mixed layer, and sonic layer depths of 0 and 120 m. Stations 15 to 18 have mixed layer depths of 50, 60, 20, and 40 m and sonic layer depths of 50, 60, 120 and 40 m.

Temperature inversion were found as follows: station 1 at 170 m, 220 m, 420, 560 m, and possibly 1170 m; station 3 at 160 m, 360 m and perhaps 1150 m; station 13 at 80 m, 210 m, 275 m, 400 m, 600 m and 1180 m; station 14 at 220 m and 350 m; station 16 at 150 m, 300 m and 360 m; station 17 at 220 m; station 18 at 150 m and 350 m. These appear in pen plots made on HMAS Cook, and not all are confirmed. An XBT taken at 34°01'(S), 151°47'(E) on 18 August shows an inversion to colder temperatures of about half a degree centigrade at 210 m (water depth 1060 m). An XBT 7 nautical miles to the east shows a smaller inversion at the same depth. Other XBT also show inversions.

Stations east of 163°E (5 to 12)

These stations have surface mixed layer depths from 50 to 290 m and sonic layer depths from 140 to 290 m. Temperature and sound speed at stations 11 and 12 increases from the surface to near the bottom. Mixed layers are shallowest in frontal areas. Temperature inversions were found as follows: stations 5 at 520 m and possibly 930 m; station 6 at 1250 m; station 9 perhaps at 700 m. Station 9 (and possibly stations 7, 10, 11, 12) shows a bottom mixed layer. These latter stations were on Challenger Plateau.

Currents

Surface current directions inferred from SST contours and XBTs are shown in figures 84 and 93.

Additional data

Tracks of vessels deploying XBTs in the CSIRO merchant ship programme are shown in figure 94. The XBTs are widely spaced.

Text continued on page 163

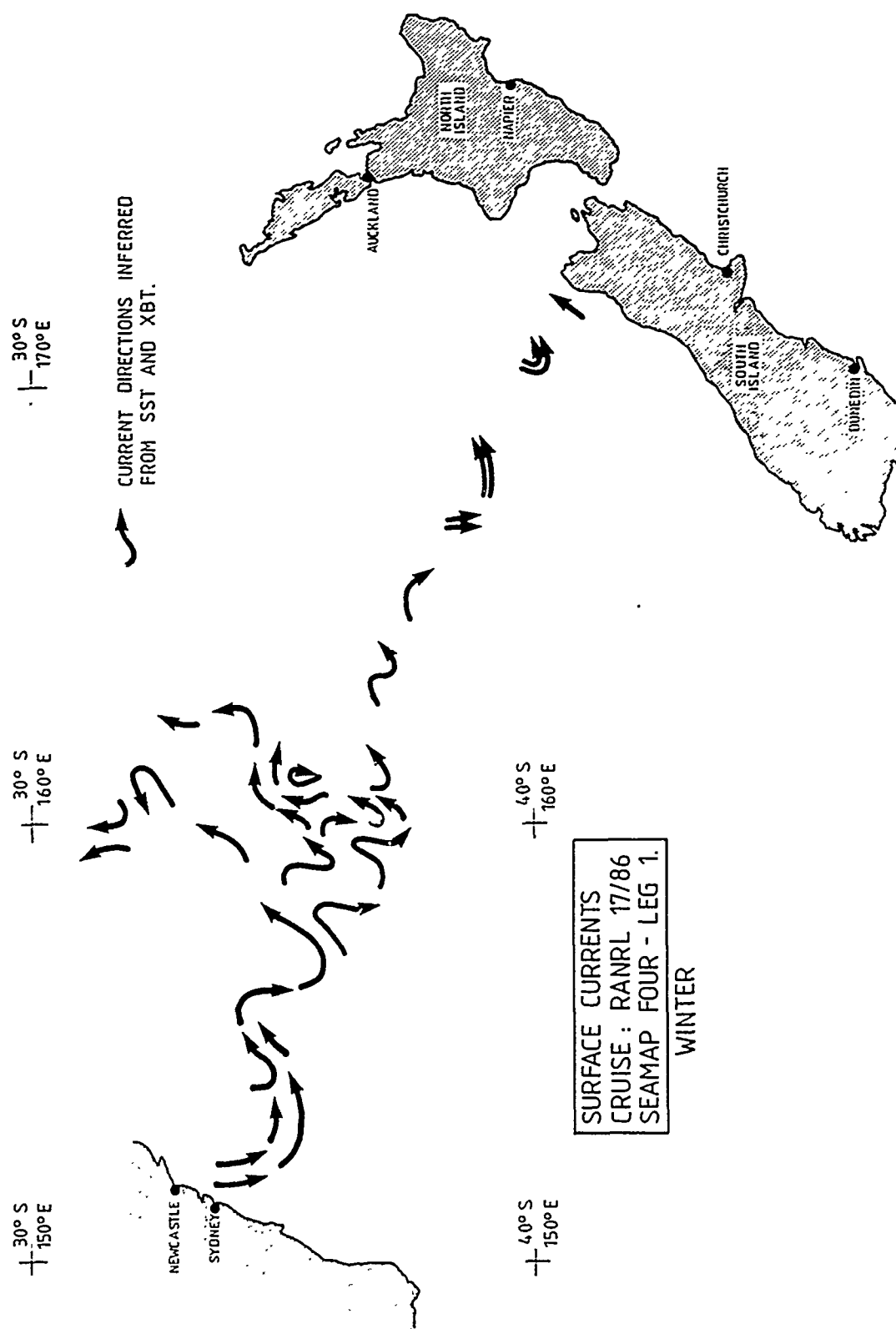


Figure 84. Surface current directions inferred from VCTOD, XBT and sea surface temperature data, 18 to 27 August 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B

DIAGRAMS FOR LEG 2 OF WINTER SURVEY SEAMAP 4 (RANRL 17/86) ARE SHOWN ON PAGES 164 TO 175.

THESE ARE FOLLOWED ON PAGES 177 TO 187 BY VCTOD DATA FOR LEGS ONE AND TWO.

SALINITY WAS PRESSURE AFFECTED AND NO VALUES OR PROFILES ARE SHOWN.

CALIBRATION DATA OBTAINED FROM A SINGLE NANSSEN BOTTLE STRUNG ABOVE THE CTD ARE SHOWN ON PAGE 176, WITH CONCURRENT BUCKET SAMPLES.

OVERPLOTS OF TEMPERATURE PROFILES TO 500 m ARE SHOWN ON PAGE 187.

Text continued on page 177

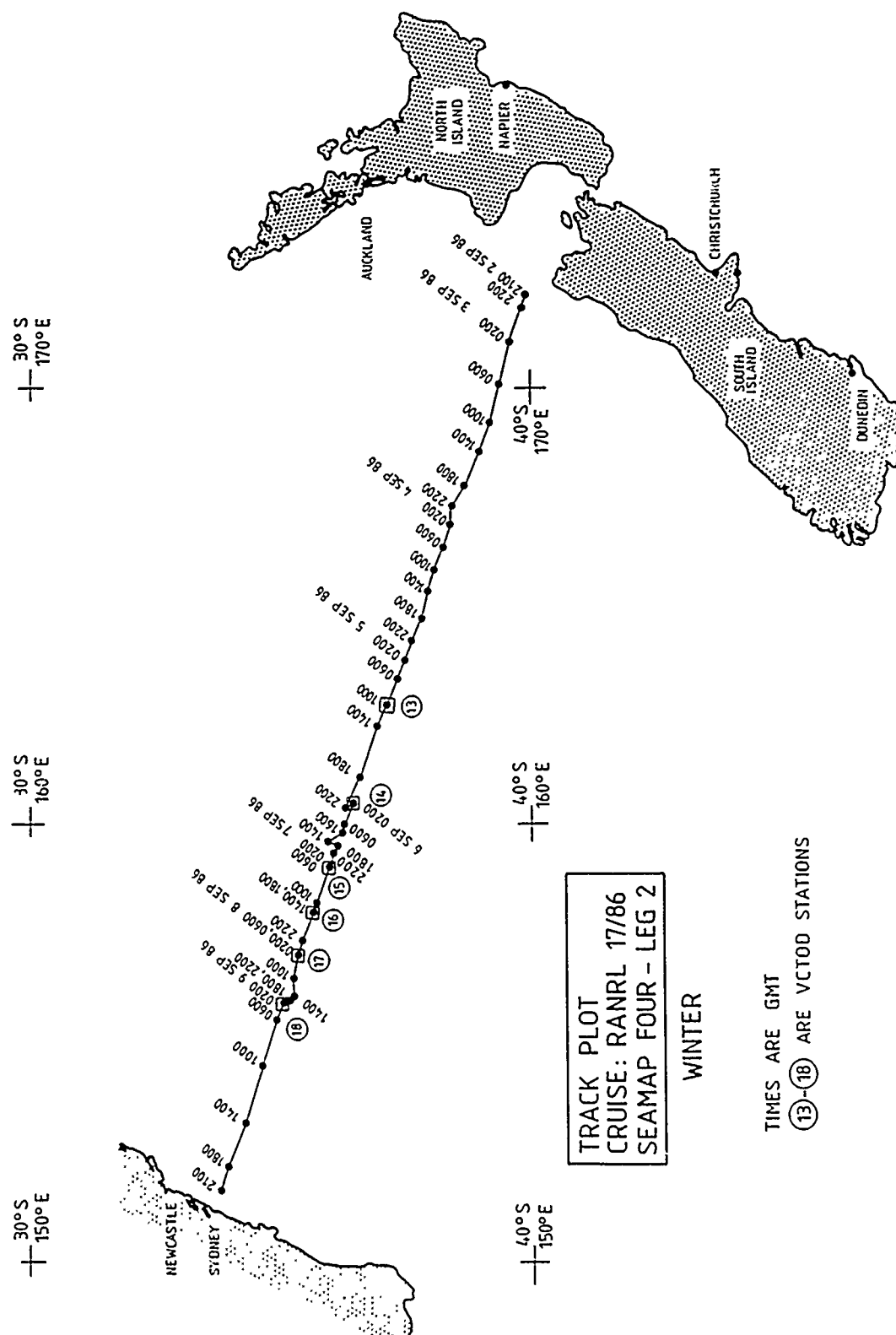


Figure 85. Track plot and oceanographic station positions for SEAMAP 4 (RANRL 17/86). Leg two winter survey on route B in the south west Pacific Ocean, 18 to 27 September 1986

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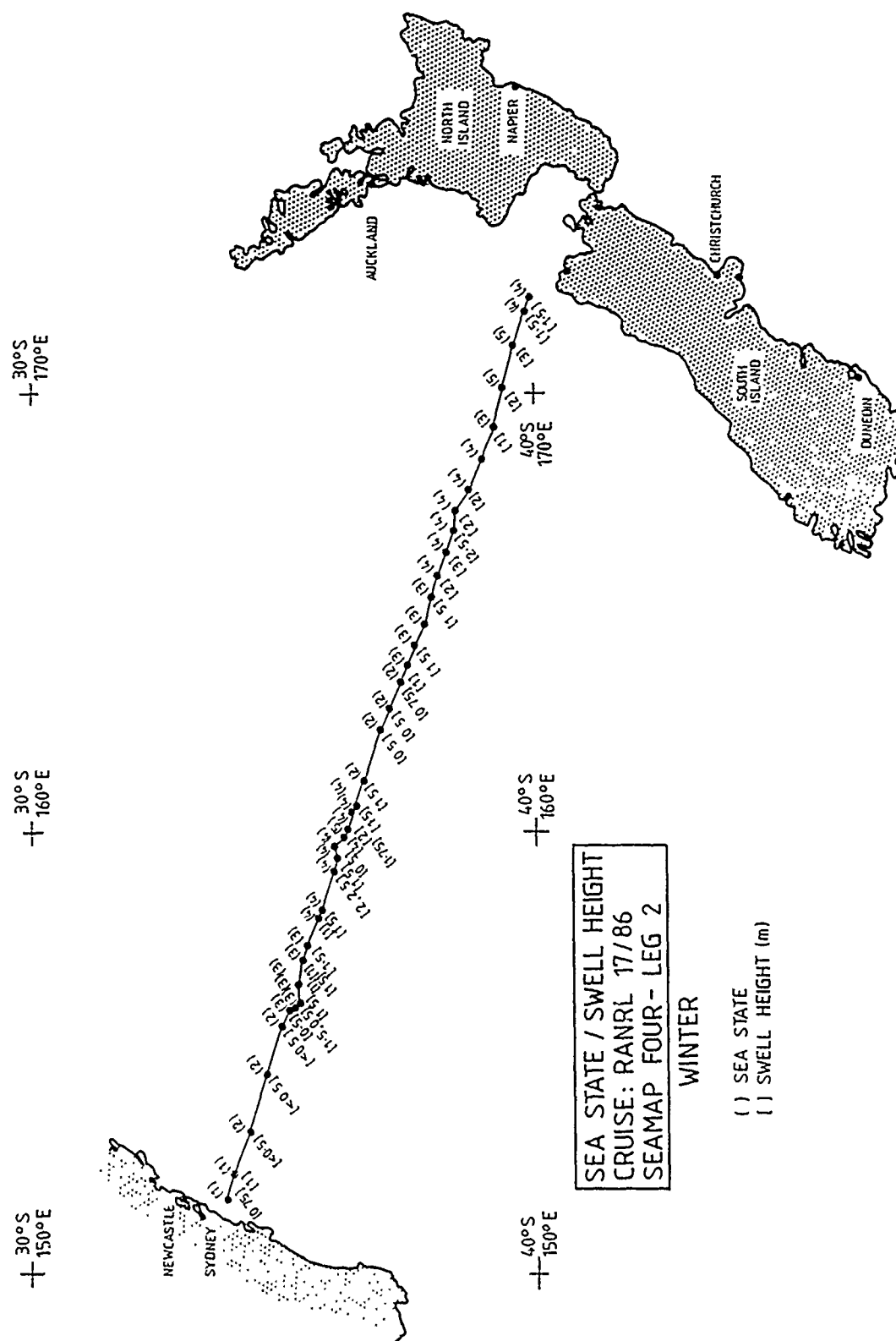


Figure 86. Sea state and swell height for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

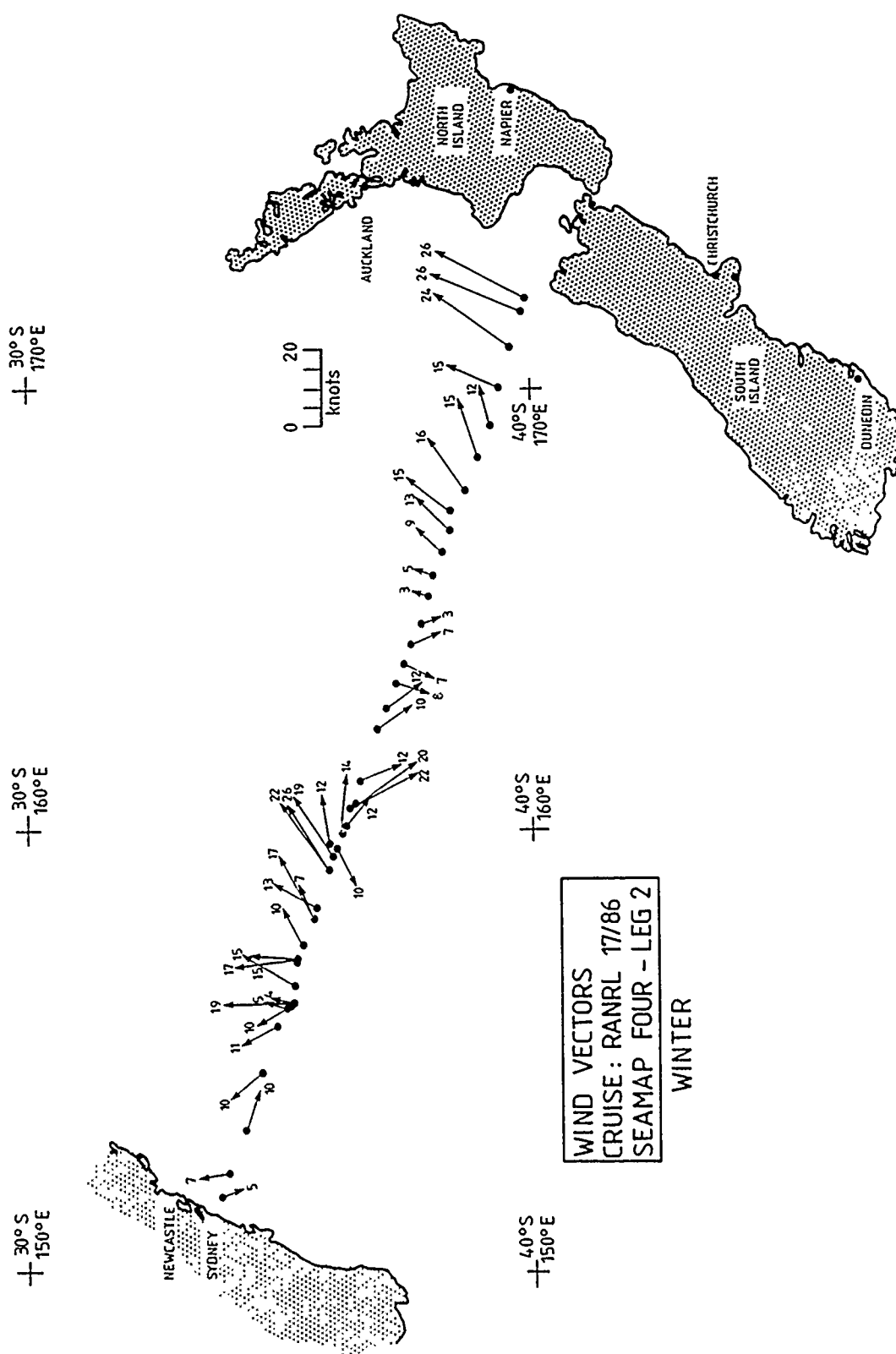


Figure 87. Wind vectors for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

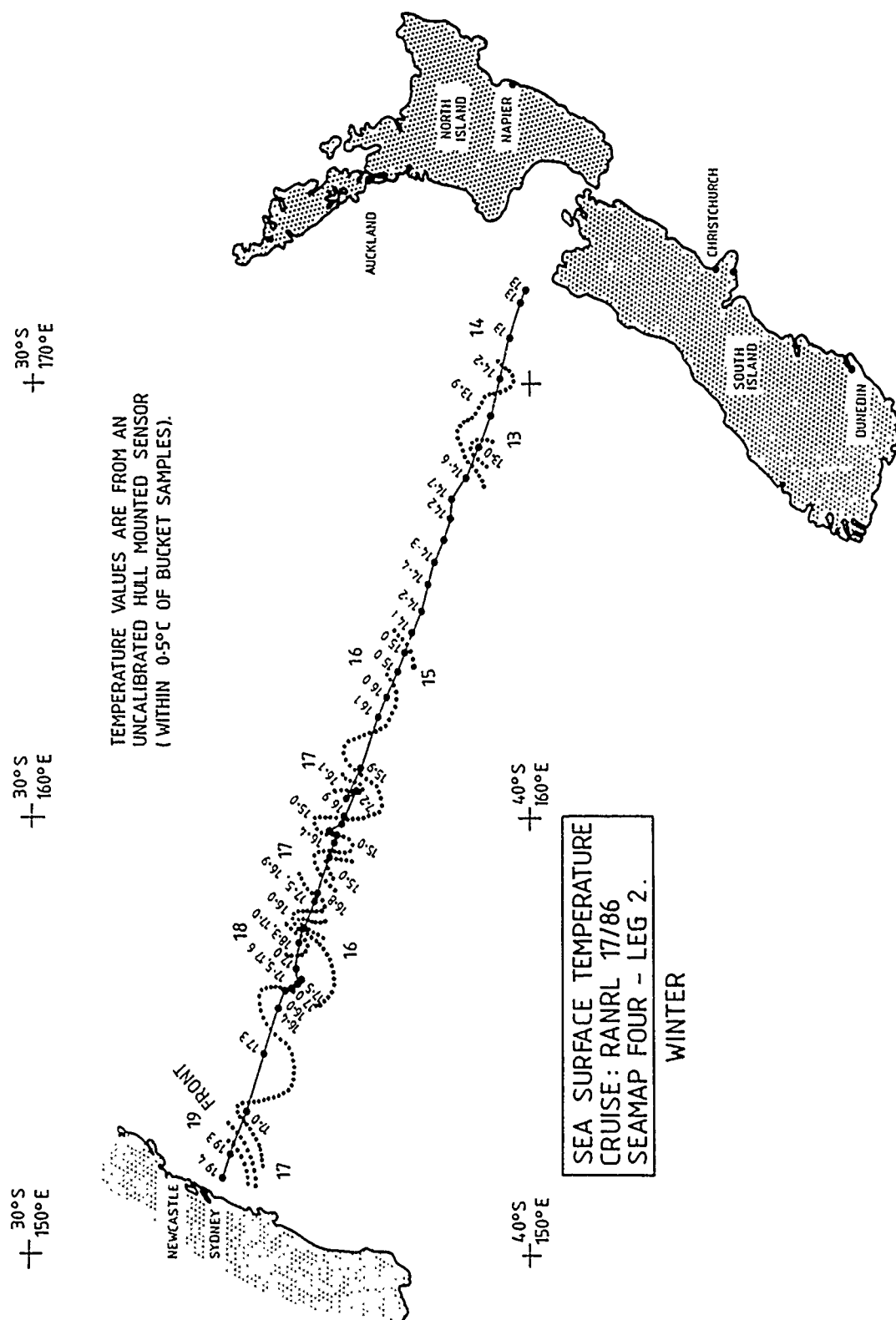


Figure 88. Sea surface temperature for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86). Also see figure 90 for surface bucket values

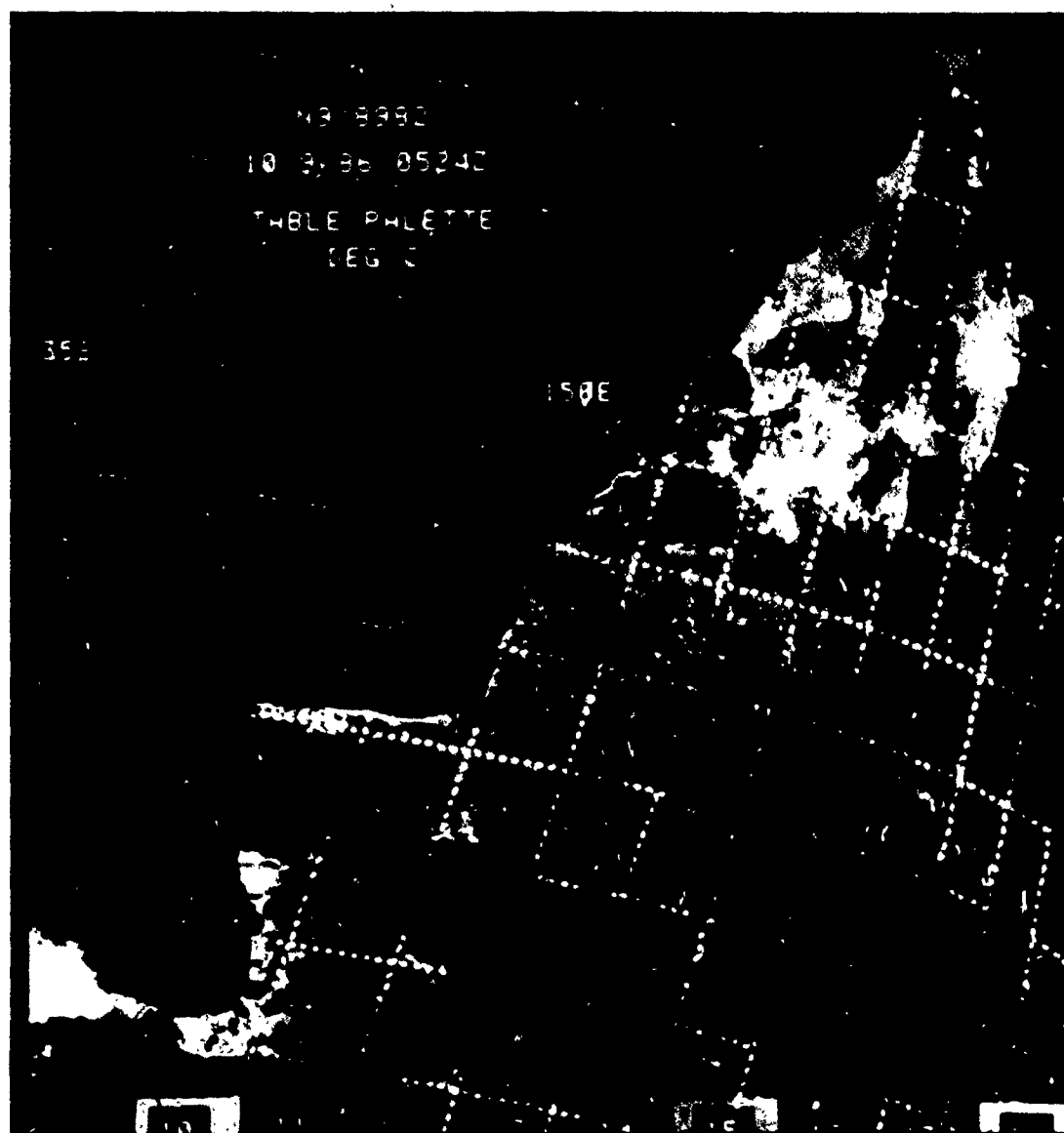


Figure 89. Sea surface temperature contours derived by CSIRO Division of Atmospheric Research, Aspendale Victoria from satellite data for 10 September 1986. Coinciding with sections of SEAMAP 4 winter survey (RANRL 17/86) route A. (Also see figure 78 for Sea surface temperature contours derived by Royal Meteorological Centre Wellington, New Zealand from satellite data for 1, 8 September 1986)

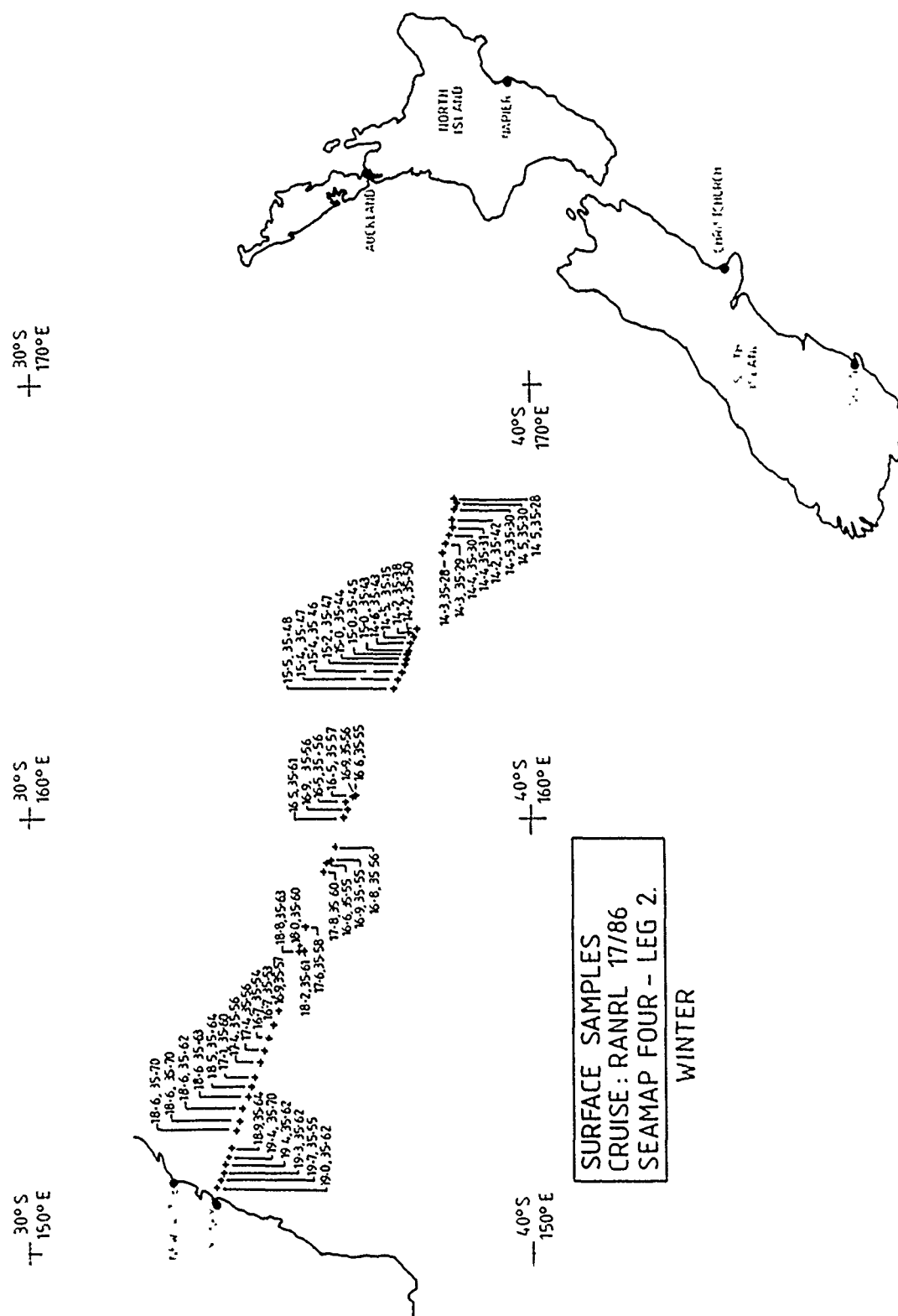


Figure 90. Sea surface salinity values for SEAMAP route B in winter 1986 on survey SEAMAP 4 (RANRL 17/86)

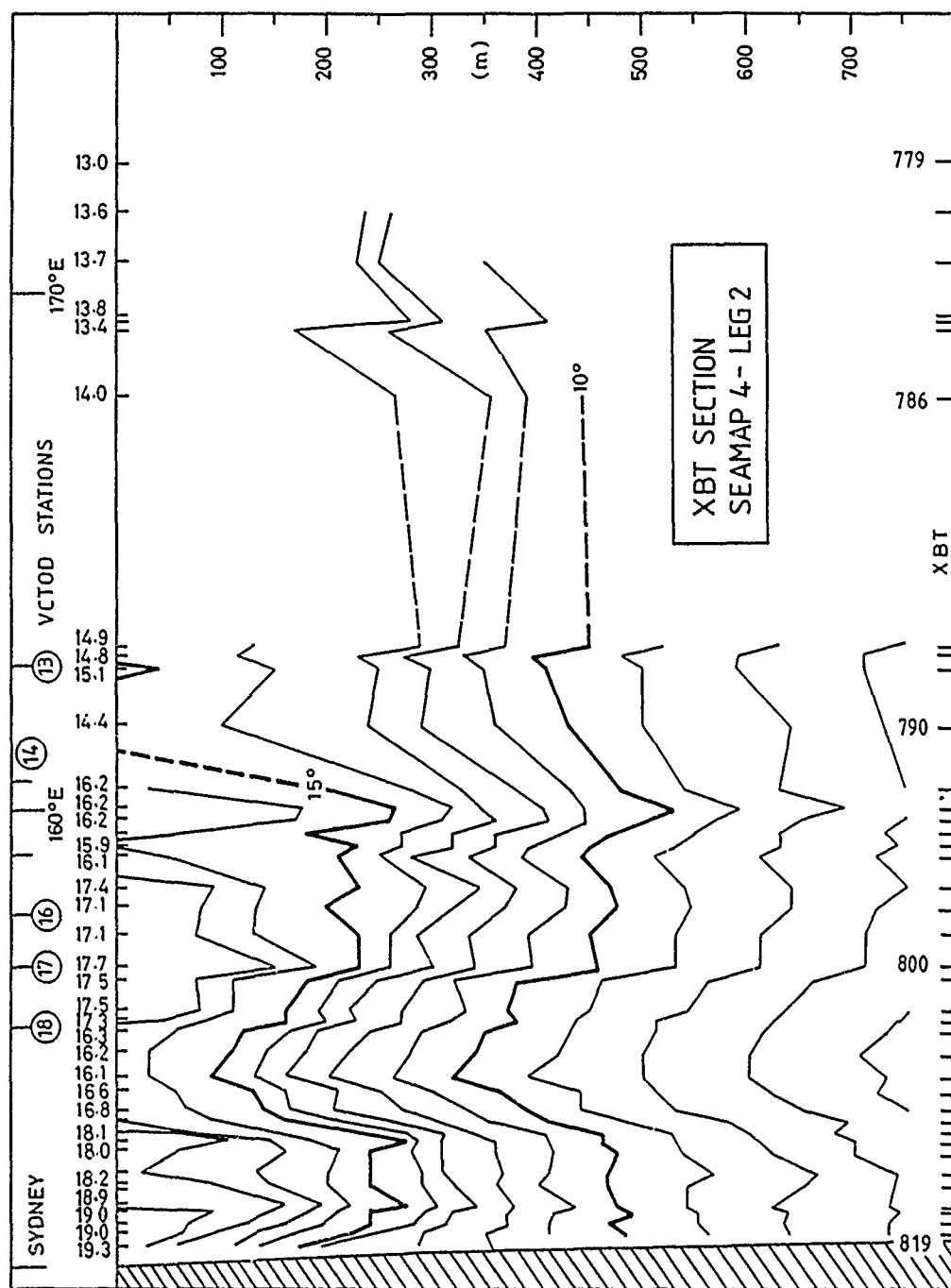


Figure 91. XBT temperature section from Cook Strait To Sydney for 2 to 9 September 1986.
Winter survey SEAMAP 4 (RANRL 17/86) route B

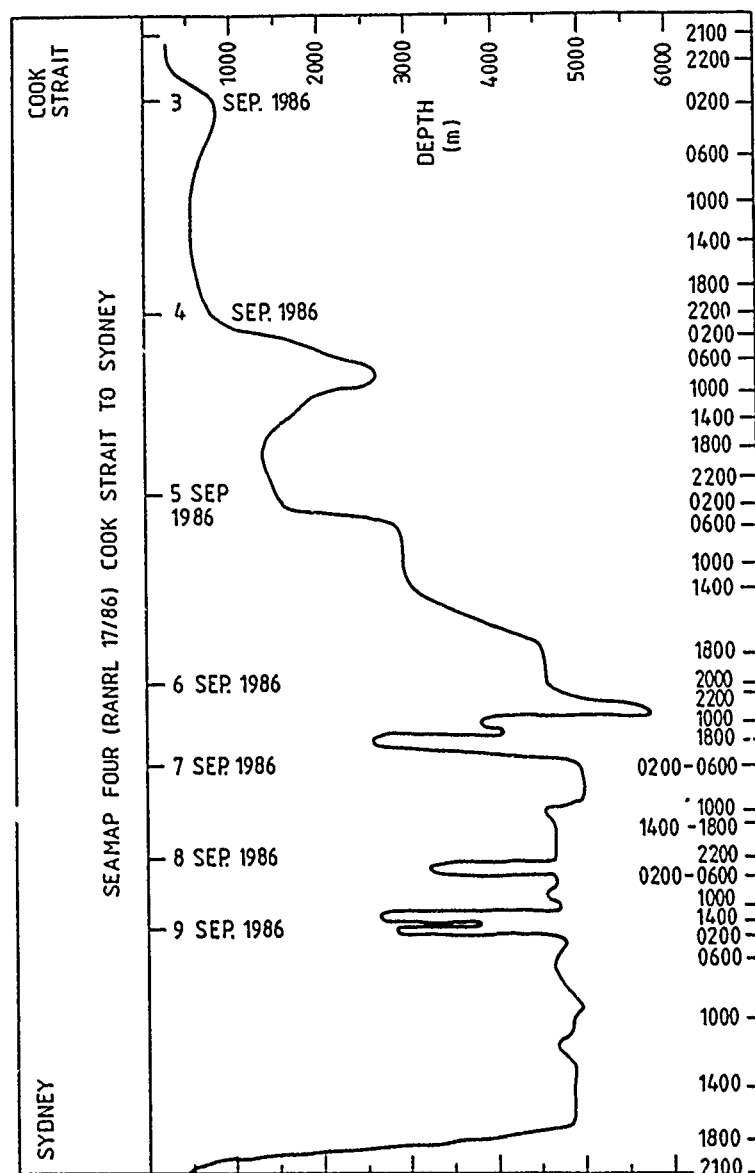


Figure 92. Bathymetry from Cook Strait to Sydney for 2 to 9 September 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B

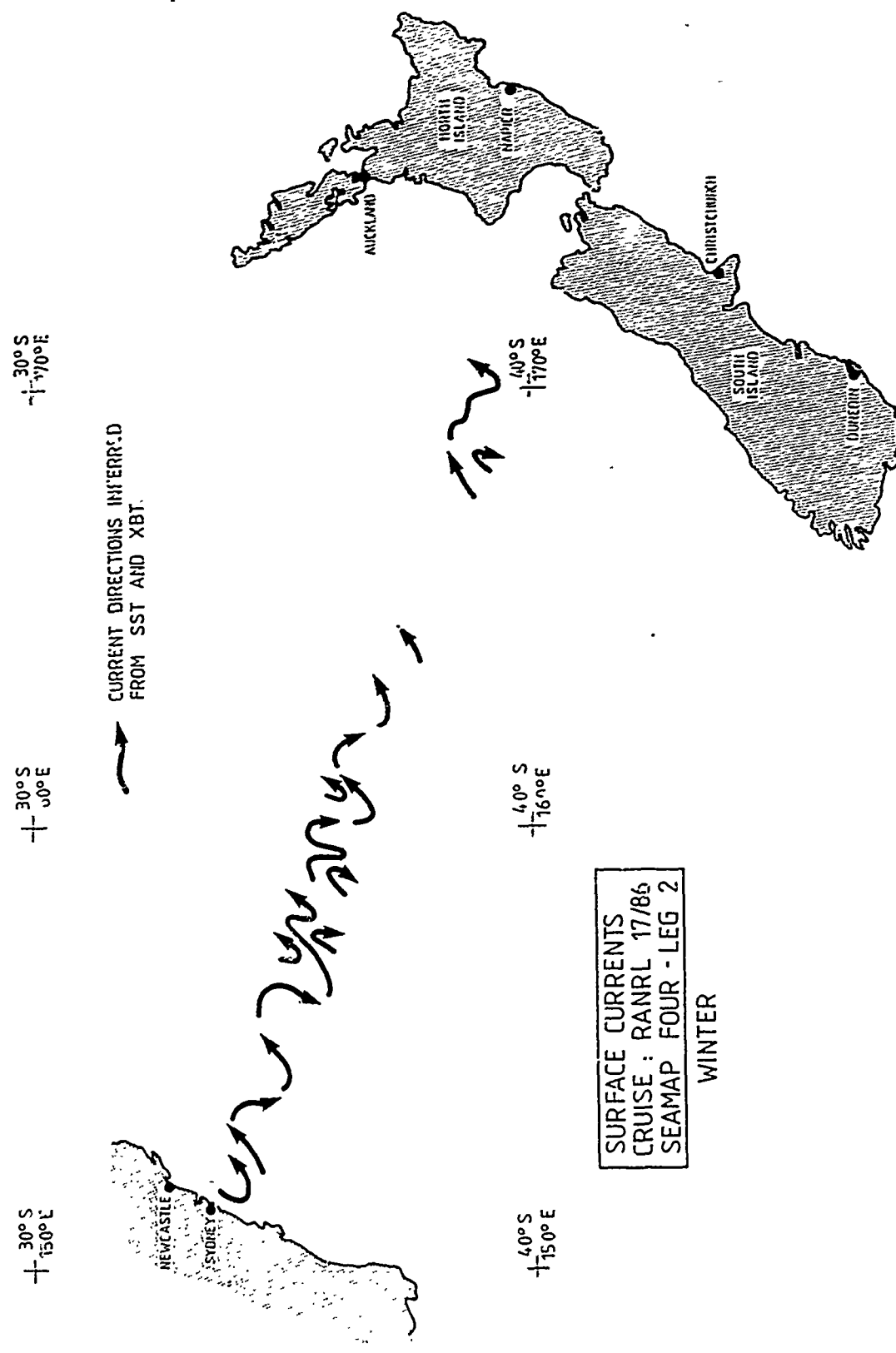


Figure 93. Surface current directions inferred from VCTOD, XBT and sea surface temperature data, 2 to 9 September 1986. Winter survey SEAMAP 4 (RANRL 17/86) route B

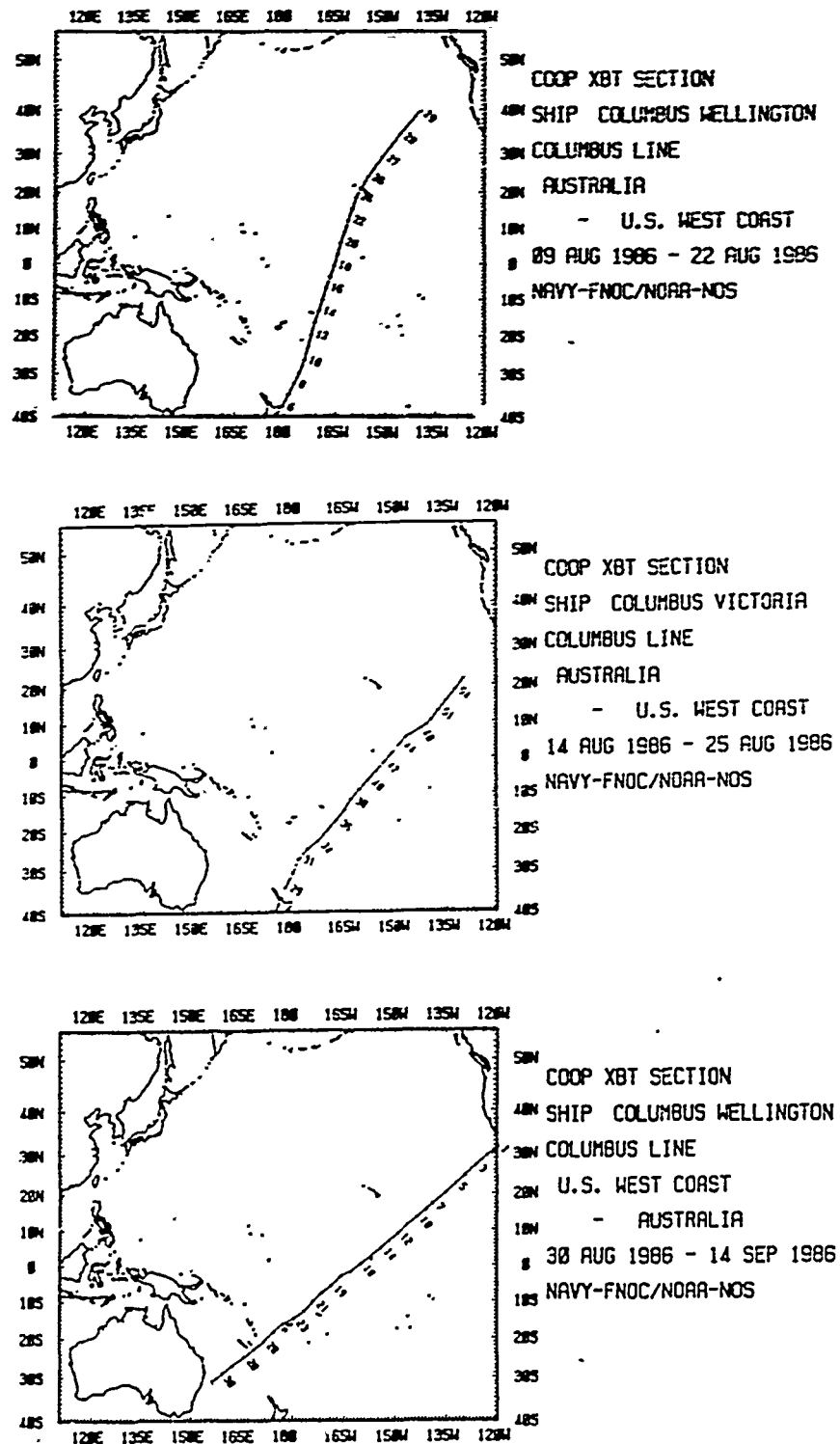


Figure 94. Tracks of vessels in the CSIRO merchant ship XBT programme in the south west Pacific Ocean for late September and October 1986. Coinciding with the period of winter survey SEAMAP 4 (RANRL 17/86) route B

Deep Nansen bottle				Surface bucket		
Stn	Sample depth (m)	Temperature	Salinity	S	T	Bottom depth (m)
1	4798	1.194 $\pm$ 0.001		35.657	-	4841
2				35.668	18.3	4840
3	4719	1.179	34.728	35.668	18.7	4880
4	4842	1.190 $\pm$ 0.002	34.728	35.624	17.2	4880
5				35.45	14.6	1470
6	2126	2.24 $\pm$ 0.01	34.69	35.44	14.4	2190
7				35.41	14.3	597
8				35.41	14.1	540
9	819	6.56 $\pm$ 0.01	34.51	35.37	13.9	848
10	621	8.80 $\pm$ 0.01	34.67	35.38	13.9	648
11	228		35.260	35.185	13.4	258
12	90(?)	Material in bottle	35.176	35.048	13.3	103
13	2744	1.595 $\pm$ 0.010	34.720	35.505	15.4	2862
14	4515	1.152 $\pm$ 0.02	34.710	35.551	16.2	4780
15	4178	1.155 $\pm$ 0.003	34.712	35.599	16.25	4332
16	4640	1.101 $\pm$ 0.002	34.710	35.666	17.05	4674
17	4607	1.155 $\pm$ 0.001	34.713	35.662	18.2	4690
18	4627	1.128 $\pm$ 0.002		35.638	17.3	4693

Deep Nansen bottle and surface bucket sample temperature and salinities taken at VCTOD stations for winter survey SEAMAP 4 (RANRL 17/86) route B. The Nansen bottle was placed on the VCTOD wire, about 2 m above the sensors.

LISTINGS AND PROFILES FOR 18 VCTOD STATIONS OCCUPIED ON WINTER SURVEY SEAMAP 4 (RANRL 17/86) ARE SHOWN ON PAGES 178 TO 187.

OVERPLOTS OF TEMPERATURE PROFILES TO 500 m ARE SHOWN ON PAGE 187.

Text continued on page 188

SHIP : HNS COCK - Fleesey
 STATION NUMBER : 1 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 19-AUG-1986 (DAY NUMBER 231)
 START TIME : 0553 GMT - 2
 CRUISE : CR17/86
 POSITION : 34:12.665 152:31.506
 CUST DEPTH : 4500 METRES
 BOTTOM DEPTH : 4842 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	STA	G.A.	Sound	Pop.Temp
10.0	9.9	17.492	0.000	0.000	0.00	0.000	1515.84	17.49
20.0	19.9	17.491	0.000	0.000	0.00	0.000	1515.80	17.49
30.0	29.8	17.469	0.000	0.000	0.00	0.000	1515.74	17.46
40.0	39.7	17.452	0.000	0.000	0.00	0.000	1515.52	17.45
50.0	49.6	17.440	0.000	0.000	0.00	0.000	1515.73	17.43
60.0	59.5	17.430	0.000	0.000	0.00	0.000	1515.85	17.42
70.0	69.5	17.413	0.000	0.000	0.00	0.000	1515.99	17.40
80.0	79.4	17.395	0.000	0.000	0.00	0.000	1516.11	17.38
90.0	89.3	17.370	0.000	0.000	0.00	0.000	1516.24	17.35
100.0	99.3	17.360	0.000	0.000	0.00	0.000	1516.36	17.34
110.0	109.1	17.337	0.000	0.000	0.00	0.000	1516.63	17.32
120.0	119.0	16.843	0.000	0.000	0.00	0.000	1515.24	16.82
130.0	128.9	16.249	0.000	0.000	0.00	0.000	1513.79	16.22
140.0	138.8	16.009	0.000	0.000	0.00	0.000	1513.40	15.99
150.0	148.7	15.504	0.000	0.000	0.00	0.000	1512.09	15.47
160.0	158.6	14.893	0.000	0.000	0.00	0.000	1510.66	14.94
170.0	168.5	14.274	0.000	0.000	0.00	0.000	1510.27	14.69
180.0	178.4	14.217	0.000	0.000	0.00	0.000	1508.92	14.16
190.0	188.3	13.826	0.000	0.000	0.00	0.000	1507.92	13.79
200.0	198.2	13.429	0.000	0.000	0.00	0.000	1506.86	13.39
210.0	208.1	13.112	0.000	0.000	0.00	0.000	1506.10	13.07
220.0	218.0	12.713	0.000	0.000	0.00	0.000	1505.05	12.67
230.0	227.9	12.279	0.000	0.000	0.00	0.000	1503.91	12.27
240.0	237.8	11.874	0.000	0.000	0.00	0.000	1503.17	11.83
250.0	247.7	11.454	0.000	0.000	0.00	0.000	1502.35	11.60
260.0	257.6	11.082	0.000	0.000	0.00	0.000	1500.87	11.13
270.0	267.5	10.774	0.000	0.000	0.00	0.000	1499.75	10.72
280.0	277.4	10.299	0.000	0.000	0.00	0.000	1499.37	10.24
290.0	287.3	9.887	0.000	0.000	0.00	0.000	1497.15	9.83
300.0	297.2	9.613	0.000	0.000	0.00	0.000	1496.45	9.56
310.0	307.1	9.000	0.000	0.000	0.00	0.000	1494.95	8.94
320.0	317.0	8.401	0.000	0.000	0.00	0.000	1493.47	8.34
330.0	326.9	7.442	0.000	0.000	0.00	0.000	1491.34	7.37
340.0	336.8	6.687	0.000	0.000	0.00	0.000	1490.03	6.61
350.0	346.7	5.950	0.000	0.000	0.00	0.000	1488.75	5.87
360.0	356.6	5.376	0.000	0.000	0.00	0.000	1489.07	5.29
370.0	366.5	4.882	0.000	0.000	0.00	0.000	1487.74	4.79
380.0	376.4	4.381	0.000	0.000	0.00	0.000	1487.32	4.29
390.0	386.3	3.927	0.000	0.000	0.00	0.000	1487.12	3.83
400.0	396.2	3.513	0.000	0.000	0.00	0.000	1487.50	3.51
410.0	406.1	3.214	0.000	0.000	0.00	0.000	1487.50	3.10
420.0	416.0	3.006	0.000	0.000	0.00	0.000	1486.28	2.89
430.0	425.9	2.777	0.000	0.000	0.00	0.000	1487.01	2.65
440.0	435.8	2.639	0.000	0.000	0.00	0.000	1490.08	2.51
450.0	445.7	2.531	0.000	0.000	0.00	0.000	1491.30	2.43
460.0	455.6	2.418	0.000	0.000	0.00	0.000	1492.50	2.29
470.0	465.5	2.310	0.000	0.000	0.00	0.000	1493.47	2.19
480.0	475.4	2.266	0.000	0.000	0.00	0.000	1495.25	2.11
490.0	485.3	2.181	0.000	0.000	0.00	0.000	1496.54	2.02
500.0	495.2	2.128	0.000	0.000	0.00	0.000	1498.00	1.95
510.0	505.1	2.057	0.000	0.000	0.00	0.000	1499.39	1.88
520.0	515.0	2.018	0.000	0.000	0.00	0.000	1500.93	1.83

SHIP : HNS COCK - Fleesey
 STATION NUMBER : 2 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 19-AUG-1986 (DAY NUMBER 231)
 START TIME : 0553 GMT - 2
 CRUISE : CR17/86
 POSITION : 34:12.665 152:31.506
 CUST DEPTH : 4500 METRES
 BOTTOM DEPTH : 4842 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	STA	G.A.	Sound	Pop.Temp
10.0	9.9	18.091	0.000	0.000	0.00	0.000	1516.98	18.09
20.0	19.9	18.089	0.000	0.000	0.00	0.000	1517.13	18.09
30.0	29.8	18.068	0.000	0.000	0.00	0.000	1517.38	18.08
40.0	39.7	18.068	0.000	0.000	0.00	0.000	1517.45	18.08
50.0	49.6	18.078	0.000	0.000	0.00	0.000	1517.63	18.07
60.0	59.5	17.952	0.000	0.000	0.00	0.000	1517.36	17.94
70.0	69.5	17.832	0.000	0.000	0.00	0.000	1517.24	17.82
80.0	79.4	17.752	0.000	0.000	0.00	0.000	1517.13	17.74
90.0	89.3	17.691	0.000	0.000	0.00	0.000	1517.15	17.68
100.0	99.3	17.664	0.000	0.000	0.00	0.000	1517.24	17.65
110.0	109.1	17.603	0.000	0.000	0.00	0.000	1517.36	17.58
120.0	119.0	17.555	0.000	0.000	0.00	0.000	1517.55	17.53
130.0	128.9	17.476	0.000	0.000	0.00	0.000	1517.62	17.45
140.0	138.8	17.396	0.000	0.000	0.00	0.000	1517.73	17.37
150.0	148.7	17.310	0.000	0.000	0.00	0.000	1517.01	17.08
160.0	158.6	17.100	0.000	0.000	0.00	0.000	1515.00	16.29
170.0	168.5	16.733	0.000	0.000	0.00	0.000	1513.92	15.84
180.0	178.4	16.323	0.000	0.000	0.00	0.000	1512.88	15.40
190.0	188.3	15.879	0.000	0.000	0.00	0.000	1512.24	15.10
200.0	198.2	15.442	0.000	0.000	0.00	0.000	1511.22	14.70
210.0	208.1	15.144	0.000	0.000	0.00	0.000	1510.01	14.23
220.0	218.0	14.741	0.000	0.000	0.00	0.000	1508.87	13.78
230.0	227.9	14.278	0.000	0.000	0.00	0.000	1507.43	13.25
240.0	237.8	13.829	0.000	0.000	0.00	0.000	1506.57	12.91
250.0	247.7	13.305	0.000	0.000	0.00	0.000	1505.25	12.45
260.0	257.6	12.960	0.000	0.000	0.00	0.000	1504.26	12.10
270.0	267.5	12.501	0.000	0.000	0.00	0.000	1503.46	11.74
280.0	277.4	12.156	0.000	0.000	0.00	0.000	1502.16	11.32
290.0	287.3	11.799	0.000	0.000	0.00	0.000	1500.97	10.88
300.0	297.2	11.377	0.000	0.000	0.00	0.000	1499.53	10.41
310.0	307.1	10.940	0.000	0.000	0.00	0.000	1497.97	9.94
320.0	317.0	10.469	0.000	0.000	0.00	0.000	1496.29	9.47
330.0	326.9	9.884	0.000	0.000	0.00	0.000	1494.37	8.99
340.0	336.8	8.659	0.000	0.000	0.00	0.000	1492.59	7.70
350.0	346.7	7.774	0.000	0.000	0.00	0.000	1490.47	6.74
360.0	356.6	6.814	0.000	0.000	0.00	0.000	1489.53	6.09
370.0	366.5	6.173	0.000	0.000	0.00	0.000	1488.91	5.51
380.0	376.4	5.599	0.000	0.000	0.00	0.000	1488.29	4.94
390.0	386.3	5.036	0.000	0.000	0.00	0.000	1487.82	4.42
400.0	396.2	4.519	0.000	0.000	0.00	0.000	1487.80	3.99
410.0	406.1	4.097	0.000	0.000	0.00	0.000	1487.70	3.58
420.0	416.0	3.683	0.000	0.000	0.00	0.000	1488.03	3.24
430.0	425.9	3.351	0.000	0.000	0.00	0.000	1488.40	2.94
440.0	435.8	3.060	0.000	0.000	0.00	0.000	1489.35	2.76
450.0	445.7	2.732	0.000	0.000	0.00	0.000	1490.44	2.60
460.0	455.6	2.582	0.000	0.000	0.00	0.000	1491.45	2.45
470.0	465.5	2.483	0.000	0.000	0.00	0.000	1492.73	2.34
480.0	475.4	2.353	0.000	0.000	0.00	0.000	1493.86	2.20
490.0	485.3	2.287	0.000	0.000	0.00	0.000	1495.11	2.13
500.0	495.2	2.191	0.000	0.000	0.00	0.000	1496.56	2.02
510.0	505.1	2.113	0.000	0.000	0.00	0.000	1497.89	1.94
520.0	515.0	2.047	0.000	0.000	0.00	0.000	1499.37	1.87
530.0	524.9	1.989	0.000	0.000	0.00	0.000	1500.76	1.80

2700.0	2663.6	1.974	0.000	0.000	0.00	0.000	1502.43	1.78
2800.0	2761.6	1.796	0.000	0.000	0.00	0.000	1503.87	1.73
2900.0	2859.5	1.814	0.000	0.000	0.00	0.000	1505.18	1.50
3000.0	2957.5	1.734	0.000	0.000	0.00	0.000	1506.52	1.51
3100.0	3055.3	1.611	0.000	0.000	0.00	0.000	1507.83	1.41
3200.0	3153.2	1.563	0.000	0.000	0.00	0.000	1509.21	1.33
3300.0	3251.0	1.481	0.000	0.000	0.00	0.000	1510.57	1.23
3400.0	3348.7	1.412	0.000	0.000	0.00	0.000	1511.97	1.16
3500.0	3446.4	1.365	0.000	0.000	0.00	0.000	1513.50	1.10
3600.0	3544.1	1.337	0.000	0.000	0.00	0.000	1514.99	1.04
3700.0	3641.7	1.254	0.000	0.000	0.00	0.000	1516.49	0.98
3800.0	3739.3	1.236	0.000	0.000	0.00	0.000	1518.11	0.95
3900.0	3836.8	1.216	0.000	0.000	0.00	0.000	1519.75	0.92
4000.0	3934.3	1.200	0.000	0.000	0.00	0.000	1521.39	0.89
4100.0	4031.7	1.191	0.000	0.000	0.00	0.000	1523.11	0.87
4200.0	4129.1	1.189	0.000	0.000	0.00	0.000	1524.84	0.86
4300.0	4226.5	1.186	0.000	0.000	0.00	0.000	1526.55	0.8

SHIP : HNS COX - Plessey
 STATION NUMBER : 3 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 19-AUG-1986 (DAY NUMBER 231)
 START TIME : 1345 GMT - 2
 CRUISE : C017/86
 POSITION : 34:49.000 154:06.000
 CWT DEPTH : 4700 METRES
 BOTTOM DEPTH : 4877 METRES

PRESS	DEPTH	TDP	SAL	SIOW-T	SW	G.A.	Sound	Pot.Temp
12.0	9.9	18.859	0.000	0.000	0.00	0.000	1519.24	18.87
20.0	19.9	18.874	0.000	0.000	0.00	0.000	1519.35	18.87
30.0	29.8	18.877	0.000	0.000	0.00	0.000	1519.50	18.87
40.0	39.7	18.877	0.000	0.000	0.00	0.000	1519.72	18.87
50.0	49.5	18.877	0.000	0.000	0.00	0.000	1519.91	18.87
60.0	59.6	18.880	0.000	0.000	0.00	0.000	1520.06	18.87
70.0	69.5	18.869	0.000	0.000	0.00	0.000	1520.21	18.86
80.0	79.4	18.867	0.000	0.000	0.00	0.000	1520.37	18.85
90.0	89.3	18.850	0.000	0.000	0.00	0.000	1520.43	18.83
100.0	99.3	18.859	0.000	0.000	0.00	0.000	1520.63	18.84
120.0	119.1	18.818	0.000	0.000	0.00	0.000	1520.86	18.80
140.0	138.9	18.717	0.000	0.000	0.00	0.000	1520.87	18.69
160.0	158.0	18.124	0.000	0.000	0.00	0.000	1519.48	18.10
180.0	178.6	17.669	0.000	0.000	0.00	0.000	1518.40	17.64
200.0	198.5	17.156	0.000	0.000	0.00	0.000	1517.16	17.12
220.0	218.3	16.745	0.000	0.000	0.00	0.000	1516.25	16.71
240.0	238.1	16.390	0.000	0.000	0.00	0.000	1515.49	16.34
260.0	258.0	16.080	0.000	0.000	0.00	0.000	1514.91	16.04
280.0	277.8	15.725	0.000	0.000	0.00	0.000	1514.03	15.66
300.0	297.6	15.243	0.000	0.000	0.00	0.000	1512.78	15.20
320.0	317.5	14.536	0.000	0.000	0.00	0.000	1511.06	14.59
340.0	337.3	14.043	0.000	0.000	0.00	0.000	1509.51	13.99
360.0	357.1	13.641	0.000	0.000	0.00	0.000	1508.36	13.59
380.0	376.9	13.274	0.000	0.000	0.00	0.000	1507.64	13.22
400.0	396.7	12.715	0.000	0.000	0.00	0.000	1505.94	12.66
420.0	416.6	12.445	0.000	0.000	0.00	0.000	1505.39	12.39
440.0	436.4	12.165	0.000	0.000	0.00	0.000	1504.71	12.11
460.0	456.2	11.719	0.000	0.000	0.00	0.000	1503.41	11.66
480.0	476.0	11.330	0.000	0.000	0.00	0.000	1502.34	11.27
500.0	495.8	10.901	0.000	0.000	0.00	0.000	1501.11	10.84
520.0	515.6	9.783	0.000	0.000	0.00	0.000	1497.71	9.70
540.0	535.4	9.211	0.000	0.000	0.00	0.000	1496.53	9.15
560.0	554.8	8.727	0.000	0.000	0.00	0.000	1494.02	8.64
580.0	574.6	8.273	0.000	0.000	0.00	0.000	1492.07	8.14
600.0	594.4	7.724	0.000	0.000	0.00	0.000	1490.05	7.62
620.0	614.2	7.224	0.000	0.000	0.00	0.000	1488.84	7.19
640.0	634.0	6.864	0.000	0.000	0.00	0.000	1488.24	6.76
660.0	653.8	6.469	0.000	0.000	0.00	0.000	1487.61	6.37
680.0	673.6	6.142	0.000	0.000	0.00	0.000	1487.08	6.04
700.0	693.4	5.826	0.000	0.000	0.00	0.000	1486.11	5.71
720.0	713.2	5.526	0.000	0.000	0.00	0.000	1485.15	5.41
740.0	733.0	5.243	0.000	0.000	0.00	0.000	1484.18	5.11
760.0	752.8	4.978	0.000	0.000	0.00	0.000	1483.11	4.81
780.0	772.6	4.731	0.000	0.000	0.00	0.000	1482.07	4.57
800.0	792.4	4.499	0.000	0.000	0.00	0.000	1481.06	4.34
820.0	812.2	4.282	0.000	0.000	0.00	0.000	1480.05	4.11
840.0	832.0	4.079	0.000	0.000	0.00	0.000	1479.05	3.88
860.0	851.8	3.889	0.000	0.000	0.00	0.000	1478.05	3.65
880.0	871.6	3.711	0.000	0.000	0.00	0.000	1477.05	3.42
900.0	891.4	3.544	0.000	0.000	0.00	0.000	1476.05	3.19
920.0	911.2	3.389	0.000	0.000	0.00	0.000	1475.05	2.96
940.0	931.0	3.245	0.000	0.000	0.00	0.000	1474.05	2.73
960.0	950.8	3.112	0.000	0.000	0.00	0.000	1473.05	2.50
980.0	970.6	2.989	0.000	0.000	0.00	0.000	1472.05	2.27
1000.0	990.4	2.876	0.000	0.000	0.00	0.000	1471.05	2.04
1020.0	1010.2	2.772	0.000	0.000	0.00	0.000	1470.05	1.81
1040.0	1030.0	2.678	0.000	0.000	0.00	0.000	1469.05	1.58
1060.0	1049.8	2.593	0.000	0.000	0.00	0.000	1468.05	1.35
1080.0	1069.6	2.517	0.000	0.000	0.00	0.000	1467.05	1.12
1100.0	1089.4	2.449	0.000	0.000	0.00	0.000	1466.05	0.89
1120.0	1109.2	2.389	0.000	0.000	0.00	0.000	1465.05	0.66
1140.0	1129.0	2.336	0.000	0.000	0.00	0.000	1464.05	0.43
1160.0	1148.8	2.289	0.000	0.000	0.00	0.000	1463.05	0.20
1180.0	1168.6	2.247	0.000	0.000	0.00	0.000	1462.05	0.00
1200.0	1188.4	2.209	0.000	0.000	0.00	0.000	1461.05	0.00
1220.0	1208.2	2.175	0.000	0.000	0.00	0.000	1460.05	0.00
1240.0	1228.0	2.144	0.000	0.000	0.00	0.000	1459.05	0.00
1260.0	1247.8	2.115	0.000	0.000	0.00	0.000	1458.05	0.00
1280.0	1267.6	2.091	0.000	0.000	0.00	0.000	1457.05	0.00
1300.0	1287.4	2.068	0.000	0.000	0.00	0.000	1456.05	0.00
1320.0	1307.2	2.047	0.000	0.000	0.00	0.000	1455.05	0.00
1340.0	1327.0	2.028	0.000	0.000	0.00	0.000	1454.05	0.00
1360.0	1346.8	2.011	0.000	0.000	0.00	0.000	1453.05	0.00
1380.0	1366.6	1.996	0.000	0.000	0.00	0.000	1452.05	0.00
1400.0	1386.4	1.982	0.000	0.000	0.00	0.000	1451.05	0.00
1420.0	1406.2	1.969	0.000	0.000	0.00	0.000	1450.05	0.00
1440.0	1426.0	1.957	0.000	0.000	0.00	0.000	1449.05	0.00
1460.0	1445.8	1.945	0.000	0.000	0.00	0.000	1448.05	0.00
1480.0	1465.6	1.933	0.000	0.000	0.00	0.000	1447.05	0.00
1500.0	1485.4	1.921	0.000	0.000	0.00	0.000	1446.05	0.00
1520.0	1505.2	1.909	0.000	0.000	0.00	0.000	1445.05	0.00
1540.0	1525.0	1.897	0.000	0.000	0.00	0.000	1444.05	0.00
1560.0	1544.8	1.885	0.000	0.000	0.00	0.000	1443.05	0.00
1580.0	1564.6	1.873	0.000	0.000	0.00	0.000	1442.05	0.00
1600.0	1584.4	1.861	0.000	0.000	0.00	0.000	1441.05	0.00
1620.0	1604.2	1.849	0.000	0.000	0.00	0.000	1440.05	0.00
1640.0	1624.0	1.837	0.000	0.000	0.00	0.000	1439.05	0.00
1660.0	1643.8	1.825	0.000	0.000	0.00	0.000	1438.05	0.00
1680.0	1663.6	1.813	0.000	0.000	0.00	0.000	1437.05	0.00
1700.0	1683.4	1.801	0.000	0.000	0.00	0.000	1436.05	0.00
1720.0	1703.2	1.789	0.000	0.000	0.00	0.000	1435.05	0.00
1740.0	1723.0	1.777	0.000	0.000	0.00	0.000	1434.05	0.00
1760.0	1742.8	1.765	0.000	0.000	0.00	0.000	1433.05	0.00
1780.0	1762.6	1.753	0.000	0.000	0.00	0.000	1432.05	0.00
1800.0	1782.4	1.741	0.000	0.000	0.00	0.000	1431.05	0.00
1820.0	1802.2	1.729	0.000	0.000	0.00	0.000	1430.05	0.00
1840.0	1822.0	1.717	0.000	0.000	0.00	0.000	1429.05	0.00
1860.0	1841.8	1.705	0.000	0.000	0.00	0.000	1428.05	0.00
1880.0	1861.6	1.693	0.000	0.000	0.00	0.000	1427.05	0.00
1900.0	1881.4	1.681	0.000	0.000	0.00	0.000	1426.05	0.00
1920.0	1901.2	1.669	0.000	0.000	0.00	0.000	1425.05	0.00
1940.0	1921.0	1.657	0.000	0.000	0.00	0.000	1424.05	0.00
1960.0	1940.8	1.645	0.000	0.000	0.00	0.000	1423.05	0.00
1980.0	1960.6	1.633	0.000	0.000	0.00	0.000	1422.05	0.00
2000.0	1980.4	1.621	0.000	0.000	0.00	0.000	1421.05	0.00
2020.0	2000.2	1.609	0.000	0.000	0.00	0.000	1420.05	0.00
2040.0	2020.0	1.597	0.000	0.000	0.00	0.000	1419.05	0.00
2060.0	2039.8	1.585	0.000	0.000	0.00	0.000	1418.05	0.00
2080.0	2059.6	1.573	0.000	0.000	0.00	0.000	1417.05	0.00
2100.0	2079.4	1.561	0.000	0.000	0.00	0.000	1416.05	0.00
2120.0	2099.2	1.549	0.000	0.000	0.00	0.000	1415.05	0.00
2140.0	2119.0	1.537	0.000	0.000	0.00	0.000	1414.05	0.00
2160.0	2138.8	1.525	0.000	0.000	0.00	0.000	1413.05	0.00
2180.0	2158.6	1.513	0.000	0.000	0.00	0.000	1412.05	0.00
2200.0	2178.4	1.501	0.000	0.000	0.00	0.000	1411.05	0.00
2220.0	2198.2	1.489	0.000	0.000	0.00	0.000	1410.05	0.00
2240.0	2218.0	1.477	0.000	0.000	0.00	0.000	1409.05	0.00
2260.0	2237.8	1.465	0.000	0.000	0.00	0.000	1408.05	0.00
2280.0	2257.6	1.453	0.000	0.000	0.00	0.000	1407.05	0.00
2300.0	2277.4	1.441	0.000	0.000	0.00	0.000	1406.05	0.00
2320.0	2297.2	1.429	0.000	0.000	0.00	0.000	1405.05	0.00
2340.0	2317.0	1.417	0.000	0.000	0.00	0.000	1404.05	0.00
2360.0	2336.8	1.405	0.000	0.000	0.00	0.000	1403.05	0.00
2380.0	2356.6	1.393	0.000	0.000	0.00	0.000	1402.05	0.00
2400.0	2376.4	1.381	0.000	0.000	0.00	0.000	1401.05	0.00
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SHIP : HNS COOK - Plessey
STATION NUMBER : 5 (THROUGH THE CRUISE)
STATION NUMBER : 0 (THROUGH THE YEAR)
DATE : 26-AUG-1986 (DAY NUMBER 238)
START TIME : 0415 GMT - Z
CRUISE : CK17/86
POSITION : 38:00.00S 154:59.00E
CAST DEPTH : 1470 METRES
BOTTOM DEPTH : 1470 METRES

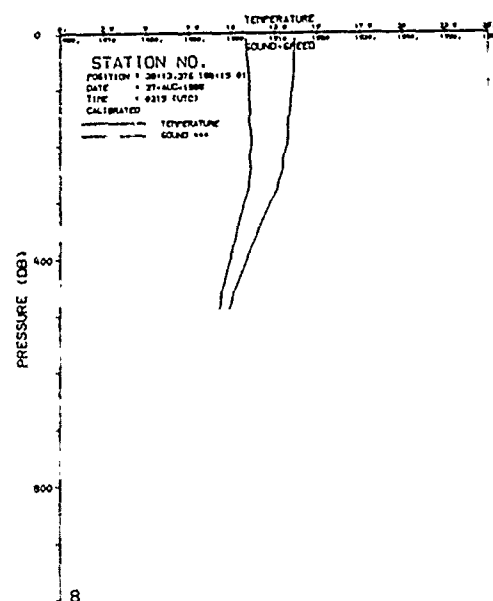
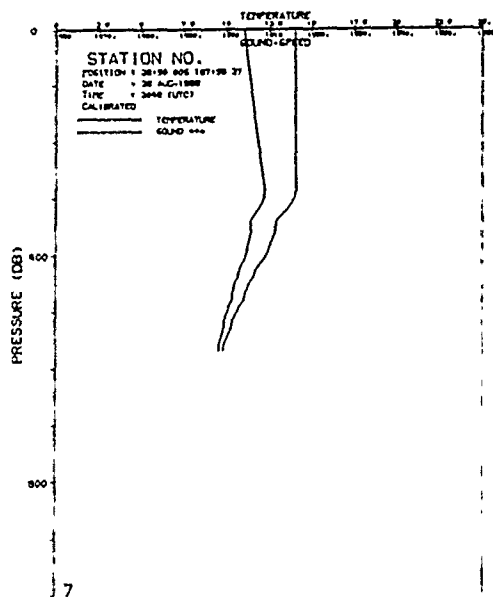
PRESS	DEPTH	TEMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
0.0	0.0	13.924	35.308	26.442	157.75	0.000	1503.96	13.92
10.0	9.9	13.932	35.395	26.508	151.72	0.155	1504.07	13.93
20.0	19.8	13.931	35.432	26.536	149.32	0.305	1504.23	13.93
30.0	29.8	13.931	35.444	26.545	148.75	0.454	1504.38	13.93
40.0	39.7	13.931	35.448	26.549	148.73	0.603	1504.60	13.93
50.0	49.6	13.928	35.448	26.549	148.94	0.752	1504.73	13.92
60.0	59.5	13.922	35.441	26.550	149.19	0.901	1504.83	13.89
70.0	69.5	13.875	35.441	26.555	148.96	1.050	1504.89	13.86
80.0	79.4	13.849	35.434	26.555	149.22	1.199	1504.93	13.84
90.0	89.3	13.831	35.434	26.559	149.13	1.348	1505.03	13.82
100.0	99.2	13.820	35.433	26.561	149.25	1.497	1505.17	13.81
110.0	109.1	13.800	35.434	26.565	149.37	1.796	1505.44	13.78
120.0	119.0	13.800	35.433	26.564	149.99	2.095	1505.74	13.78
130.0	128.9	13.743	35.403	26.553	151.61	2.397	1505.83	13.72
140.0	138.8	13.743	35.403	26.553	151.61	2.699	1505.83	13.72
150.0	148.7	13.743	35.403	26.553	151.61	2.999	1505.83	13.72
160.0	158.6	13.743	35.403	26.553	151.61	3.299	1505.83	13.72
170.0	168.5	13.743	35.403	26.553	151.61	3.599	1505.83	13.72
180.0	178.4	13.743	35.403	26.553	151.61	3.899	1505.83	13.72
190.0	188.3	13.743	35.403	26.553	151.61	4.199	1505.83	13.72
200.0	198.2	13.743	35.403	26.553	151.61	4.499	1505.83	13.72
210.0	208.1	13.743	35.403	26.553	151.61	4.799	1505.83	13.72
220.0	218.0	13.743	35.403	26.553	151.61	5.099	1505.83	13.72
230.0	227.9	13.743	35.403	26.553	151.61	5.399	1505.83	13.72
240.0	237.8	13.743	35.403	26.553	151.61	5.699	1505.83	13.72
250.0	247.7	13.743	35.403	26.553	151.61	5.999	1505.83	13.72
260.0	257.6	13.743	35.403	26.553	151.61	6.299	1505.83	13.72
270.0	267.5	13.743	35.403	26.553	151.61	6.599	1505.83	13.72
280.0	277.4	13.743	35.403	26.553	151.61	6.899	1505.83	13.72
290.0	287.3	13.743	35.403	26.553	151.61	7.199	1505.83	13.72
300.0	297.2	13.743	35.403	26.553	151.61	7.499	1505.83	13.72
310.0	307.1	13.743	35.403	26.553	151.61	7.799	1505.83	13.72
320.0	317.0	13.743	35.403	26.553	151.61	8.099	1505.83	13.72
330.0	326.9	13.743	35.403	26.553	151.61	8.399	1505.83	13.72
340.0	336.8	13.743	35.403	26.553	151.61	8.699	1505.83	13.72
350.0	346.7	13.743	35.403	26.553	151.61	8.999	1505.83	13.72
360.0	356.6	13.743	35.403	26.553	151.61	9.299	1505.83	13.72
370.0	366.5	13.743	35.403	26.553	151.61	9.599	1505.83	13.72
380.0	376.4	13.743	35.403	26.553	151.61	9.899	1505.83	13.72
390.0	386.3	13.743	35.403	26.553	151.61	10.199	1505.83	13.72
400.0	396.2	13.743	35.403	26.553	151.61	10.499	1505.83	13.72
410.0	406.1	13.743	35.403	26.553	151.61	10.799	1505.83	13.72
420.0	416.0	13.743	35.403	26.553	151.61	11.099	1505.83	13.72
430.0	425.9	13.743	35.403	26.553	151.61	11.399	1505.83	13.72
440.0	435.8	13.743	35.403	26.553	151.61	11.699	1505.83	13.72
450.0	445.7	13.743	35.403	26.553	151.61	11.999	1505.83	13.72
460.0	455.6	13.743	35.403	26.553	151.61	12.299	1505.83	13.72
470.0	465.5	13.743	35.403	26.553	151.61	12.599	1505.83	13.72
480.0	475.4	13.743	35.403	26.553	151.61	12.899	1505.83	13.72
490.0	485.3	13.743	35.403	26.553	151.61	13.199	1505.83	13.72
500.0	495.2	13.743	35.403	26.553	151.61	13.499	1505.83	13.72
510.0	505.1	13.743	35.403	26.553	151.61	13.799	1505.83	13.72
520.0	515.0	13.743	35.403	26.553	151.61	14.099	1505.83	13.72
530.0	524.9	13.743	35.403	26.553	151.61	14.399	1505.83	13.72
540.0	534.8	13.743	35.403	26.553	151.61	14.699	1505.83	13.72
550.0	544.7	13.743	35.403	26.553	151.61	14.999	1505.83	13.72
560.0	554.6	13.743	35.403	26.553	151.61	15.299	1505.83	13.72
570.0	564.5	13.743	35.403	26.553	151.61	15.599	1505.83	13.72
580.0	574.4	13.743	35.403	26.553	151.61	15.899	1505.83	13.72
590.0	584.3	13.743	35.403	26.553	151.61	16.199	1505.83	13.72
600.0	594.2	13.743	35.403	26.553	151.61	16.499	1505.83	13.72
610.0	604.1	13.743	35.403	26.553	151.61	16.799	1505.83	13.72
620.0	614.0	13.743	35.403	26.553	151.61	17.099	1505.83	13.72
630.0	623.9	13.743	35.403	26.553	151.61	17.399	1505.83	13.72
640.0	633.8	13.743	35.403	26.553	151.61	17.699	1505.83	13.72
650.0	643.7	13.743	35.403	26.553	151.61	17.999	1505.83	13.72
660.0	653.6	13.743	35.403	26.553	151.61	18.299	1505.83	13.72
670.0	663.5	13.743	35.403	26.553	151.61	18.599	1505.83	13.72
680.0	673.4	13.743	35.403	26.553	151.61	18.899	1505.83	13.72
690.0	683.3	13.743	35.403	26.553	151.61	19.199	1505.83	13.72
700.0	693.2	13.743	35.403	26.553	151.61	19.499	1505.83	13.72
710.0	703.1	13.743	35.403	26.553	151.61	19.799	1505.83	13.72
720.0	713.0	13.743	35.403	26.553	151.61	20.099	1505.83	13.72
730.0	722.9	13.743	35.403	26.553	151.61	20.399	1505.83	13.72
740.0	732.8	13.743	35.403	26.553	151.61	20.699	1505.83	13.72
750.0	742.7	13.743	35.403	26.553	151.61	20.999	1505.83	13.72
760.0	752.6	13.743	35.403	26.553	151.61	21.299	1505.83	13.72
770.0	762.5	13.743	35.403	26.553	151.61	21.599	1505.83	13.72
780.0	772.4	13.743	35.403	26.553	151.61	21.899	1505.83	13.72
790.0	782.3	13.743	35.403	26.553	151.61	22.199	1505.83	13.72
800.0	792.2	13.743	35.403	26.553	151.61	22.499	1505.83	13.72
810.0	802.1	13.743	35.403	26.553	151.61	22.799	1505.83	13.72
820.0	812.0	13.743	35.403	26.553	151.61	23.099	1505.83	13.72
830.0	821.9	13.743	35.403	26.553	151.61	23.399	1505.83	13.72
840.0	831.8	13.743	35.403	26.553	151.61	23.699	1505.83	13.72
850.0	841.7	13.743	35.403	26.553	151.61	23.999	1505.83	13.72
860.0	851.6	13.743	35.403	26.553	151.61	24.299	1505.83	13.72
870.0	861.5	13.743	35.403	26.553	151.61	24.599	1505.83	13.72
880.0	871.4	13.743	35.403	26.553	151.61	24.899	1505.83	13.72
890.0	881.3	13.743	35.403	26.553	151.61	25.199	1505.83	13.72
900.0	891.2	13.743	35.403	26.553	151.61	25.499	1505.83	13.72
910.0	901.1	13.743	35.403	26.553	151.61	25.799	1505.83	13.72
920.0	911.0	13.743	35.403	26.553	151.61	26.099	1505.83	13.72
930.0	920.9	13.743	35.403	26.553	151.61	26.399	1505.83	13.72
940.0	930.8	13.743	35.403	26.553	151.61	26.699	1505.83	13.72
950.0	940.7	13.743	35.403	26.553	151.61	26.999	1505.83	13.72
960.0	950.6	13.743	35.403	26.553	151.61	27.299	1505.83	13.72
970.0	960.5	13.743	35.403	26.553	151.61	27.599	1505.83	13.72
980.0	970.4	13.743	35.403	26.553	151.61	27.899	1505.83	13.72
990.0	980.3	13.743	35.403	26.553	151.61	28.199	1505.83	13.72
1000.0	990.2	13.743	35.403	26.553	151.61	28.499	1505.83	13.72
1010.0	1000.1	13.743	35.403	26.553	151.61	28.799	1505.83	13.72
1020.0	1010.0	13.743	35.403	26.553	151.61	29.099	1505.83	13.72
1030.0	1019.9	13.743	35.403	26.553	151.61	29.399	1505.83	13.72
1040.0	1029.8	13.743	35.403	26.553	151.61	29.699	1505.83	13.72
1050.0	1039.7	13.743	35.403	26.553	151.61	29.999	1505.83	13.72
1060.0	1049.6	13.743	35.403	26.553	151.61	30.299	1505.83	13.72
1070.0	1059.5	13.743	35.403	26.553	151.61	30.599	1505.83	13.72
1080.0	1069.4	13.743	35.403	26.553	151.61	30.899	1505.83	13.72
1090.0	1079.3	13.743	35.403	26.553	151.61	31.199	1505.83	13.72
1100.0	1089.2	13.743	35.403	26.553	151.61	31.499	1505.83	13.72
1110.0	1099.1	13.743	35.403	26.553	151.61	31.799	1505.83	13.72
1120.0	1109.0	13.743	35.403	26.553	151.61	32.099	1505.83	13.72
1130.0	1118.9	13.743	35.403	26.553	151.61	32.399	1505.83	13.72
1140.0	1128.8	13.743	35.403	26.553	151.61	32.699	1505.83	13.72
1150.0	1138.7	13.743	35.403	26.553	151.61	32.999	1505.83	13.72
1160.0	1148.6	13.743	35.403	26.553	151.61	33.299	1505.83	13.72
1170.0	1158.5	13.743	35.403	26.553	151.61	33.599	1505.83	13.72
1180.0	1168.4	13.743	35.403	26.553	151.61	33.899	1505.83	13.72
1190.0	1178.3	13.743	35.403	26.553</				

SHIP : HMAS COCK - Plessey
 STATION NUMBER : 7 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 26-AUG-1986 (DAY NUMBER 238)
 START TIME : 2049 GMT - 2
 CRUISE : CK17/86
 POSITION : 38:50.00S 157:58.37E
 CAST DEPTH : 560 METRES
 BOTTOM DEPTH : 597 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
0.0	0.0	14.007	0.000	0.000	0.00	0.000	1504.23	14.01 15 0.010 0.011
10.0	9.9	14.003	0.000	0.000	0.00	0.000	1504.31	14.00 51 0.004 0.079
20.0	19.8	14.002	0.000	0.000	0.00	0.000	1504.45	14.00 49 0.000 0.005
30.0	29.8	14.002	0.000	0.000	0.03	0.000	1504.62	14.00 56 0.000 0.007
40.0	39.7	14.009	0.000	0.000	0.00	0.000	1504.81	14.00 46 0.004 0.005
50.0	49.6	14.012	0.000	0.000	0.00	0.000	1505.01	14.00 40 0.000 0.003
60.0	59.5	14.012	0.000	0.000	0.00	0.000	1505.15	14.00 37 0.000 0.005
70.0	69.5	14.012	0.000	0.000	0.00	0.000	1505.31	14.00 35 0.000 0.004
80.0	79.4	14.012	0.000	0.000	0.00	0.000	1505.48	14.00 28 0.000 0.004
90.0	89.3	14.013	0.000	0.000	0.00	0.000	1505.63	14.00 45 0.002 0.002
100.0	99.2	14.016	0.000	0.000	0.00	0.000	1505.81	14.00 36 0.004 0.004
120.0	119.1	14.022	0.000	0.000	0.00	0.000	1506.13	14.00 60 0.000 0.003
140.0	138.9	14.025	0.000	0.000	0.00	0.000	1506.50	14.01 52 0.004 0.000
160.0	158.7	14.032	0.000	0.000	0.00	0.000	1506.85	14.01 55 0.000 0.002
180.0	178.6	14.033	0.000	0.000	0.00	0.000	1507.18	14.01 50 0.003 0.003
200.0	198.4	14.042	0.000	0.000	0.00	0.000	1507.47	14.01 63 0.000 0.000
220.0	218.2	14.042	0.000	0.000	0.00	0.000	1507.84	14.01 57 0.000 0.003
240.0	238.0	14.042	0.000	0.000	0.00	0.000	1508.14	14.01 60 0.000 0.004
260.0	257.9	14.051	0.000	0.000	0.00	0.000	1508.51	14.01 71 0.003 0.003
280.0	277.7	14.052	0.000	0.000	0.00	0.000	1508.82	14.01 62 0.000 0.003
300.0	297.5	13.978	0.000	0.000	0.00	0.000	1508.86	13.93 72 0.057 0.067
320.0	317.3	13.541	0.000	0.000	0.00	0.000	1507.61	13.50 59 0.135 0.163
340.0	337.2	12.878	0.000	0.000	0.00	0.000	1505.69	12.83 61 0.033 0.031
360.0	357.0	12.845	0.000	0.000	0.00	0.000	1505.91	12.80 56 0.012 0.022
380.0	376.8	12.561	0.000	0.000	0.00	0.000	1505.21	12.51 50 0.061 0.071
400.0	396.6	12.344	0.000	0.000	0.00	0.000	1504.82	12.29 61 0.021 0.022
420.0	416.4	11.888	0.000	0.000	0.00	0.000	1501.44	11.83 55 0.057 0.055
440.0	436.2	11.580	0.000	0.000	0.00	0.000	1502.68	11.52 47 0.068 0.067
460.0	456.0	11.216	0.000	0.000	0.00	0.000	1501.70	11.16 58 0.062 0.069
480.0	475.8	11.048	0.000	0.000	0.00	0.000	1501.41	10.99 71 0.048 0.058
500.0	495.6	10.645	0.000	0.000	0.00	0.000	1500.28	10.58 79 0.046 0.046
550.0	545.1	9.982	0.020	0.000	0.00	0.000	1498.63	9.92 58 0.071 0.074
570.0	564.9	9.801	0.000	0.000	0.00	0.000	1498.21	9.73 22 0.010 0.018

SHIP : HMAS COCK - Plessey
 STATION NUMBER : 8 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 27-AUG-1986 (DAY NUMBER 239)
 START TIME : 0215 GMT - 2
 CRUISE : CK17/86
 POSITION : 39:13.37S 169:15.01E
 CAST DEPTH : 490 METRES
 BOTTOM DEPTH : 540 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	S/A	G.A.	Sound	Pot.Temp
10.0	9.9	13.671	0.000	0.000	0.00	0.000	1503.20	13.67 73 0.004 0.083
20.0	19.8	13.668	0.000	0.000	0.00	0.000	1503.40	13.67 44 0.000 0.015
30.0	29.8	13.661	0.000	0.000	0.00	0.000	1503.53	13.66 43 0.004 0.004
40.0	39.7	13.657	0.000	0.000	0.00	0.000	1503.64	13.65 48 0.003 0.004
50.0	49.6	13.649	0.000	0.000	0.00	0.000	1503.80	13.64 57 0.003 0.005
60.0	59.5	13.643	0.000	0.000	0.00	0.000	1503.94	13.63 58 0.005 0.005
70.0	69.5	13.631	0.000	0.000	0.00	0.000	1504.06	13.62 62 0.004 0.000
80.0	79.4	13.607	0.000	0.000	0.00	0.000	1504.13	13.60 52 0.015 0.020
90.0	89.3	13.556	0.000	0.000	0.00	0.000	1504.13	13.54 48 0.006 0.008
100.0	99.2	13.521	0.000	0.000	0.00	0.000	1504.16	13.51 62 0.009 0.010
120.0	119.1	13.452	0.000	0.000	0.00	0.000	1504.25	13.43 60 0.012 0.010
140.0	138.9	13.401	0.000	0.000	0.00	0.000	1504.38	13.38 52 0.020 0.022
160.0	158.7	13.301	0.000	0.000	0.00	0.000	1504.37	13.28 50 0.007 0.007
180.0	178.6	13.308	0.000	0.000	0.00	0.000	1504.71	13.28 59 0.005 0.005
200.0	198.4	13.217	0.000	0.000	0.00	0.000	1504.70	13.19 66 0.017 0.023
220.0	218.2	13.040	0.000	0.000	0.00	0.000	1504.41	13.01 69 0.014 0.015
240.0	238.0	13.009	0.000	0.000	0.00	0.000	1504.63	12.98 65 0.016 0.019
260.0	257.9	12.792	0.000	0.000	0.00	0.000	1504.18	12.76 53 0.025 0.024
280.0	277.7	12.649	0.000	0.000	0.00	0.000	1503.97	12.61 59 0.030 0.038
300.0	297.5	12.287	0.000	0.000	0.00	0.000	1502.99	12.25 55 0.063 0.051
320.0	317.3	12.011	0.000	0.000	0.00	0.000	1502.35	11.97 58 0.054 0.057
340.0	337.1	11.697	0.000	0.000	0.00	0.000	1501.54	11.65 55 0.027 0.026
360.0	357.0	11.484	0.000	0.000	0.00	0.000	1501.09	11.44 51 0.055 0.066
380.0	376.8	11.150	0.000	0.000	0.00	0.000	1500.21	11.10 57 0.040 0.039
400.0	396.6	10.957	0.000	0.000	0.00	0.000	1499.83	10.91 45 0.028 0.042
420.0	416.4	10.662	0.000	0.000	0.00	0.000	1499.03	10.61 30 0.063 0.067
440.0	436.2	10.399	0.000	0.000	0.00	0.000	1498.39	10.35 35 0.050 0.050
460.0	456.0	10.115	0.000	0.000	0.00	0.000	1497.69	10.06 31 0.024 0.026
480.0	475.8	9.988	0.000	0.000	0.00	0.000	1497.56	9.93 33 0.021 0.023
490.0	485.7	9.868	0.000	0.000	0.00	0.000	1497.22	9.81 55 0.074 0.075

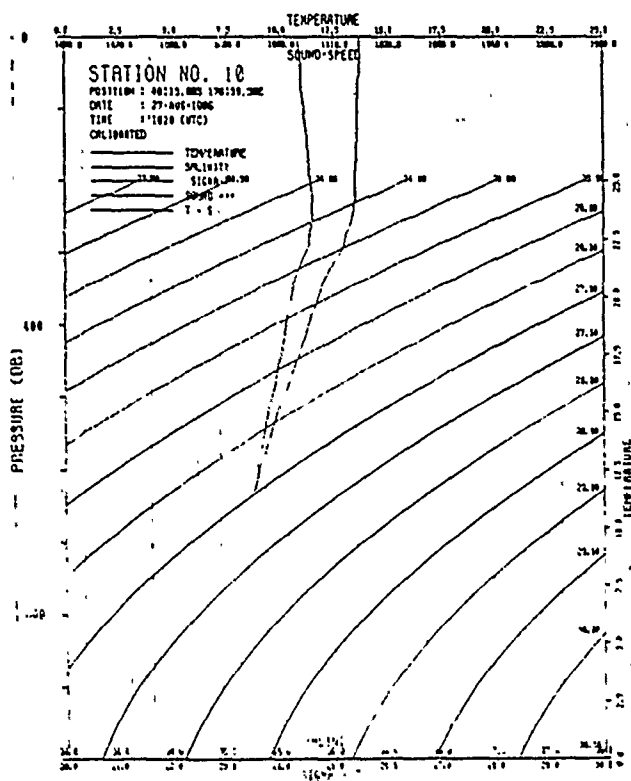
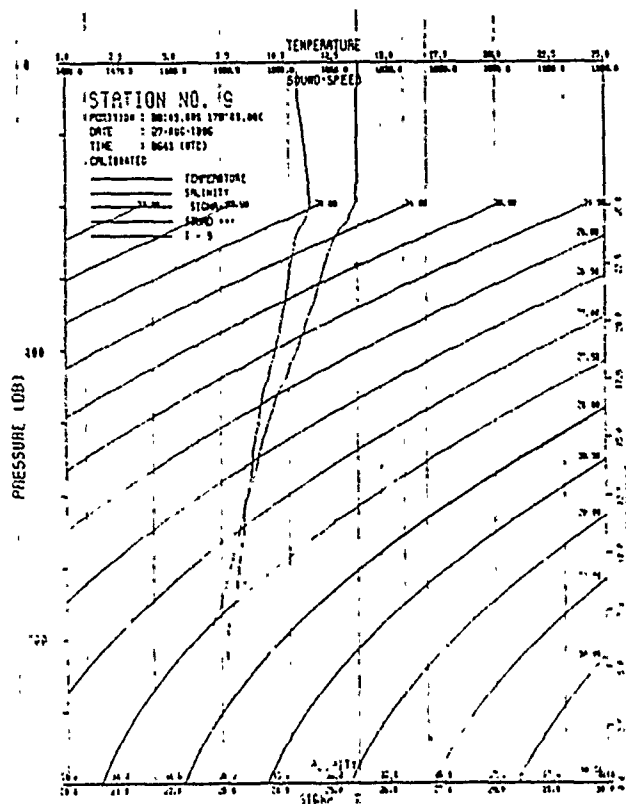


SHIP : HMAS COOK - Plessey
 STATION NUMBER : 9 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 27-AUG-1986 (DAY NUMBER 239)
 START TIME : 0643 GMT - Z
 CRUISE : CK17/86
 POSITION : 39:45.00S 170:09.00E
 CAST DEPTH : 818 METRES
 BOTTOM DEPTH : 848 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	13.688	0.000	0.000	0.00	0.000	1503.11	13.69 72 0.002 0.034
10.0	9.9	13.668	0.000	0.000	0.00	0.000	1503.17	13.67 62 0.014 0.059
20.0	19.8	13.621	0.000	0.000	0.00	0.000	1503.17	13.62 56 0.023 0.009
30.0	29.8	13.574	0.000	0.000	0.00	0.000	1503.19	13.57 60 0.008 0.006
40.0	39.7	13.555	0.000	0.000	0.00	0.000	1503.30	13.55 54 0.004 0.005
50.0	49.6	13.547	0.000	0.000	0.00	0.000	1503.43	13.54 54 0.002 0.004
60.0	59.5	13.543	0.000	0.000	0.00	0.000	1503.57	13.53 56 0.004 0.006
70.0	69.5	13.544	0.000	0.000	0.00	0.000	1503.75	13.53 57 0.004 0.006
80.0	79.4	13.547	0.000	0.000	0.00	0.000	1503.92	13.54 59 0.000 0.004
90.0	89.3	13.546	0.000	0.000	0.00	0.000	1504.06	13.53 57 0.002 0.003
100.0	99.2	13.547	0.000	0.000	0.00	0.000	1504.23	13.53 53 0.000 0.003
120.0	119.0	13.547	0.000	0.000	0.00	0.000	1504.54	13.53 59 0.000 0.002
140.0	138.9	13.535	0.000	0.000	0.00	0.000	1504.84	13.51 55 0.007 0.005
160.0	158.7	13.512	0.000	0.000	0.00	0.000	1505.10	13.49 54 0.005 0.003
180.0	178.5	13.506	0.000	0.000	0.00	0.000	1505.36	13.48 48 0.000 0.004
200.0	198.4	13.448	0.000	0.000	0.00	0.000	1505.50	13.42 50 0.014 0.022
220.0	218.2	13.123	0.000	0.000	0.00	0.000	1504.60	13.09 54 0.076 0.106
240.0	238.0	12.594	0.000	0.000	0.00	0.000	1503.09	12.56 53 0.072 0.082
260.0	257.9	12.304	0.000	0.000	0.00	0.000	1502.42	12.27 53 0.026 0.024
280.0	277.7	12.111	0.000	0.000	0.00	0.000	1502.04	12.07 61 0.034 0.037
300.0	297.5	11.887	0.000	0.000	0.00	0.000	1501.57	11.85 61 0.037 0.039
320.0	317.3	11.661	0.000	0.000	0.00	0.000	1501.10	11.62 59 0.022 0.023
340.0	337.1	11.472	0.000	0.000	0.00	0.000	1500.72	11.43 62 0.025 0.028
360.0	356.9	11.217	0.000	0.000	0.00	0.000	1500.14	11.17 53 0.037 0.037
380.0	376.8	10.990	0.000	0.000	0.00	0.000	1499.61	10.94 57 0.025 0.031
400.0	396.6	10.781	0.000	0.000	0.00	0.000	1499.16	10.73 53 0.041 0.045
420.0	416.4	10.438	0.000	0.000	0.00	0.000	1498.21	10.39 31 0.051 0.052
440.0	436.2	10.206	0.000	0.000	0.00	0.000	1497.66	10.15 30 0.052 0.062
460.0	456.0	9.852	0.000	0.000	0.00	0.000	1496.70	9.80 29 0.041 0.037
480.0	475.8	9.635	0.000	0.000	0.00	0.000	1496.23	9.58 32 0.005 0.005
500.0	495.6	9.446	0.000	0.000	0.00	0.000	1495.82	9.39 29 0.017 0.017
550.0	545.1	8.928	0.000	0.000	0.00	0.000	1494.69	8.87 34 0.027 0.031
600.0	594.6	8.445	0.000	0.000	0.00	0.000	1493.59	8.38 31 0.034 0.029
700.0	693.5	7.620	0.000	0.000	0.00	0.000	1492.08	7.55 31 0.014 0.008
800.0	792.4	6.617	0.000	0.000	0.00	0.000	1489.79	6.54 50 0.041 0.029
830.0	822.0	6.561	0.000	0.000	0.00	0.000	1490.01	6.48 202 0.004 0.005

SHIP : HMAS COOK - Plessey
 STATION NUMBER : 10 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 27-AUG-1986 (DAY NUMBER 239)
 START TIME : 1029 GMT - Z
 CRUISE : CK17/86
 POSITION : 40:15.80S 170:59.50E
 CAST DEPTH : 620 METRES
 BOTTOM DEPTH : 648 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	13.729	0.000	0.000	0.00	0.000	1503.28	13.73 7 0.000 0.004
10.0	9.9	13.729	0.000	0.000	0.00	0.000	1503.39	13.73 62 0.002 0.075
20.0	19.8	13.730	0.000	0.000	0.00	0.000	1503.57	13.73 54 0.002 0.027
30.0	29.8	13.729	0.000	0.000	0.00	0.000	1503.72	13.73 60 0.002 0.008
40.0	39.7	13.728	0.000	0.000	0.00	0.000	1503.87	13.72 56 0.002 0.004
50.0	49.6	13.703	0.000	0.000	0.00	0.000	1503.93	13.70 61 0.012 0.013
60.0	59.5	13.649	0.000	0.000	0.00	0.000	1503.93	13.64 63 0.017 0.014
70.0	69.5	13.626	0.000	0.000	0.00	0.000	1504.02	13.62 66 0.003 0.004
80.0	79.4	13.618	0.000	0.000	0.00	0.000	1504.15	13.61 63 0.000 0.004
90.0	89.3	13.610	0.000	0.000	0.00	0.000	1504.30	13.60 61 0.004 0.004
100.0	99.2	13.603	0.000	0.000	0.00	0.000	1504.41	13.59 64 0.007 0.005
120.0	119.0	13.578	0.000	0.000	0.00	0.000	1504.66	13.56 62 0.002 0.003
140.0	138.9	13.574	0.000	0.000	0.00	0.000	1504.97	13.55 70 0.009 0.011
160.0	158.7	13.531	0.000	0.000	0.00	0.000	1505.16	13.51 58 0.005 0.006
180.0	178.5	13.499	0.000	0.000	0.00	0.000	1505.34	13.47 44 0.016 0.018
200.0	198.4	13.446	0.000	0.000	0.00	0.000	1505.51	13.42 47 0.000 0.004
220.0	218.2	13.453	0.000	0.000	0.00	0.000	1505.85	13.42 57 0.004 0.006
240.0	238.0	13.396	0.000	0.000	0.00	0.000	1505.98	13.36 61 0.020 0.022
260.0	257.8	13.227	0.000	0.000	0.00	0.000	1505.69	13.19 58 0.029 0.032
280.0	277.7	13.031	0.000	0.000	0.00	0.000	1505.35	12.99 63 0.033 0.038
300.0	297.5	12.786	0.000	0.000	0.00	0.000	1504.73	12.75 60 0.084 0.104
320.0	317.3	12.308	0.000	0.000	0.00	0.000	1503.39	12.26 60 0.032 0.034
340.0	337.1	11.951	0.000	0.000	0.00	0.000	1502.45	11.91 60 0.032 0.036
360.0	356.9	11.741	0.000	0.000	0.00	0.000	1502.03	11.69 63 0.042 0.044
380.0	376.7	11.485	0.000	0.000	0.00	0.000	1501.41	11.44 50 0.039 0.044
400.0	396.5	11.291	0.000	0.000	0.00	0.000	1501.03	11.24 52 0.031 0.034
420.0	416.3	11.074	0.000	0.000	0.00	0.000	1500.57	11.02 36 0.022 0.026
440.0	436.2	10.853	0.000	0.000	0.00	0.000	1500.07	10.80 32 0.023 0.023
460.0	456.0	10.586	0.000	0.000	0.00	0.000	1499.41	10.53 30 0.019 0.011
480.0	475.8	10.383	0.000	0.000	0.00	0.000	1498.94	10.33 29 0.024 0.034
500.0	495.6	10.132	0.000	0.000	0.00	0.000	1498.36	10.07 32 0.031 0.042
550.0	545.0	9.547	0.000	0.000	0.00	0.000	1496.99	9.48 32 0.029 0.042
600.0	594.5	8.974	0.000	0.000	0.00	0.000	1495.67	8.91 35 0.014 0.016
630.0	624.2	8.666	0.000	0.000	0.00	0.000	1494.94	8.60 50 0.030 0.014

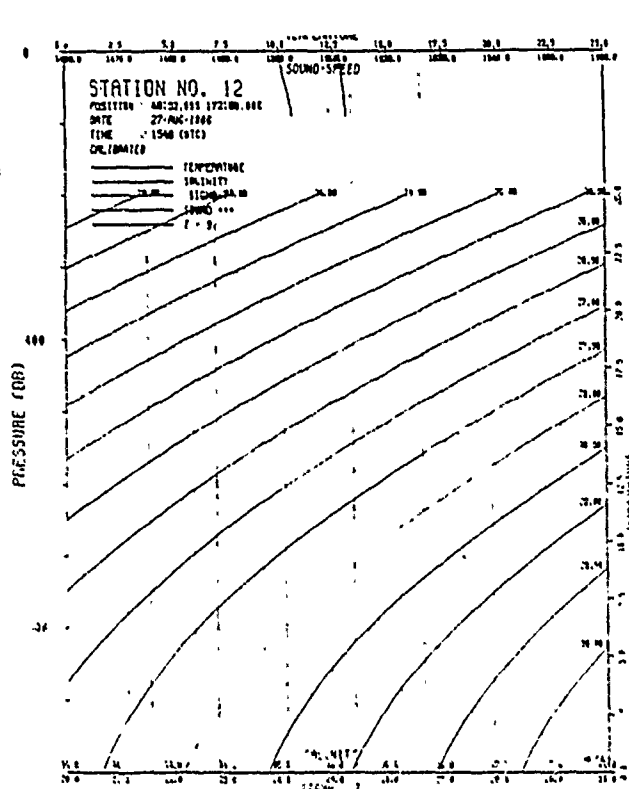
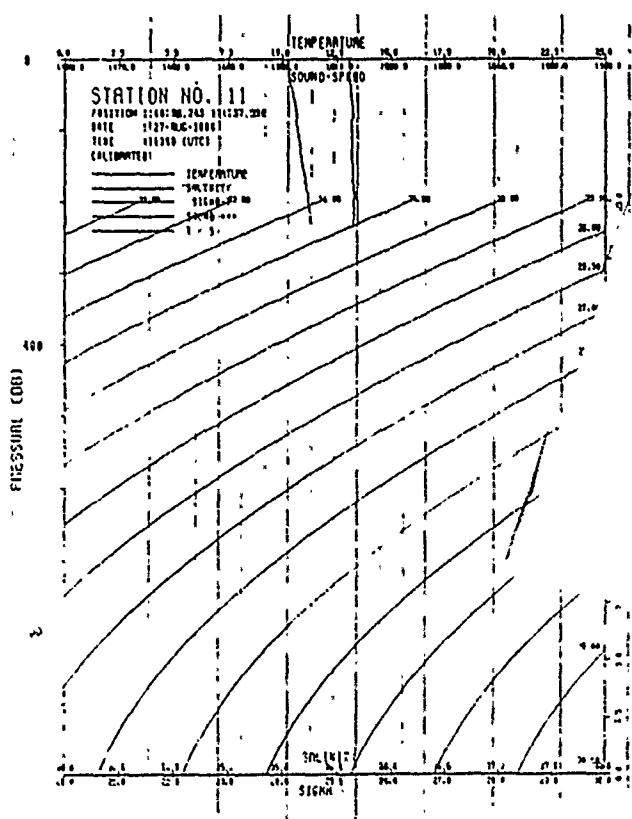


SHIP : HMAS COOK - Plessey
 STATION NUMBER : 11 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 27-AUG-1986 (DAY NUMBER 239)
 START TIME : 1340 GMT - Z
 CRUISE : C017/86
 POSITION : 40:38.24S 171:37.53E
 CAST DEPTH : 230 METRES
 BOTTOM DEPTH : 256 METRES

PRESS	DEPTH	TEMP	Sound	Pot.Temp
5.0	5.0	13.042	0.000	0.000
10.0	9.9	13.052	0.000	0.000
15.0	14.9	13.061	0.000	0.000
20.0	19.8	13.061	0.000	0.000
25.0	24.8	13.067	0.000	0.000
30.0	29.8	13.065	0.000	0.000
35.0	34.7	13.103	0.000	0.000
40.0	39.7	13.112	0.000	0.000
45.0	44.6	13.121	0.000	0.000
50.0	49.6	13.132	0.000	0.000
55.0	54.6	13.154	0.000	0.000
60.0	59.5	13.180	0.000	0.000
65.0	64.5	13.190	0.000	0.000
70.0	69.4	13.198	0.000	0.000
75.0	74.4	13.193	0.000	0.000
80.0	79.4	13.188	0.000	0.000
85.0	84.3	13.164	0.000	0.000
90.0	89.3	13.162	0.000	0.000
95.0	94.2	13.158	0.000	0.000
100.0	99.2	13.158	0.000	0.000
105.0	104.2	13.162	0.000	0.000
110.0	109.1	13.162	0.000	0.000
115.0	114.1	13.162	0.000	0.000
120.0	119.0	13.163	0.000	0.000
125.0	124.0	13.165	0.000	0.000
130.0	129.0	13.172	0.000	0.000
135.0	133.9	13.173	0.000	0.000
140.0	138.9	13.173	0.000	0.000
145.0	143.8	13.186	0.000	0.000
150.0	148.8	13.189	0.000	0.000
155.0	153.7	13.197	0.000	0.000
160.0	158.7	13.228	0.000	0.000
165.0	163.7	13.226	0.000	0.000
170.0	168.6	13.223	0.000	0.000
175.0	173.6	13.228	0.000	0.000
180.0	178.5	13.244	0.000	0.000
185.0	183.5	13.270	0.000	0.000
190.0	188.4	13.279	0.000	0.000
195.0	193.4	13.262	0.000	0.000
200.0	198.4	13.253	0.000	0.000
205.0	203.3	13.253	0.000	0.000
210.0	208.3	13.253	0.000	0.000
215.0	213.2	13.258	0.000	0.000
220.0	218.2	13.234	0.000	0.000
225.0	223.1	13.223	0.000	0.000
230.0	228.1	13.180	0.000	0.000

SHIP : HMAS COOK - Plessey
 STATION NUMBER : 12 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 27-AUG-1986 (DAY NUMBER 239)
 START TIME : 1548 GMT - Z
 CRUISE : C017/86
 POSITION : 40:52.05S 172:00.08E
 CAST DEPTH : 90 METRES
 BOTTOM DEPTH : 103 METRES

PRESS	DEPTH	TEMP	Sound	Pot.Temp
5.0	5.0	12.836	0.000	0.000
10.0	9.9	12.838	0.000	0.000
15.0	14.9	12.834	0.000	0.000
20.0	19.8	12.853	0.000	0.000
25.0	24.8	12.897	0.000	0.000
30.0	29.8	12.898	0.000	0.000
35.0	34.7	12.910	0.000	0.000
40.0	39.7	12.939	0.000	0.000
45.0	44.6	12.998	0.000	0.000
50.0	49.6	13.020	0.000	0.000
55.0	54.6	13.037	0.000	0.000
60.0	59.5	13.041	0.000	0.000
65.0	64.5	13.038	0.000	0.000
70.0	69.4	13.045	0.000	0.000
75.0	74.4	13.056	0.000	0.000
80.0	79.4	13.071	0.000	0.000
85.0	84.3	13.089	0.000	0.000
90.0	89.3	13.092	0.000	0.000



SHIP : APPS COOR - Pleasey
 STATION NUMBER : 13 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 05-SEP-1986 (DAY NUMBER 248)
 START TIME : 0852 GMT - 2
 CRUISE : C817/86
 POSITION : 3711.193 162144.69E
 CUST DEPTH : 2400 METERS
 BOTTOM DEPTH : 2862 METERS

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
0.0	0.0	15.293	0.000	0.000	0.00	0.000	1508.43	15.29 21 0.008 0.017
10.0	9.9	15.274	0.000	0.000	0.00	0.000	1508.47	15.27 57 0.013 0.025
20.0	19.9	15.098	0.000	0.000	0.00	0.000	1508.02	15.10 54 0.062 0.028
30.0	29.8	14.926	0.000	0.000	0.00	0.000	1507.64	14.92 51 0.033 0.028
40.0	39.7	14.786	0.000	0.000	0.00	0.000	1507.36	14.78 51 0.042 0.035
50.0	49.6	14.681	0.000	0.000	0.00	0.000	1507.17	14.67 55 0.032 0.038
60.0	59.5	14.527	0.000	0.000	0.00	0.000	1506.80	14.52 50 0.057 0.064
70.0	69.5	14.449	0.000	0.000	0.00	0.000	1506.75	14.44 50 0.010 0.029
80.0	79.4	14.479	0.000	0.000	0.00	0.000	1507.01	14.47 58 0.007 0.012
90.0	89.3	14.397	0.000	0.000	0.00	0.000	1506.93	14.38 57 0.029 0.029
100.0	99.2	14.368	0.000	0.000	0.00	0.000	1506.96	14.35 58 0.007 0.006
120.0	119.1	14.190	0.000	0.000	0.00	0.000	1506.66	14.17 56 0.036 0.038
140.0	138.9	14.075	0.000	0.000	0.00	0.000	1506.61	14.05 61 0.031 0.033
160.0	158.8	13.882	0.000	0.000	0.00	0.000	1506.27	13.86 59 0.041 0.041
180.0	178.6	13.707	0.000	0.000	0.00	0.000	1505.98	13.68 58 0.045 0.055
200.0	198.4	13.543	0.000	0.000	0.00	0.000	1505.41	13.41 51 0.059 0.069
220.0	218.3	13.142	0.000	0.000	0.00	0.000	1504.67	13.11 67 0.047 0.041
240.0	238.1	13.077	0.000	0.000	0.00	0.000	1504.84	13.04 61 0.010 0.010
260.0	257.9	12.732	0.000	0.000	0.00	0.000	1503.91	12.70 60 0.052 0.054
280.0	277.7	12.589	0.000	0.000	0.00	0.000	1503.77	12.55 59 0.005 0.009
300.0	297.6	12.267	0.000	0.000	0.00	0.000	1502.94	12.23 52 0.023 0.019
320.0	317.4	11.855	0.000	0.000	0.00	0.000	1501.76	11.81 54 0.045 0.049
340.0	337.2	11.535	0.000	0.000	0.00	0.000	1500.93	11.49 62 0.040 0.036
360.0	357.0	11.295	0.000	0.000	0.00	0.000	1500.41	11.25 63 0.028 0.029
380.0	376.8	11.055	0.000	0.000	0.00	0.000	1499.90	11.01 57 0.021 0.016
400.0	396.6	10.789	0.000	0.000	0.00	0.000	1499.11	10.74 47 0.101 0.110
420.0	416.5	10.420	0.000	0.000	0.00	0.000	1498.11	10.37 31 0.060 0.062
440.0	436.3	10.200	0.000	0.000	0.00	0.000	1497.62	10.15 34 0.045 0.056
460.0	456.1	9.911	0.000	0.000	0.00	0.000	1496.90	9.86 33 0.048 0.049
480.0	475.9	9.708	0.000	0.000	0.00	0.000	1496.30	9.65 36 0.058 0.058
500.0	495.7	9.356	0.000	0.000	0.00	0.000	1495.44	9.30 31 0.044 0.040
550.0	545.2	8.792	0.000	0.000	0.00	0.000	1494.14	8.73 34 0.036 0.038
600.0	594.7	8.262	0.000	0.000	0.00	0.000	1492.92	8.20 33 0.037 0.029
700.0	693.6	7.572	0.000	0.000	0.00	0.000	1491.87	7.50 32 0.020 0.020
800.0	792.5	6.826	0.000	0.000	0.00	0.000	1490.54	6.75 32 0.024 0.024
900.0	891.4	5.923	0.000	0.000	0.00	0.000	1488.59	5.84 28 0.022 0.015
1000.0	990.2	5.410	0.000	0.000	0.00	0.000	1488.20	5.32 26 0.008 0.006
1100.0	1089.0	4.860	0.000	0.000	0.00	0.000	1487.58	4.77 31 0.013 0.017
1200.0	1187.7	4.402	0.000	0.000	0.00	0.000	1487.38	4.31 34 0.003 0.004
1300.0	1286.3	3.905	0.000	0.00	0.00	0.000	1487.00	3.80 32 0.017 0.015
1400.0	1385.0	3.499	0.000	0.00	0.00	0.000	1486.93	3.39 39 0.015 0.010
1500.0	1483.5	3.245	0.000	0.00	0.00	0.000	1487.57	3.13 30 0.015 0.012
1600.0	1582.1	2.989	0.000	0.00	0.00	0.000	1488.17	2.87 31 0.001 0.001
1700.0	1680.5	2.821	0.000	0.00	0.00	0.000	1489.14	2.70 34 0.005 0.004
1800.0	1779.0	2.638	0.000	0.00	0.00	0.000	1490.00	2.51 33 0.001 0.000
1900.0	1877.4	2.540	0.000	0.00	0.00	0.000	1491.30	2.40 32 0.004 0.004
2000.0	1975.7	2.446	0.000	0.00	0.00	0.000	1492.58	2.30 35 0.005 0.004
2100.0	2074.0	2.354	0.000	0.00	0.00	0.000	1493.89	2.20 35 0.004 0.004
2200.0	2172.3	2.239	0.000	0.00	0.00	0.000	1495.12	2.08 32 0.001 0.001
2300.0	2270.5	2.165	0.000	0.00	0.00	0.000	1496.46	2.00 31 0.005 0.000
2400.0	2368.8	2.043	0.000	0.00	0.00	0.000	1497.64	1.87 33 0.007 0.005
2500.0	2466.8	1.906	0.000	0.00	0.00	0.000	1498.76	1.73 32 0.000 0.003

SHIP : APPS COOR - Pleasey
 STATION NUMBER : 14 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 05-SEP-1986 (DAY NUMBER 248)
 START TIME : 2140 GMT - 2
 CRUISE : C817/86
 POSITION : 3611.003 160133.50E
 CUST DEPTH : 4500 METERS
 BOTTOM DEPTH : 4780 METERS

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	15.901	0.000	0.000	0.00	0.000	1510.39	15.90 53 0.043 0.027
20.0	19.9	15.671	0.000	0.000	0.00	0.000	1509.81	15.67 63 0.113 0.112
30.0	29.8	15.502	0.000	0.000	0.00	0.000	1509.51	15.50 64 0.010 0.013
40.0	39.7	15.412	0.000	0.000	0.00	0.000	1509.20	15.41 57 0.004 0.004
50.0	49.6	15.468	0.000	0.000	0.00	0.000	1509.23	15.46 52 0.000 0.004
60.0	59.5	15.468	0.000	0.000	0.00	0.000	1509.89	15.46 55 0.000 0.005
70.0	69.5	15.467	0.000	0.000	0.00	0.000	1510.05	15.46 53 0.003 0.006
80.0	79.4	15.453	0.000	0.000	0.00	0.000	1510.16	15.44 59 0.005 0.004
90.0	89.3	15.411	0.000	0.000	0.00	0.000	1510.23	15.42 53 0.010 0.010
100.0	99.2	15.402	0.000	0.000	0.00	0.000	1510.32	15.39 51 0.004 0.004
120.0	119.1	15.357	0.000	0.000	0.00	0.000	1510.52	15.34 55 0.005 0.004
140.0	138.9	15.280	0.000	0.000	0.00	0.000	1510.61	15.27 52 0.010 0.010
160.0	158.8	15.167	0.000	0.000	0.00	0.000	1510.58	15.14 60 0.020 0.017
180.0	178.6	14.967	0.000	0.000	0.00	0.000	1510.29	14.91 66 0.019 0.022
200.0	198.4	14.801	0.000	0.000	0.00	0.000	1510.41	14.77 63 0.001 0.005
220.0	218.3	14.562	0.000	0.00	0.00	0.000	1509.50	14.53 49 0.045 0.049
240.0	238.1	14.338	0.000	0.00	0.00	0.000	1509.13	14.30 52 0.004 0.003
260.0	257.9	14.193	0.000	0.00	0.00	0.000	1508.96	14.15 66 0.057 0.063
280.0	277.7	13.911	0.000	0.000	0.00	0.000	1508.42	13.90 58 0.021 0.017
300.0	297.6	13.916	0.000	0.000	0.00	0.000	1508.69	13.87 61 0.010 0.014
320.0	317.4	13.803	0.000	0.000	0.00	0.000	1508.60	13.76 63 0.014 0.047
340.0	337.2	13.726	0.000	0.00	0.00	0.000	1507.24	13.70 50 0.057 0.050
360.0	357.0	13.187	0.000	0.000	0.00	0.000	1507.09	13.14 60 0.011 0.001
380.0	376.8	12.632	0.000	0.000	0.00	0.000	1505.37	12.54 64 0.104 0.112
400.0	396.7	12.310	0.000	0.00	0.00	0.000	1503.94	12.36 65 0.036 0.040
420.0	416.5	11.875	0.000	0.000	0.00	0.000	1502.68	12.42 61 0.015 0.041
440.0	436.3	11.370	0.000	0.000	0.00	0.000	1501.81	11.31 27 0.083 0.081
460.0	456.1	11.082	0.000	0.000	0.00	0.000	1501.18	11.02 32 0.027 0.030
480.0	475.9	10.690	0.000	0.000	0.00	0.000	1500.00	10.63 32 0.068 0.063
500.0	495.7	10.337	0.000	0.000	0.00	0.000	1499.09	10.28 32 0.036 0.040
550.0	545.2	9.651	0.000	0.000	0.00	0.000	1497.39	9.59 33 0.029 0.025
600.0	594.7	8.967	0.000	0.000	0.00	0.000	1495.55	8.90 30 0.053 0.058
700.0	693.6	8.181	0.000	0.000	0.00	0.000	1494.23	8.11 31 0.020 0.022
800.0	792.5	7.271	0.000	0.000	0.00	0.000	1492.31	7.19 34 0.010 0.012
900.0	891.4	6.407	0.000	0.000	0.00	0.000	1490.48	6.32 34 0.041 0.038
1000.0	990.2	5.735	0.000	0.000	0.00	0.000	1489.46	5.65 29 0.012 0.018
1100.0	1089.0	5.055	0.000	0.000	0.00	0.000	1488.38	4.96 28 0.021 0.012
1200.0	1187.7	4.618	0.000	0.000	0.00	0.000	1488.24	4.52 33 0.012 0.009
1300.0	1286.4	4.298	0.000	0.000	0.00	0.000	1488.19	4.10 31 0.015 0.012
1400.0	1385.0	3.765	0.000	0.000	0.00	0.000	1488.04	3.65 28 0.010 0.009
1500.0	1483.5	3.411	0.000	0.000	0.00	0.000	1488.20	3.50 26 0.016 0.008
1600.0	1582.1	3.119	0.000	0.000	0.00	0.000	1488.66	3.20 29 0.008 0.005
1700.0	1680.6	2.899	0.000	0.000	0.00	0.000	1489.47	2.78 24 0.004 0.000
1800.0	1779.1	2.726	0.000	0.000	0.00	0.000	1490.41	2.60 29 0.006 0.000
1900.0	1877.5	2.580	0.000	0.000	0.00	0.000	1491.42	2.44 29 0.005 0.004
2000.0	1975.8	2.464	0.000	0.000	0.00	0.000	1492.65	2.22 35 0.004 0.004
2100.0	2074.1	2.359	0.000	0.000	0.00	0.000	1493.93	2.21 35 0.004 0.003
2200.0	2172.4	2.240	0.000	0.000	0.00	0.000	1495.21	2.12 29 0.001 0.001
2300.0	2270.6	2.185	0.000	0.000	0.00	0.000	1496.54	2.03 34 0.005 0.003
2400.0	2368.8	2.108	0.000	0.000	0.00	0.000	1497.93	1.93 38 0.001 0.001
2500.0	2466.9	2.024	0.000	0.000	0.00	0.000	1499.25	1.84 27 0.005 0.004
2500.0	2565.8	1.938	0.000	0.000	0.00	0.000	1500.57	1.75 34 0.008 0.004

2600.0 2564.8 1.804 0.000 0.000 0.00 0.000 1499.97 1.62 32 0.000 0.001
 2700.0 2662.9 1.705 0.000 0.000 0.00 0.000 1501.27 1.51 30 0.00

SHIP : HMAS COOK - Plesey
 STATION NUMBER : 15 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 06-SEP-1986 (DAY NUMBER 249)
 START TIME : 2347 GHT = Z
 CRUISE : CR17/86
 POSITION : 35:07.09S 159:00.40E
 CAST DEPTH : 4180 METRES
 BOTTOM DEPTH : 4332 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	16.095	0.000	0.000	0.00	0.000	1511.04	16.09
20.0	19.9	16.095	0.000	0.000	0.00	0.000	1511.19	16.09
30.0	29.8	16.095	0.000	0.000	0.00	0.000	1511.37	16.09
40.0	39.7	16.085	0.000	0.000	0.00	0.000	1511.50	16.08
50.0	49.6	16.069	0.000	0.000	0.00	0.000	1511.62	16.06
60.0	59.6	15.931	0.000	0.000	0.00	0.000	1511.27	15.92
70.0	69.5	15.537	0.000	0.000	0.00	0.000	1510.25	15.53
80.0	79.4	15.456	0.000	0.000	0.00	0.000	1510.19	15.44
90.0	89.3	15.433	0.000	0.000	0.00	0.000	1510.31	15.42
100.0	99.2	15.409	0.000	0.000	0.00	0.000	1510.40	15.39
120.0	119.1	15.400	0.000	0.000	0.00	0.000	1510.70	15.38
140.0	138.9	15.393	0.000	0.000	0.00	0.000	1511.00	15.37
160.0	158.8	15.356	0.000	0.000	0.00	0.000	1511.18	15.33
180.0	178.6	15.271	0.000	0.000	0.00	0.000	1511.20	15.24
200.0	198.4	14.867	0.000	0.000	0.00	0.000	1510.10	14.84
220.0	218.3	14.359	0.000	0.000	0.00	0.000	1508.78	14.33
240.0	238.1	14.147	0.000	0.000	0.00	0.000	1508.42	14.11
260.0	257.9	13.676	0.000	0.000	0.00	0.000	1507.05	13.64
280.0	277.8	13.256	0.000	0.000	0.00	0.000	1499.11	13.64
300.0	297.6	12.628	0.000	0.000	0.00	0.000	1505.94	12.22
320.0	317.4	12.579	0.000	0.000	0.00	0.000	1504.36	12.54
340.0	337.2	12.206	0.000	0.000	0.00	0.000	1503.33	12.16
360.0	357.1	11.881	0.000	0.000	0.00	0.000	1502.46	11.83
380.0	376.9	11.440	0.000	0.000	0.00	0.000	1501.24	11.39
400.0	396.7	11.003	0.000	0.000	0.00	0.000	1499.97	10.95
420.0	416.5	10.689	0.000	0.000	0.00	0.000	1499.11	10.64
440.0	436.3	10.400	0.000	0.000	0.00	0.000	1498.34	10.35
460.0	456.1	10.114	0.000	0.000	0.00	0.000	1497.63	10.06
480.0	475.9	9.803	0.000	0.000	0.00	0.000	1496.79	9.75
500.0	495.7	9.510	0.000	0.000	0.00	0.000	1496.05	9.45
550.0	545.3	9.090	0.000	0.000	0.00	0.000	1495.26	9.03
600.0	594.7	8.615	0.000	0.000	0.00	0.000	1494.27	8.55
700.0	693.7	7.743	0.000	0.000	0.00	0.000	1492.52	7.67
800.0	792.6	6.874	0.000	0.000	0.00	0.000	1490.75	6.80
900.0	891.5	6.244	0.000	0.000	0.00	0.000	1489.82	6.16
1000.0	990.3	5.541	0.000	0.000	0.00	0.000	1488.74	5.45
1100.0	1089.1	4.940	0.000	0.000	0.00	0.000	1487.90	4.85
1200.0	1187.8	4.364	0.000	0.000	0.00	0.000	1487.20	4.27
1300.0	1286.5	3.962	0.000	0.000	0.00	0.000	1487.18	3.86
1400.0	1385.1	3.524	0.000	0.000	0.00	0.000	1487.27	3.48
1500.0	1483.7	3.285	0.000	0.000	0.00	0.000	1487.74	3.17
1600.0	1582.2	3.039	0.000	0.000	0.00	0.000	1488.36	2.92
1700.0	1680.7	2.814	0.000	0.000	0.00	0.000	1489.12	2.69
1800.0	1779.2	2.634	0.000	0.000	0.00	0.000	1490.00	2.51
1900.0	1877.6	2.511	0.000	0.000	0.00	0.000	1491.16	2.38
2000.0	1975.9	2.413	0.000	0.000	0.00	0.000	1492.43	2.27
2100.0	2074.2	2.316	0.000	0.000	0.00	0.000	1493.71	2.17
2200.0	2172.5	2.214	0.000	0.000	0.00	0.000	1495.12	2.09
2300.0	2270.7	2.119	0.000	0.000	0.00	0.000	1496.37	1.98
2400.0	2368.9	2.041	0.000	0.000	0.00	0.000	1497.62	1.87
2500.0	2467.0	1.967	0.000	0.000	0.00	0.000	1499.00	1.79
2600.0	2565.1	1.879	0.000	0.000	0.00	0.000	1500.32	1.69

SHIP : HMAS COOK - Plesey
 STATION NUMBER : 16 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 07-SEP-1986 (DAY NUMBER 250)
 START TIME : 1425 GHT = Z
 CRUISE : CR17/86
 POSITION : 35:49.56S 158:05.75E
 CAST DEPTH : 4180 METRES
 BOTTOM DEPTH : 4674 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.045	0.000	0.000	0.00	0.000	1513.99	17.04
20.0	19.9	17.048	0.000	0.000	0.00	0.000	1514.15	17.04
30.0	29.8	17.050	0.000	0.000	0.00	0.000	1514.30	17.04
40.0	39.7	17.050	0.000	0.000	0.00	0.000	1514.49	17.04
50.0	49.6	17.049	0.000	0.000	0.00	0.000	1514.64	17.04
60.0	59.6	17.048	0.000	0.000	0.00	0.000	1514.79	17.04
70.0	69.5	17.005	0.000	0.000	0.00	0.000	1514.78	16.99
80.0	79.4	16.782	0.000	0.000	0.00	0.000	1514.24	16.77
90.0	89.3	16.476	0.000	0.000	0.00	0.000	1513.41	16.46
100.0	99.2	16.225	0.000	0.000	0.00	0.000	1512.80	16.19
120.0	119.1	15.815	0.000	0.000	0.00	0.000	1511.90	15.81
140.0	138.9	15.456	0.000	0.000	0.00	0.000	1511.07	15.44
160.0	158.8	15.372	0.000	0.000	0.00	0.000	1511.15	15.35
180.0	178.6	15.031	0.000	0.000	0.00	0.000	1510.42	15.00
200.0	198.4	14.927	0.000	0.000	0.00	0.000	1509.94	14.66
220.0	218.3	14.692	0.000	0.000	0.00	0.000	1510.06	14.58
240.0	238.1	14.618	0.000	0.000	0.00	0.000	1509.69	14.38
260.0	257.9	14.414	0.000	0.000	0.00	0.000	1507.87	13.78
280.0	277.8	14.022	0.000	0.000	0.00	0.000	1505.95	13.11
300.0	297.6	13.150	0.000	0.000	0.00	0.000	1505.64	12.92
320.0	317.4	12.569	0.000	0.000	0.00	0.000	1504.52	12.53
340.0	337.2	12.558	0.000	0.000	0.00	0.000	1503.65	12.17
360.0	357.1	12.214	0.000	0.000	0.00	0.000	1501.56	11.48
380.0	376.9	11.527	0.000	0.000	0.00	0.000	1501.17	11.28
400.0	396.7	11.335	0.000	0.000	0.00	0.000	1500.21	11.02
420.0	416.5	11.011	0.000	0.000	0.00	0.000	1499.62	10.70
440.0	436.3	10.750	0.000	0.000	0.00	0.000	1498.73	10.36
460.0	456.1	10.416	0.000	0.000	0.00	0.000	1498.07	10.06
480.0	475.9	10.134	0.000	0.000	0.00	0.000	1497.13	9.75
500.0	495.7	9.810	0.000	0.000	0.00	0.000	1495.34	9.05
550.0	545.3	9.113	0.000	0.000	0.00	0.000	1495.34	9.05
600.0	594.8	8.552	0.000	0.000	0.00	0.000	1494.05	8.49
700.0	693.7	7.510	0.000	0.000	0.00	0.000	1491.59	7.44
800.0	792.6	6.763	0.000	0.000	0.00	0.000	1489.24	6.69
900.0	891.5	5.935	0.000	0.000	0.00	0.000	1488.84	5.85
1000.0	990.3	5.286	0.000	0.000	0.00	0.000	1487.70	5.20
1100.0	1089.1	4.732	0.000	0.000	0.00	0.000	1487.05	4.64
1200.0	1187.8	4.263	0.000	0.000	0.00	0.000	1486.77	4.17
1300.0	1286.5	3.883	0.000	0.000	0.00	0.000	1486.87	3.78
1400.0	1385.1	3.510	0.000	0.000	0.00	0.000	1486.98	3.41
1500.0	1483.7	3.181	0.000	0.000	0.00	0.000	1487.31	3.07
1600.0	1582.3	2.951	0.000	0.000	0.00	0.000	1488.00	2.84
1700.0	1680.8	2.752	0.000	0.000	0.00	0.000	1488.84	2.63
1800.0	1779.2	2.603	0.000	0.000	0.00	0.000	1489.88	2.47
1900.0	1877.6	2.455	0.000	0.000	0.00	0.000	1490.94	2.32
2000.0	1976.0	2.371	0.000	0.000	0.00	0.000	1492.26	2.23
2100.0	2074.3	2.288	0.000	0.000	0.00	0.000	1493.61	2.14
2200.0	2172.6	2.206	0.000	0.000	0.00	0.000	1494.94	2.05
2300.0	2270.8	2.108	0.000	0.000	0.00	0.000	1496.21	1.94
2400.0	2368.9	2.009	0.000	0.000	0.00	0.000	1497.48	1.84
2500.0	2467.1	1.907	0.000	0.000	0.00	0.000	1498.72	1.73
2600.0	2565.2	1.830	0.000	0.000	0.00	0.000	1500.08	1.64

2700.0	2563.1	1.81	0.000	0.000	0.00	0.000	1501.73	1.62	21.0003	0.0021
2800.0	2761.1	1.718	0.000	0.000	0.00	0.000	1502.98	1.52	19.0005	0.0019
2900.0	2859.1	1.634	0.000	0.000	0.00	0.000	1504.35	1.42	29.0004	0.0055
3000.0	2957.0	1.541	0.000	0.000	0.00	0.000	1505.65	1.32	26.0002	0.0055
3100.0	3054.9	1.462	0.000	0.000	0.00	0.000	1507.02	1.24	18.0003	0.0044
3200.0	3152.7	1.406	0.000	0.000	0.00	0.000	1508.49	1.17	32.0006	0.0004
3300.0	3250.5	1.343	0.000	0.000	0.00	0.000	1509.93	1.10	28.0005	0.0033
3400.0	3348.2	1.306	0.000	0.000	0.00	0.000	1511.45	1.05	29.0005	0.0033
3500.0	3445.9	1.259	0.000	0.000	0.00	0.000	1512.99	1.00	30.0005	0.0005
3600.0	3543.5	1.219	0.000	0.000	0.00	0.000	1514.59	0.95	31.0011	0.0035
3700.0	3641.1	1.203	0.000	0.000	0.00	0.000	1516.20	0.92	23.0004	0.0034
3800.0	3738.7	1.189	0.000	0.000	0.00	0.000	1517.87	0.90	28.0003	0.0033
3900.0	3836.2	1.184	0.000	0.000	0.00	0.000	1519.54	0.88	28.0004	0.0033
4000.0	3933.7	1.173	0.000	0.000	0.00	0.000	1521.24	0.86	23.0004	0.0031
4100.0	4031.1	1.164	0.000	0.000	0.00	0.000	1523.00	0.84	25.0004	0.0006
4200.0	4128.5	1.161	0.000	0.000	0.00	0.000	1524.67	0.83	25.0004	0.0006
4300.0	4225.8	1.154	0.000	0.000	0.00	0.000	1526.40	0.81	24.0004	0.0004
4340.0	4264.7	1.157	0.000	0.000	0.00	0.000	1527.01	0.80	4.0000	0.0000

SHIP : HMAS COOK - Plessey
 STATION NUMBER : 17 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 08-SEP-1986 (DAY NUMBER 251)
 START TIME : 0413 GMT - 2
 CRUISE : CK17/86
 POSITION : 35128.91S 157.01.49E
 CAST DEPTH : 0 METRES
 BOTTOM DEPTH : 4690 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.949	0.000	0.000	0.00	0.000	1516.64	17.95 65 0.005 0.030
20.0	19.9	17.945	0.000	0.000	0.00	0.000	1516.79	17.94 66 0.003 0.096
30.0	29.8	17.921	0.000	0.000	0.00	0.000	1516.85	17.92 69 0.031 0.030
40.0	39.7	17.848	0.000	0.000	0.00	0.000	1516.83	17.84 59 0.006 0.008
50.0	49.6	17.840	0.000	0.000	0.00	0.000	1516.93	17.83 54 0.012 0.018
60.0	59.6	17.797	0.000	0.000	0.00	0.000	1517.01	17.79 46 0.004 0.005
70.0	69.5	17.795	0.000	0.000	0.00	0.000	1517.15	17.78 38 0.000 0.003
80.0	79.4	17.795	0.000	0.000	0.00	0.000	1517.33	17.78 44 0.000 0.004
90.0	89.3	17.794	0.000	0.000	0.00	0.000	1517.46	17.78 43 0.002 0.004
100.0	99.2	17.773	0.000	0.000	0.00	0.000	1517.57	17.76 52 0.026 0.027
120.0	119.1	17.680	0.000	0.000	0.00	0.000	1517.68	17.66 52 0.006 0.007
140.0	138.9	17.593	0.000	0.000	0.00	0.000	1517.69	17.57 50 0.056 0.085
160.0	158.8	17.118	0.000	0.000	0.00	0.000	1516.56	17.09 55 0.067 0.089
180.0	178.6	16.496	0.000	0.000	0.00	0.000	1514.87	16.47 47 0.109 0.094
200.0	198.5	15.944	0.000	0.000	0.00	0.000	1513.57	15.91 68 0.086 0.082
220.0	218.3	15.477	0.000	0.000	0.00	0.000	1513.38	15.44 51 0.065 0.084
240.0	238.1	14.837	0.000	0.000	0.00	0.000	1510.66	14.80 90 0.038 0.048
260.0	257.9	14.315	0.000	0.000	0.00	0.000	1509.15	14.28 53 0.086 0.098
280.0	277.8	13.731	0.000	0.000	0.00	0.000	1507.54	13.69 57 0.084 0.078
300.0	297.6	13.204	0.000	0.000	0.00	0.000	1506.02	13.16 54 0.111 0.123
320.0	317.4	12.715	0.000	0.000	0.00	0.000	1504.72	12.67 44 0.047 0.049
340.0	337.3	12.350	0.000	0.000	0.00	0.000	1503.79	12.30 52 0.029 0.029
360.0	357.1	11.978	0.000	0.000	0.00	0.000	1502.76	11.93 58 0.033 0.033
380.0	376.9	11.635	0.000	0.000	0.00	0.000	1501.88	11.59 45 0.058 0.064
400.0	396.7	11.291	0.000	0.000	0.00	0.000	1500.96	11.24 49 0.038 0.044
420.0	416.5	11.057	0.000	0.000	0.00	0.000	1500.43	11.00 35 0.020 0.024
440.0	436.3	10.682	0.000	0.000	0.00	0.000	1499.33	10.63 30 0.051 0.061
460.0	456.2	10.266	0.000	0.000	0.00	0.000	1498.18	10.21 33 0.051 0.056
480.0	476.0	9.950	0.000	0.000	0.00	0.000	1497.34	9.89 34 0.027 0.027
500.0	495.8	9.639	0.000	0.000	0.00	0.000	1496.48	9.58 32 0.040 0.039
550.0	545.3	8.992	0.000	0.000	0.00	0.000	1494.85	8.93 26 0.034 0.029
600.0	594.8	8.504	0.000	0.000	0.00	0.000	1493.81	8.44 28 0.015 0.013
700.0	693.7	7.433	0.000	0.000	0.00	0.000	1491.26	7.36 31 0.029 0.022
800.0	792.7	6.504	0.000	0.000	0.00	0.000	1489.31	6.43 28 0.014 0.013
900.0	891.5	5.735	0.000	0.000	0.00	0.000	1487.84	5.66 32 0.020 0.015
1000.0	990.4	5.222	0.000	0.000	0.00	0.000	1487.41	5.14 31 0.012 0.011
1100.0	1089.1	4.700	0.000	0.000	0.00	0.000	1486.95	4.61 25 0.011 0.011
1200.0	1187.9	4.182	0.000	0.000	0.00	0.000	1486.49	4.09 32 0.013 0.007
1300.0	1286.6	3.683	0.000	0.000	0.00	0.000	1486.57	3.70 26 0.014 0.010
1400.0	1385.2	3.470	0.000	0.000	0.00	0.000	1486.83	3.36 26 0.010 0.009
1500.0	1483.8	3.153	0.000	0.000	0.00	0.000	1487.15	3.04 31 0.010 0.007
1600.0	1582.3	2.912	0.000	0.000	0.00	0.000	1487.83	2.80 42 0.011 0.008
1700.0	1680.8	2.706	0.000	0.000	0.00	0.000	1488.65	2.58 25 0.009 0.005
1800.0	1779.3	2.585	0.000	0.000	0.00	0.000	1489.78	2.46 34 0.007 0.004
1900.0	1877.7	2.462	0.000	0.000	0.00	0.000	1490.95	2.33 25 0.001 0.000
2000.0	1976.0	2.354	0.000	0.000	0.00	0.000	1492.20	2.21 26 0.005 0.003
2100.0	2074.3	2.261	0.000	0.000	0.00	0.000	1493.45	2.11 26 0.003 0.004
2200.0	2172.6	2.182	0.000	0.000	0.00	0.000	1494.86	2.03 30 0.004 0.005
2300.0	2270.8	2.116	0.000	0.000	0.00	0.000	1496.24	1.95 32 0.004 0.002
2400.0	2369.0	2.019	0.000	0.000	0.00	0.000	1497.51	1.85 33 0.004 0.003
2500.0	2467.2	1.929	0.000	0.000	0.00	0.000	1498.84	1.75 26 0.004 0.005
2600.0	2565.2	1.851	0.000	0.000	0.00	0.000	1500.16	1.66 20 0.005 0.002

SHIP : HMAS COOK - Plessey
 STATION NUMBER : 18 (THROUGH THE CRUISE)
 STATION NUMBER : 0 (THROUGH THE YEAR)
 DATE : 09-SEP-1986 (DAY NUMBER 252)
 START TIME : 0050 GMT - 2
 CRUISE : CK17/86
 POSITION : 35111.35S 155.54.63E
 CAST DEPTH : 0 METRES
 BOTTOM DEPTH : 4693 METRES

PRESS	DEPTH	TEMP	SAL	SIGMA-T	SVA	G.A.	Sound	Pot.Temp
10.0	9.9	17.148	0.000	0.000	0.00	0.000	1514.23	17.15 47 0.014 0.053
20.0	19.9	17.122	0.000	0.000	0.00	0.000	1514.32	17.12 52 0.005 0.040
30.0	29.8	17.111	0.000	0.000	0.00	0.000	1514.45	17.11 63 0.005 0.037
40.0	39.7	17.107	0.000	0.000	0.00	0.000	1514.62	17.10 53 0.000 0.004
50.0	49.6	17.103	0.000	0.000	0.00	0.000	1514.79	17.09 52 0.004 0.004
60.0	59.6	16.956	0.000	0.000	0.00	0.000	1514.31	16.98 49 0.018 0.030
70.0	69.5	16.917	0.000	0.000	0.00	0.000	1512.73	16.97 52 0.054 0.050
80.0	79.4	16.169	0.000	0.000	0.00	0.000	1512.27	16.16 61 0.093 0.119
90.0	89.3	15.814	0.000	0.000	0.00	0.000	1511.31	15.80 55 0.048 0.050
100.0	99.2	15.641	0.000	0.000	0.00	0.000	1510.97	15.63 55 0.042 0.025
110.0	109.1	15.493	0.000	0.000	0.00	0.000	1510.94	15.48 54 0.026 0.023
120.0	119.0	15.403	0.000	0.000	0.00	0.000	1511.29	15.46 65 0.018 0.029
130.0	128.9	15.319	0.000	0.000	0.00	0.000	1511.09	15.31 57 0.012 0.036
140.0	138.8	15.170	0.000	0.000	0.00	0.000	1509.32	14.72 41 0.127 0.123
150.0	148.7	14.740	0.000	0.000	0.00	0.000	1507.28	14.00 65 0.105 0.090
160.0	158.6	14.020	0.000	0.000	0.00	0.000	1506.00	13.52 64 0.079 0.082
170.0	168.5	13.554	0.000	0.000	0.00	0.000	1504.66	13.04 53 0.069 0.073
180.0	178.4	13.073	0.000	0.000	0.00	0.000	1503.21	12.51 57 0.041 0.048
190.0	188.3	12.545	0.000	0.000	0.00	0.000	1502.53	12.24 60 0.112 0.128
200.0	198.2	12.281	0.000	0.000	0.00	0.000	1500.95	11.69 57 0.040 0.035
210.0	208.1	11.720	0.000	0.000	0.00	0.000	1500.14	11.38 60 0.073 0.082
220.0	218.0	11.442	0.000	0.000	0.00	0.000	1499.17	11.00 52 0.011 0.026
230.0	227.9	11.046	0.000	0.000	0.00	0.000	1497.99	10.62 67 0.118 0.115
240.0	237.8	10.662	0.000	0.000	0.00	0.000	1496.96	10.21 58 0.057 0.058
250.0	247.7	10.251	0.000	0.000	0.00	0.000	1495.97	9.80 58 0.050 0.050
260.0	257.6	9.822	0.000	0.000	0.00	0.000	1495.09	9.55 58 0.045 0.046
270.0	267.5	9.602	0.000	0.000	0.00	0.000	1494.39	9.28 64 0.034 0.034
280.0	277.4	9.326	0.000	0.000	0.00	0.000	1493.80	8.96 35 0.016 0.020
290.0	287.3	9.029	0.000	0.000	0.00	0.000	1493.01	8.74 35 0.017 0.008
300.0	297.2	8.791	0.000	0.000	0.00	0.000	1492.49	8.52 28 0.052 0.043
310.0	307.1	8.578	0.000	0.000	0.00	0.000	1491.31	7.99 31 0.009 0.011
320.0	317.0	8.310	0.000	0.000	0.00	0.000	1490.38	7.55 31 0.029 0.029
330.0	326.9	8.023	0.000	0.000	0.00	0.000	1489.54	6.44 29 0.013 0.011
340.0	336.8	7.727	0.000	0.000	0.00	0.000	1487.27	5.92 32 0.019 0.014
350.0	346.7	7.411	0.000	0.000	0.00	0.000	1485.45	5.07 32 0.010 0.009
360.0	356.6	7.080	0.000	0.000	0.00	0.000	1485.38	4.64 30 0.005 0.003
370.0	366.5	6.729	0.000	0.000	0.00	0.000	1485.06	4.16 31 0.011 0.007
380.0	376.4	6.422	0.000	0.000	0.00	0.000	1485.22	3.79 28 0.008 0.008
390.0	386.3	6.131	0.000	0.000	0.00	0.000	1485.45	3.44 28 0.011 0.007
400.0	396.2	5.823	0.000	0.000	0.00	0.000	1485.85	3.13 31 0.007 0.007
410.0	406.1	5.511	0.000	0.000	0.00	0.000	1486.52	2.89 30 0.019 0.012
420.0	416.0	5.295	0.000	0.000	0.00	0.000	1487.12	2.68 18 0.007 0.004
430.0	425.9	5.082	0.000	0.000	0.00	0.000	1488.27	2.50 31 0.010 0.004
440.0	435.8	4.873	0.000	0.000	0.00	0.000	1489.37	2.36 27 0.003 0.004
450.0	445.7	4.668	0.000	0.000	0.00	0.000	1490.66	2.25 30 0.005 0.003
460.0	455.6	4.467	0.000	0.000	0.00	0.000	1492.01	2.17 32 0.005 0.000
470.0	465.5	4.270	0.000	0.000	0.00	0.000	1493.40	2.09 31 0.000 0.003
480.0	475.4	4.078	0.000	0.000	0.00	0.000	1494.70	1.99 36 0.005 0.004
490.0	485.3	3.891	0.000	0.000	0.00	0.000	1496.12	1.92 32 0.004 0.004
500.0	495.2	3.709	0.000	0.000	0.00	0.000	1497.53	1.85 32 0.005 0.004
510.0	505.1	3.532	0.000	0.000	0.00	0.000	1498.97	1.76 28 0.003 0.003
520.0	515.0	3.360	0.000	0.000	0.00	0.000	1500.20	1.67 32 0.000 0.001

2700.0	2663.3	1.783	0.000	0.000	0.00	0.000	1501.60	1.59	30	0.002	0.004
2800.0	2761.3	1.684	0.000	0.000	0.00	0.000	1502.08	1.48	23	0.005	0.003
2900.0	2859.3	1.587	0.000	0.000	0.00	0.000	1502.56	1.39	17	0.005	0.003
3000.0	2957.3	1.521	0.000	0.000	0.00	0.000	1505.56	1.30	23	0.004	0.003
3100.0	3055.0	1.445	0.000	0.000	0.00	0.000	1506.94	1.22	33	0.004	0.004
3200.0	3152.9	1.381	0.000	0.000	0.00	0.000	1506.36	1.15	29	0.006	0.004
3300.0	3250.6	1.324	0.000	0.000	0.00	0.000	1509.87	1.08	31	0.004	0.004
3400.0	3348.4	1.269	0.000	0.000	0.00	0.000	1511.32	1.02	42	0.006	0.003
3500.0	3446.1	1.234	0.000	0.000	0.00	0.000	1512.89	0.98	40	0.004	0.004
3600.0	3543.9	1.204	0.000	0.000	0.00	0.000	1514.46	0.93	23	0.004	0.003
3700.0	3641.3	1.180	0.000	0.000	0.00	0.000	1516.03	0.89	23	0.004	0.003
3800.0	3738.9	1.173	0.000	0.000	0.00	0.000	1517.78	0.88	35	0.004	0.002
3900.0	3836.4	1.168	0.000	0.000	0.00	0.000	1519.49	0.87	42	0.005	0.000
4000.0	3933.9	1.165	0.000	0.000	0.00	0.000	1521.22	0.86	35	0.003	0.001
4100.0	4031.3	1.162	0.000	0.000	0.00	0.000	1522.96	0.84	22	0.004	0.004
4200.0	4128.7	1.164	0.000	0.000	0.00	0.000	1524.68	0.83	22	0.003	0.004
4300.0	4226.1	1.159	0.000	0.000	0.00	0.000	1526.43	0.82	19	0.004	0.007
4400.0	4323.5	1.160	0.000	0.000	0.00	0.000	1528.18	0.81	33	0.004	0.026
4500.0	4420.6	1.158	0.000	0.000	0.00	0.000	1529.93	0.80	33	0.005	0.003
4600.0	4517.8	1.160	0.000	0.000	0.00	0.000	1531.67	0.78	22	0.005	0.002
4700.0	4615.0	1.154	0.000	0.000	0.00	0.000	1533.40	0.77	24	0.004	0.004
4800.0	4653.9	1.148	0.000	0.000	0.00	0.000	1534.01	0.76	17	0.004	0.004

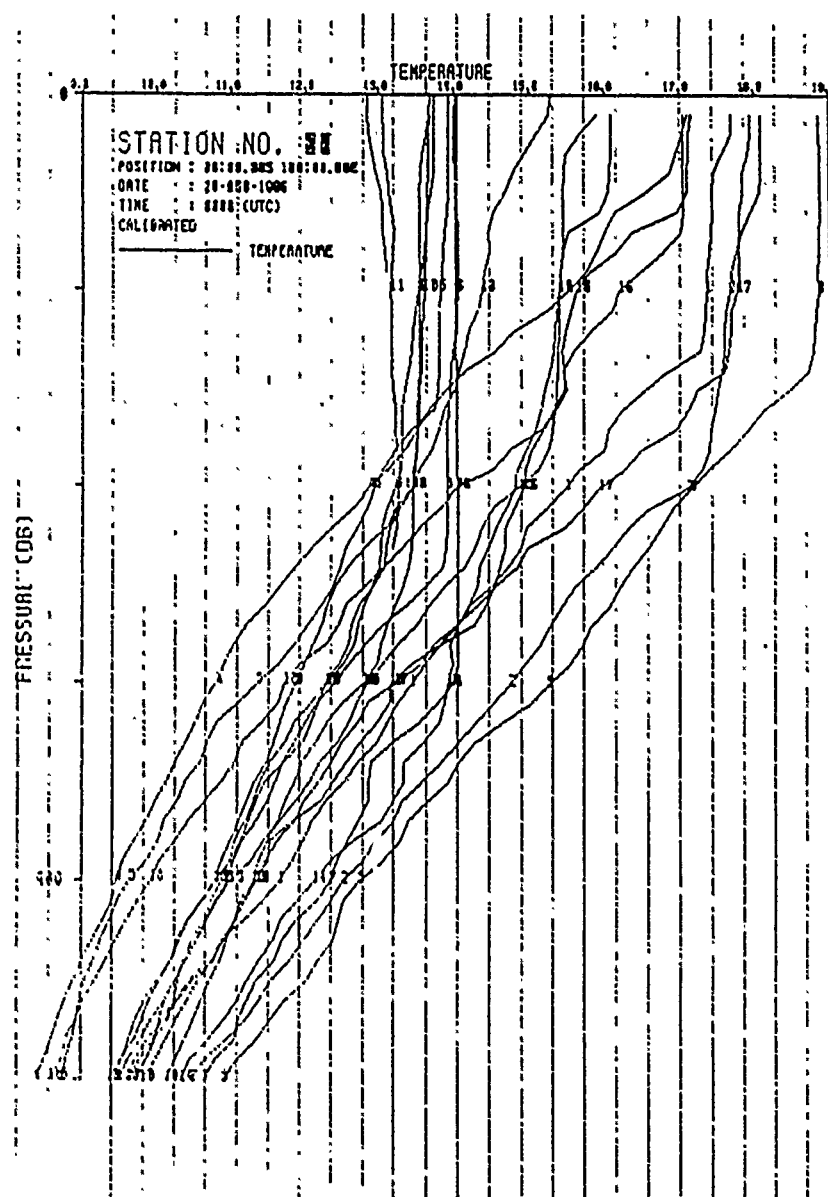


Figure 95. Overplot of VCTOD temperature profiles to 500 m for survey SEAMAP 4 (RANRL 17/86) winter route B

DISCUSSION

This report presents oceanographic data for three cruises made in winter in the south west Pacific ocean from 1985 to 1987. Summer data are presented as a separate report (Hamilton and Boyle, 1989). Detailed analyses are not made in these reports, but pointers are given to some of the main features of interest in the data. The salinity sensor in the VCTOD probe was not well calibrated, and was subject to large unexplained shifts between stations for cruise SEAMAP 6. The salinity data is calibrated and self consistent for cruise SEAMAP 2, except for station 10 where a rosette sampler was not used. No quality salinity data were obtained on SEAMAP 4. Sources of additional data for each cruise are given when known, but a detailed search for other data sources has not been made. Investigations were being carried out west of North Island, New Zealand, by several organisations, including New South Wales University (Dr Jason Middleton) which may have obtained data during the SEAMAP cruise periods, particularly from CTDs and current meters.

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Data logging, winch operations and station keeping were controlled by HMAS COOK naval staff. Bridge watchkeepers made the wind and sea state observations given in this report. The bulk of the CTD data processing programs were written by Dr N. White, and were made available to RANRL by CSIRO Marine Laboratories Hobart. This generous assistance is much appreciated. Mr B. Scott was cruise leader for these SEAMAP surveys, and his capable direction ensured a good data return in often difficult circumstances. Mrs Pat Vlaming was tracer for the majority of diagrams. Mr Martin Zile of Hydrographic Office North Sydney and Dr Mark Irving of Maritime Systems Division provided useful information on reading and decoding the VCTOD data from the HMAS Cook data logger tapes. Task Manager of Project SEAMAP is Dr M.V. Hall.

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APPENDIX I

PARAMETERS CONTINUOUSLY RECORDED ON THE HMAS COOK HEWLETT
PACKARD HP1000 DATA LOGGER

Parameter	Instrument	Sampling rate	
Time	Clock	0.1 s	
Position fix	satnav	10 s	
Ship's heading	Gyro compass	1 s	
Ship's speed	Electromagnetic log	1 s	
Depth	SNBESS	1 s to 1 min	*
Depth	AN/UQN-4 (BBES)	0.1 s to 1 min	*
Sound velocity Conductivity Temperature Oxygen content	VCTOD instrument package (Plessey)	1.66 Hz	*

* Sensor data referred to in this report.

PARAMETERS CONTINUOUSLY RECORDED ON THE HMAS COOK HP1000 DATA LOGGER

Parameter	Instrument	Sampling interval logging	
Pitch	Gyrocompass	0.2 s	
Roll	Gyrocompass	0.2 s	
Atmosphere pressure	BUMET	10 s	
Wind speed	Anemometer	1 s	*
Wind direction	Vane	1 s	*
Wave height	Datawell waverider buoy	0.1 s	
Air temp (dry bulb) port and stb'd	BUMET	3 s	
Air temp (wet bulb) port and stb'd			
Global short wave radiation	BUMET	30 s	

* Sensor data referred to in this report.

PARAMETERS CONTINUOUSLY RECORDED ON THE HMAS COOK HP1000 DATA LOGGER

Parameter	Instrument	Sampling interval logging	
Downward radiation & air temperature	BUMET	30 s	
Sea surface temperature (upper)	(Plessey)	10 s	*
Sea surface temp/salinity	Thermo-salinograph (Plessey)	10 s	*
Sea surface temperature duplicated (lower)	BUMET	10 s	*
Bathy-thermograph (XBT)	Sippican expendable	0.1 s	*

Dead reckoning to be calculated from last SATNAV fix plus gyro/log inputs, and allowing for regularly updated correction. The drift correction ideally be able to be made retrospectively to update DR positions. Alternatively, updated drift correction from previous period to be used for period between fixes.

APPENDIX II

LIST OF PUBLICATIONS FOR SEAMAP DATA TYPES NOT COVERED BY THIS REPORT

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a. EJC Thesaurus
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17 SUMMARY OR ABSTRACT

(if this is security classified, the announcement or this report will be similarly classified)

Six oceanographic surveys have been made in the south west Pacific Ocean on HMAS Cook from January 1984 to September 1987 as part of an investigation of physical and acoustical oceanographic parameters known as project SEAMAP. This report presents winter survey data for bathymetry, sea surface temperature, wind speed, sea state and swell, and from expendable bathy-thermograph (XBT) drops, and CTD and Nansen stations. Underway data are mostly presented as four-hourly discrete values on maps of ship track, forming a representative data set rather than a detailed analysis. (The winter survey tracks were also traversed in oceanographic summer; the summer data are presented in a separate report.)