HYDROGRAPHY AND VELOCITY MEASUREMENTS OFFSHORE FROM THE IBERIAN PENINSULA

BORD-EST

DATA REPORT - VOLUME 2

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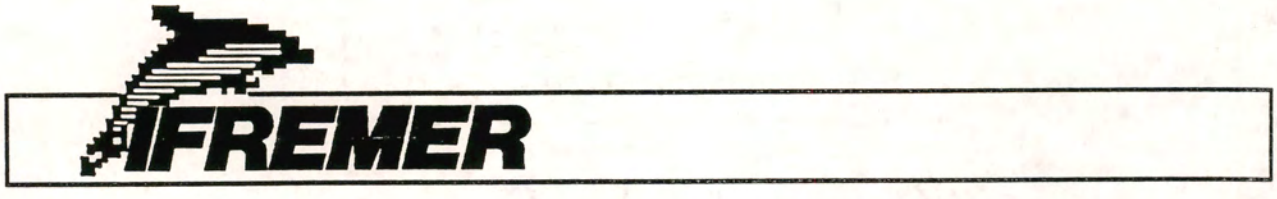

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ABSTRACT

A hydrographic array and current measurements were carried out in 1988-89 offshore from the Iberian Peninsula as part of the BORD-EST programme with the aim of describing the eastern boundary flows occuring in that area. This report presents all the hydrographic, tracers and velocity measurements, with the calibration procedures, vertical distributions and listings of the hydrographic parameters, and time series and basic statistics of the Eulerian parameters.

RESUME

Un réseau hydrographique et des mesures de courant ont été réalisés en 1988-89 au large de la Péninsule Ibérique dans le cadre du programme BORD-EST, dans le but de décrire les écoulements de frontière Est présents dans cette région. Dans ce rapport sont présentées les données hydrographiques, de traceurs géochimiques, et de courants. Les procédures de calibration, coupes verticales et listings sont fournies pour les paramètres hydrographiques, ainsi que les séries temporelles et statistiques de base des paramètres Eulériens.

THE BORD-EST PROGRAMME

Knowledge of the dynamic conditions at eastern boundaries of the oceans is of primary importance in all Sverdrupian models traditionally integrated from the east. Surprisingly the real conditions along this boundary are not well known. Most hydrographic sections carried out in the past are zonal, and the existing meridional ones are located in the ocean interior. Through lack of information one is generally led to assume that the eastern coast is devoid of any boundary layer, although several observations and theoretical considerations suggest a more complex behaviour.

The question of the real density distribution along the eastern boundary of the North Atlantic Ocean was at the origin of the BORD-EST programme. A long quasi-meridional hydrographic-tracer section was proposed and realized (cruise BORD-EST 2) at a sufficient distance offshore from the European and African continental slopes so that it can be considered the eastern limit of the interior geostrophic regime of the ocean. It was thought, when proposed, that this section would also be useful for other categories of models -numerical and diagnostic- and characterize the source of Mediterranean Water into the Atlantic Ocean.

Another volet of the BORD-EST proposal aimed at describing the eastern boundary processes themselves in the region offshore from the Iberian peninsula, between Cape St-Vincent and Cape Finisterre. Meridional currents are known to exist there along the continental slope, both at the surface, where a "Portuguese Current" is generally thought to flow southward, and at depth, where a narrow vein of Mediterranean Water is being entrained northward by the "Lusitania Current". Eight currentmeter moorings were deployed for a year and a local CTD-tracer array was carried out in order to describe the boundary currents (cruises BORD-EST 1 and BORD-EST 3).

The present report is devoted to the data from the local experiment, those from the long hydrographic section having already been presented in a separate volume (Arhan et al., 1991). It is divided in two parts, the first one dealing with the hydrographic array, and the second one with the current meters measurements.

Like the hydrographic section of BORD-EST 2, the local hydrographic array benefitted from close cooperation between several laboratories. A summary of all contributions, with domains of

interest of each group and names of principal investigators, is given in table 1.

Institution	Type of measurements	Principal investigators
IFREMER	CTD-O_2	M. Arhan (chief scientist) A. Colin de Verdière* H. Mercier
IIM/Vigo	Nutrients pH, Alkalinity	R. Prego F. Perez
WHOI	^3H_e	W. Jenkins
GOUL/Lisbon	CTD, Salinometer	I. Ambar

Table 1

* Now at the Université de Bretagne Occidentale.

Meanings of acronyms used in this table are as follow :

- IFREMER : Institut Français de Recherche pour l'Exploitation de la mer.
- IIM/Vigo : Instituto de Investigacions Marinas, Vigo.
- WHOI : Woods Hole Oceanographic Institution.
- GOUL/Lisbon : Grupo de Oceanografia da Universidade de Lisboa.

A. Billant and J.P. Gouillou from the technical group of the Department "Etudes Océaniques" of IFREMER were in charge of the CTD-O_2 calibration and operation. Pre- and post-cruise calibrations were carried out at the metrology laboratory of IFREMER. Part I of the report was prepared by A. Billant and M. Arhan. The BORD-EST mooring work was carried out by the IFREMER department "Etudes Océaniques", whose technical group was responsible for the preparation of lines and data calibration (G. Auffret, A. Billant, P. Branellec, G. Hesloin, R. Perchoc). Part II of this report devoted to these measurements was prepared by N. Daniault and A. Billant.

We also wish to acknowledge the participation of several other colleagues who took part in the preparation and execution of the cruises, and the officers and crew of Research Vessels "Le Suroit" and "Le Noroit".

PART I

THE HYDROGRAPHIC ARRAY

1 The CTD-O_2 and nutrients data

The data were acquired at 59 stations (fig. 1) occupied in the region 35°40N-45°40N, 8°30W-13°W by the R.V. Le Noroit from May 11 (departure from Lisbon) to May 26, 1989 (arrival in Brest). Measurements were made at all stations from the surface down to about 20 meters from the bottom, and the station spacing was varied from 30 NM in the deep abyssal plains down to 7-8 NM on the continental slope, with intermediate values in the vicinity of major topographic structures like the Gorringe or Galicia banks.

The stations were made with a NBIS probe equipped with a Beckman dissolved oxygen sensor, a deep range nephelometer (whose data are not considered here), and a SUBER 16 x 8 l multisampler. Salinity, dissolved oxygen, and nutrients were analysed on board at all 16 levels and a total of 120 samples was also taken at some stations for Helium 3. Three of the deepest sampling levels were equipped with SIS electronic reversing thermometers and two out of these with pressuremeters. Informations provided by these instruments are discussed below.

The calibration of the CTD-O_2 and nutrient data is discussed in this section. Section 2 presents the vertical distributions of the basic physical and chemical parameters. Listings of these parameters may then be found in sections 3 and 4, respectively, along with the stations headers with exact positions, dates and bottom depths. The list of references and the figures are placed at the end of this section, before the vertical distributions and listings of the hydrographic parameters.

1.1 Calibration of pressure

The pressure sensor was calibrated before and after the cruise against a deadweight tester "Desgranges et Huot" of relative accuracy 2 10^{-4}. Figure 2 shows that the pre- and post-cruise calibration points (for increasing pressures) do not differ by more than 1 db. A third order polynomial was adjusted to these points in the range 400-5000 db, the maximum pressure reached during the cruise being 5200 db. The points at 0 db showing a great deviation from the polynomial, calibration in the range 0 to 400 db was obtained through linear interpolation between these levels.

The two pressuremeters were also calibrated before and after the cruise in April and June 1989. Figures 3a,b show these calibration curves along with those of the manufacturer and another one

dated September 1989. These calibrations were made at 21°C. In order to estimate the effects of temperature on these instruments, two additionnal points were measured, at 4000 and 5000 db at a temperature of 2.6°C. The pressuremeter 6085 H (fig. 3b) appears relatively stable in time : the difference between the three reported curves stays within 2 db over most of the pressure range. Also, the temperature effect is limited to 1 to 3 db. Although instrument 6089 S has a more linear response, it exhibits a drift of 4 db in 5 months, and a temperature effect of 7 db.

Figure 4a,b shows all recorded pressure differences between pressuremeters and the NBIS sensor $(P_p - P_s)$. The continuous lines on the same figure results from computation of the same parameter from the calibration curves of the sensor (decreasing pressure) and the pressuremeter : $P_p - P_s = -(P_{ref} - P_p) + (P_{ref} - P_s)$. Measured and expected differences differ by about 3 db throughout the pressure range on figure 4a, and do not exceed 4 db on figure 4b. This gives the accuracy of a cross-checking of the NBIS pressures by the SIS pressuremeters during this cruise. However these figures could be reduced, for the procedure was admittedly not optimized : in the above expression for $(P_p - P_s)$, the calibration curve used for P_p was the down-profile curve while the instrument reversal takes place during the up-profile ; also, the up-profile was used for P_s, but dependence of P_s on the maximum attained pressure was ignored.

1.2 Calibration of temperature

The pre- and post-cruise temperature calibration points reported on figure 5 with the fitted correction curve reveal an uncertainty of ± 0.001°C (we use in this report the temperature scale T68).

The electronic reversing thermometers equipped the deepest (nbs SIS 229 and 239) and third deepest (nb 257) bottles of the rosette which were generally triggered at the bottom and 4000 m at temperatures around 2.5°C. Unfortunately the laboratory calibration of the thermometers could only be executed in provisory small sized baths not allowing a perfect homogeneity of the temperature. With these poor operating conditions the following deviations were obtained at 2.5°C :

$$\begin{aligned} T_{ref} - T_t &\simeq + 0.003°C \text{ for SIS } 229 \\ &\simeq - 0.002°C \text{ for SIS } 239 \\ &\simeq 0.005°C \text{ for SIS } 257 \end{aligned}$$

The differences between the SIS and uncalibrated NBIS temperatures recorded during the cruise are reported on figure 6a, b, c. What stands out is the excellent time stationarity of the differences provided by a thermometer at a given temperature. Mean values were found to be :

$$\begin{aligned} T_t - T_s &= +\,0.005°\text{C}\ (\pm\ 0.002) \text{ for SIS 229} \\ &= +\,0.009°\text{C}\ (\pm\ 0.002) \text{ for SIS 239} \\ &= +\,0.008°\text{C}\ (\pm\ 0.002) \text{ for SIS 257} \end{aligned}$$

From these values $T_{ref} - T_s$ can be inferred as :

$$\begin{aligned} T_{ref} - T_s = (T_{ref} - T_t) + (T_t - T_s) &= 0.008°\text{C from SIS 229} \\ &= 0.007°\text{C from SIS 239} \\ &= 0.0085°\text{C from SIS 257} \end{aligned}$$

The discrepancies of less than 0.0015°C can certainly be accounted for by the imperfect thermometer calibration, but accepting 0.008°C as the common value, it differs by 0.0045°C from the $(T_{ref} - T_s)$ given by the probe calibration at 2.5°C (= 0.0035 from fig. 5). Such a difference could result from a pressure effect ignored in the calibration curves.

1.3 Calibration of conductivity

All water samples taken during the up-profiles were analysed on board 24 to 48 hours after the station, using a G8400 Guildline salinometer[1]. These salinities were transformed into conductivities (C_H) using the corrected temperatures and pressures at the sampling levels. The calibration forces C_H to match the probe conductivities C_p which are averages over 8 seconds periods centered at the time of bottle closure. The probe conductivities are themselves corrected for pressure and temperature effects. The calibration procedure is in other respects identical to that described in Billant (1985). A total of 767 sample values were used and the r.m.s. difference between C_H and C_p after this first calibration was 0.0069 mmho/cm, the maximum difference being 0.0194 mmho/cm. However, figure 7 showing the residuals at each station clearly indicates that the total set of stations should be subdivided into two subgroups, one from stations 1 to 10 and the other one from stations 11 to 59. A cleaning of the conductivity cell after station 10 was the cause of this sudden shift in the calibration. The deep $\theta - S$ diagrams were also looked at at this stage and this led to separate station 5 from the first group and stations 37 and 38

[1]The standard seawater used during this cruise was from package P110 dated 20/07/90 ($K_{15} = 0.99999$).

from the second group and calibrate them individually : although these stations have acceptable mean residuals on figure 7, their deep residuals were relatively high and their deep $\theta - S$ curves significantly different from those of the neighbouring stations.

Table 2 summarizes the results of the final conductivity calibration on the two groups of stations :

	Stations 1 to 10	Stations 11 to 59
Total number of samples	145	569
% of samples used for the calibration	97 %	94 %
r.m.s. difference	0.0032	0.0032
Maximum difference $\Delta C = C_H - C_p$	0.009	0.009

Table 2

The final differences ΔC for both groups are visualized on figure 8a,b as function of pressure and on figure 9a,b as function of conductivity. The final residuals for each station are reported on figure 10.

Figure 11 shows salinities on deep θ levels at all stations. The deep $\theta - S$ relationship is stable on the whole, although some variations are apparent, particularly at the two station pairs 5-6 and 58-59. Closer examination confirmed these anomalies : at station 6, for instance, the anomaly disappears near the bottom in a 400 m thick layer, as may be seen from the salinity curve at $\theta = 2.08°C$ on figure 11. The negative anomaly of stations 58-59 similarly vanishes below $\theta \simeq 2.2°C$.

The horizontal straight lines drawn on figure 11 represent the deep $\theta - S$ relationship proposed by Saunders (1986) for the North-East Atlantic. The BORD-EST 3 salinities are within $\pm$ 0.003 from the values predicted by this relation at all deep θ levels.

Another element of comparison is provided by figure 12 which shows the deep $\theta - S$ profiles at stations 5 and 6 along with points from two neighbouring Atlantis II stations executed in 1981. The agreement is good at these particular stations.

1.4 Calibration of dissolved oxygen

The water samples were analysed according to the Winkler method and using a Methrom titroprocessor. Figure 13 showing the series of Winkler values at 3000 m, 4000 m and 4500 m, illustrates the variability of oxygen content at deep levels in the BORD-EST 3 region. These values may be regarded as uncertain by about 0.03 ml/l.

The procedure followed to calibrate the Beckman sensor from these sample values is similar to that used for the BORD-EST 2 cruise and described in Volume 1 of the BORD-EST data reports. It is basically that of Millard (1982) with the modification that the residuals from Millard's procedure can be eliminated by further adjustment of a five degree polynomial in pressure.

The algorithm is the following :

$$OXYC(ml/l) = soc \times OC \times OXSAT \times exp\{oxtc \times [oxc1 \times T + oxc2(OT - T)] + oxcp \times P\} \quad (1)$$

where :

OC is the Beckman oxygen current,

OT is the Beckman sensor temperature,

P is the calibrated NBIS pressure,

T is the calibrated NBIS temperature,

soc is the oxygen current slope factor,

$oxtc$ is the temperature correction factor,

$oxc1$ equals 1 and $oxc2$ is the weight factor of the Beckman sensor temperature,

$oxpc$ is the pressure correction factor,

$OXSAT$ is the oxygen saturation value (Weiss, 1970).

The above expression is linearized by taking its natural logarithm and the parameters soc, $oxtc$, $oxc2$ and $oxpc$ determined through a linear least square regression. Calibration of the down profiles utilizes values of OC, OT and T averaged over intervals of thickness 15 db centered at the levels (calibrated pressure) where the samples were taken on the up-profiles. The whole set of stations had to be subdivided into several stations and groups of stations to apply this procedure. Table 3 gives, for each group, the resulting standard deviations of residuals, in the total water column, and below 2000 m.

Station or groups of stations	Standard deviation of residuals			
	Surface to bottom	2000 m to bottom	After 5° polynomial	
			Surface-bottom	2000 m-bottom
1	.113	.049	.040	.044
2-3	.082	.033		
4-10	.054	.037	.042	.038
11	.076	.064	.053	.028
12	.097			
13	.071	.059		
14-24	.065	.048	.059	.041
25	.067	.028		
26	.038	.035		
27-34	.054	.035		
35	.031			
36	.017			
37-38	.060	.018		
39-40	.044	.042	.034	.021
41-47	.056	.046	.051	.038
48-57	.069	.036	.064	.038
58	.046	.035		
59	.052	.064		

Table 3

On carrying out the regression on these station groups a weight of 9 was given to the samples below 3500 m to compensate for the less numerous samples in this layer, due to the choice of vertical sampling by the rosette and the presence of many shallow stations. Figure 14a shows, as an example, the residuals after application of Millard's (1982) procedure to the station group 14 to 23. A pressure dependent bias stands out on this figure, which is negative between 300 m and 1000 m and positive elsewhere. This misfit was reduced by fitting a 5 degree polynomial to these residuals and this led to the final residuals displayed on figure 14b. The improvement in terms of r.m.s. differences may be seen in table 3. This table indicates which station groups were run through this second calibration step which produced final standard deviations of residuals

around 0.04 ml/l below 2000 m.

The deep oxygen profiles ($p > 3000$ db) of stations 5 and 6 are reported on figures 15a,b for comparison with the two neighbouring ATLANTIS II stations. There is a good agreement between BORD-EST station 5 and ATLANTIS II station 93 which are distant from one another by less than 8 NM, but higher differences between the other station pairs. This could be indicative of horizontal gradients, but the poor adjustment of the continuous BE6 profile to some Winkler values (at 4000 db and 4500 db) also contributes to these differences. Also, the ATLANTIS II reported points were themselves extracted from calibrated continuous profiles, and on the whole, the differences are compatible with a 0.04 ml/l uncertainty on each data set.

1.5 The nutrients

The concentration of nitrate plus nitrite, phosphate, and silicate were determined on board immediately after sampling, using Technicon autoanalizers with the following methods :
The nitrate was reduced to nitrite in a Cd/Cu column and it was determined with sulphanilamide and naphtiletilendiamine. The buffer solution in the reduction was prepared with citric acid and natrium citrate according to Mourino and Fraga (1985).
The phosphate was obtained from its reduction with molibdate in acid solution and reduction with ascorbic acid, as have reported Hansen and Grasshoff (1983).
The silicate concentration was obtained by reaction with molibdate according to the Hansen and Grasshoff (1983) method.

The standard for the analysis was a solution of KNO_3, KH_2PO_4 and F_6SiNa_2 prepared in desionized water and preserved in refrigerator at 4°C.
Sub-standards were prepared by dilution in a seawater poor in nutrient salts. The nutrient salts concentration in poor seawater was determined and added to values of sub-standards.
Samples, in duplicate, of sub-standard and poor seawater were placed in the autoanalyzer system before and after each series of station samples.

The errors were estimated on the basis of the sub-standards and seawater signals. The confidence interval may be estimated to $\pm$ 0.04 μM for the nitrate plus nitrite, $\pm$ 0.01 μM for phosphate and $\pm$ 0.1 μM for silicate.

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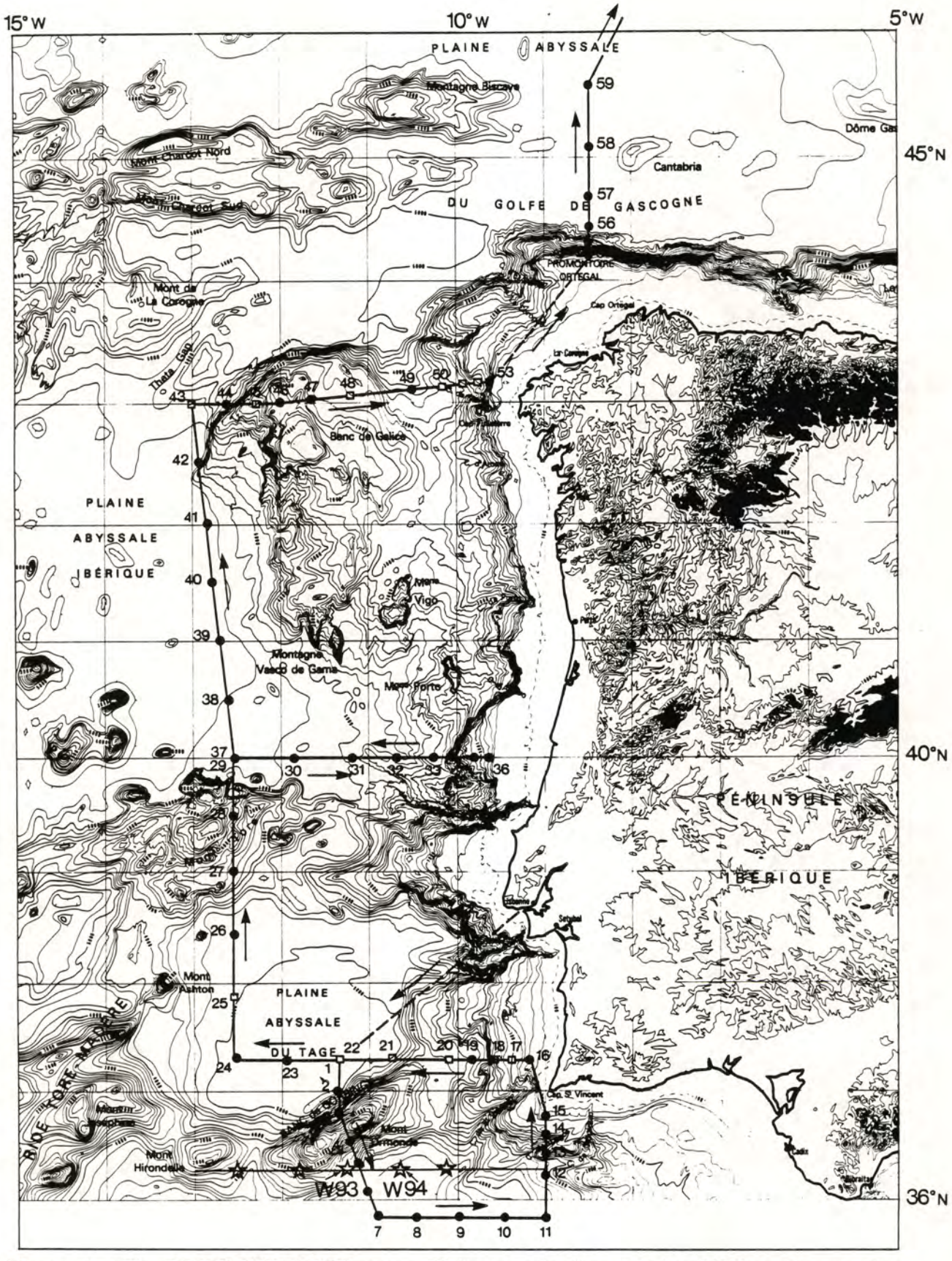


Figure 1 : The BORD-EST 3 CTD array. Water samples for analysis of Helium 3 were taken at the stations marked by an empty square. The two stations W93 and W94 from the 36N Atlantis II cruise which are used for comparison in the text are also shown.

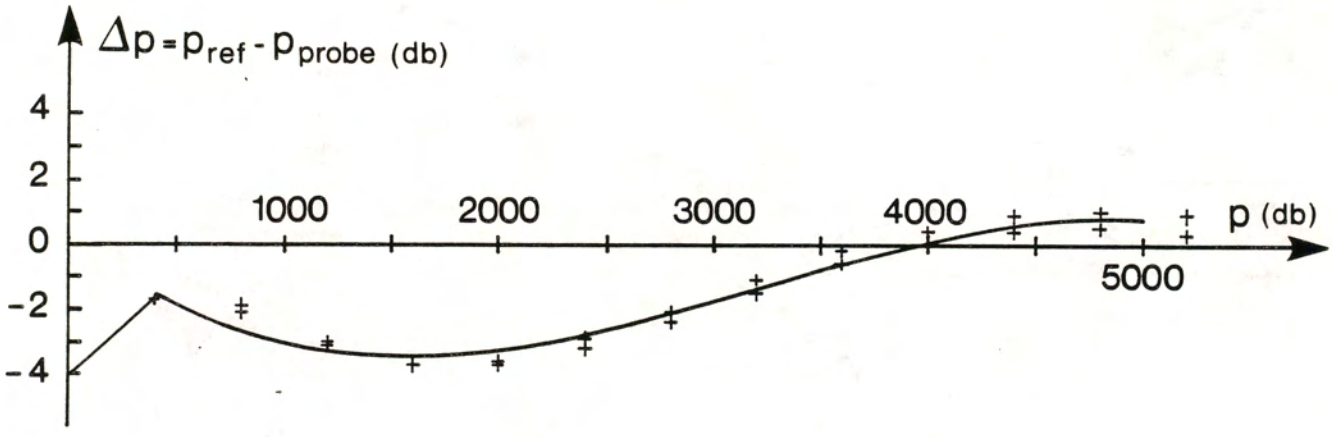


Figure 2 : The pre- and post-cruise pressure calibration points and the fitted 3 degree polynomial.

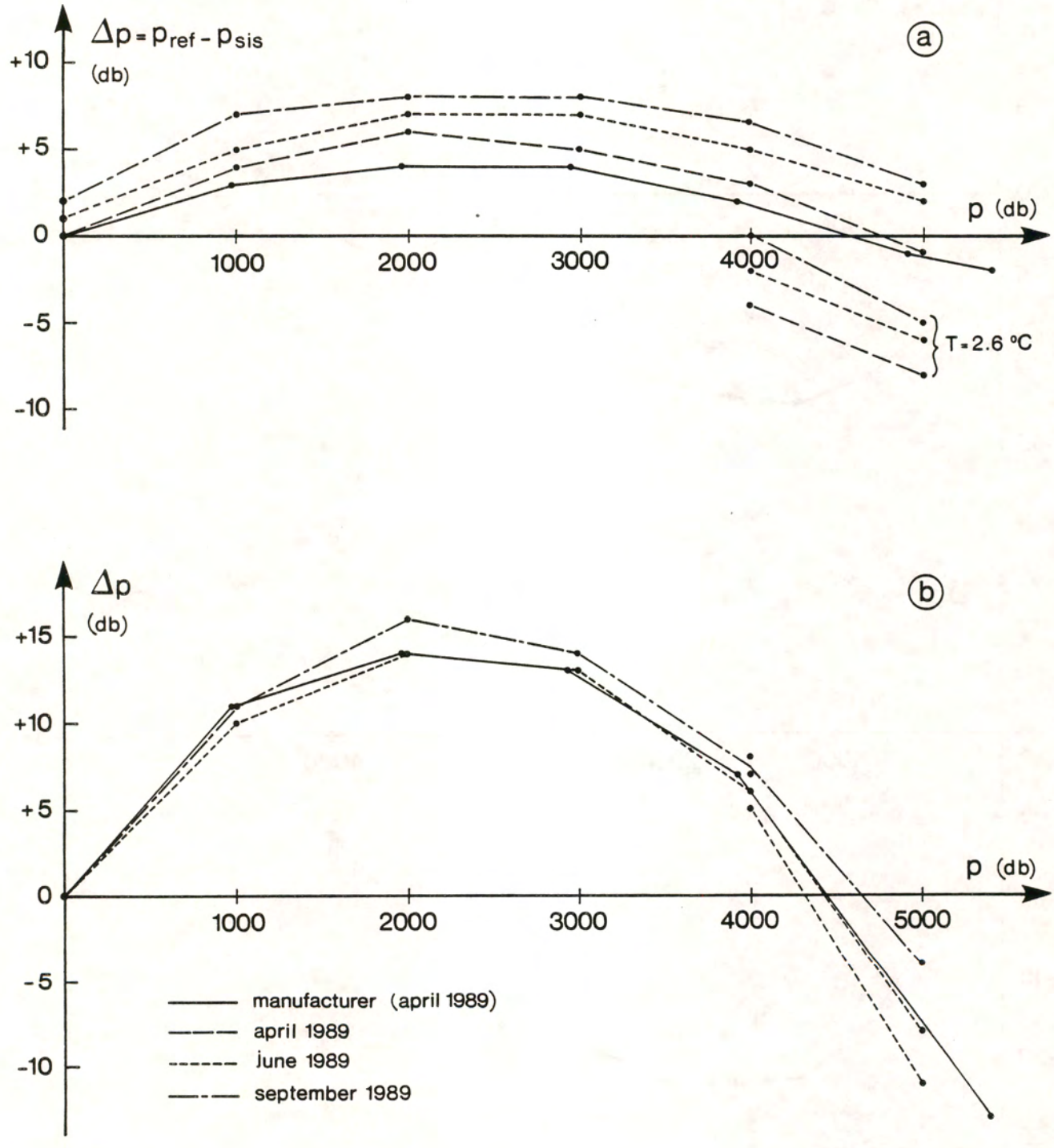


Figure 3 : Calibration curves of the SIS reversing pressuremeters P6089S (a) and P6085H (b). The highest pressures were also calibrated at T = 2,6°C to see the temperature effect.

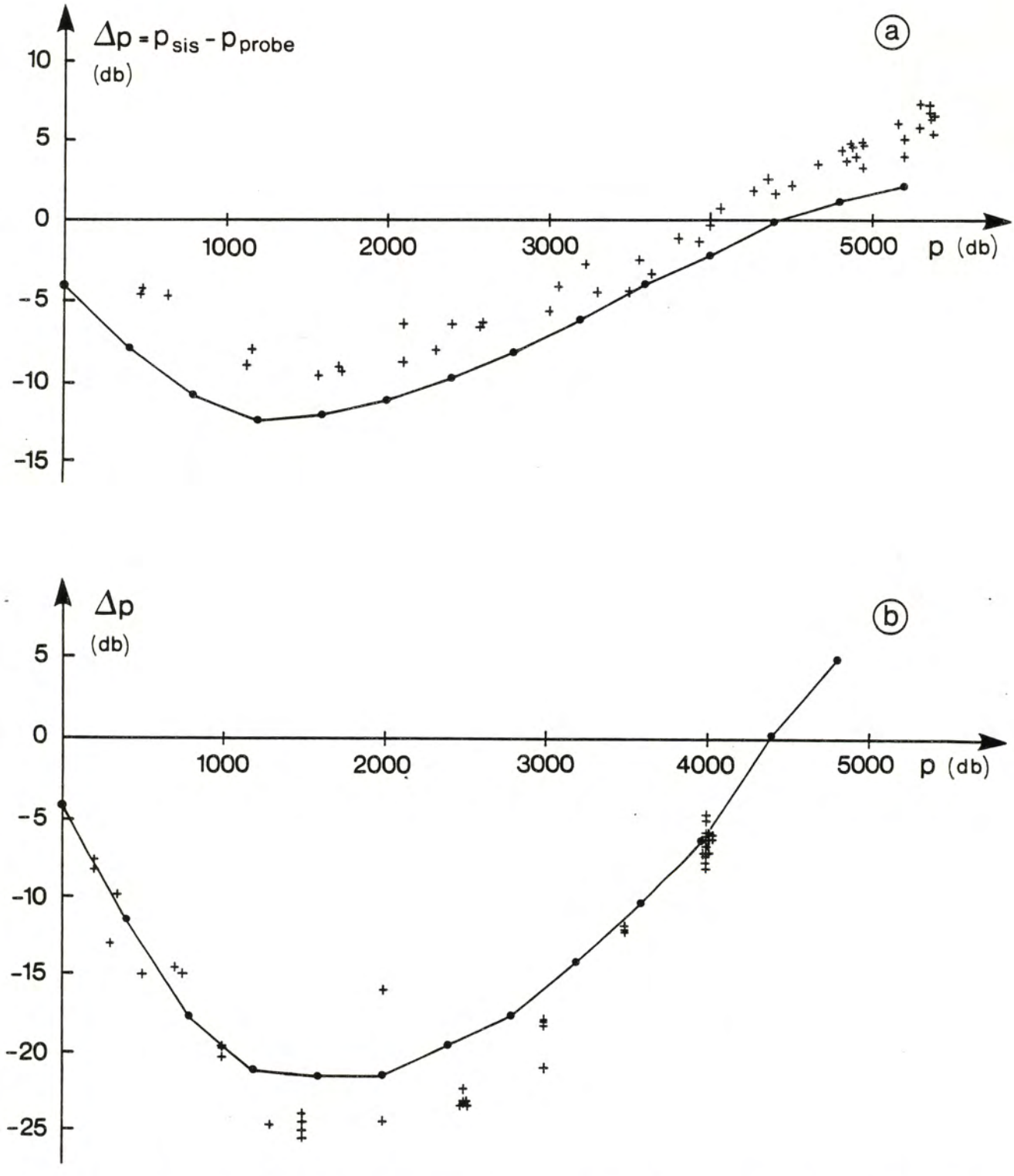


Figure 4 : Pressure differences between SIS pressuremeters and NBIS probe : (a) for instrument 6089S, (b) for instrument 6085H. Continuous lines are the pressure differences expected from calibrations of the pressuremeters and the NBIS pressure sensor.

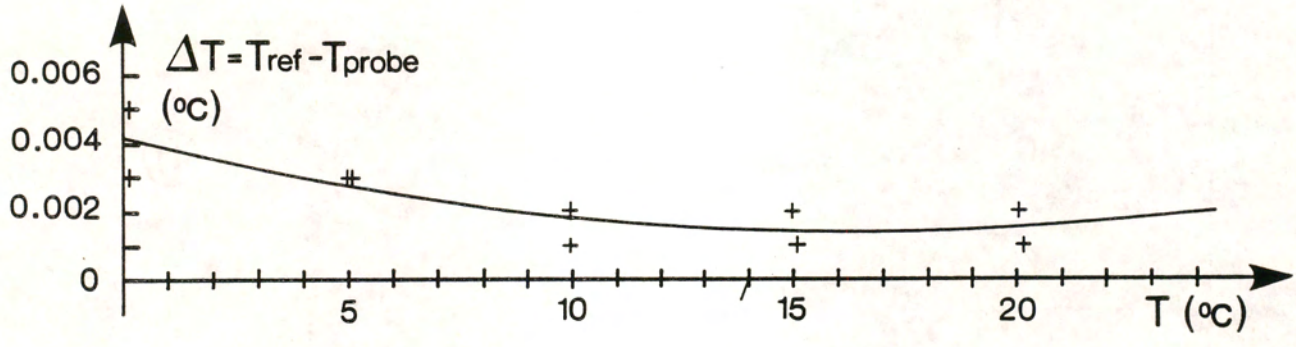


Figure 5 : Pre- and post-cruise temperature calibration points and the fitted curve.

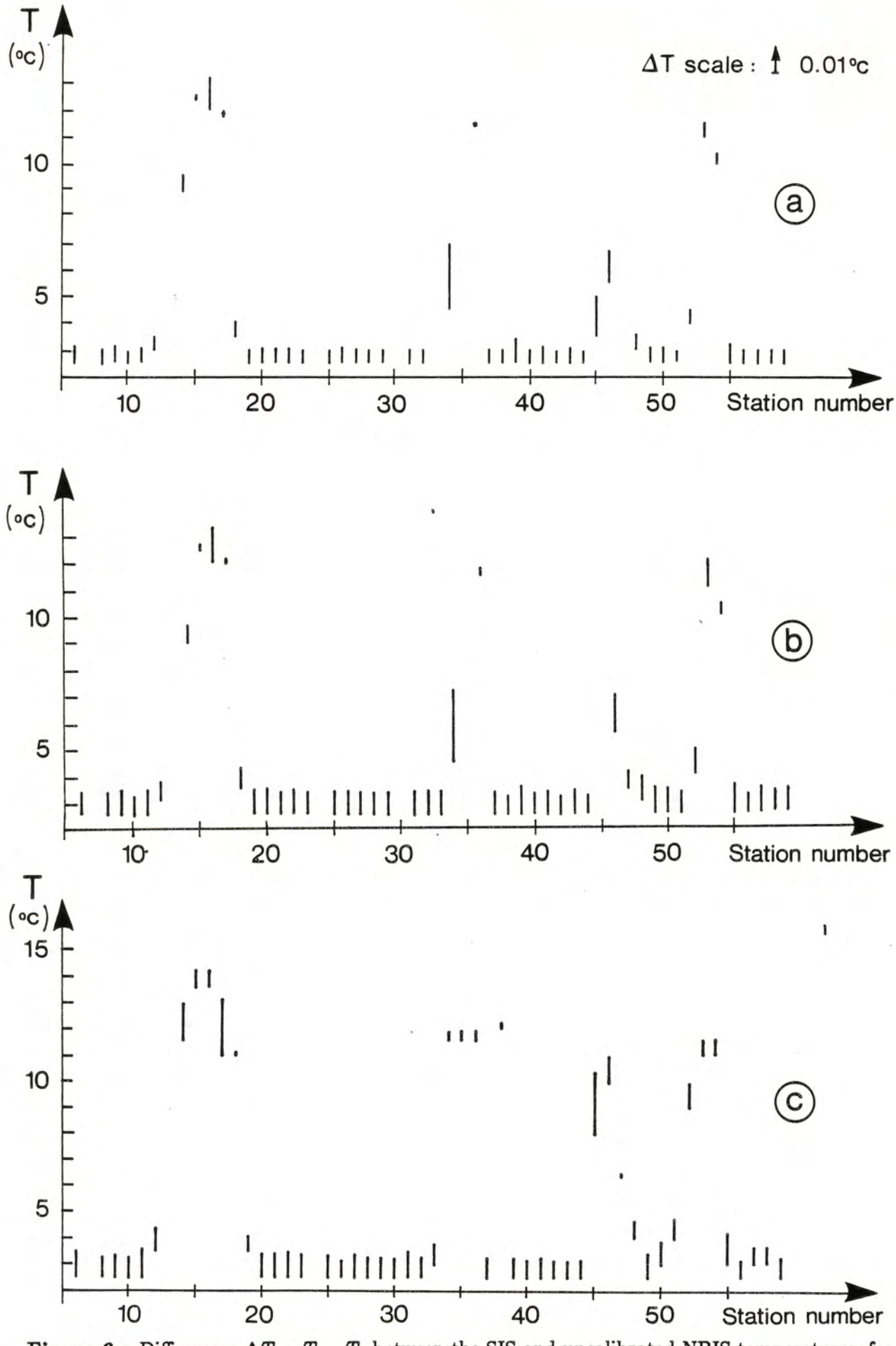


Figure 6 : Differences $\Delta T = T_t - T_s$ between the SIS and uncalibrated NBIS temperatures, for thermometers 229 (a), 239 (b) and 257 (c). The scale for ΔT is shown in (a).

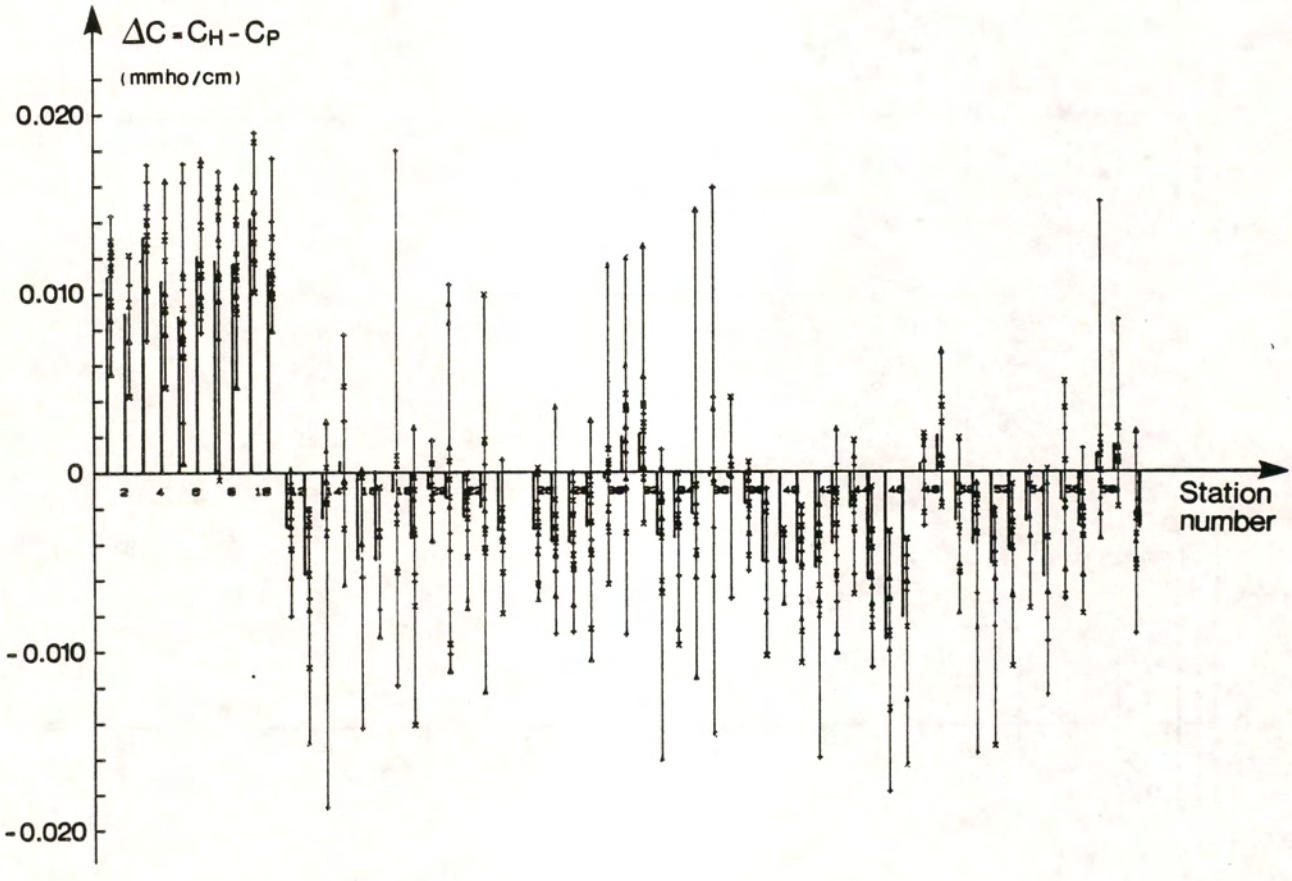


Figure 7 : Conductivity residuals after a first global calibration. Bold segments show the mean residuals at each station.

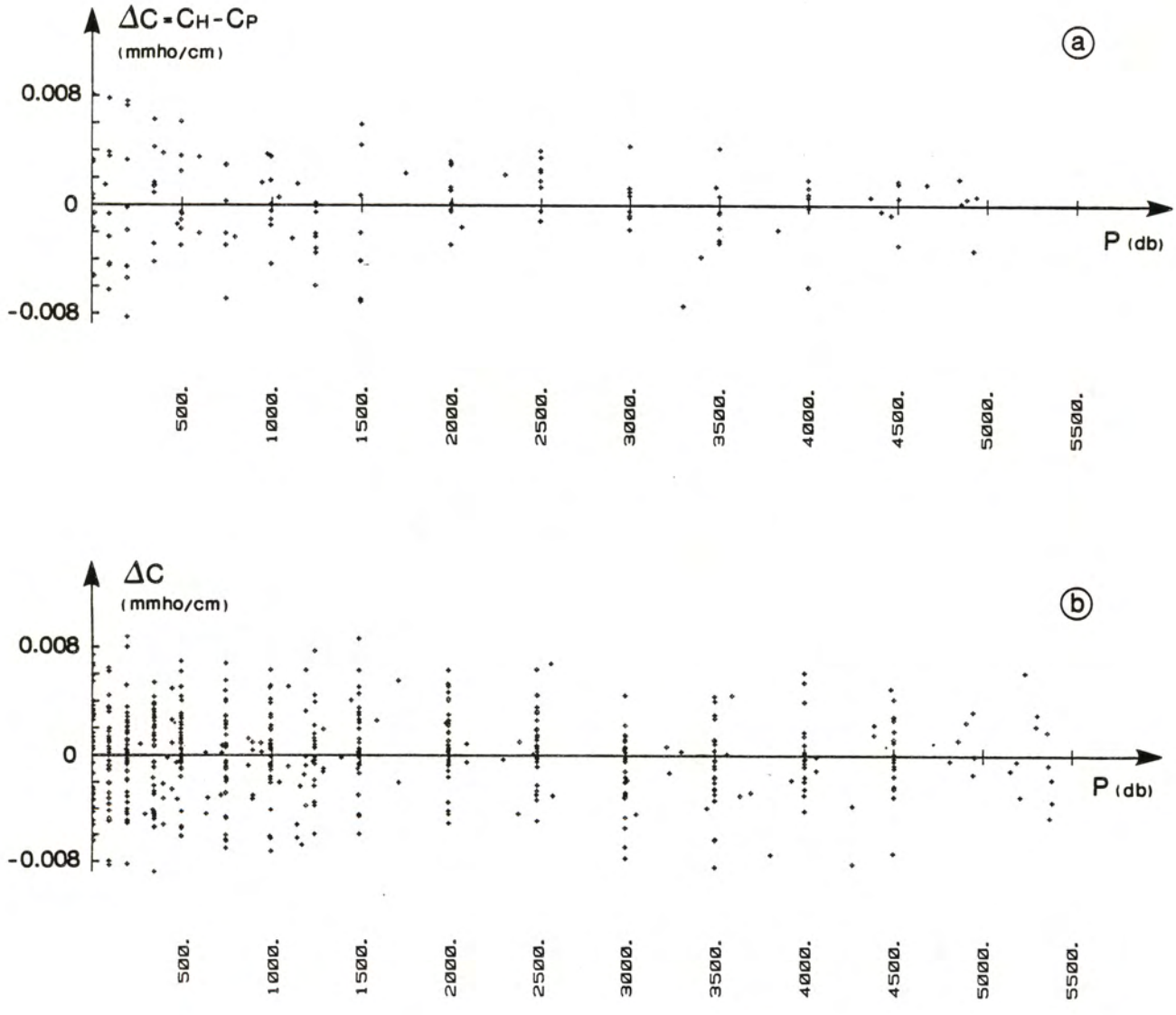


Figure 8 : Final conductivity residuals versus pressure for the two station groups 1 to 10 (a) and 11 to 59 (b).

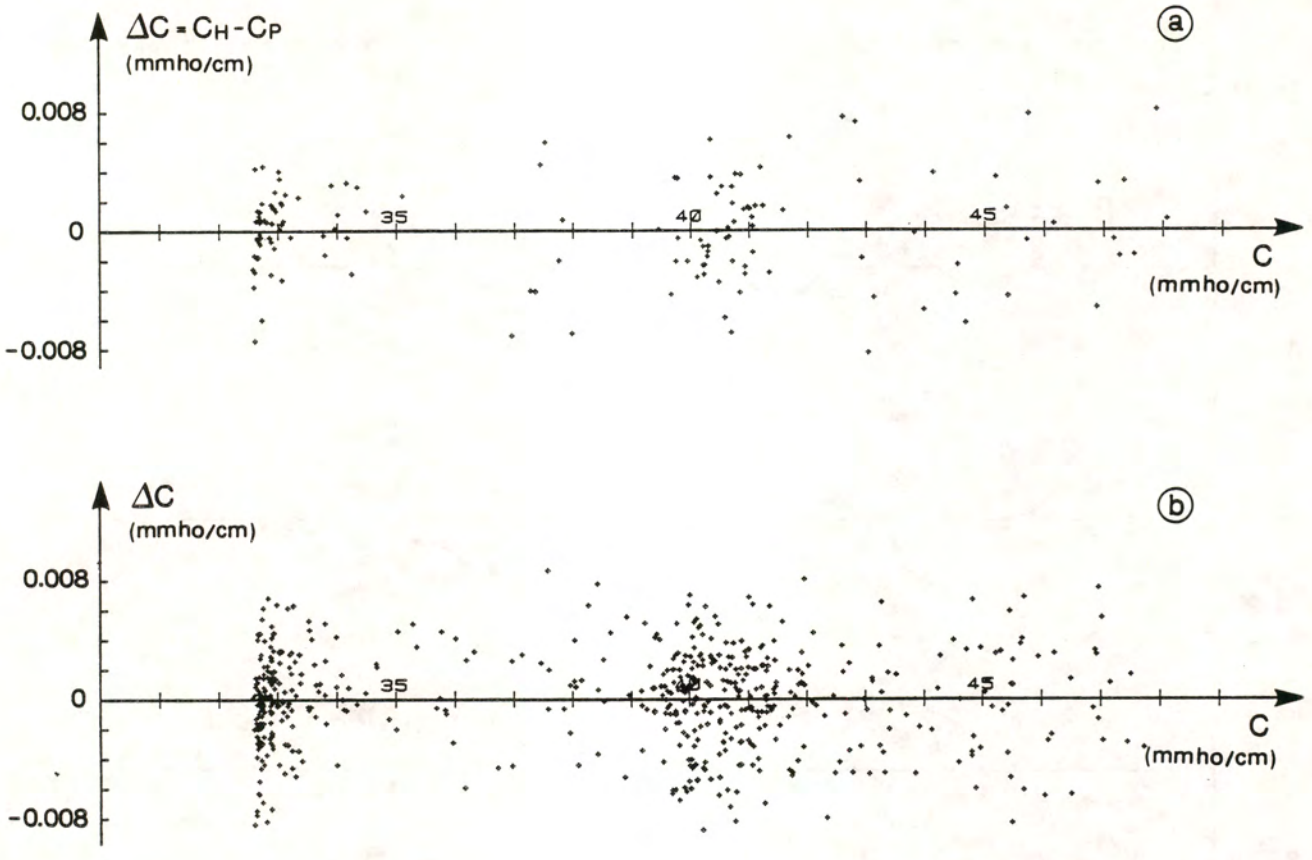


Figure 9 : Final conductivity residuals versus conductivity for the two station groups 1 to 10 (a) and 11 to 59 (b).

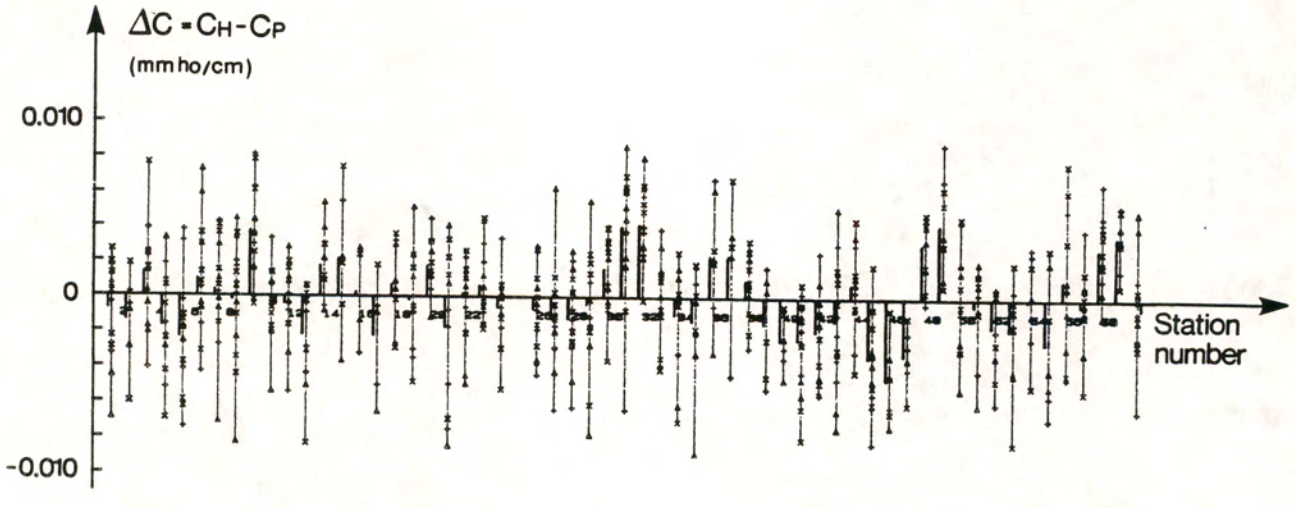


Figure 10 : Final conductivity residuals. Bold segments show the mean residuals at each station.

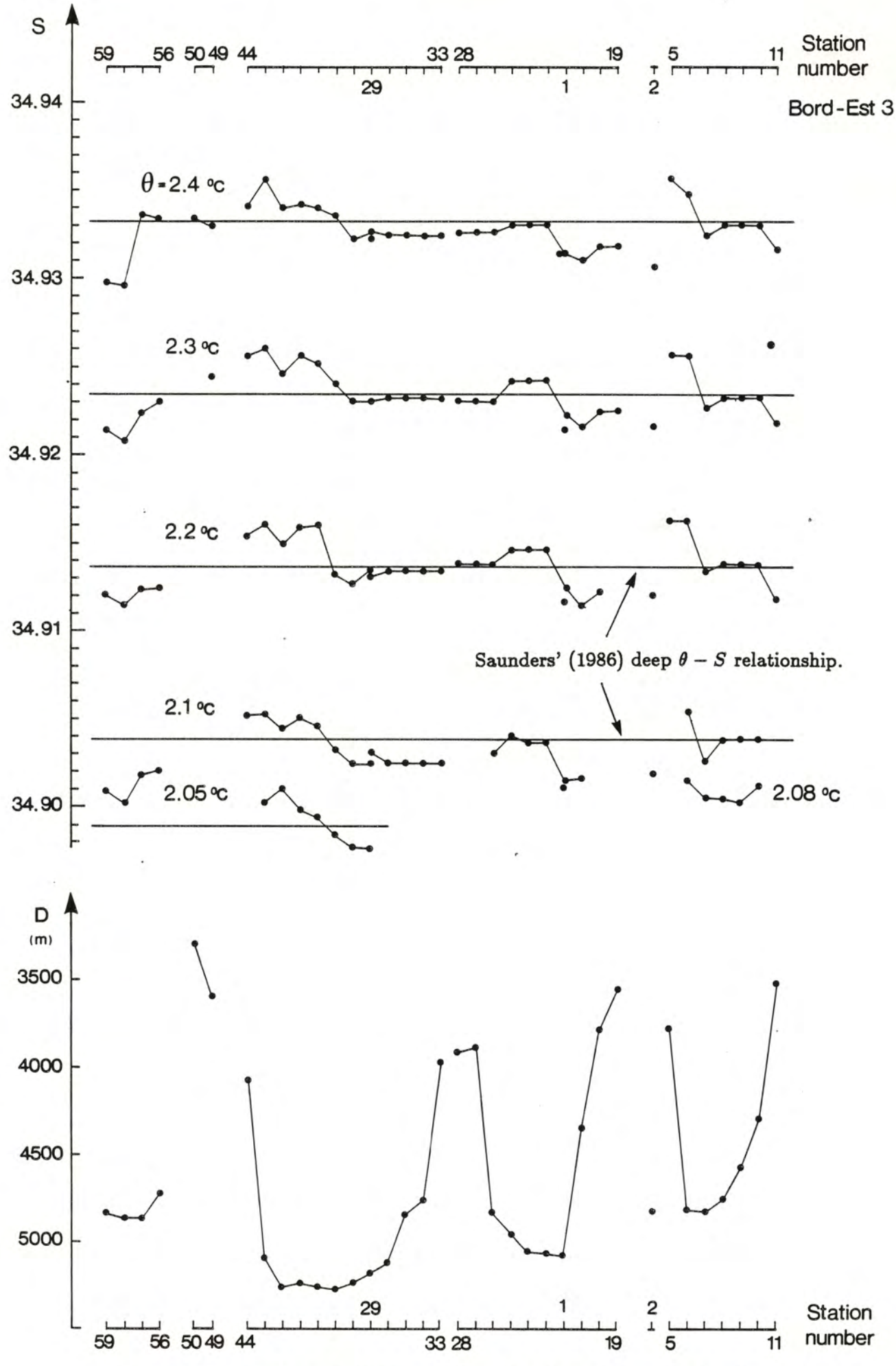


Figure 11 : Calibrated salinities on deep θ levels and the water depths.

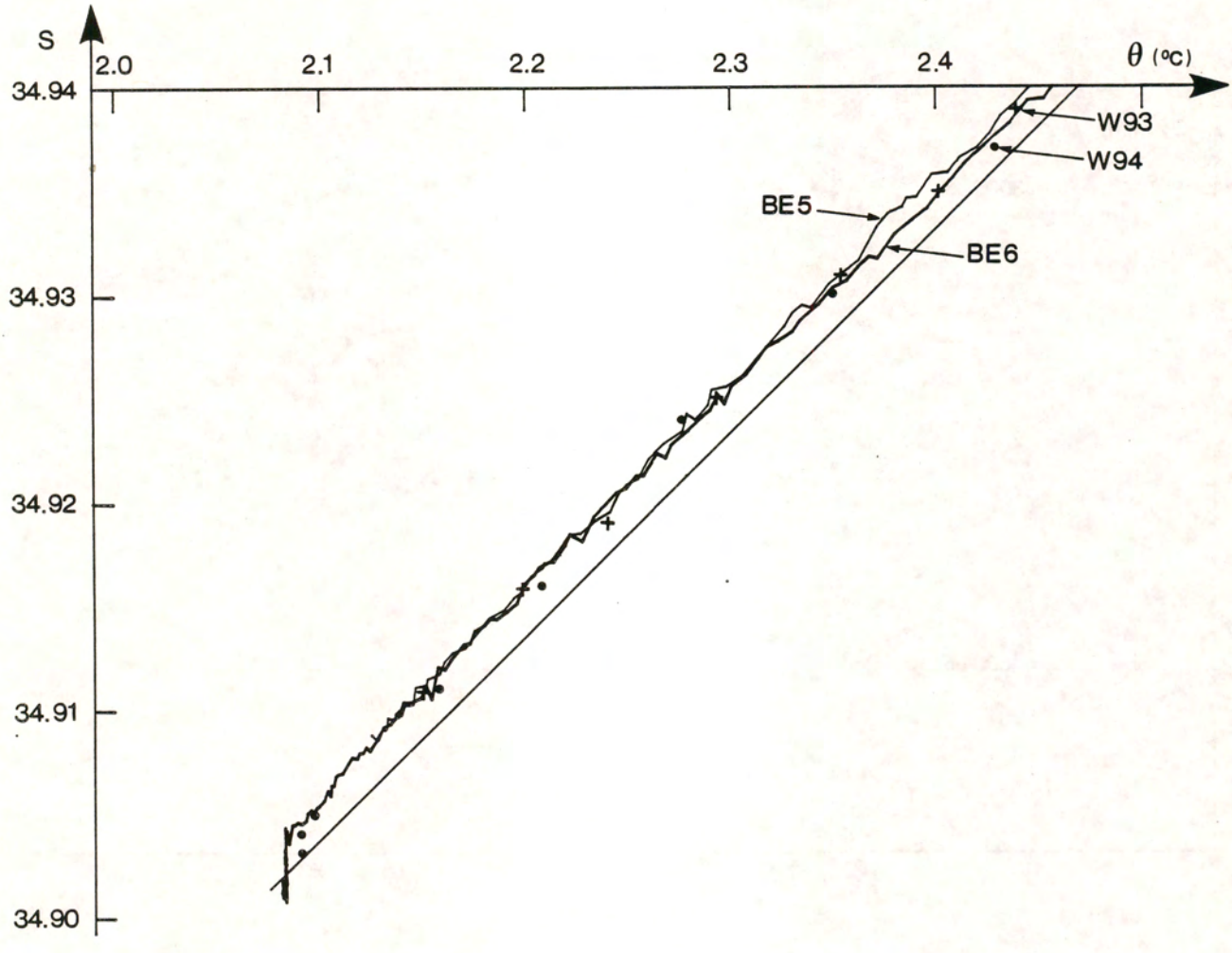


Figure 12 : Comparison of the deep $\theta - S$ diagrams at the BORD-EST stations 5 and 6 with the neighbouring Atlantis II stations W93 and W94. The straight line represents Saunder's deep $\theta - S$ relationship.

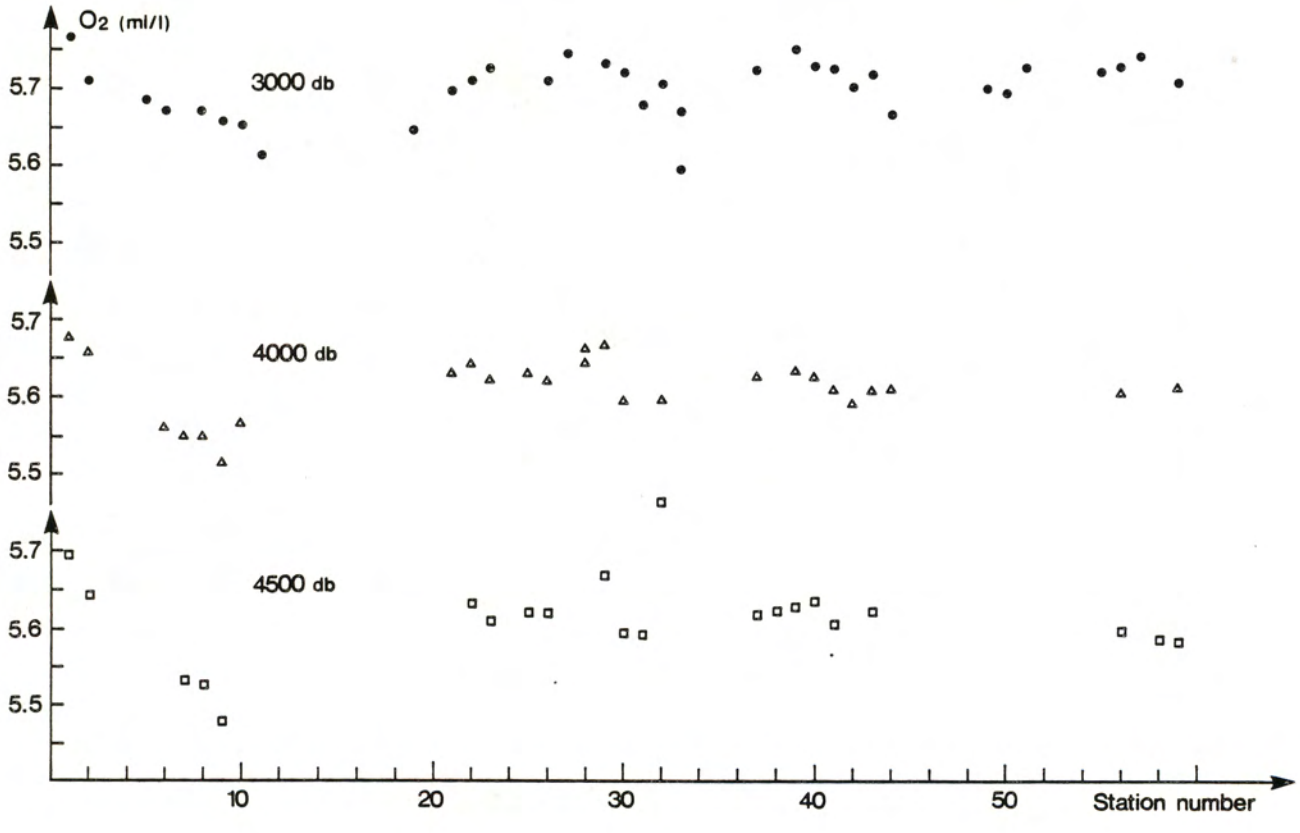


Figure 13 : Winkler values of dissolved oxygen at 3000 db, 4000 db and 4500 db at the BORD-EST 3 stations.

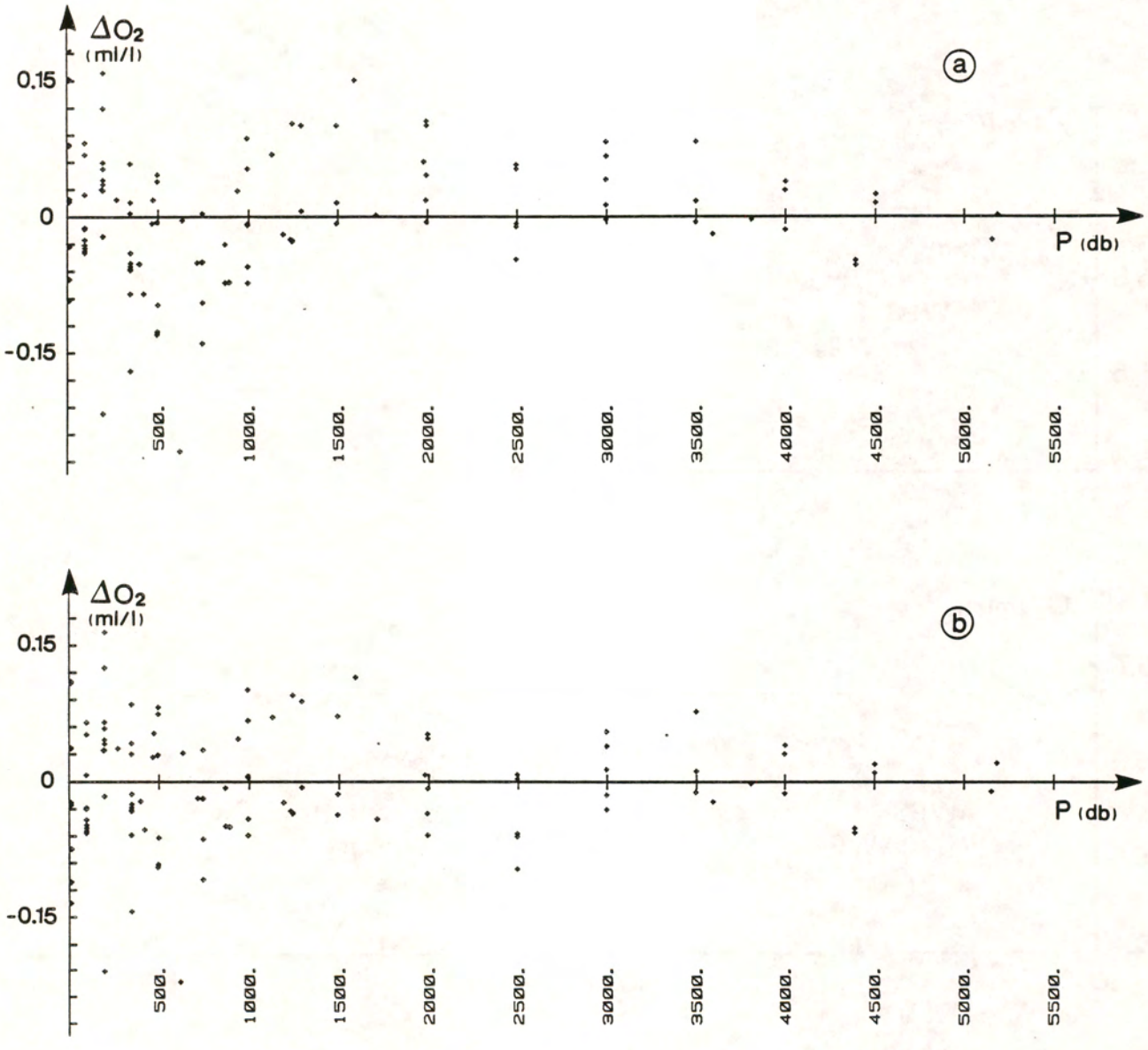


Figure 14 : Residuals of dissolved oxygen for station group 14 to 24 :

a) After calibration by Millard's (1982) procedure.

b) After further reduction of the residuals by fitting a 5 degree polynomial to the points of (a).

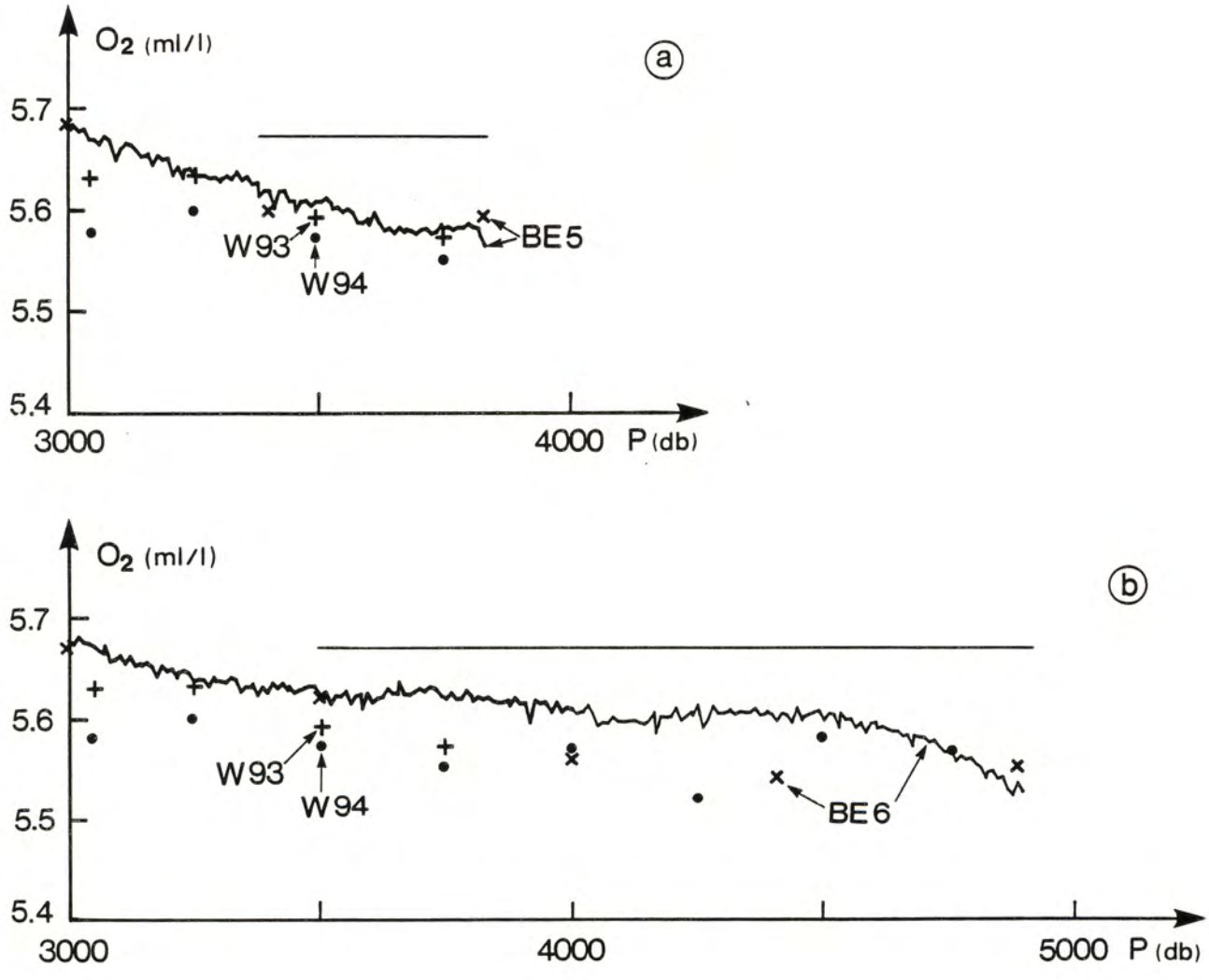
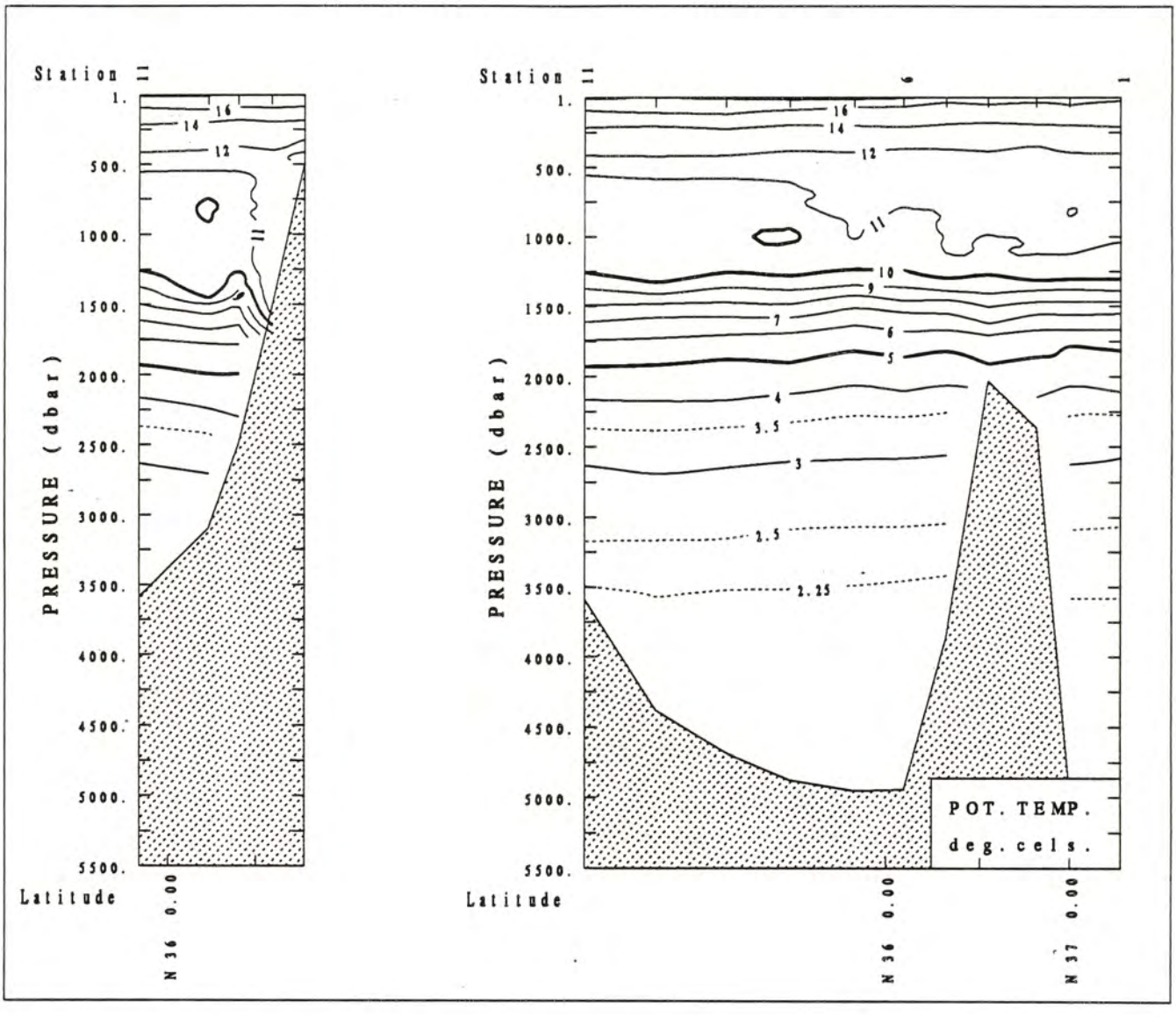


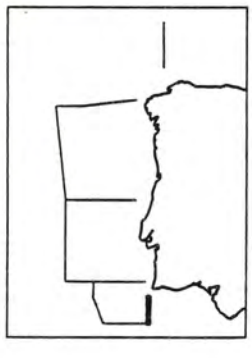
Figure 15 : Comparison of the deep oxygen profiles at the BORD-EST stations 5 (a) and 6 (b) and the neighbouring Atlantis II stations 93 and 94. Reported values from the latter two stations are calibrated Beckman values extracted from continuous profiles. The Winkler values from the BORD-EST stations are also reported.

2 Vertical distributions of the basic parameters

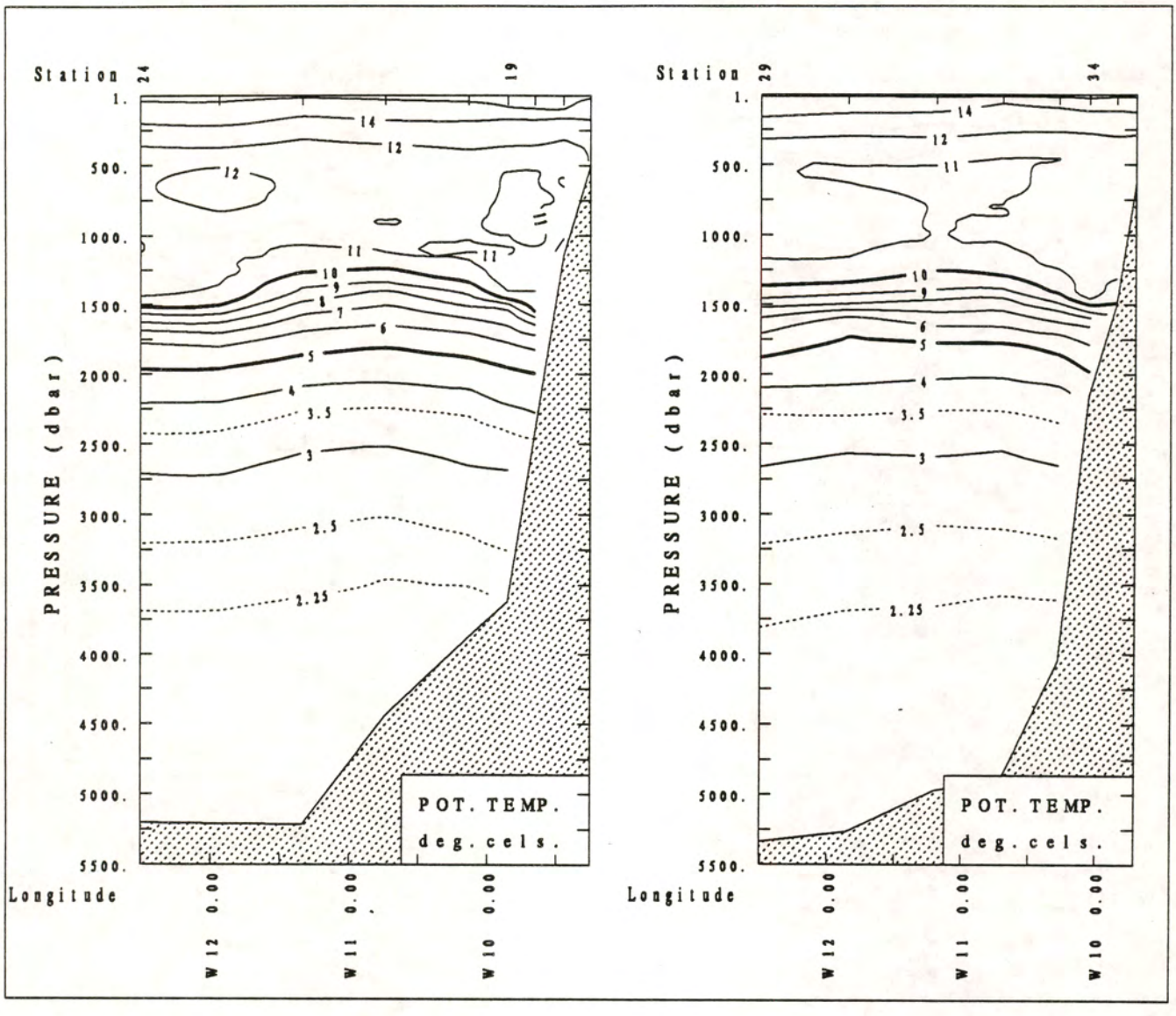
These distributions are shown below for the CTD parameters potential temperature, salinity, dissolved oxygen, and potential density referred to the surface, and the rosette parameters salinity, dissolved oxygen, nitrate, phosphate and silicate. The chartlet below each drawing allows to recognize the line along which the distribution is shown. There is a lack of chemical parameters data at some stations because of a misfunctionning of the rosette. In order to eliminate the small features on the displays the measured CTD parameters had to be smoothed vertically. This was done using a Gaussian filter of standard deviations 15 db on the temperature and dissolved oxygen, and 30 db on the salinity. The potential density computed from the original non-smoothed temperature and salinity profiles was itself non filtered. The rosette parameters were linearly interpolated from the original discrete vertical sampling to provide continuous profiles. The agreement between the CTD and rosette distributions of salinity and dissolved oxygen is generally good.

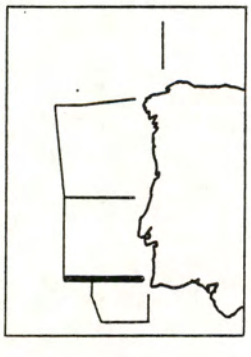
BORD - EST 3

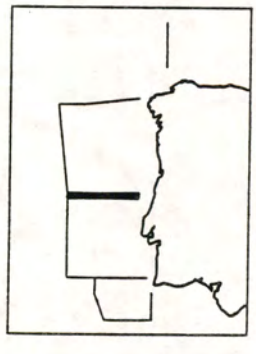

Station
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
16
14
12
11
Latitude
N 36 0.00
Station
6
1
10
9
7
6
5
4
3.5
3
2.5
2.25
POT. TEMP.
deg. cels.
N 37 0.00



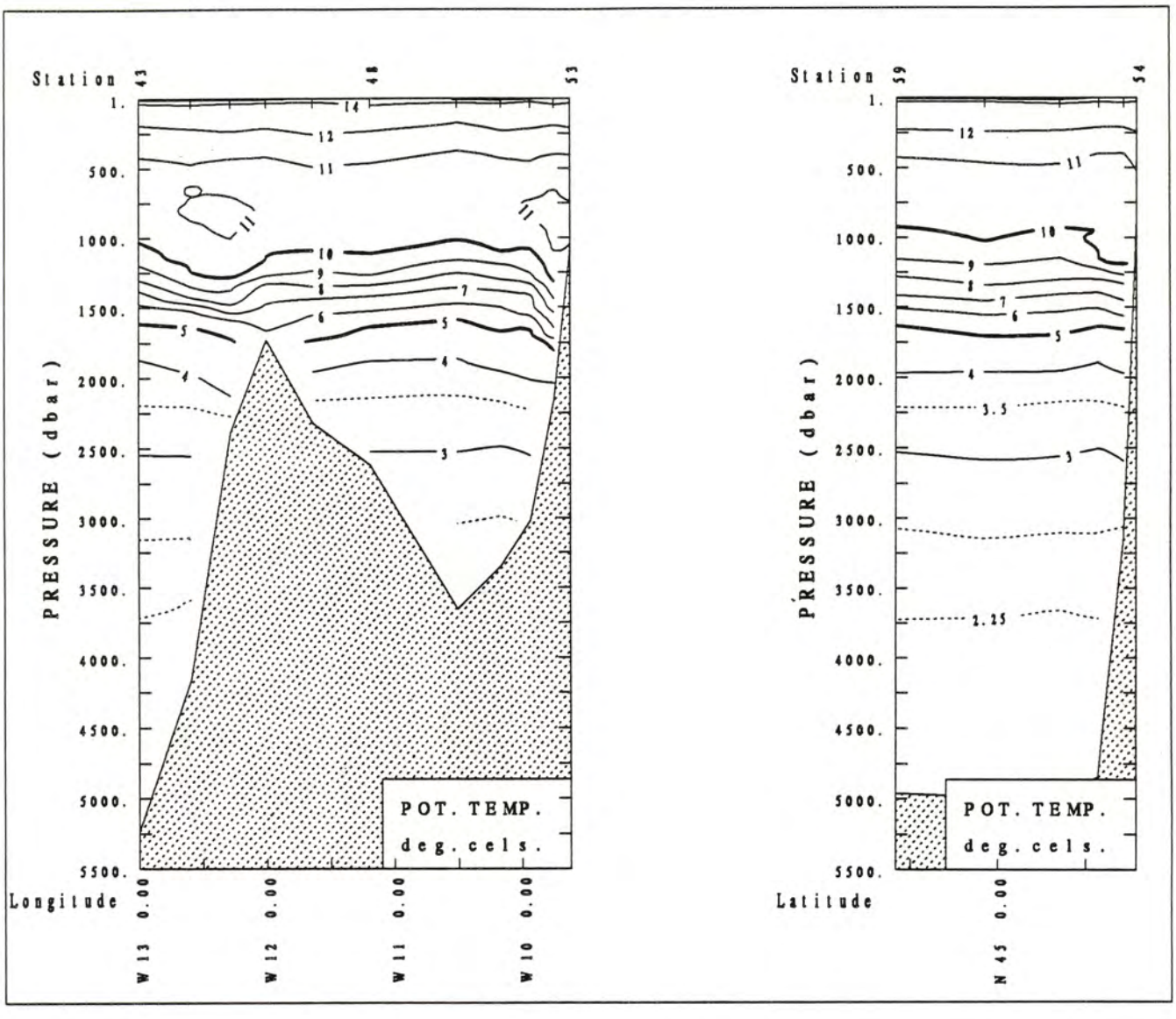
BORD - EST 3

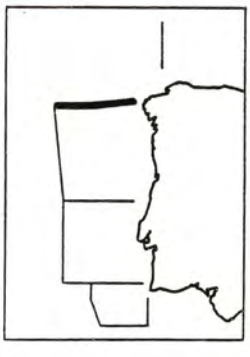

Station 24
19
Station 29
34
PRESSURE (dbar)
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
14
12
11
10
9
8
7
6
5
4
3.5
3
2.5
2.25
POT. TEMP.
deg.cels.
Longitude
W 12 0.00
W 11 0.00
W 10 0.00



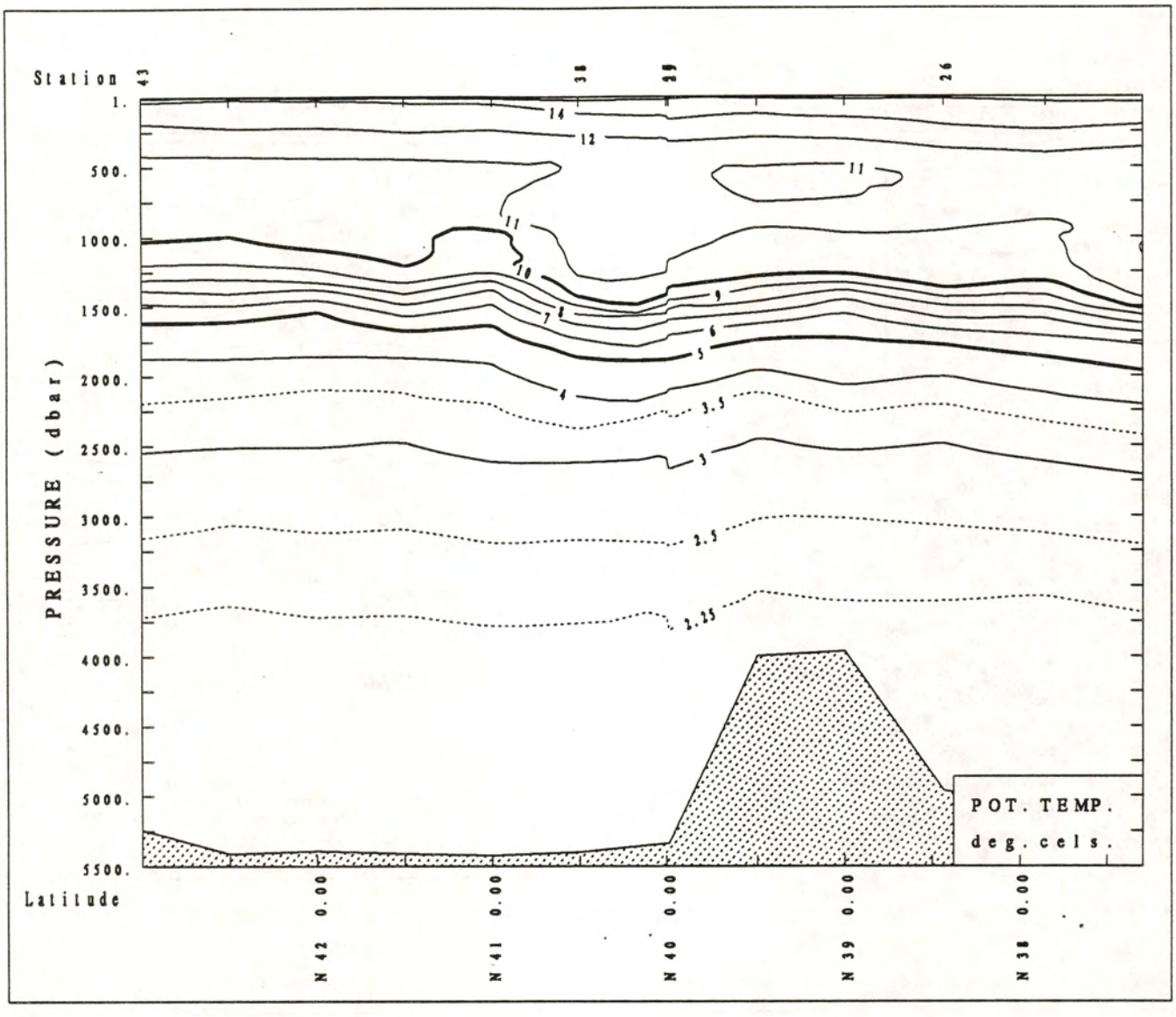


BORD - EST 3


Station 43 48 53
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
14
12
11
10
9
8
7
6
5
4
3
POT. TEMP.
deg.cels.
Longitude
W 13 0.00
W 12 0.00
W 11 0.00
W 10 0.00
Station 59 54
12
11
10
9
8
7
6
5
4
3.5
3
2.25
PRESSURE (dbar)
POT. TEMP.
deg.cels.
Latitude
N 45 0.00



BORD - EST 3


Station
43
38
33
26
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
14
12
11
11
10
9
8
7
6
5
4
3.5
3
2.5
2.25
POT. TEMP.
deg. cels.
Latitude
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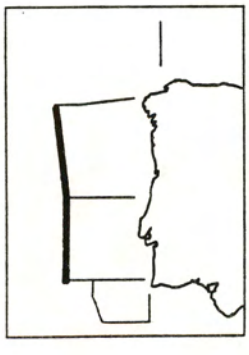
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



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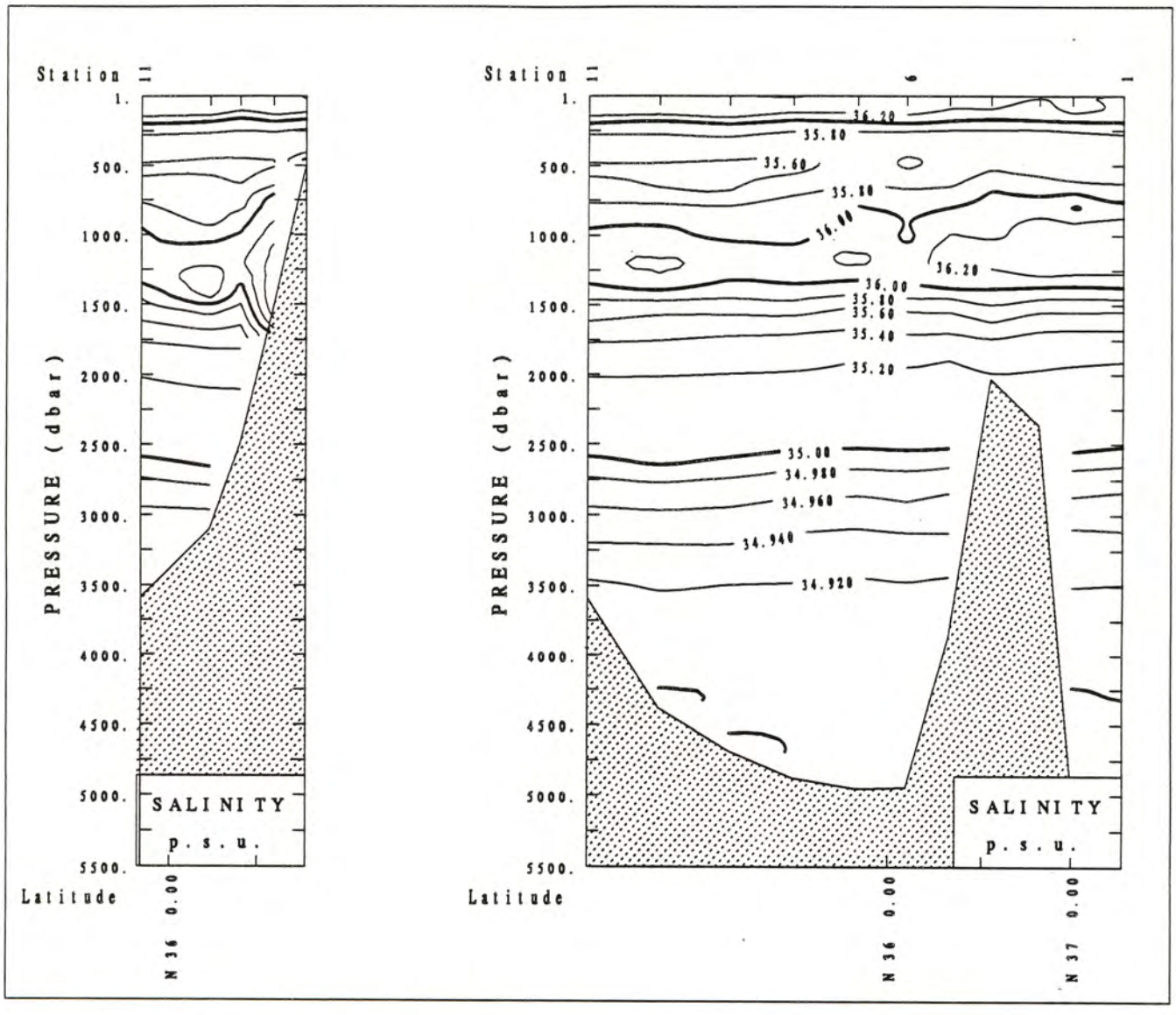
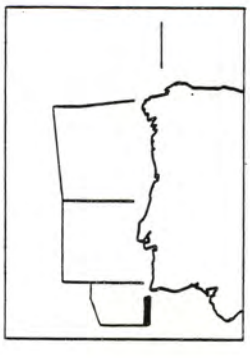
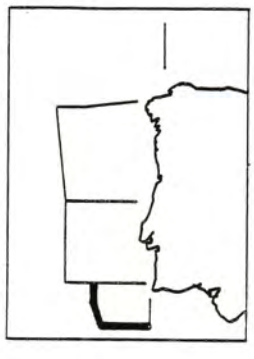

Station
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
SALINITY
p.s.u.
Latitude
N 36 0.00
Station
36.20
35.80
35.60
35.40
36.00
35.20
34.980
34.960
34.940
34.920
N 37 0.00





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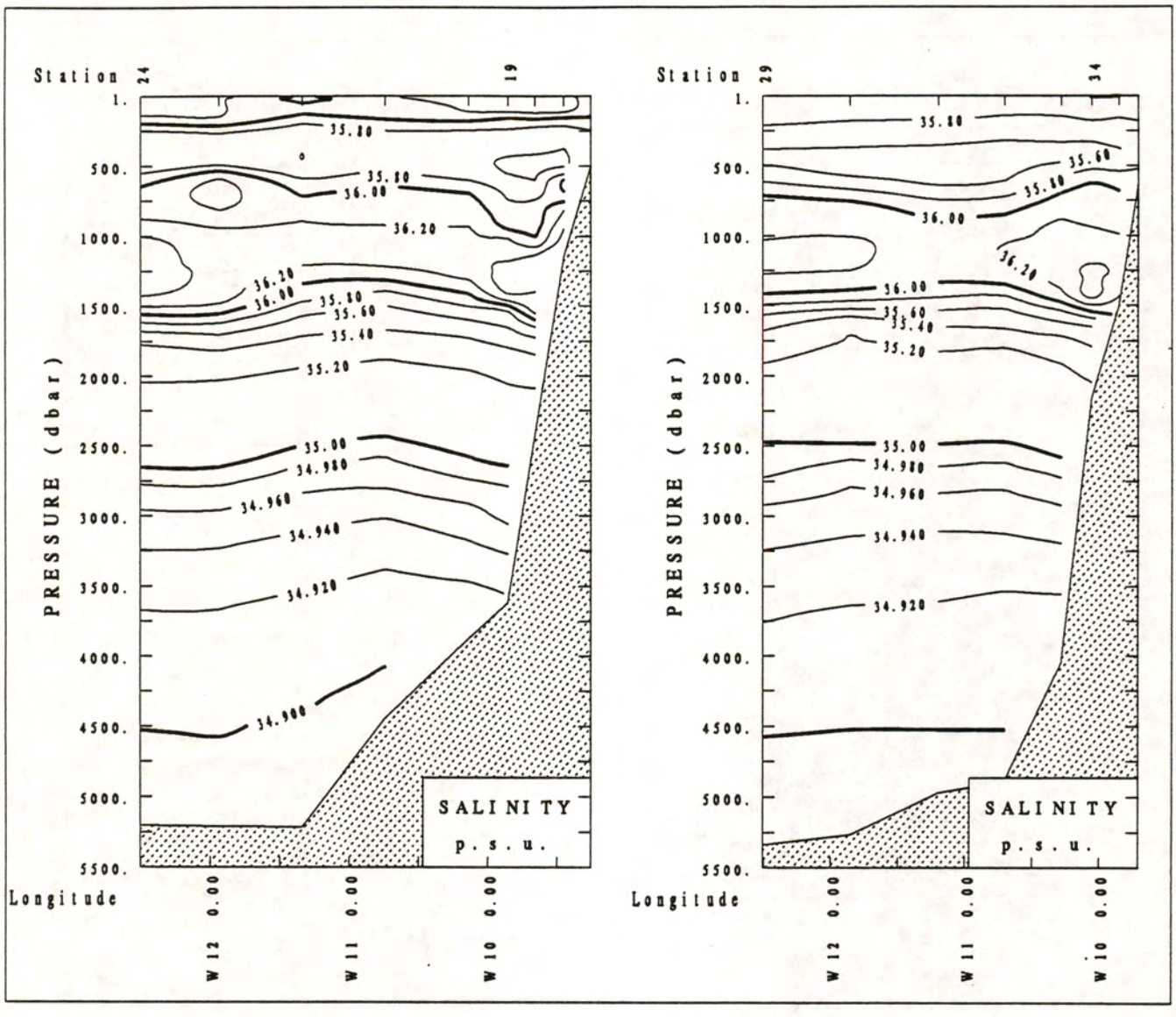
Station 24
19
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
35.80
36.00
36.20
35.60
35.40
35.20
35.00
34.980
34.960
34.940
34.920
34.900
SALINITY
p.s.u.
Longitude
W 12 0.00
W 11 0.00
W 10 0.00
Station 29
34
35.80
35.60
36.00
36.20
35.40
35.20
35.00
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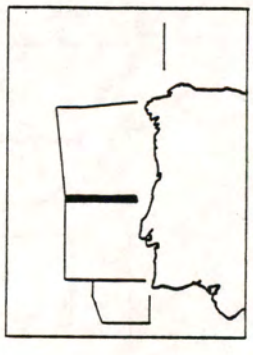
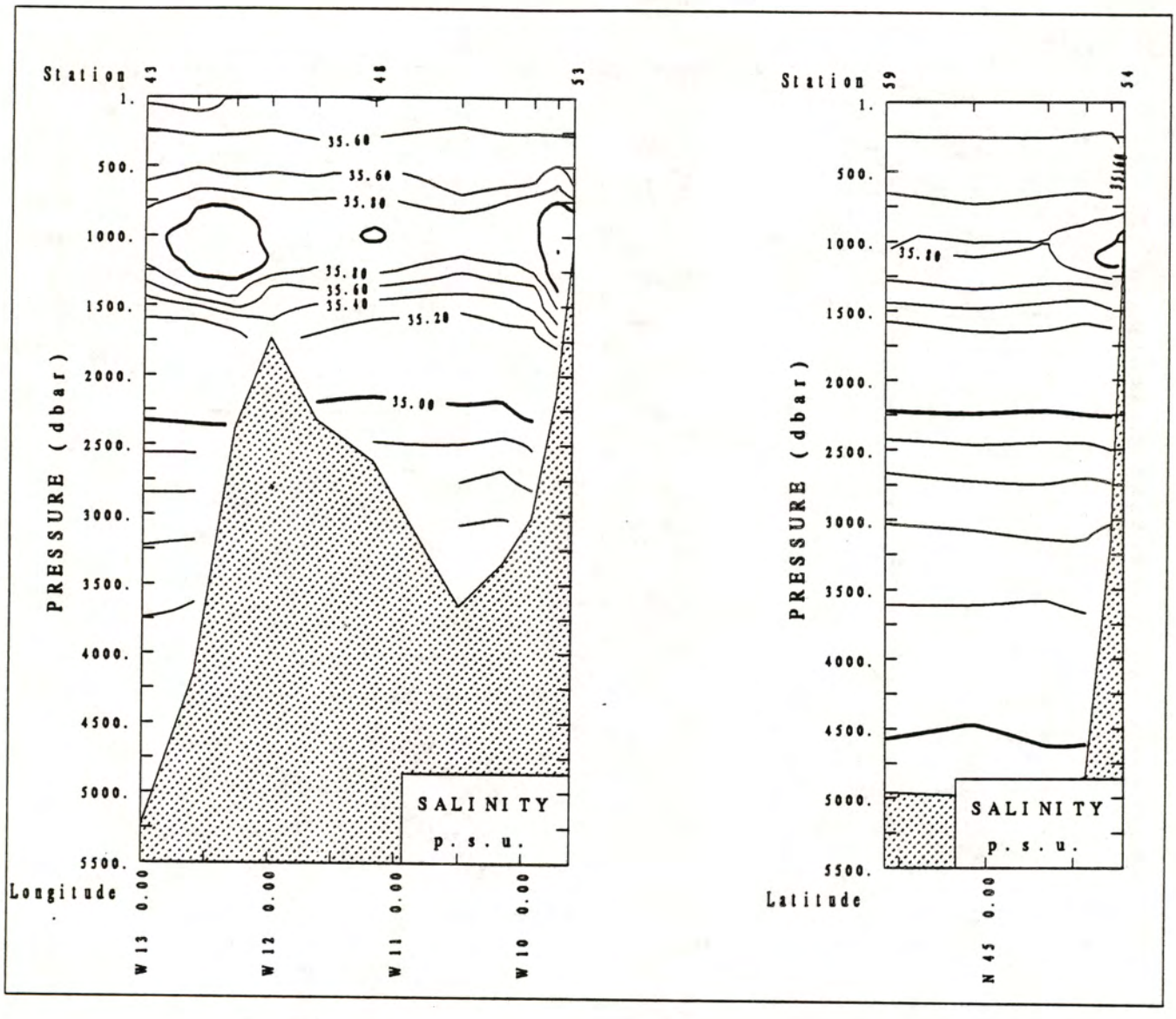
34.960
34.940
34.920
SALINITY
p.s.u.
W 12 0.00
W 11 0.00
W 10 0.00



BORD-EST 3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1.
500.
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1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
35.60
35.60
35.80
35.80
35.60
35.40
35.20
35.00
SALINITY
p.s.u.
Longitude
W13 0.00
W12 0.00
W11 0.00
W10 0.00
Station 59 54
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
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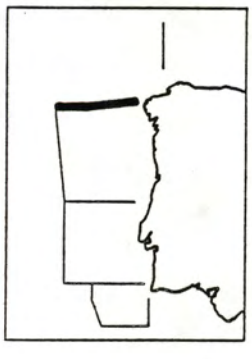
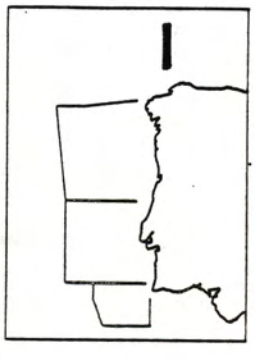
5000.
5500.
PRESSURE (dbar)
35.80
SALINITY
p.s.u.
Latitude
N45 0.00





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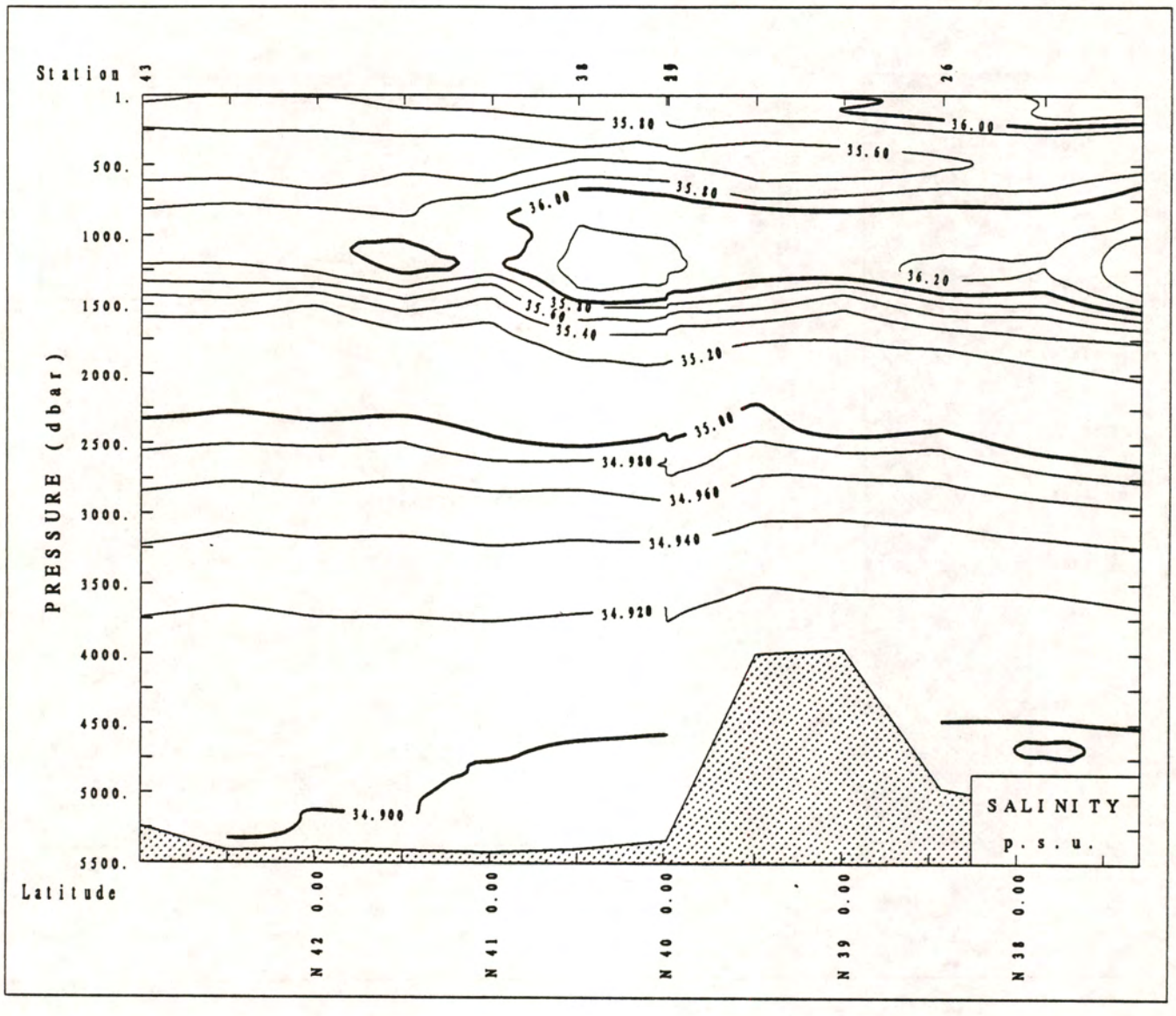
Station
43
38
29
26
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
35.80
36.00
35.60
35.80
36.00
36.20
35.60
35.40
35.20
35.00
34.980
34.960
34.940
34.920
34.900
SALINITY
p.s.u.
Latitude
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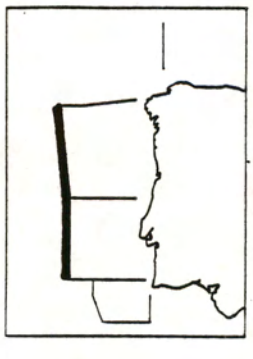
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



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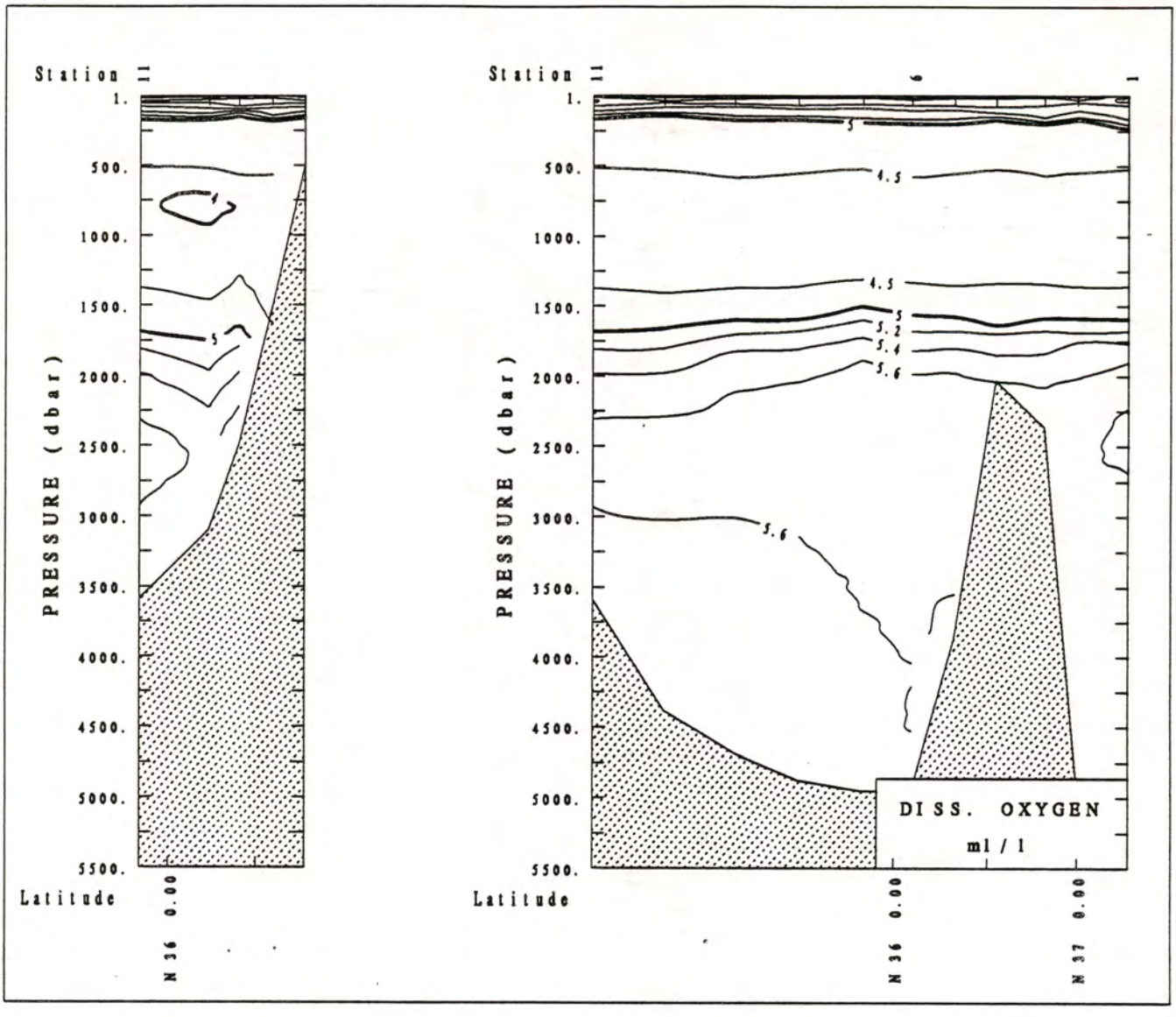
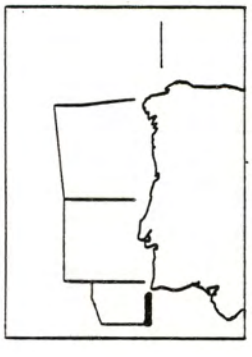
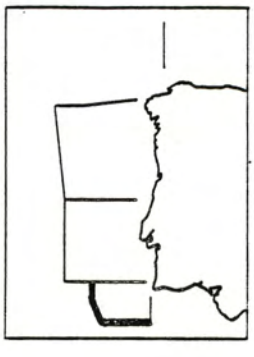

Station
PRESSURE (dbar)
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
Latitude
N 36 0.00
Station
PRESSURE (dbar)
DISS. OXYGEN
ml / l
Latitude
N 36 0.00
N 37 0.00





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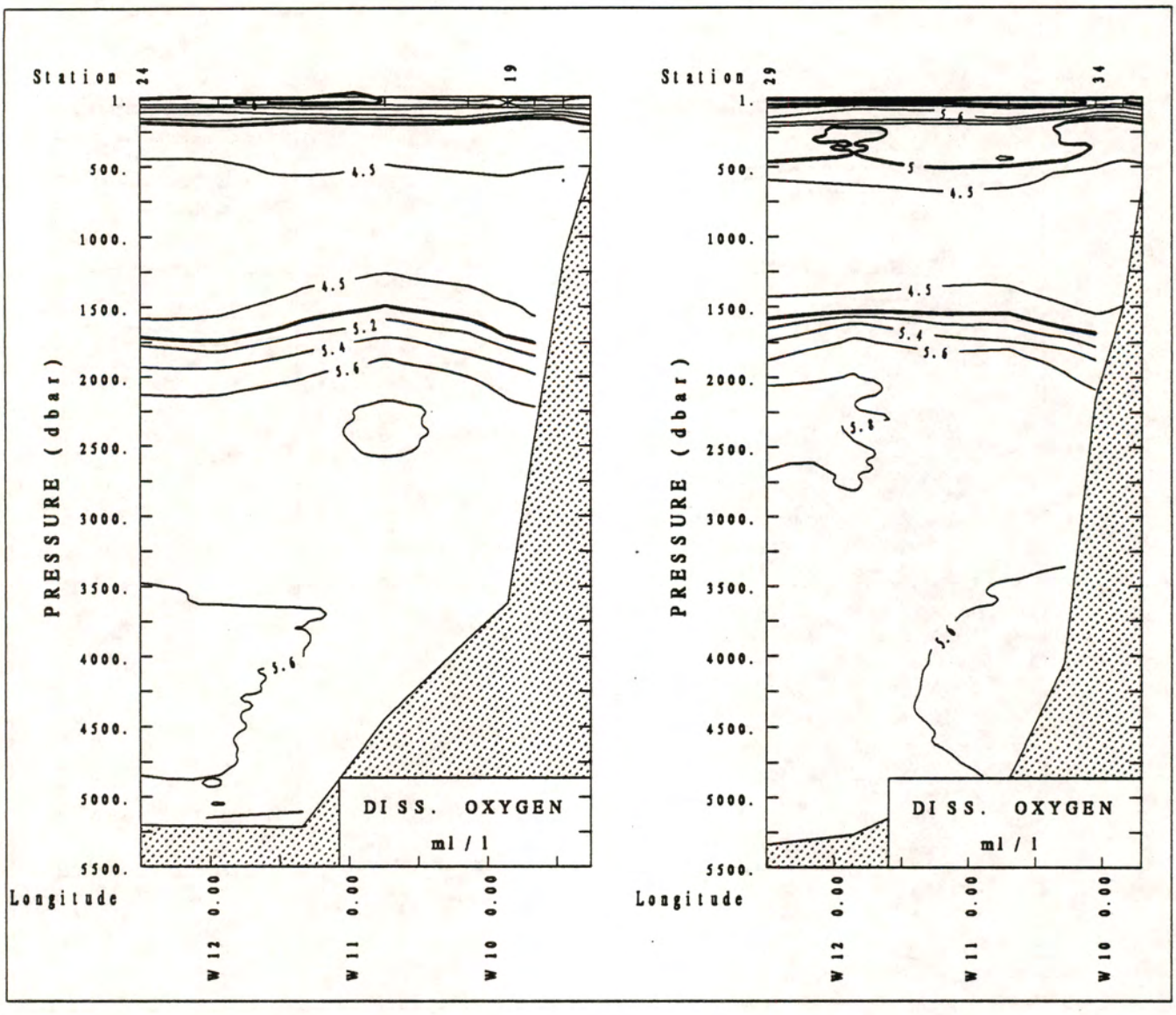
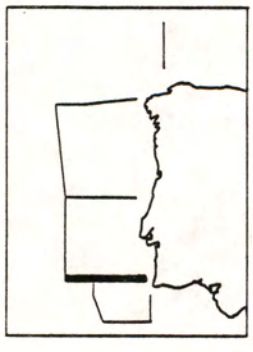
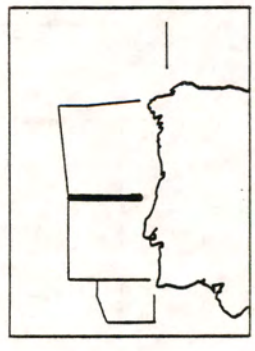
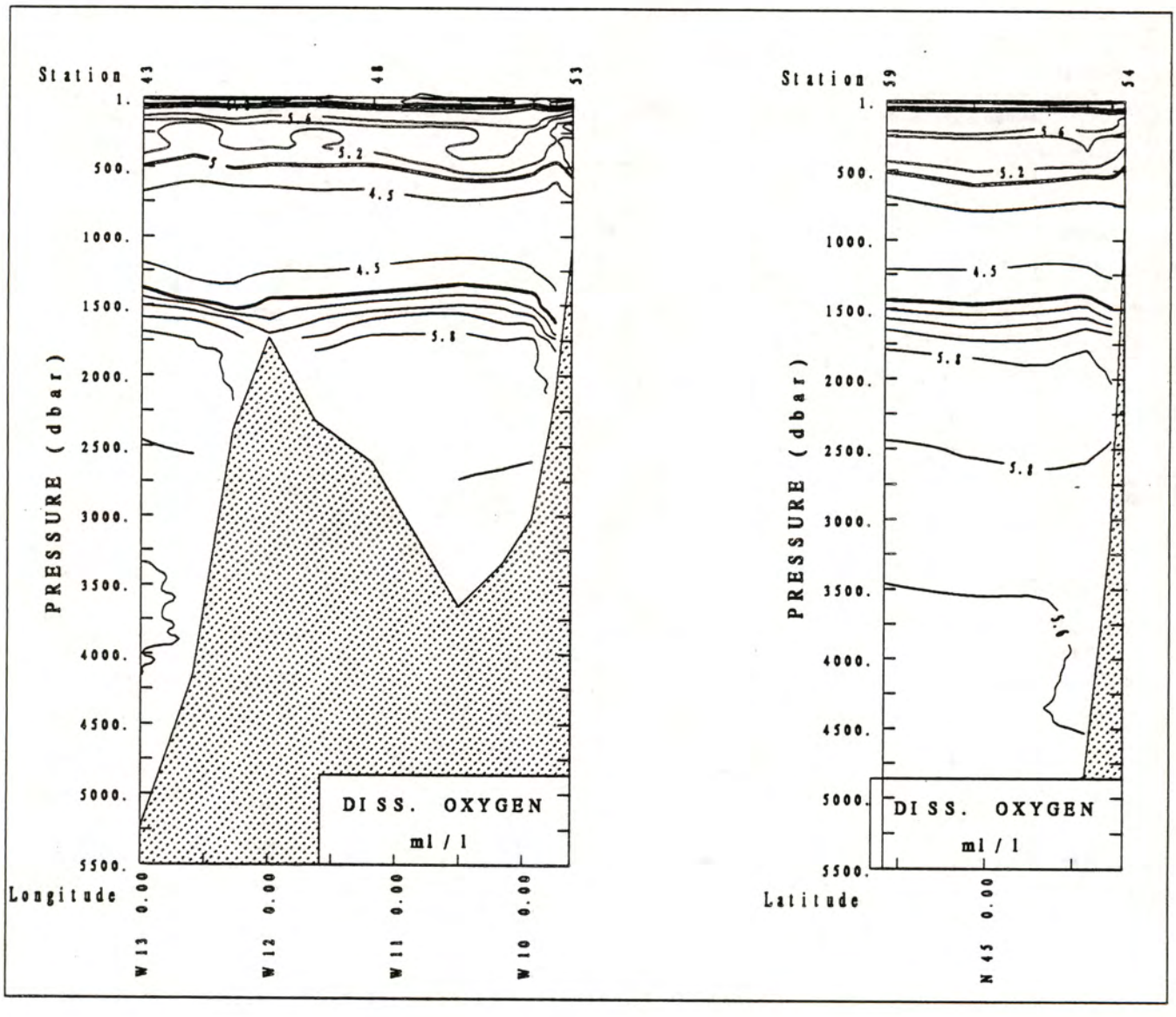

Station 24
19
Station 29
34
PRESSURE (dbar)
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
4.5
5.2
5.4
5.6
5
5.8
DISS. OXYGEN
ml / l
Longitude
W 12 0.00
W 11 0.00
W 10 0.00





BORD - EST 3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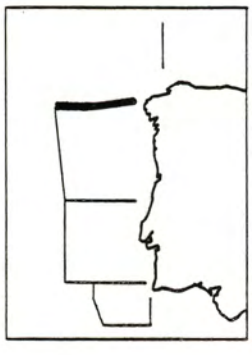
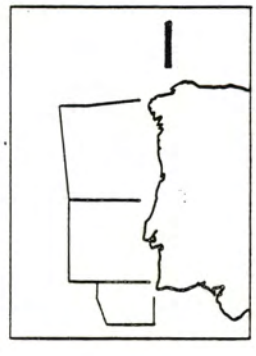
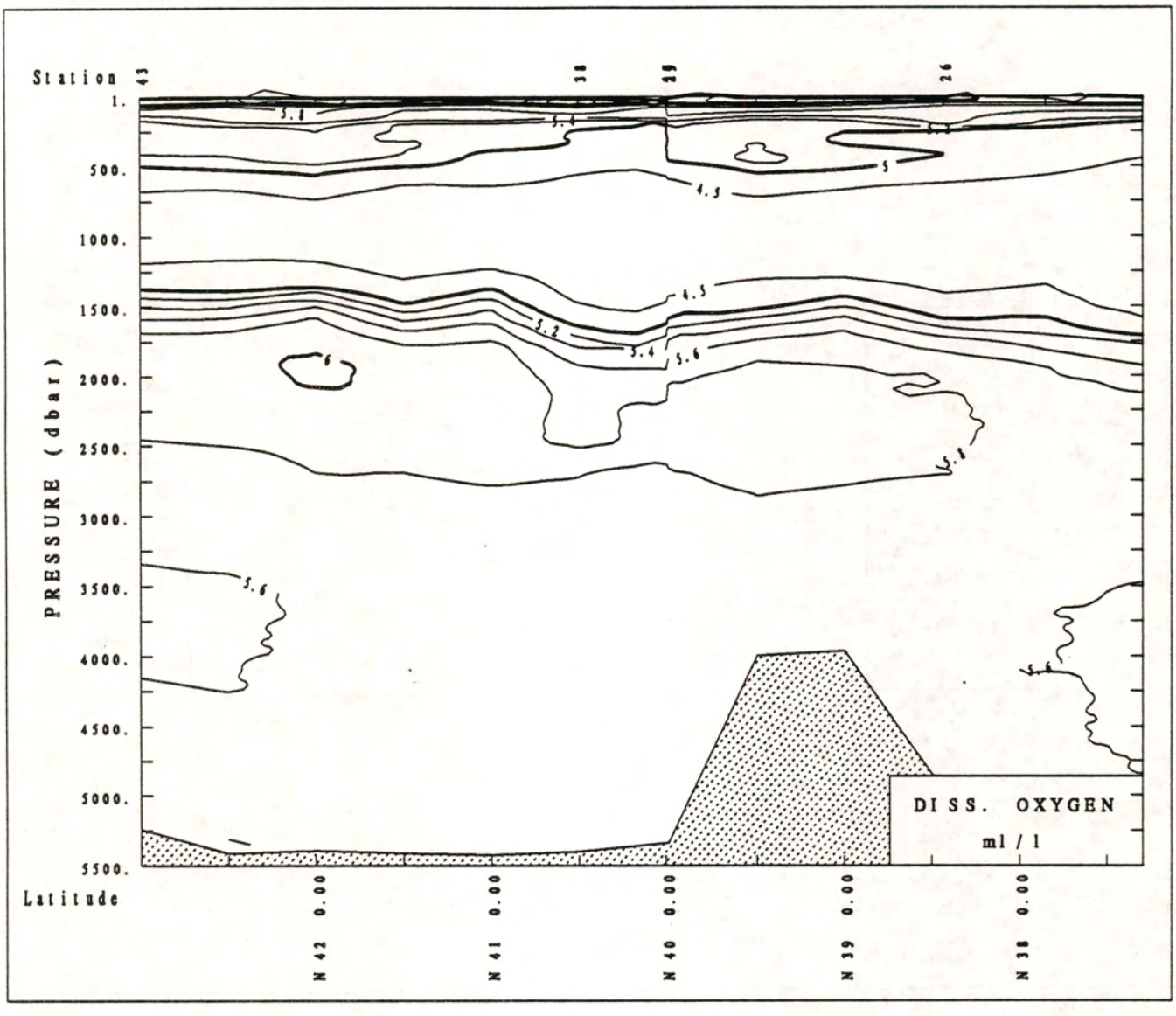
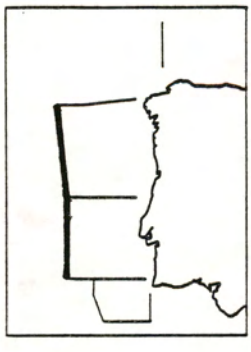
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5.6
5.2
5
4.5
4.5
5.8
DISS. OXYGEN
ml / l
Longitude 0.00 0.00 0.00 0.00
W 13
W 12
W 11
W 10
Station 59 54
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5.6
5.2
4.5
5.8
5.8
5.5
DISS. OXYGEN
ml / l
Latitude 0.00
N 45



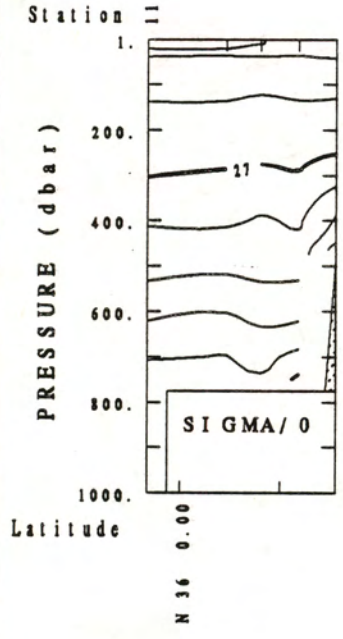


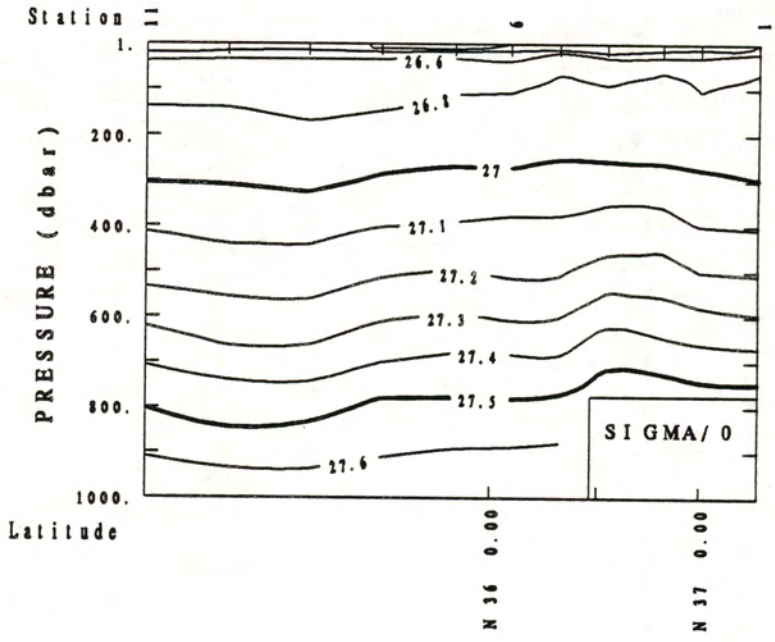
BORD EST 3

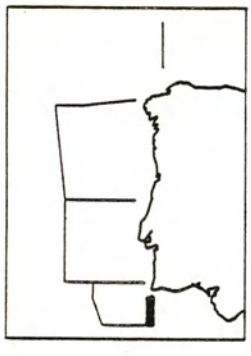

Station
43
38
29
26
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5.8
5.4
5
4.5
4.5
5.2
5.4
5.6
5.8
5.6
DISS. OXYGEN
ml / l
Latitude
N 42 0.00
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00

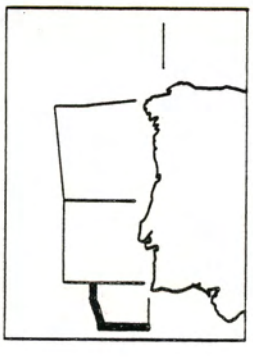


BORD EST 3

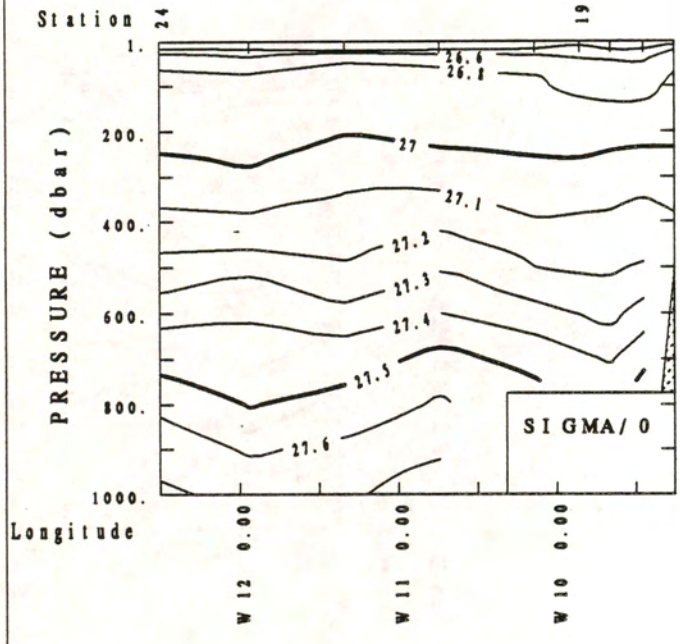

Station
1.
200.
400.
600.
800.
1000.
PRESSURE (dbar)
27
SIGMA/0
Latitude
N 36 0.00

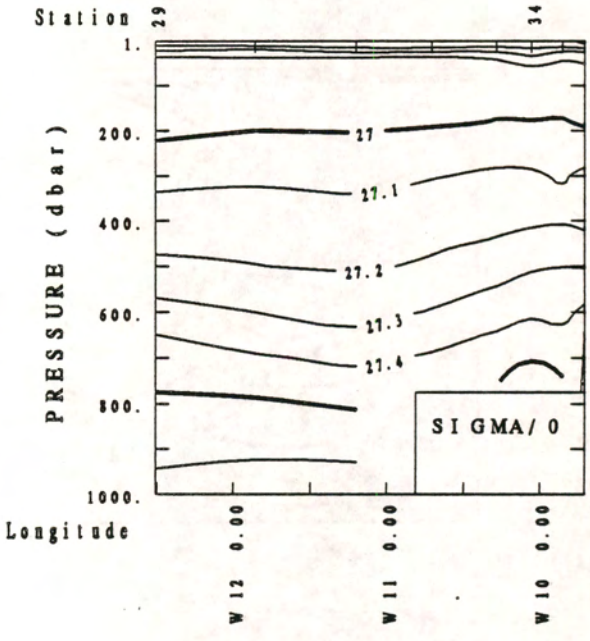

Station
1.
200.
400.
600.
800.
1000.
PRESSURE (dbar)
26.6
26.8
27
27.1
27.2
27.3
27.4
27.5
27.6
SIGMA/0
Latitude
N 36 0.00
N 37 0.00

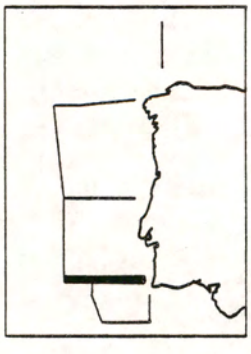


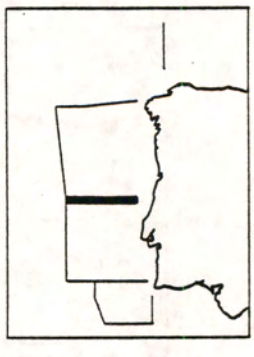


BORD EST 3

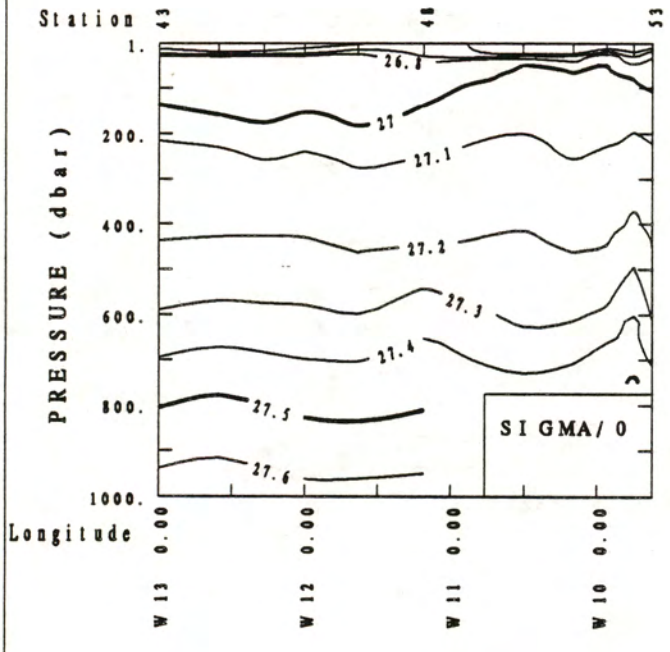

Station 24
19
1.
200.
400.
600.
800.
1000.
PRESSURE (dbar)
26.6
26.8
27
27.1
27.2
27.3
27.4
27.5
27.6
SIGMA/0
Longitude
W 12 0.00
W 11 0.00
W 10 0.00

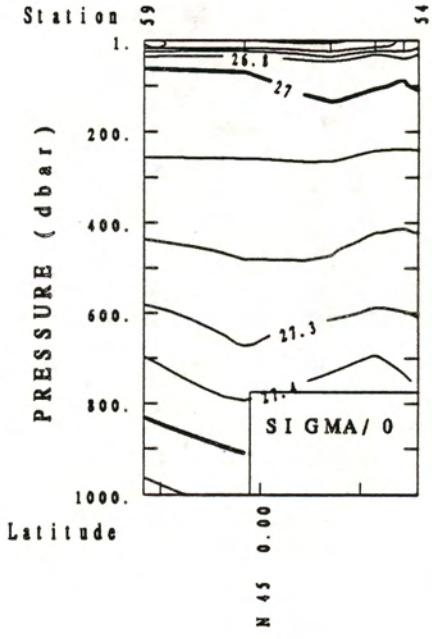

Station 29
34
1.
200.
400.
600.
800.
1000.
PRESSURE (dbar)
27
27.1
27.2
27.3
27.4
SIGMA/0
Longitude
W 12 0.00
W 11 0.00
W 10 0.00

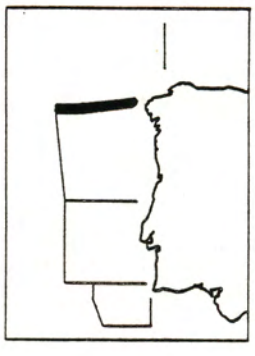


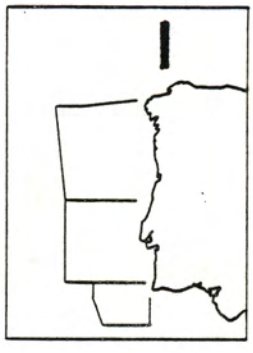


BORD - EST 3


Station
43
48
53
1.
200.
400.
600.
800.
1000.
PRESSURE (dbar)
26.8
27
27.1
27.2
27.3
27.4
27.5
27.6
SIGMA/0
Longitude
W 13 0.00
W 12 0.00
W 11 0.00
W 10 0.00


Station
59
54
1.
200.
400.
600.
800.
1000.
PRESSURE (dbar)
26.8
27
27.3
SIGMA/0
Latitude
N 45 0.00





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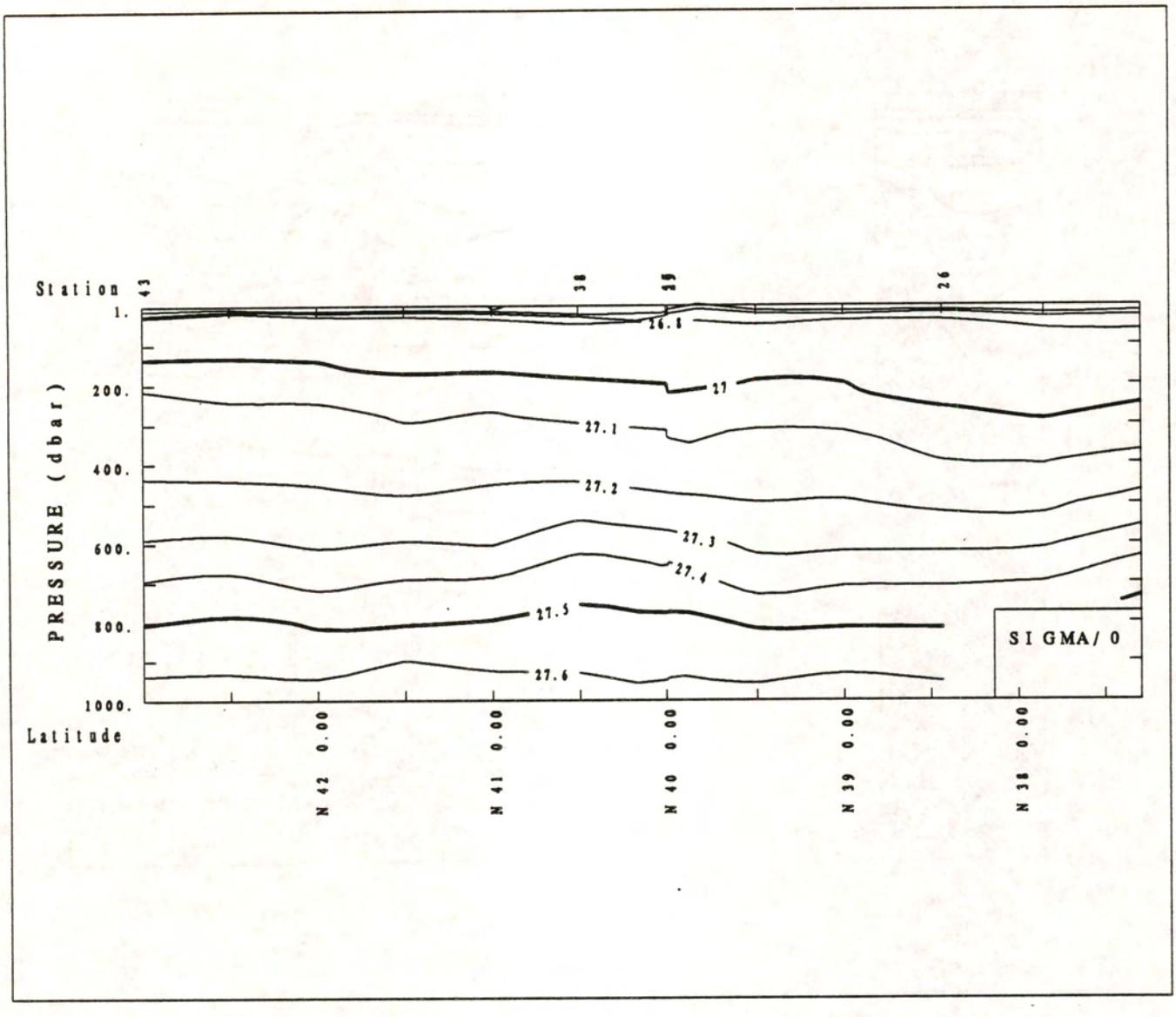
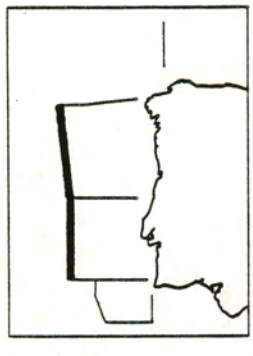

Station
43
38
26
1.
200.
400.
600.
800.
1000.
PRESSURE (dbar)
26.8
27
27.1
27.2
27.3
27.4
27.5
27.6
SIGMA/0
Latitude
N 42 0.00
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



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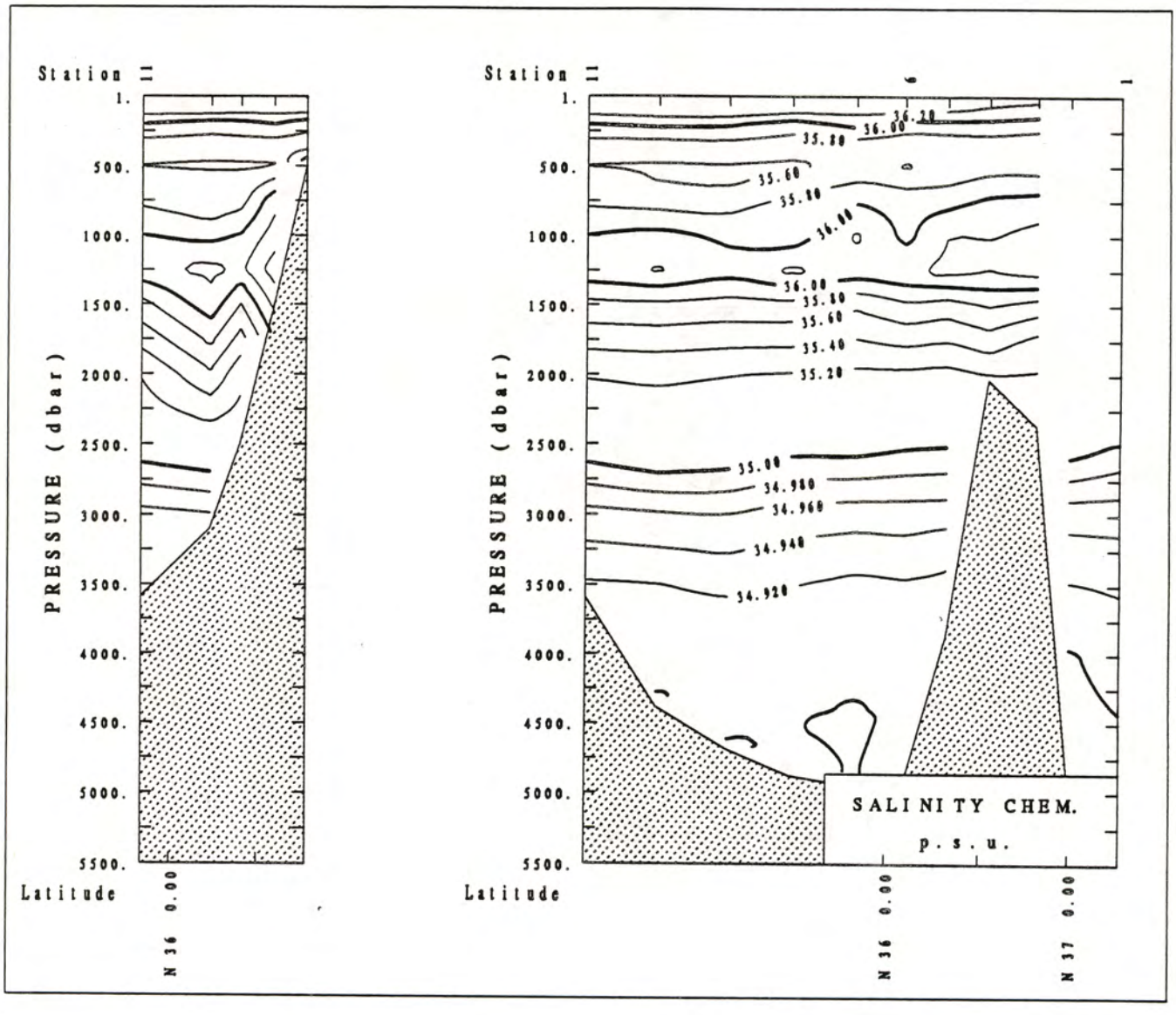
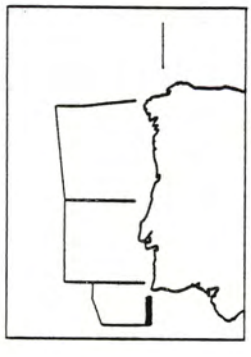
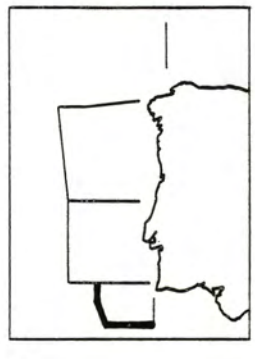
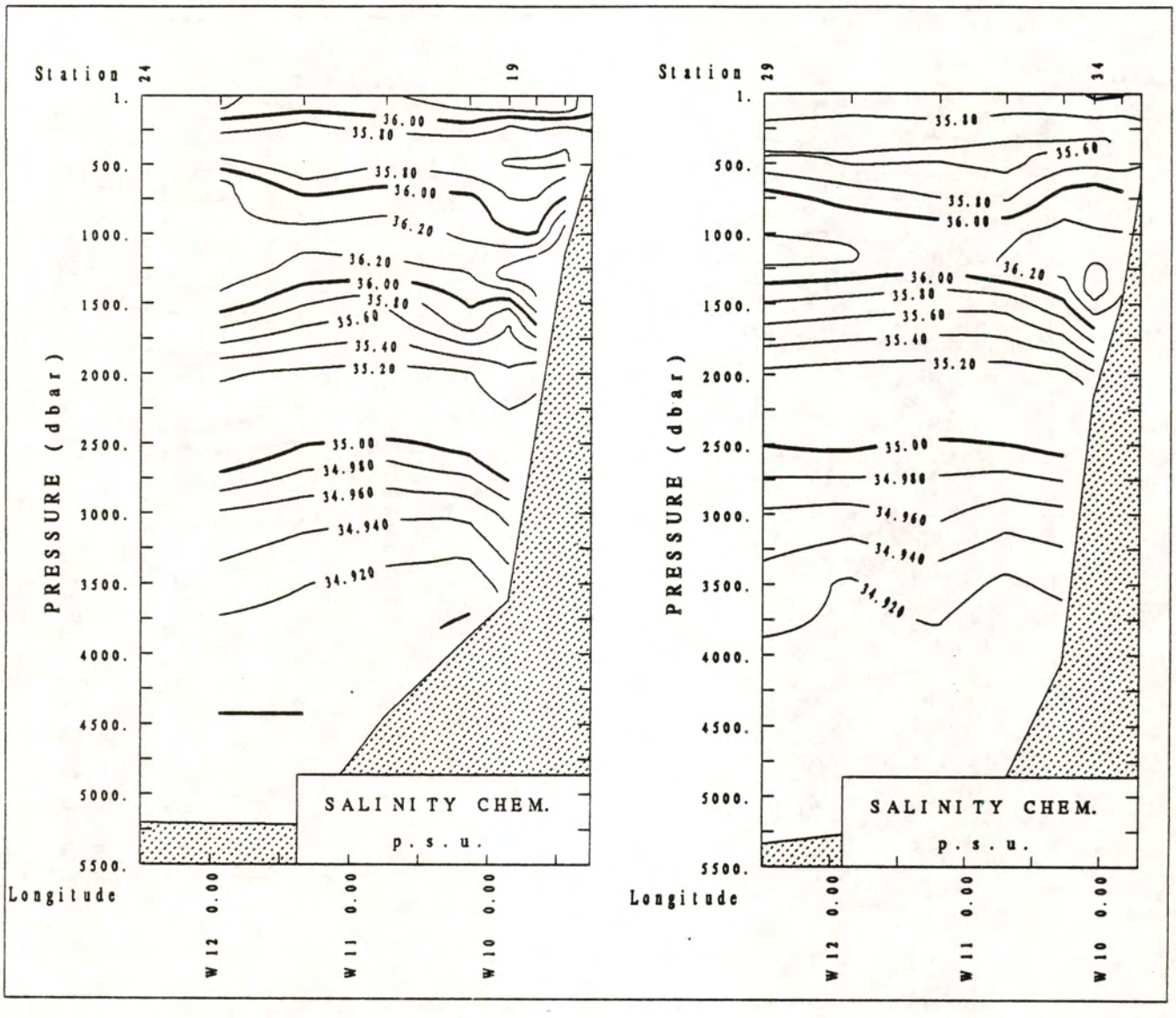
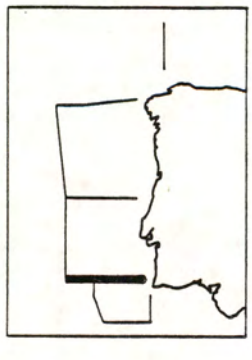

Station
PRESSURE (dbar)
Latitude
N 36 0.00
Station
PRESSURE (dbar)
Latitude
N 36 0.00
N 37 0.00
SALINITY CHEM.
p.s.u.

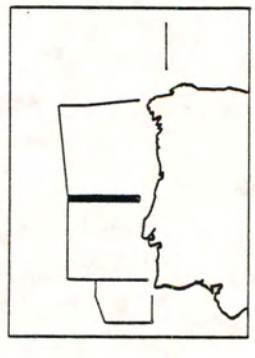




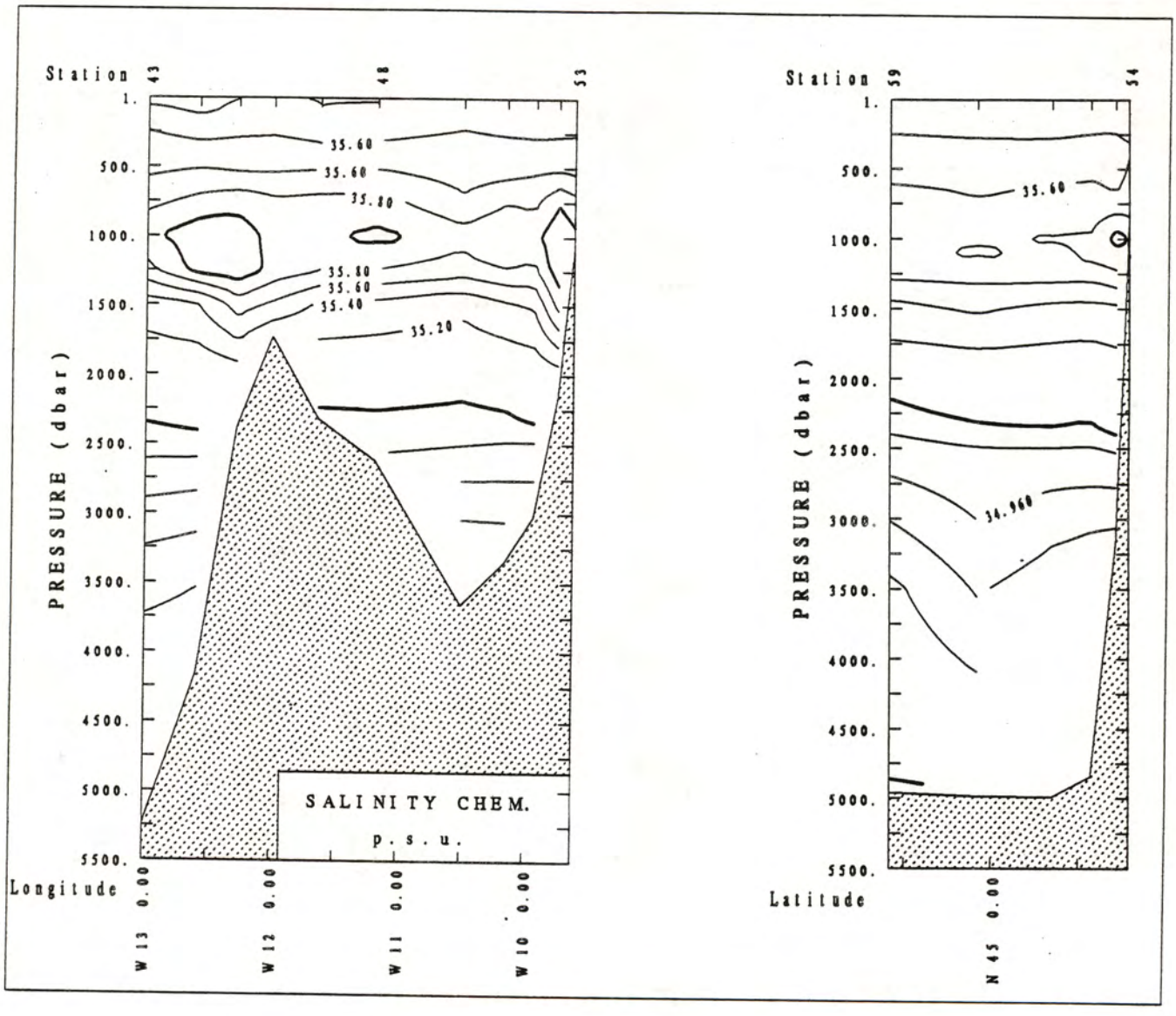
BORD EST 3

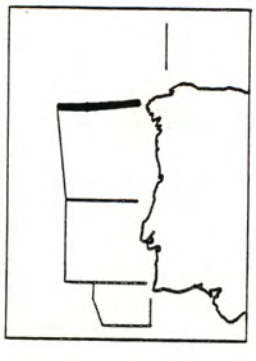

Station 24
19
Station 29
34
PRESSURE (dbar)
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
36.00
35.80
35.60
35.40
35.20
34.980
34.960
34.940
34.920
SALINITY CHEM.
p.s.u.
Longitude
W 12 0.00
W 11 0.00
W 10 0.00

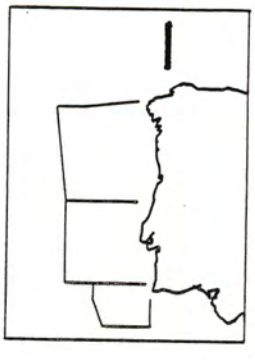




BORD - EST 3


Station
43
48
53
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
35.60
35.60
35.80
35.80
35.60
35.40
35.20
SALINITY CHEM.
p.s.u.
Longitude
W 13 0.00
W 12 0.00
W 11 0.00
W 10 0.00
Station
59
54
35.60
34.960
Latitude
N 45 0.00





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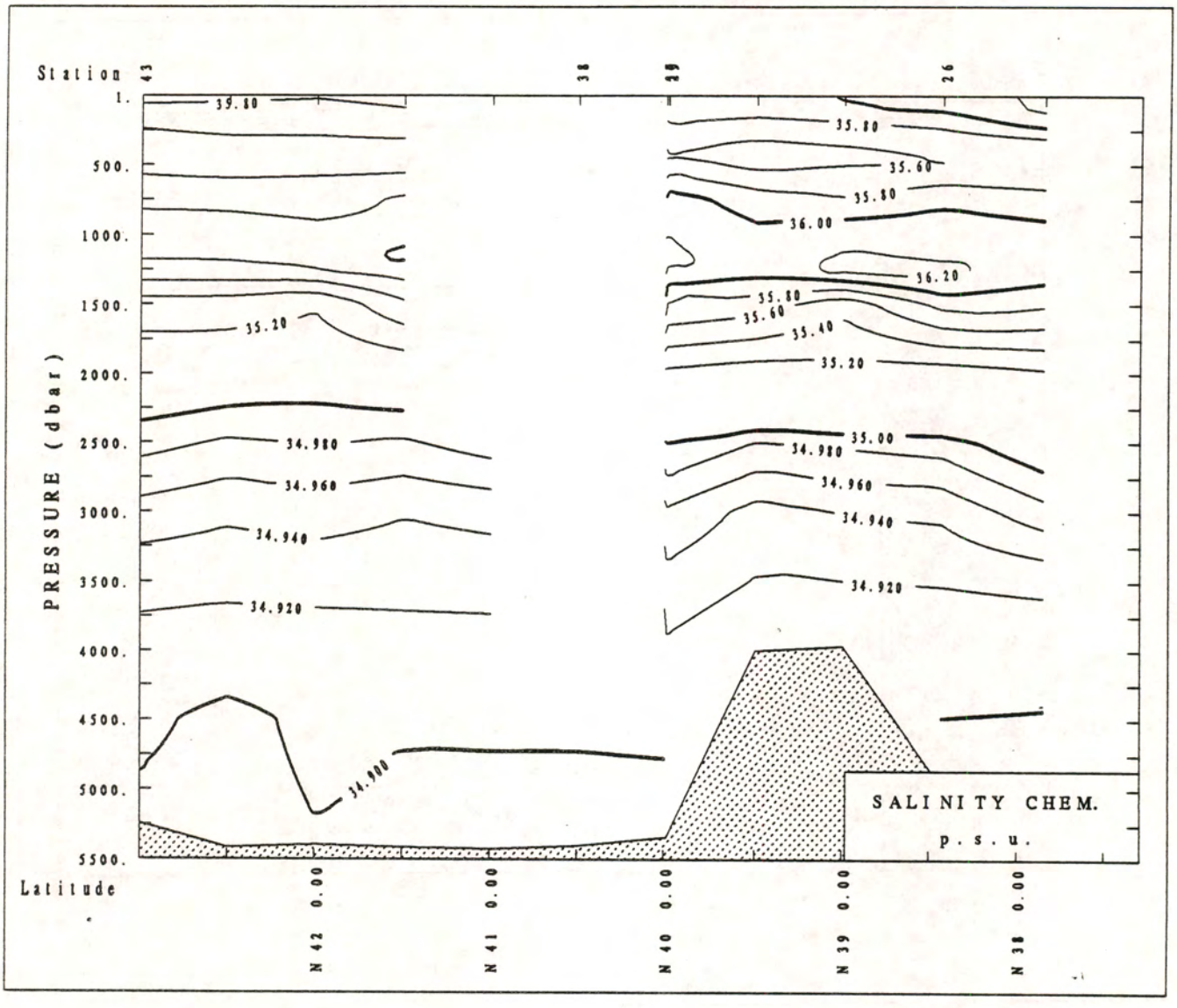
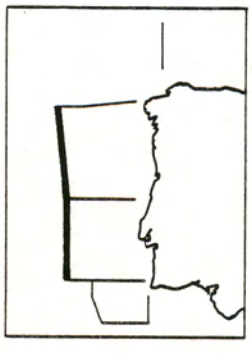
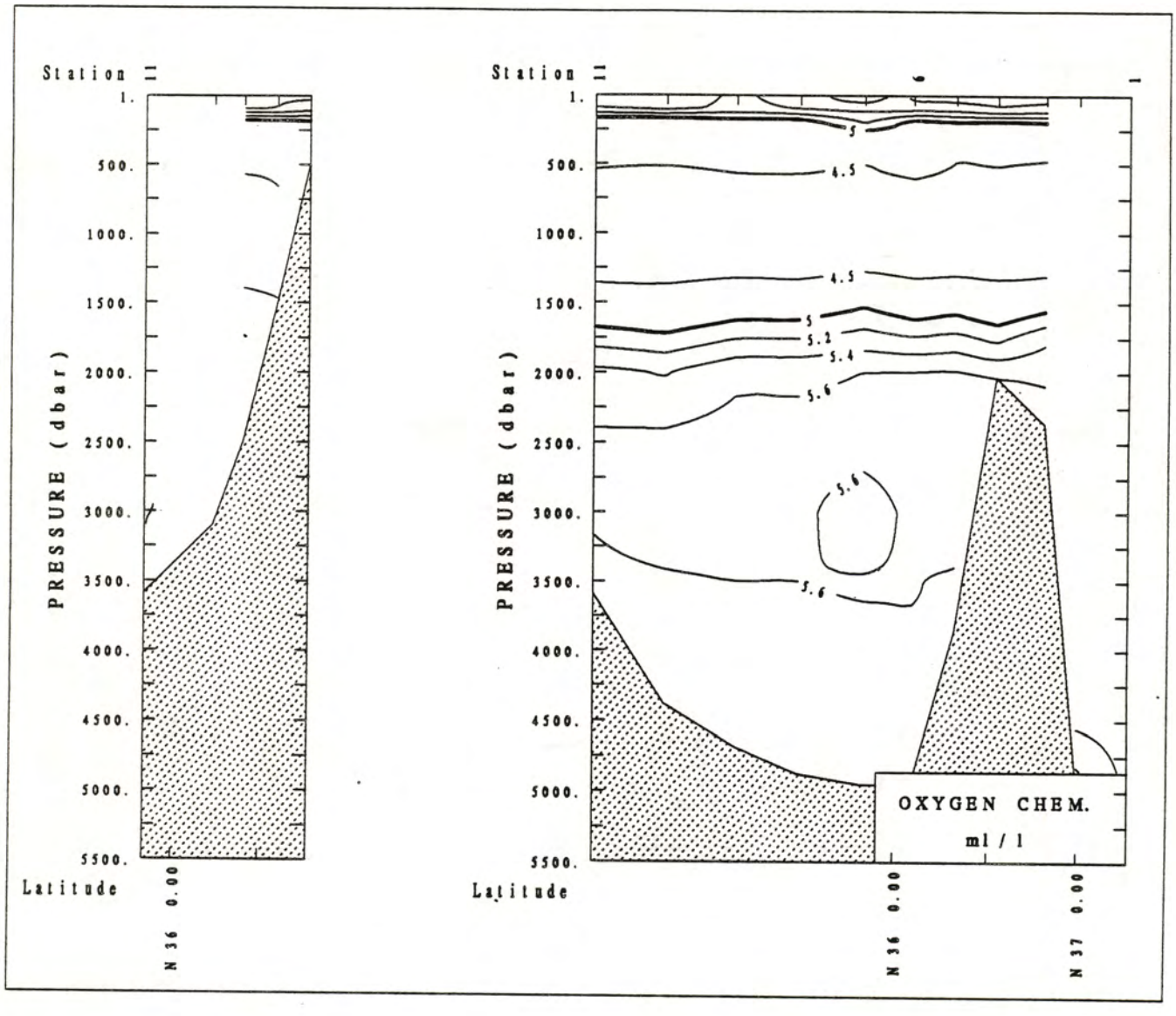
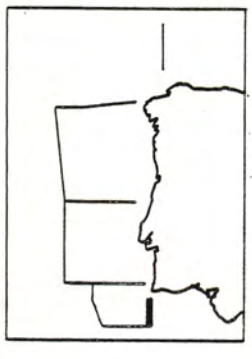
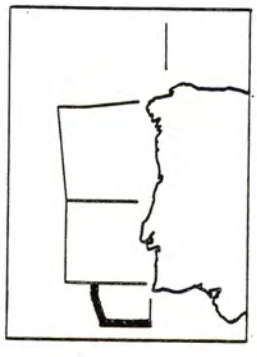

Station
43
38
33
26
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
35.80
35.20
34.980
34.960
34.940
34.920
34.900
35.80
35.60
35.80
36.00
36.20
35.80
35.60
35.40
35.20
35.00
34.980
34.960
34.940
34.920
SALINITY CHEM.
p.s.u.
Latitude
N 42 0.00
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



BORD - EST 3


Station
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
Latitude
N 36 0.00
Station
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5
4.5
4.5
5
5.2
5.4
5.6
5.6
5.6
OXYGEN CHEM.
ml / l
Latitude
N 36 0.00
N 37 0.00





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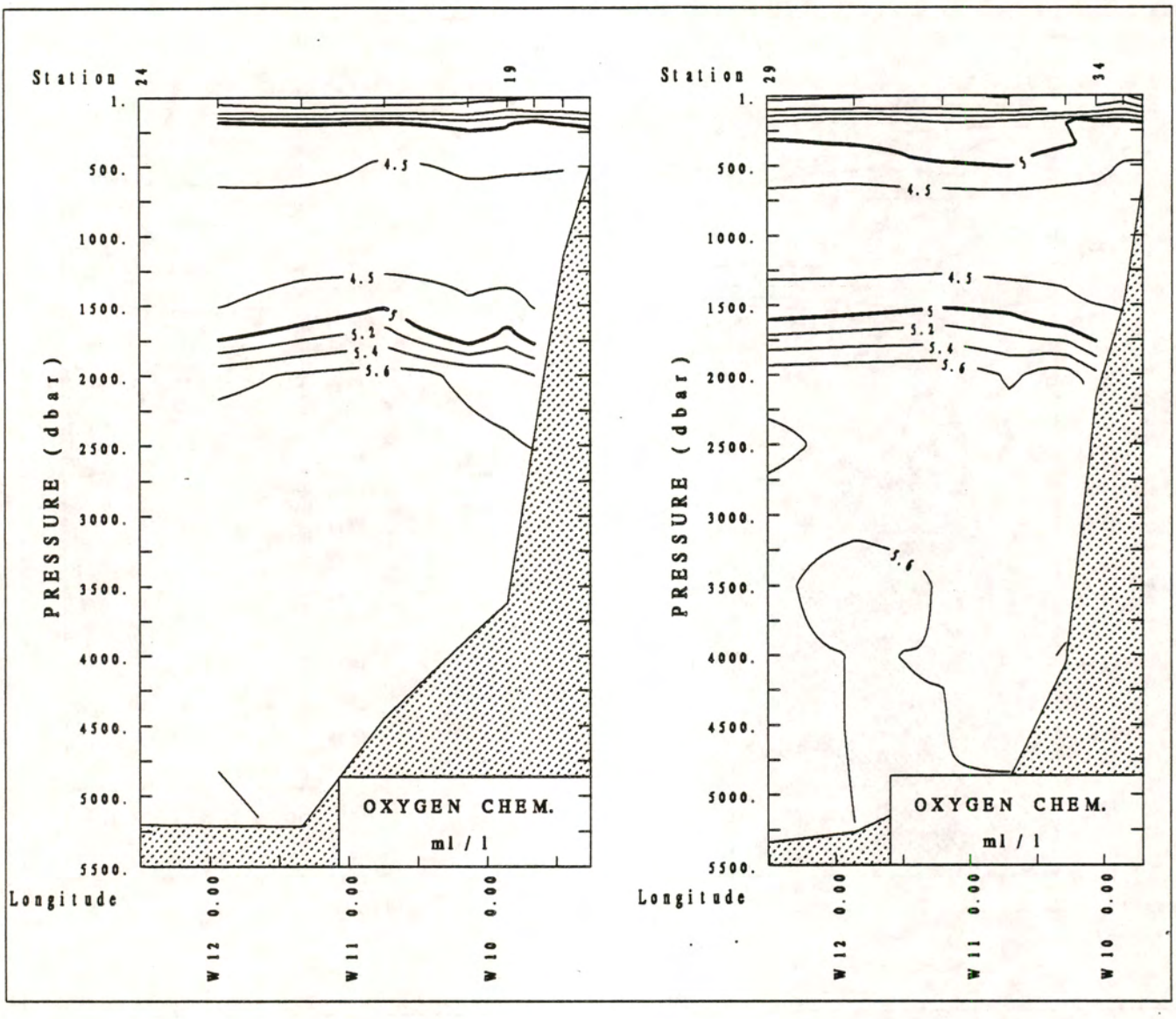
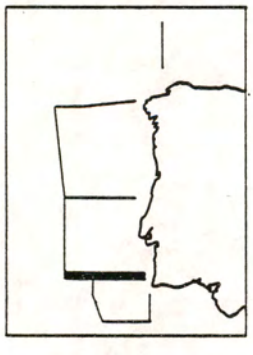
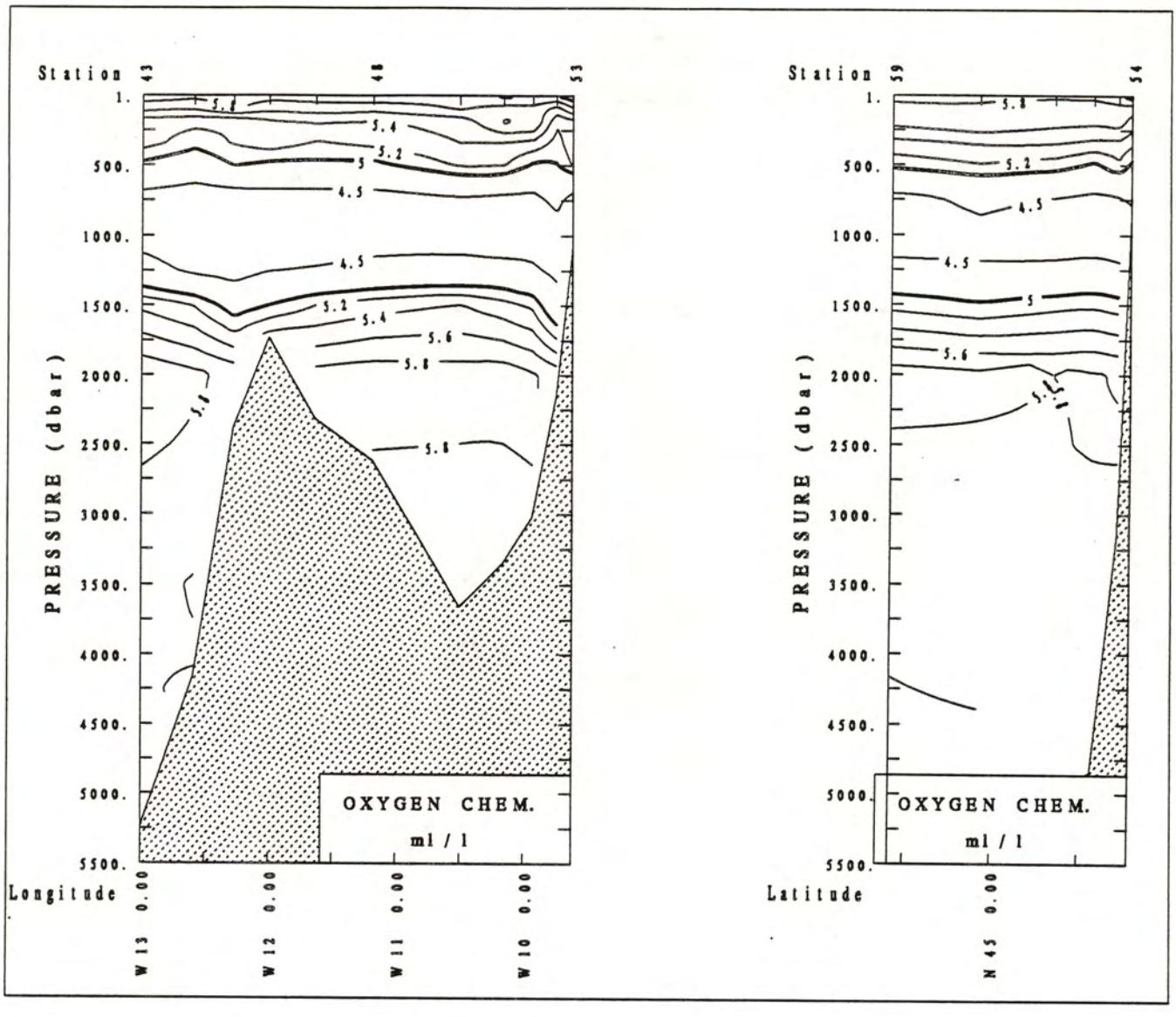
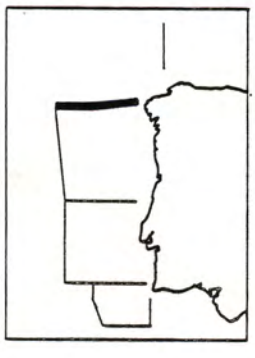
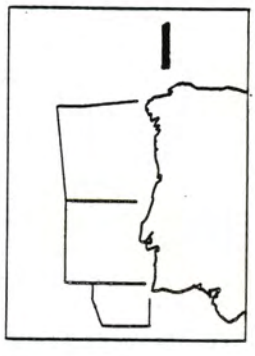

Station 24
19
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
4.5
5
5.2
5.4
5.6
OXYGEN CHEM.
ml / l
Longitude
W 12 0.00
W 11 0.00
W 10 0.00
Station 29
34
4.5
5
5.2
5.4
5.6
OXYGEN CHEM.
ml / l
W 12 0.00
W 11 0.00
W 10 0.00



BORD - EST 3


Station 43 48 53
PRESSURE (dbar)
1. 500. 1000. 1500. 2000. 2500. 3000. 3500. 4000. 4500. 5000. 5500.
5.4 5.2 5 4.5 4.5 5.2 5.4 5.6 5.8 5.8 5.8
OXYGEN CHEM.
ml / l
Longitude
W 13 0.00
W 12 0.00
W 11 0.00
W 10 0.00
Station 59 54
PRESSURE (dbar)
1. 500. 1000. 1500. 2000. 2500. 3000. 3500. 4000. 4500. 5000. 5500.
5.8 5.2 4.5 4.5 5 5.6
OXYGEN CHEM.
ml / l
Latitude
N 45 0.00





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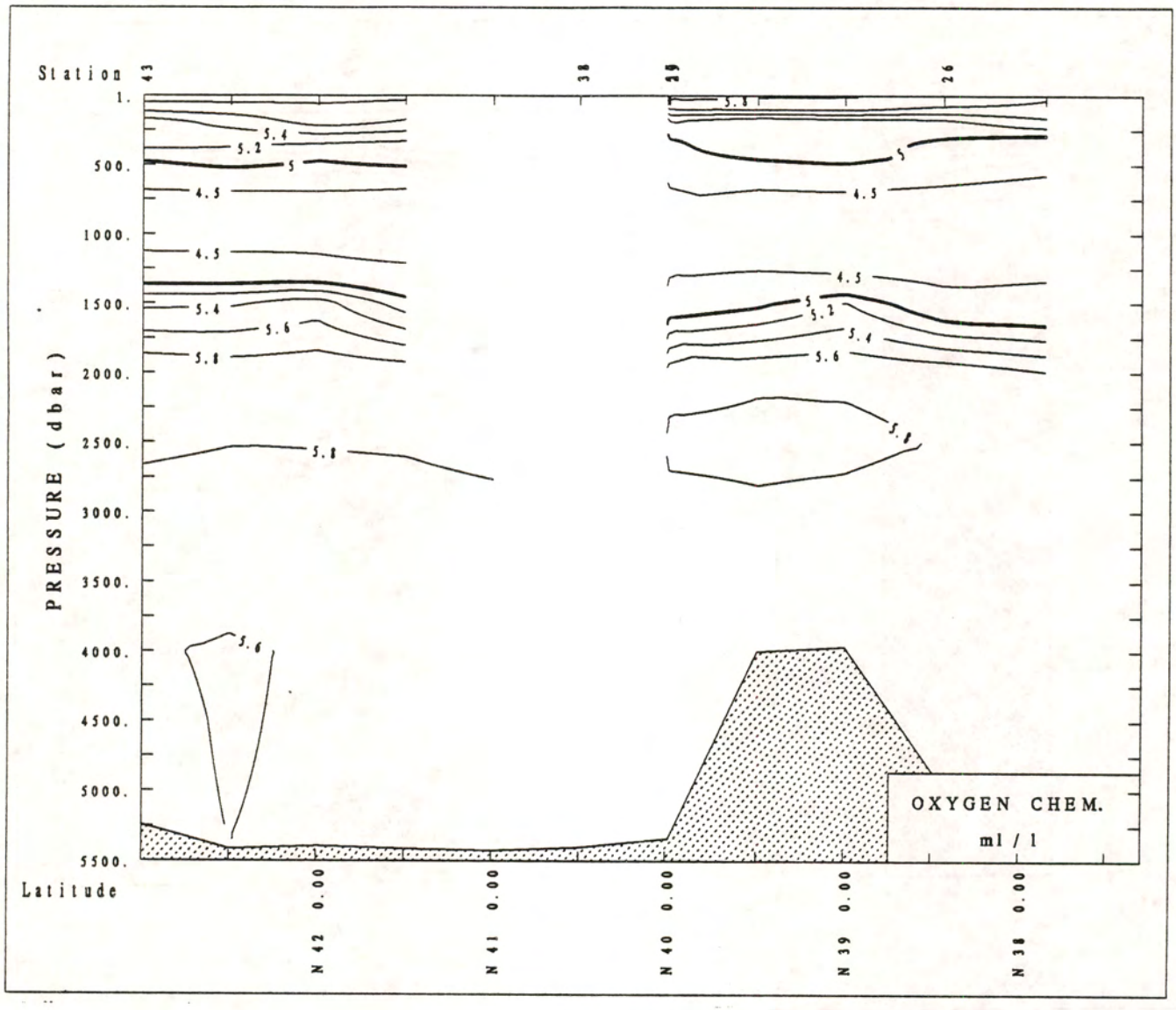
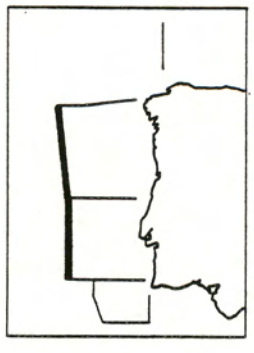
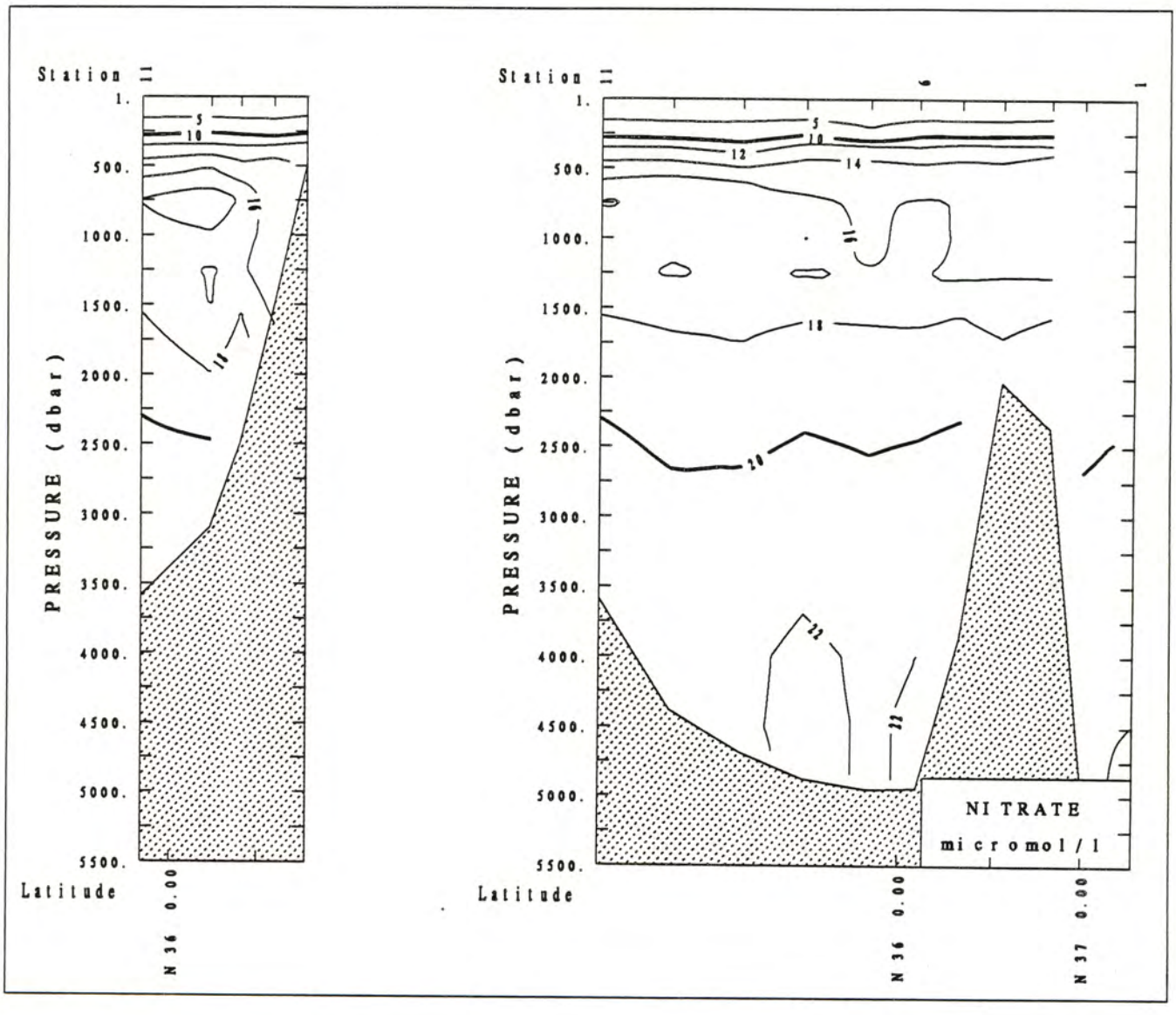
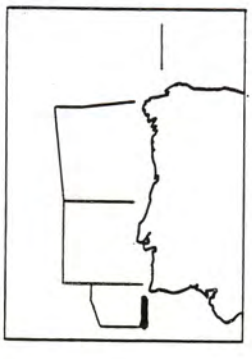
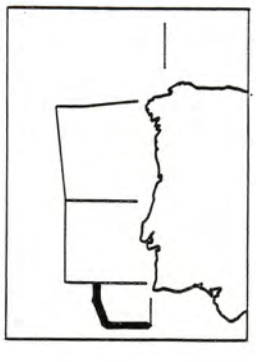

Station
43
38
29
26
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5.8
5.4
5.2
5
4.5
5.6
OXYGEN CHEM.
ml / l
Latitude
N 42 0.00
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



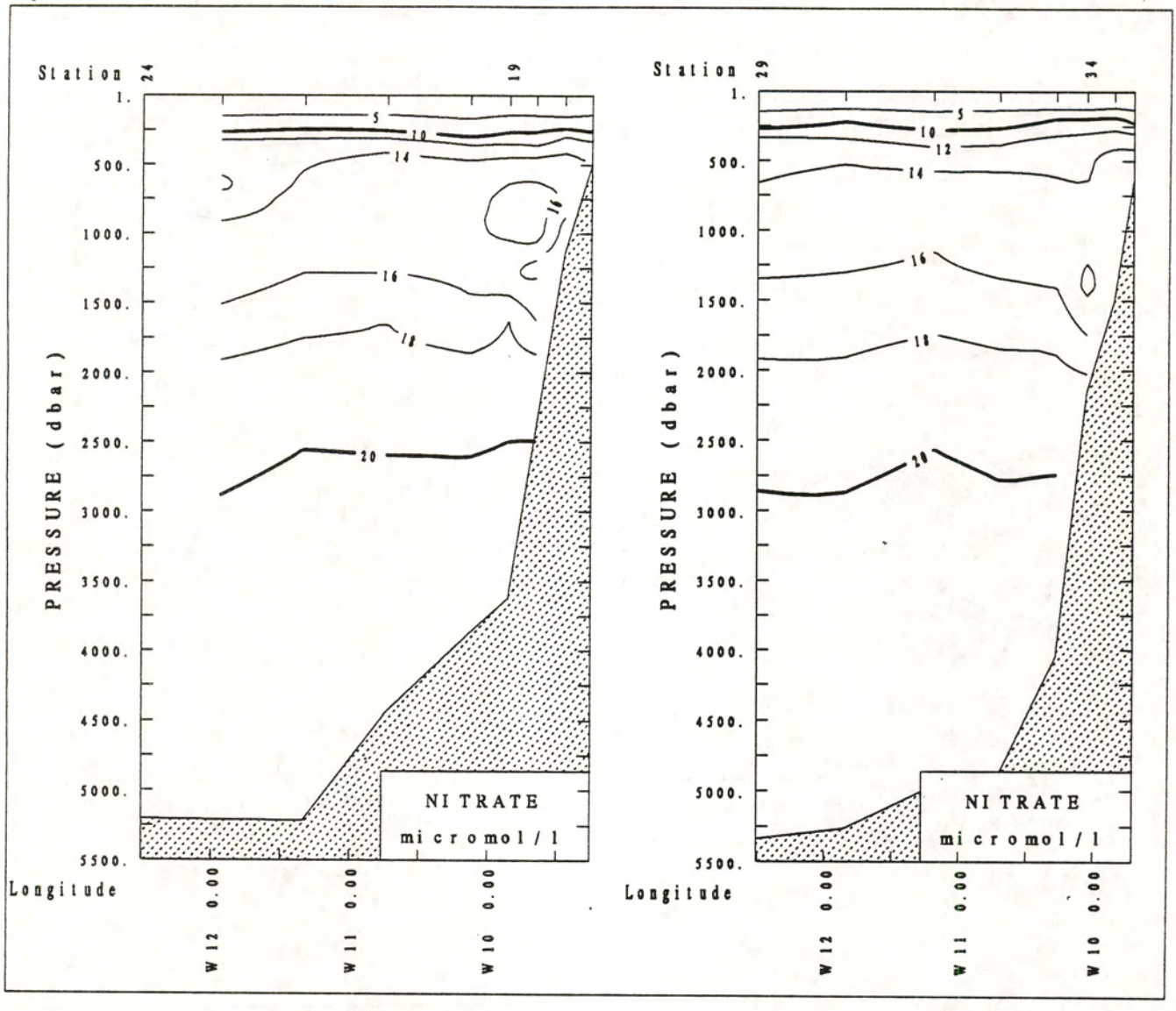
BORD - EST 3

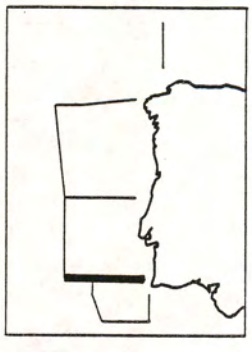

Station
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5
10
11
11
Latitude
N 36 0.00
Station
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5
10
12
14
11
11
10
22
22
NI TRATE
micromol / l
Latitude
N 36 0.00
N 37 0.00



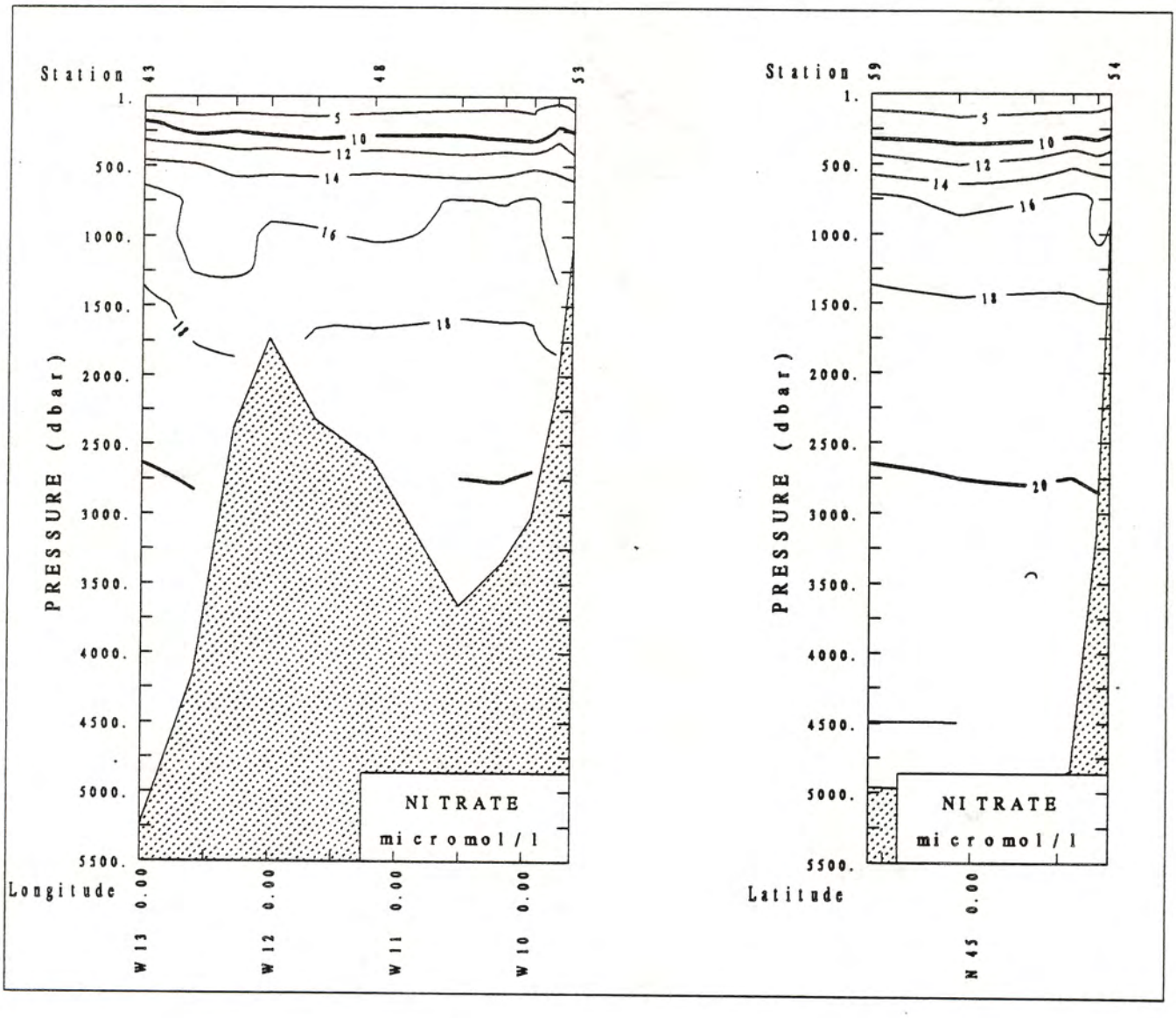


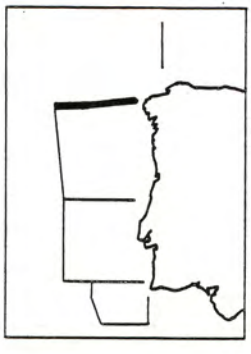
BORD EST 3

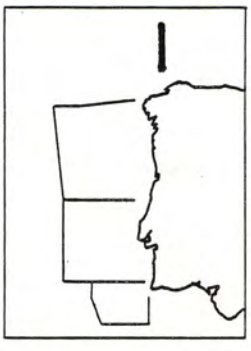

Station
24
19
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5
10
14
16
18
20
NI TRATE
micromol/l
Longitude
W 12 0.00
W 11 0.00
W 10 0.00
Station
29
34
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5
10
12
14
16
18
20
NI TRATE
micromol/l
Longitude
W 12 0.00
W 11 0.00
W 10 0.00



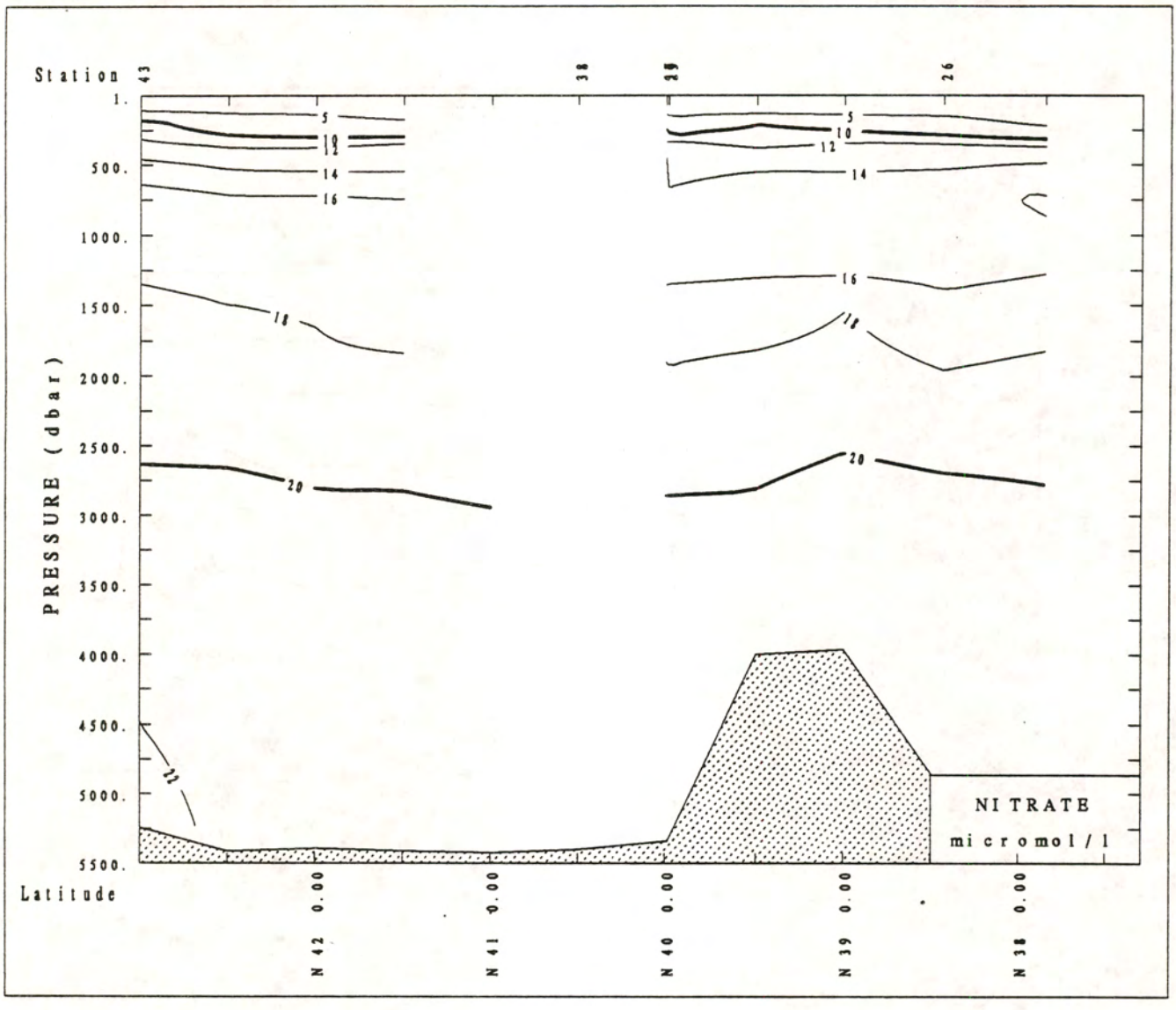
BORD EST 3

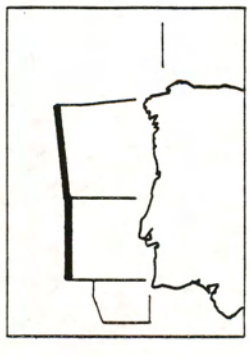

Station
43
48
53
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5
10
12
14
16
18
NITRATE
micromol/l
Longitude
W 13 0.00
W 12 0.00
W 11 0.00
W 10 0.00
Station
59
54
20
Latitude
N 45 0.00



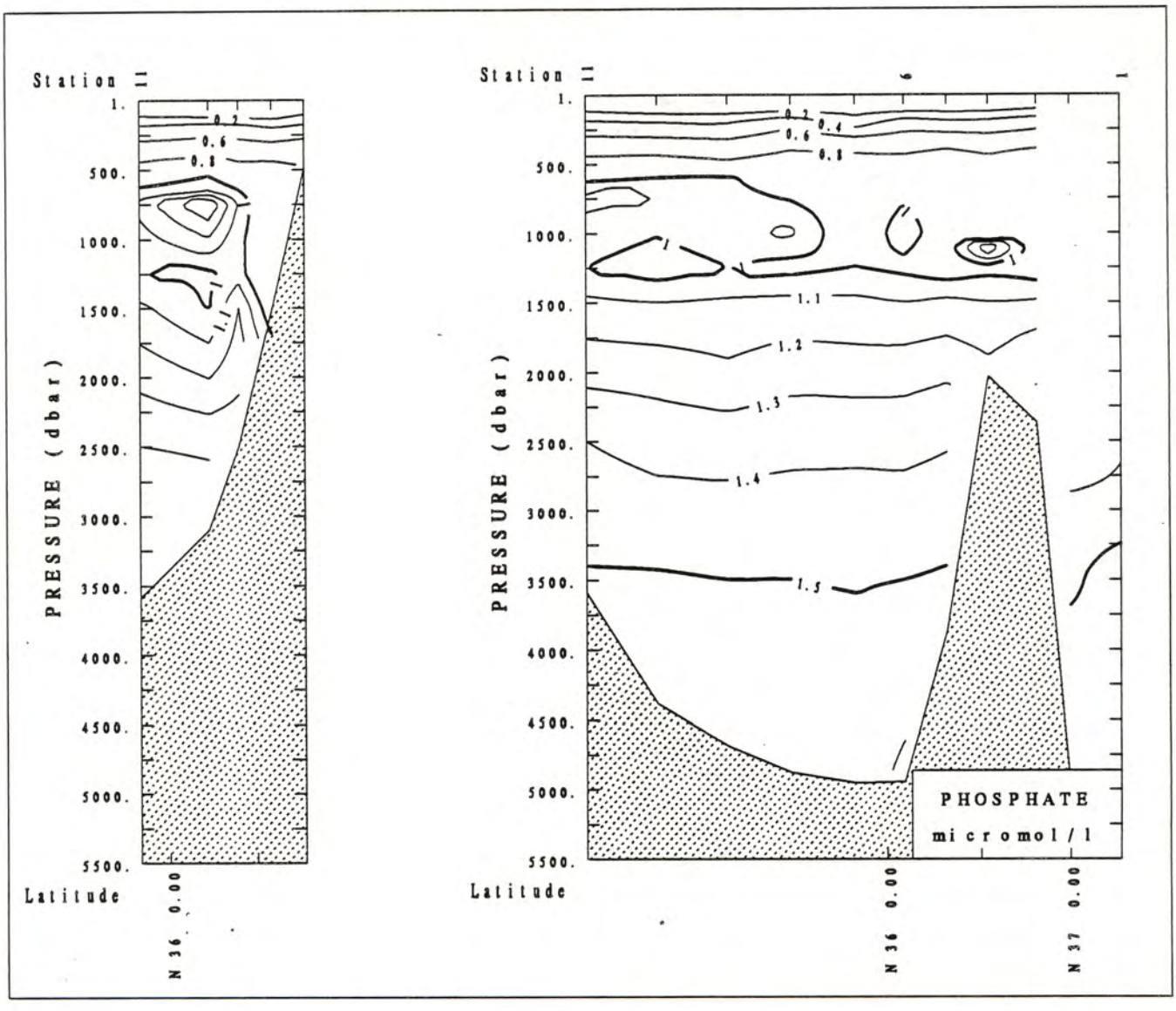


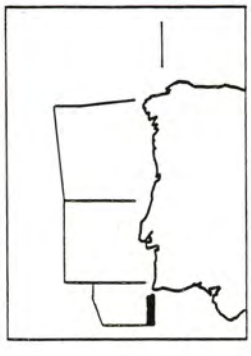
BORD - EST 3

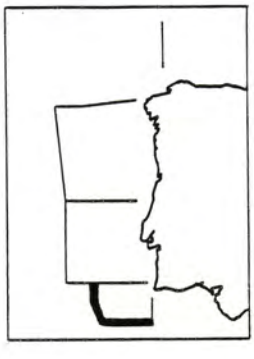

Station
43
38
29
26
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
5
10
12
14
16
18
20
22
NITRATE
micromol/l
Latitude
N 42 0.00
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



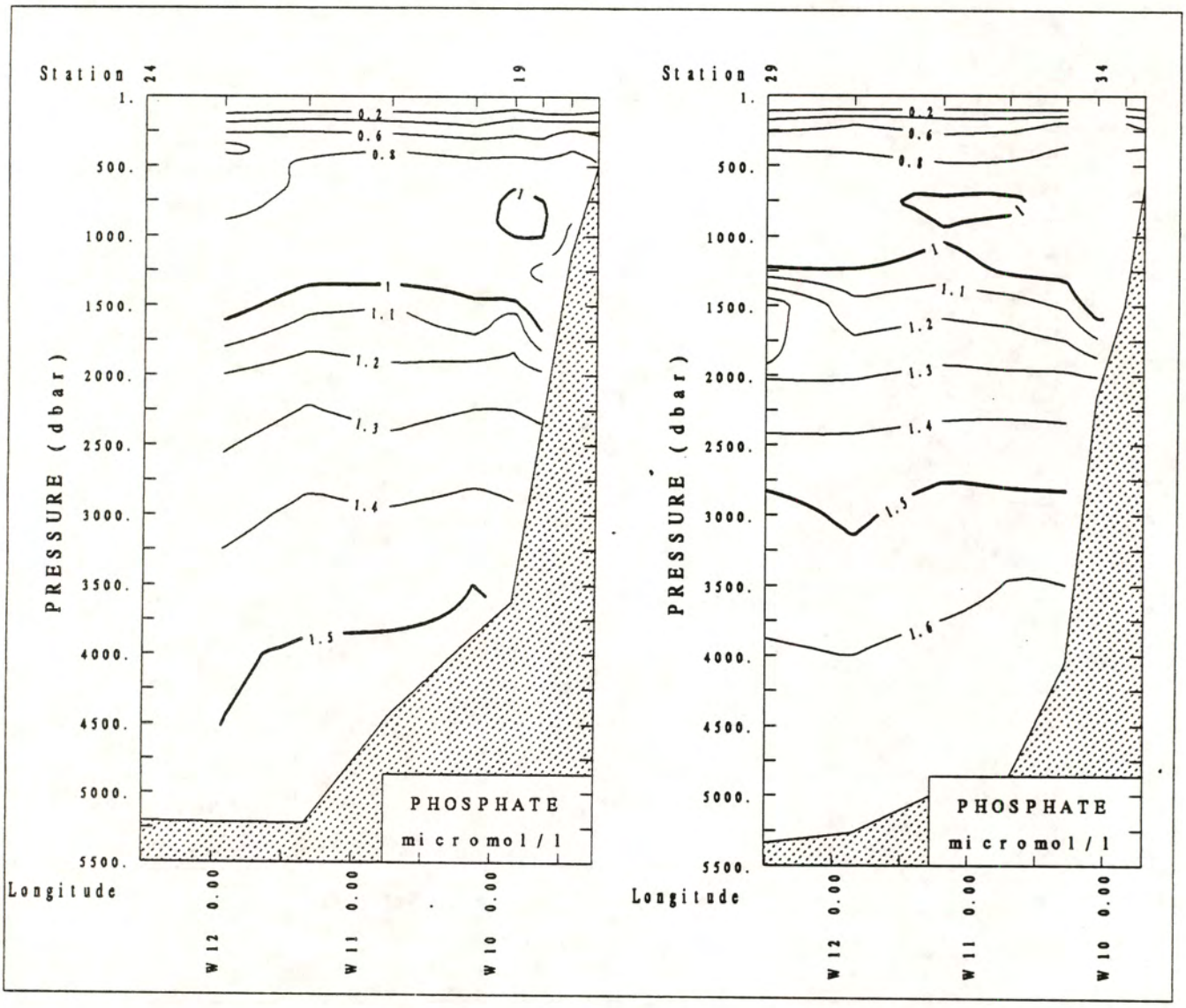
BORD - EST 3


Station
PRESSURE (dbar)
Latitude
N 36 0.00
Station
PRESSURE (dbar)
PHOSPHATE
micromol/l
Latitude
N 36 0.00
N 37 0.00





BORD - EST 3


Station 24
19
Station 29
34
PRESSURE (dbar)
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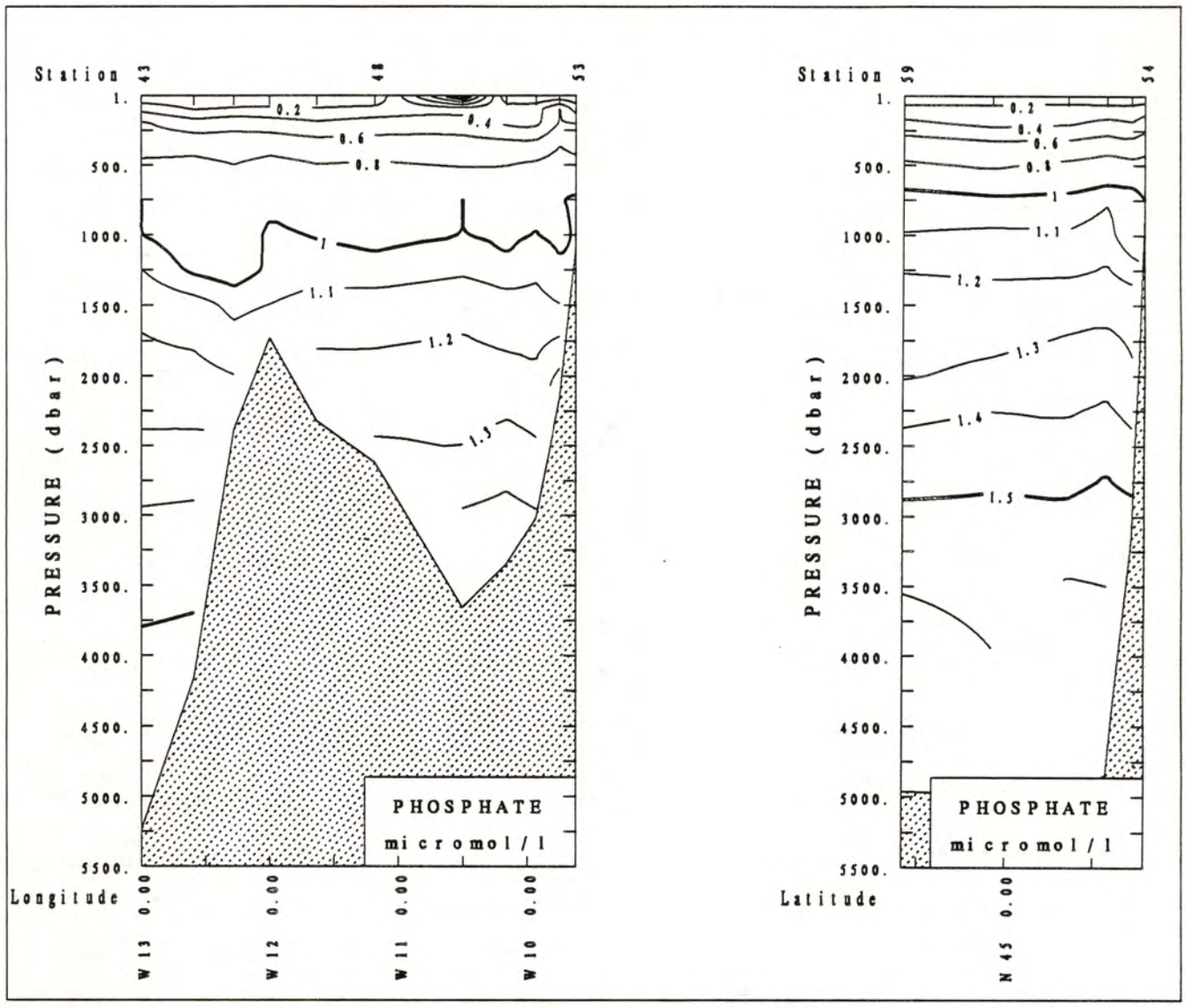
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
0.2
0.6
0.8
1
1.1
1.2
1.3
1.4
1.5
1.6
PHOSPHATE
micromol/l
Longitude
W 12 0.00
W 11 0.00
W 10 0.00

BORD EST 3


Station
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48
53
1.
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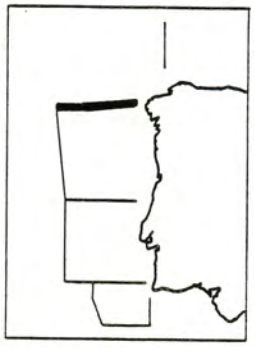
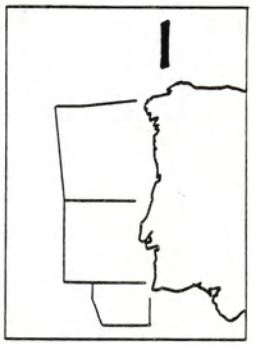
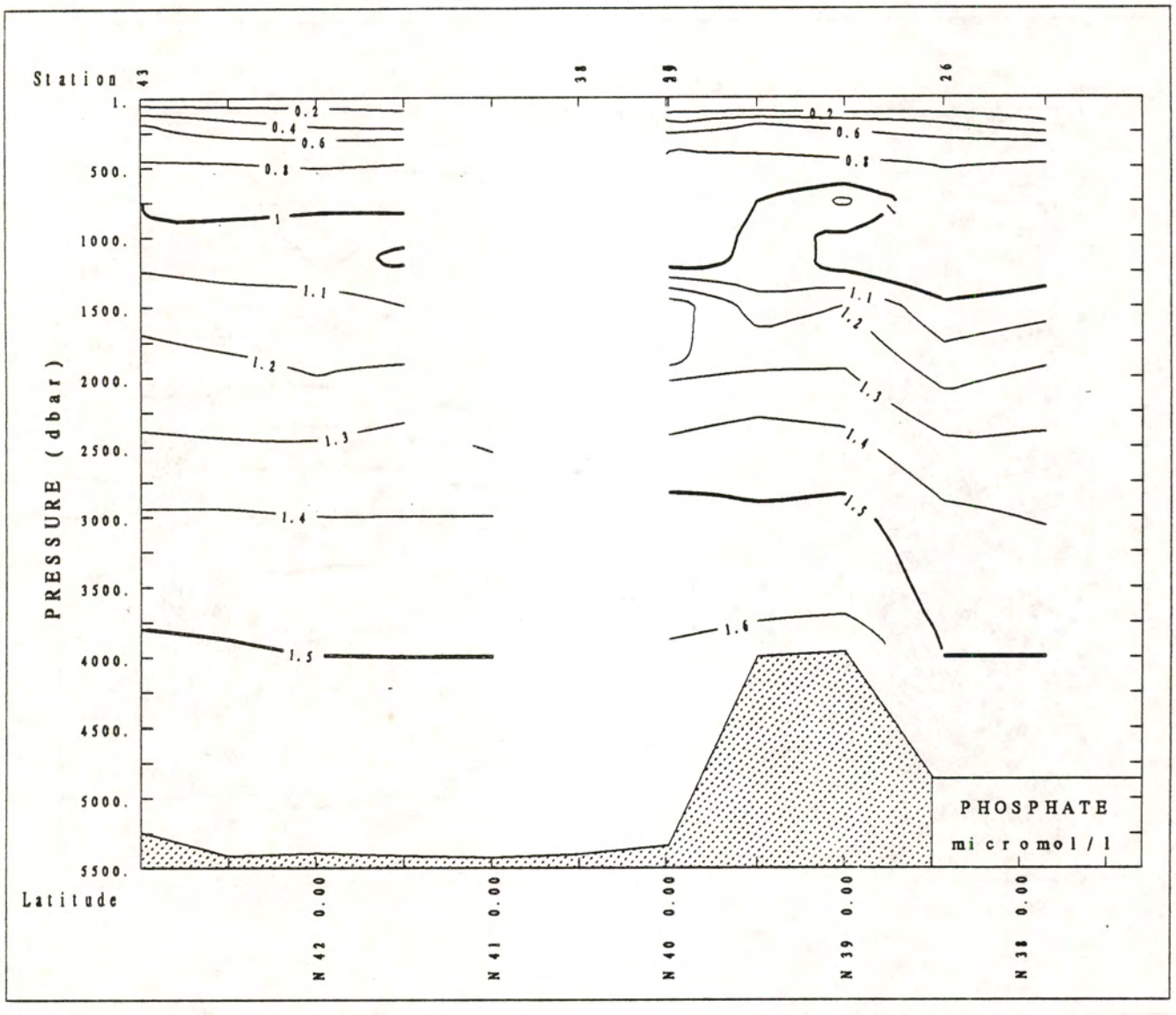
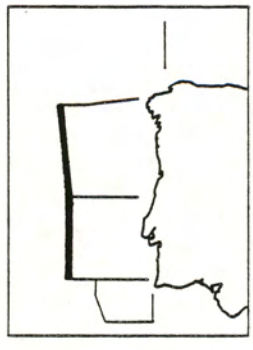
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
0.2
0.4
0.6
0.8
1
1.1
1.2
1.3
PHOSPHATE
micromol/l
Longitude
W 13 0.00
W 12 0.00
W 11 0.00
W 10 0.00
Station
59
54
1.4
1.5
Latitude
N 45 0.00



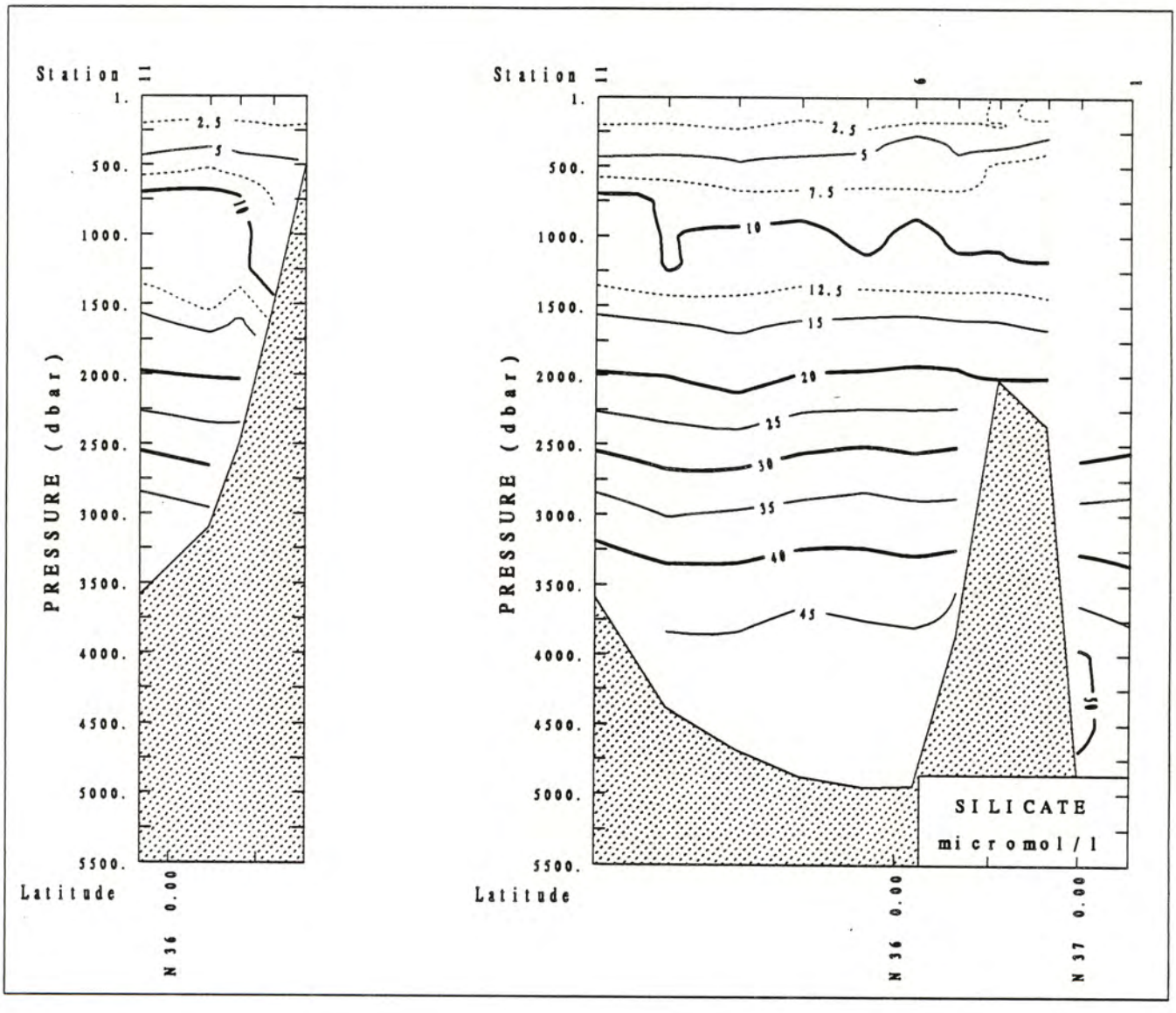


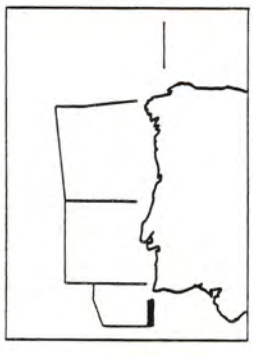
BORD - EST 3

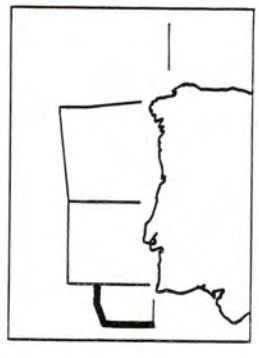

Station
43
38
29
26
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
0.2
0.4
0.6
0.8
1
1.1
1.2
1.3
1.4
1.5
1.6
PHOSPHATE
micromol/l
Latitude
N 42 0.00
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



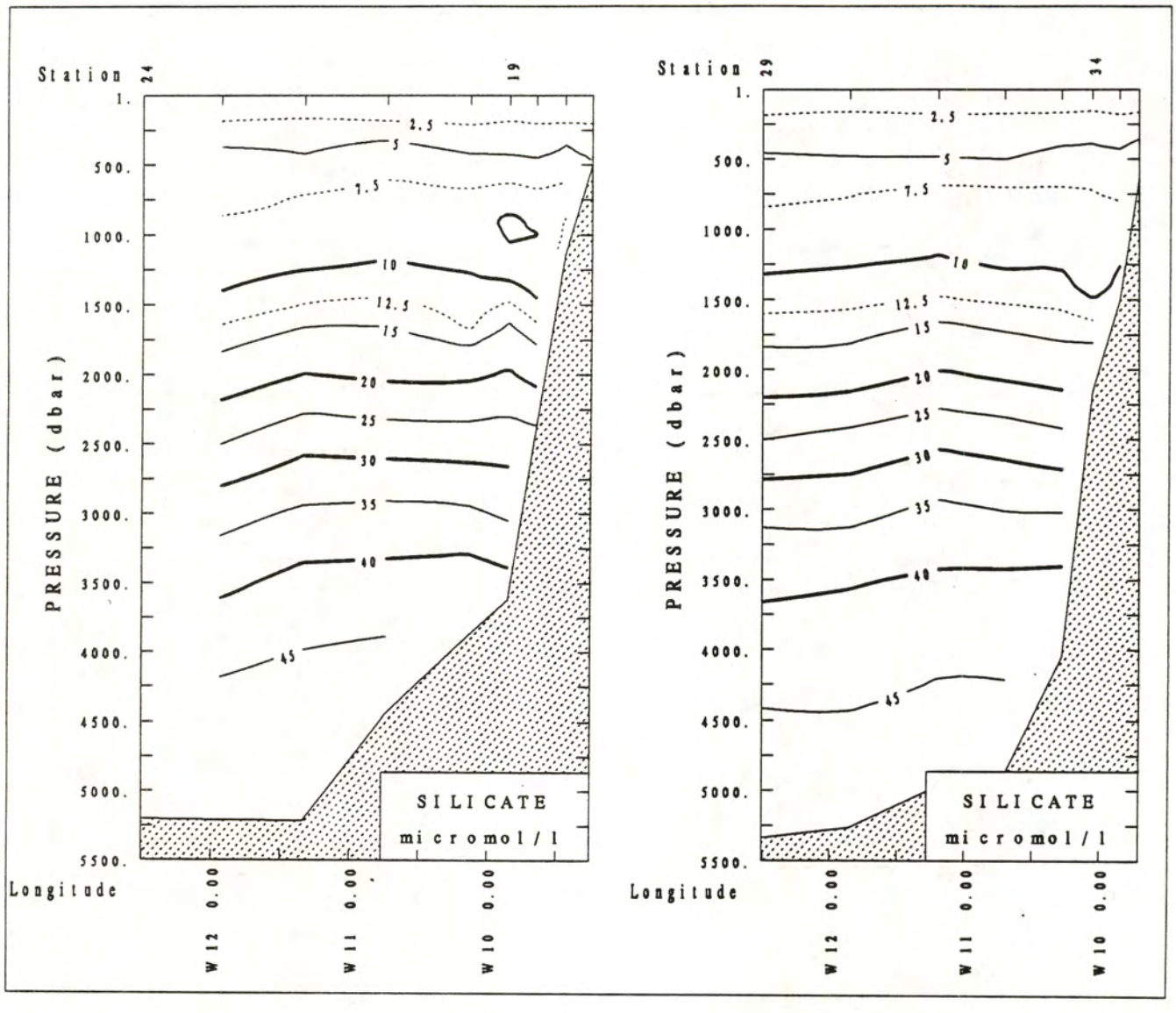
BORD - EST 3

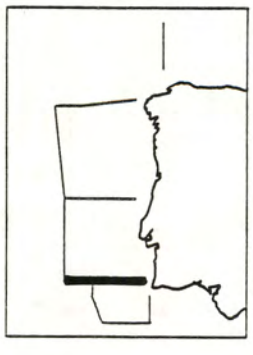

Station
PRESSURE (dbar)
Latitude
N 36 0.00
Station
PRESSURE (dbar)
SILICATE
micromol / l
Latitude
N 36 0.00
N 37 0.00

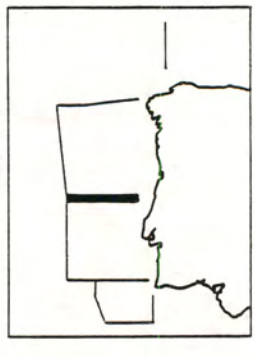




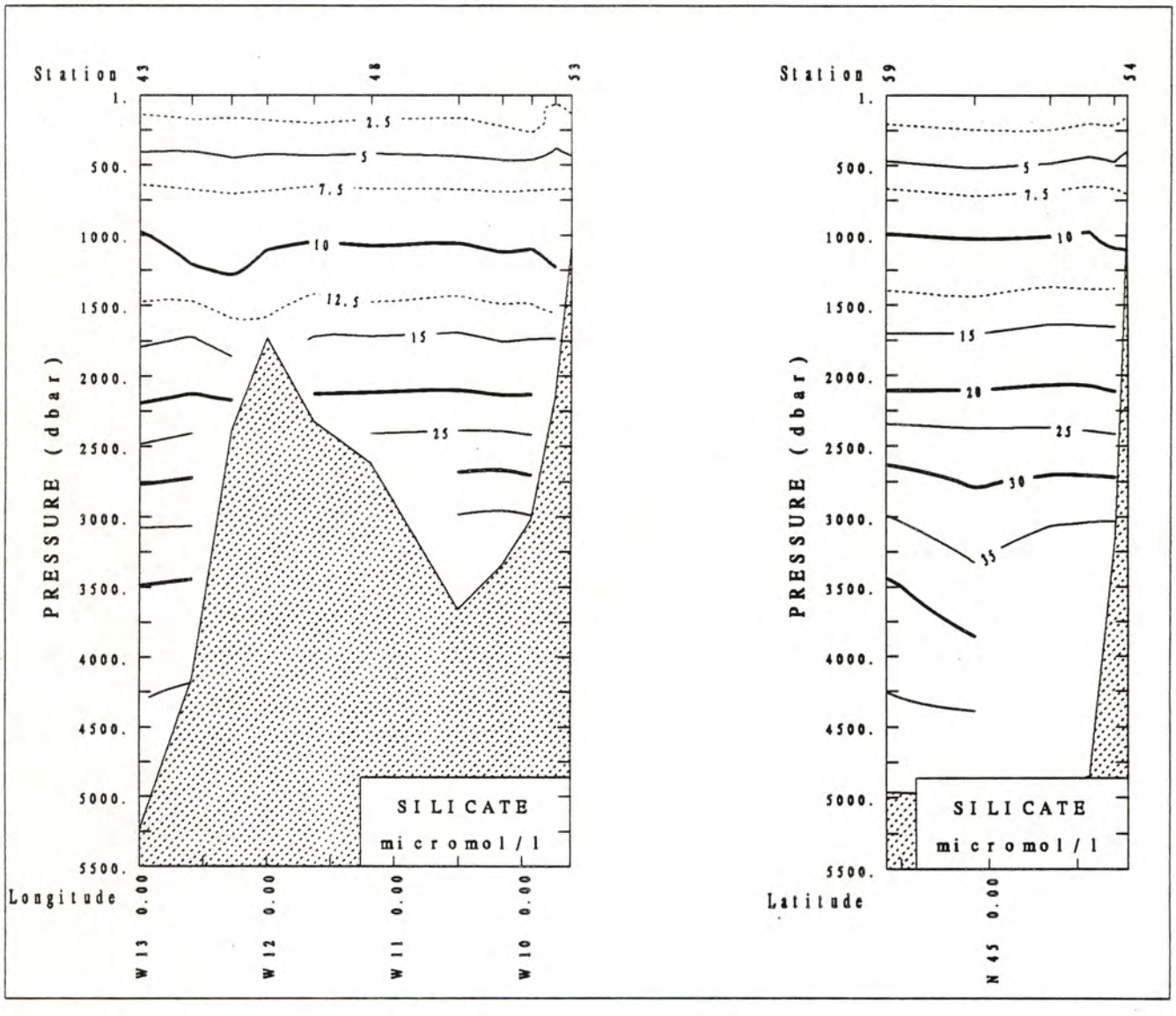
BORD - EST 3

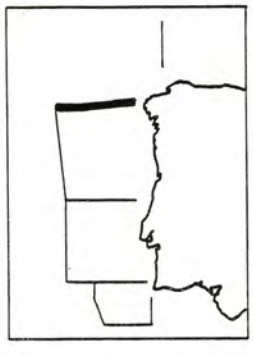

Station
24
19
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
2.5
5
7.5
10
12.5
15
20
25
30
35
40
45
SILICATE
micromol/l
Longitude
W 12 0.00
W 11 0.00
W 10 0.00
Station
29
34
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
2.5
5
7.5
10
12.5
15
20
25
30
35
40
45
SILICATE
micromol/l
Longitude
W 12 0.00
W 11 0.00
W 10 0.00

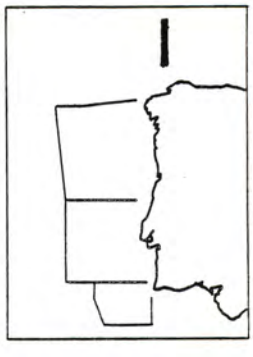




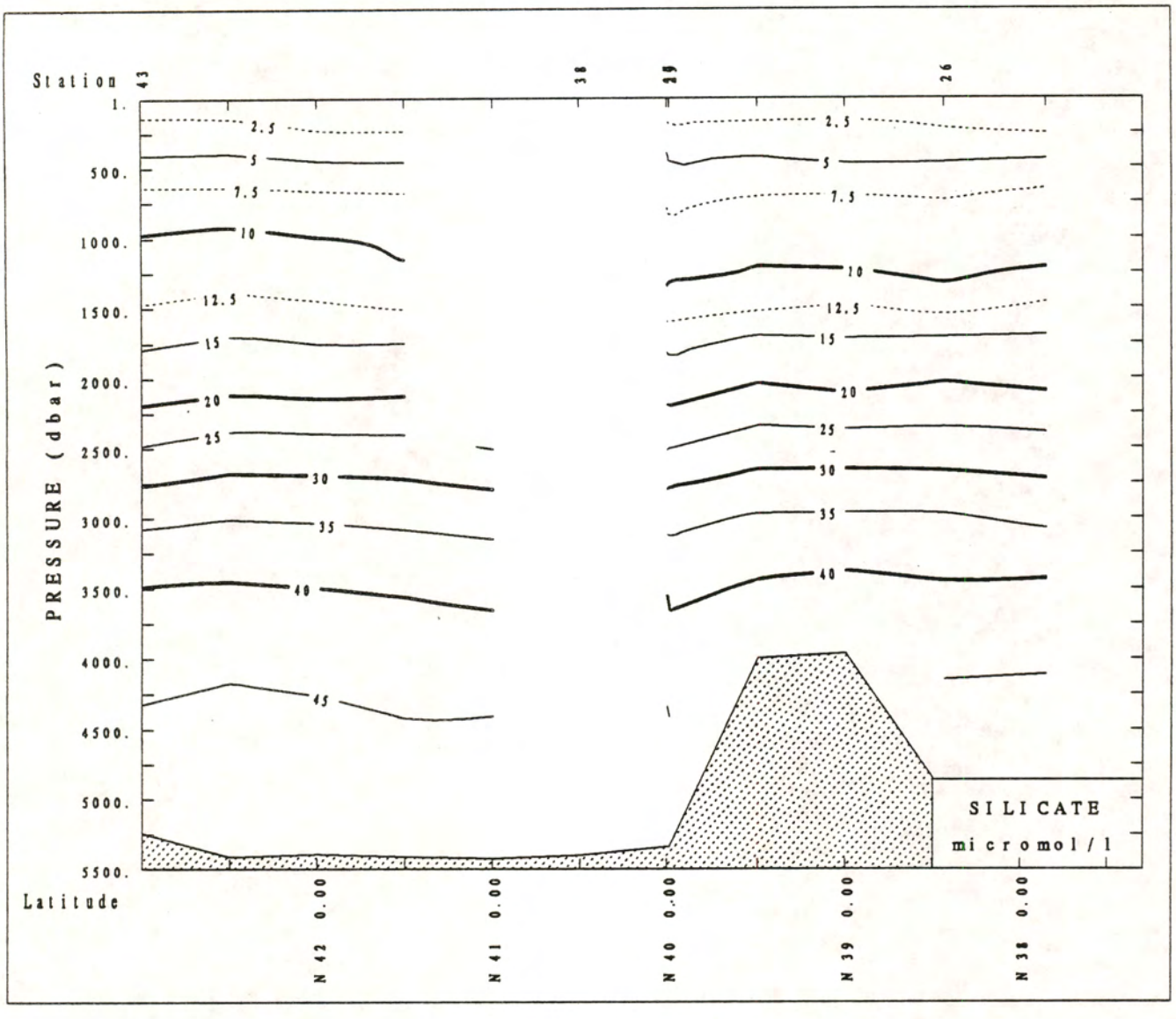
BORD EST 3


Station
43
48
53
1.
500.
1000.
1500.
2000.
2500.
3000.
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
2.5
5
7.5
10
12.5
15
25
SILICATE
micromol/l
Longitude
0.00
W 13
W 12
W 11
W 10
Station
59
54
30
35
Latitude
N 45





BORD EST 3


Station
43
38
29
26
1.
500.
1000.
1500.
2000.
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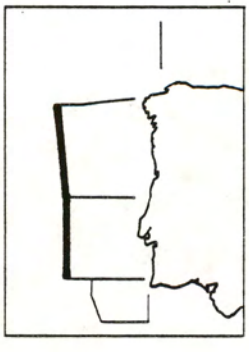
3500.
4000.
4500.
5000.
5500.
PRESSURE (dbar)
2.5
5
7.5
10
12.5
15
20
25
30
35
40
45
SILICATE
micromol/l
Latitude
N 42 0.00
N 41 0.00
N 40 0.00
N 39 0.00
N 38 0.00



3 Listings of the CTD-O_2 parameters

The temperature and salinity values listed below are extracted from the non-filtered profiles. The reported dissolved oxygen values were passed through a 11 db width running mean to eliminate the ship motions effects. This reduces the noise on the profiles to less than 0.05 ml/l.

Station : 1	Cruise : BORD-EST3
Date : 12-05-89	Ship : Le Noroit
Bottom depth: 5067 m	Institute: Ifremer
Position : N 37 17.59 W 11 20.16	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.029	36.164	5.81
10.0	17.015	36.162	5.78
20.0	16.082	36.113	5.92
30.0	15.590	36.106	6.01
40.0	15.363	36.141	5.89
50.0	15.335	36.155	5.67
60.0	15.296	36.151	5.58
70.0	15.291	36.155	5.60
80.0	15.295	36.160	5.62
90.0	15.271	36.167	5.55
100.0	15.312	36.192	5.46
200.0	14.265	35.985	5.26
300.0	12.976	35.768	4.76
400.0	12.064	35.649	4.81
500.0	11.446	35.623	4.55
600.0	11.187	35.706	4.33
700.0	11.359	35.919	4.29
800.0	11.146	36.004	4.19
900.0	11.794	36.272	4.38
1000.0	11.512	36.267	4.33
1100.0	10.960	36.222	4.27
1200.0	10.941	36.286	4.34
1300.0	10.180	36.150	4.43
1400.0	9.054	35.941	4.56
1500.0	7.779	35.698	4.76
1600.0	6.693	35.505	5.03
1700.0	5.970	35.384	5.24
1800.0	5.273	35.267	5.45
1900.0	4.832	35.203	5.60
2000.0	4.494	35.157	5.68
2100.0	4.203	35.117	5.72
2200.0	3.910	35.075	5.77
2300.0	3.629	35.040	5.83
2400.0	3.470	35.021	5.84
2500.0	3.331	35.004	5.85
2600.0	3.189	34.987	5.82
2700.0	3.073	34.974	5.79
2800.0	2.952	34.964	5.79
2900.0	2.874	34.955	5.74
3000.0	2.794	34.947	5.71
3100.0	2.735	34.941	5.72
3200.0	2.691	34.935	5.71
3300.0	2.654	34.929	5.71
3400.0	2.608	34.924	5.68
3500.0	2.577	34.920	5.68
3600.0	2.549	34.916	5.68
3700.0	2.521	34.912	5.68
3800.0	2.505	34.910	5.67
3900.0	2.487	34.907	5.69
4000.0	2.479	34.905	5.69
4100.0	2.475	34.903	5.68
4200.0	2.472	34.901	5.70
4300.0	2.474	34.900	5.70
4400.0	2.474	34.899	5.71
4500.0	2.474	34.898	5.71
4600.0	2.480	34.897	5.69
4700.0	2.492	34.897	5.69
4800.0	2.505	34.897	5.67
4900.0	2.518	34.897	5.64
4928.0	2.521	34.897	5.62

Station : 2	Cruise : BORD-EST3
Date : 12-05-89	Ship : Le Noroit
Bottom depth: 4820 m	Institute: Ifremer
Position : N 37 0.03 W 11 20.56	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.549	36.256	5.36
10.0	17.424	36.256	5.37
20.0	16.987	36.248	5.53
30.0	16.468	36.240	5.65
40.0	16.268	36.264	5.70
50.0	16.080	36.274	5.66
60.0	15.861	36.275	5.52
70.0	15.833	36.290	5.44
80.0	15.806	36.288	5.34
90.0	15.774	36.284	5.40
100.0	15.639	36.250	5.44
200.0	14.008	35.932	4.75
300.0	12.563	35.706	4.83
400.0	11.990	35.642	4.78
500.0	11.414	35.626	4.61
600.0	11.398	35.781	4.38
700.0	11.782	36.041	4.40
800.0	11.042	35.970	4.28
900.0	11.762	36.258	4.33
1000.0	11.497	36.299	4.34
1100.0	11.200	36.283	4.29
1200.0	11.004	36.301	4.33
1300.0	10.230	36.165	4.44
1400.0	8.899	35.908	4.61
1500.0	7.718	35.685	4.81
1600.0	6.799	35.529	5.03
1700.0	5.992	35.390	5.21
1800.0	5.063	35.228	5.49
1900.0	4.944	35.225	5.46
2000.0	4.506	35.155	5.58
2100.0	4.035	35.087	5.70
2200.0	3.844	35.067	5.69
2300.0	3.660	35.046	5.72
2400.0	3.486	35.024	5.73
2500.0	3.354	35.008	5.77
2600.0	3.260	34.996	5.77
2700.0	3.101	34.977	5.76
2800.0	2.983	34.966	5.75
2900.0	2.901	34.957	5.71
3000.0	2.816	34.949	5.69
3100.0	2.745	34.939	5.71
3200.0	2.696	34.933	5.68
3300.0	2.648	34.928	5.66
3400.0	2.608	34.924	5.66
3500.0	2.581	34.921	5.66
3600.0	2.550	34.917	5.65
3700.0	2.528	34.913	5.63
3800.0	2.505	34.910	5.64
3900.0	2.491	34.907	5.63
4000.0	2.481	34.905	5.63
4100.0	2.474	34.903	5.65
4200.0	2.468	34.901	5.64
4300.0	2.464	34.899	5.67
4400.0	2.466	34.898	5.67
4500.0	2.471	34.897	5.68
4600.0	2.477	34.897	5.67
4700.0	2.486	34.896	5.68
4800.0	2.499	34.896	5.67
4856.0	2.506	34.897	5.68

Station	: 3	Cruise	: BORD-EST3
Date	: 12-05-89	Ship	: Le Noroit
Bottom depth: 2325 m		Institute:	Ifremer
Position	: N 36 48.66 W 11 21.41		

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	17.894	36.249	5.45
10.0	17.568	36.244	5.53
20.0	16.845	36.196	5.78
30.0	16.222	36.168	5.89
40.0	15.763	36.162	5.81
50.0	15.349	36.150	5.70
60.0	15.304	36.151	5.62
70.0	15.256	36.150	5.61
80.0	15.172	36.147	5.56
90.0	15.075	36.133	5.53
100.0	14.972	36.126	5.47
200.0	13.810	35.904	4.93
300.0	12.514	35.710	4.80
400.0	11.803	35.644	4.82
500.0	11.599	35.725	4.57
600.0	11.558	35.846	4.47
700.0	11.426	35.969	4.41
800.0	11.457	36.090	4.40
900.0	11.803	36.304	4.41
1000.0	11.139	36.208	4.35
1100.0	11.195	36.292	4.33
1200.0	10.978	36.294	4.34
1300.0	10.368	36.191	4.42
1400.0	8.995	35.925	4.61
1500.0	7.830	35.709	4.79
1600.0	6.817	35.529	5.03
1700.0	5.997	35.390	5.23
1800.0	5.548	35.322	5.33
1900.0	4.990	35.234	5.48
2000.0	4.676	35.186	5.56
2100.0	4.353	35.136	5.61
2200.0	4.017	35.090	5.68
2295.0	3.777	35.060	5.70

Station	: 4	Cruise	: BORD-EST3
Date	: 13-05-89	Ship	: Le Noroit
Bottom depth: 2000 m		Institute:	Ifremer
Position	: N 36 32.48 W 11 16.27		

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	17.557	36.271	5.38
10.0	17.556	36.269	5.41
20.0	17.433	36.270	5.64
30.0	16.636	36.283	5.79
40.0	16.292	36.246	5.81
50.0	15.889	36.231	5.74
60.0	15.824	36.249	5.66
70.0	15.681	36.230	5.66
80.0	15.510	36.199	5.62
90.0	15.591	36.237	5.55
100.0	15.335	36.189	5.46
200.0	13.605	35.870	4.95
300.0	12.429	35.704	4.84
400.0	11.968	35.675	4.76
500.0	11.646	35.748	4.54
600.0	11.726	35.911	4.39
700.0	11.553	36.027	4.29
800.0	11.152	36.022	4.25
900.0	11.263	36.124	4.23
1000.0	11.096	36.175	4.22
1100.0	11.119	36.272	4.24
1200.0	10.692	36.239	4.33
1300.0	9.872	36.096	4.46
1400.0	9.282	35.990	4.55
1500.0	8.201	35.785	4.74
1600.0	7.332	35.625	4.92
1700.0	6.129	35.418	5.23
1800.0	5.532	35.319	5.38
1900.0	5.234	35.272	5.43
2000.0	4.722	35.195	5.56
2056.0	4.251	35.130	5.62

Station : 5	Cruise	: BORD-EST3	
Date : 13-05-89	Ship	: Le Noroit	
Bottom depth: 3780 m	Institute:	Ifremer	
Position : N 36 19.29 W 11 9.15			

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.693	36.226	5.31
10.0	17.695	36.225	5.36
20.0	16.350	36.213	5.78
30.0	15.991	36.220	5.74
40.0	15.933	36.219	5.78
50.0	15.679	36.212	5.80
60.0	15.614	36.209	5.73
70.0	15.497	36.213	5.62
80.0	15.443	36.213	5.49
90.0	15.384	36.212	5.45
100.0	15.260	36.192	5.39
200.0	13.926	35.933	5.01
300.0	12.601	35.719	4.84
400.0	11.837	35.632	4.80
500.0	11.478	35.630	4.64
600.0	11.220	35.704	4.37
700.0	11.144	35.840	4.25
800.0	11.262	36.005	4.21
900.0	11.258	36.117	4.19
1000.0	11.195	36.195	4.21
1100.0	11.167	36.281	4.24
1200.0	10.851	36.268	4.28
1300.0	10.146	36.148	4.42
1400.0	8.918	35.935	4.63
1500.0	7.577	35.673	4.85
1600.0	6.688	35.520	5.06
1700.0	6.007	35.404	5.23
1800.0	5.317	35.288	5.39
1900.0	4.717	35.195	5.55
2000.0	4.381	35.145	5.61
2100.0	4.049	35.101	5.67
2200.0	3.800	35.068	5.68
2300.0	3.593	35.041	5.72
2400.0	3.423	35.020	5.73
2500.0	3.282	35.004	5.74
2600.0	3.149	34.988	5.75
2700.0	3.024	34.974	5.74
2800.0	2.931	34.964	5.71
2900.0	2.838	34.955	5.70
3000.0	2.777	34.948	5.68
3100.0	2.723	34.941	5.65
3200.0	2.655	34.935	5.64
3300.0	2.599	34.929	5.63
3400.0	2.542	34.922	5.62
3500.0	2.501	34.917	5.61
3600.0	2.460	34.912	5.58
3700.0	2.451	34.910	5.58
3800.0	2.453	34.909	5.58
3828.0	2.451	34.908	5.56

Station : 6	Cruise	: BORD-EST3	
Date : 13-05-89	Ship	: Le Noroit	
Bottom depth: 4810 m	Institute:	Ifremer	
Position : N 36 5.65 W 11 2.47			

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	18.293	36.312	5.13
10.0	18.078	36.301	5.35
20.0	17.121	36.297	5.58
30.0	16.901	36.291	5.64
40.0	16.555	36.284	5.70
50.0	16.214	36.278	5.70
60.0	16.029	36.268	5.66
70.0	15.926	36.251	5.62
80.0	15.830	36.253	5.55
90.0	15.784	36.258	5.45
100.0	15.712	36.261	5.40
200.0	14.343	35.997	4.97
300.0	12.666	35.723	4.93
400.0	11.791	35.614	4.85
500.0	11.311	35.585	4.69
600.0	11.110	35.665	4.43
700.0	11.365	35.891	4.23
800.0	11.011	35.929	4.20
900.0	10.762	35.987	4.17
1000.0	10.217	35.950	4.21
1100.0	10.406	36.080	4.24
1200.0	10.327	36.146	4.32
1300.0	9.676	36.052	4.46
1400.0	8.822	35.897	4.62
1500.0	7.682	35.686	4.85
1600.0	6.630	35.506	5.08
1700.0	6.039	35.404	5.23
1800.0	5.474	35.314	5.37
1900.0	4.964	35.234	5.51
2000.0	4.502	35.162	5.62
2100.0	4.196	35.117	5.68
2200.0	3.899	35.076	5.72
2300.0	3.663	35.047	5.76
2400.0	3.493	35.025	5.77
2500.0	3.329	35.006	5.76
2600.0	3.183	34.991	5.75
2700.0	3.074	34.978	5.73
2800.0	2.984	34.968	5.71
2900.0	2.900	34.961	5.69
3000.0	2.811	34.951	5.67
3100.0	2.730	34.941	5.66
3200.0	2.660	34.934	5.65
3300.0	2.602	34.928	5.63
3400.0	2.561	34.923	5.63
3500.0	2.520	34.918	5.62
3600.0	2.485	34.914	5.62
3700.0	2.467	34.910	5.62
3800.0	2.450	34.908	5.62
3900.0	2.443	34.907	5.61
4000.0	2.440	34.905	5.61
4100.0	2.441	34.904	5.59
4200.0	2.453	34.904	5.60
4300.0	2.465	34.903	5.60
4400.0	2.477	34.903	5.60
4500.0	2.489	34.903	5.60
4600.0	2.503	34.902	5.59
4700.0	2.515	34.901	5.58
4800.0	2.527	34.902	5.55
4897.0	2.539	34.901	5.52

Station : 7	Cruise : BORD-EST3
Date : 13-05-89	Ship : Le Noroit
Bottom depth: 4820 m	Institute: Ifremer
Position : N 35 50.03 W 10 54.05	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	18.797	36.232	5.23
10.0	18.222	36.209	5.41
20.0	17.125	36.290	5.75
30.0	16.778	36.292	5.83
40.0	16.330	36.307	5.82
50.0	16.181	36.308	5.73
60.0	16.087	36.306	5.59
70.0	16.016	36.302	5.51
80.0	15.910	36.287	5.42
90.0	15.847	36.287	5.38
100.0	15.778	36.269	5.35
200.0	14.050	35.945	4.97
300.0	12.732	35.734	4.79
400.0	11.999	35.650	4.72
500.0	11.464	35.647	4.55
600.0	11.396	35.765	4.33
700.0	11.415	35.913	4.23
800.0	11.410	36.022	4.23
900.0	11.215	36.089	4.21
1000.0	11.290	36.216	4.21
1100.0	10.386	36.086	4.28
1200.0	10.545	36.189	4.34
1300.0	9.605	36.031	4.48
1400.0	8.460	35.809	4.72
1500.0	7.239	35.600	5.00
1600.0	6.424	35.460	5.20
1700.0	5.781	35.355	5.36
1800.0	5.271	35.273	5.50
1900.0	4.799	35.200	5.62
2000.0	4.442	35.148	5.68
2100.0	4.077	35.097	5.73
2200.0	3.840	35.065	5.75
2300.0	3.651	35.043	5.76
2400.0	3.499	35.023	5.76
2500.0	3.337	35.004	5.77
2600.0	3.193	34.989	5.76
2700.0	3.073	34.976	5.73
2800.0	2.984	34.966	5.68
2900.0	2.871	34.955	5.68
3000.0	2.803	34.947	5.68
3100.0	2.736	34.940	5.66
3200.0	2.682	34.935	5.65
3300.0	2.621	34.928	5.63
3400.0	2.575	34.922	5.62
3500.0	2.541	34.918	5.61
3600.0	2.509	34.914	5.60
3700.0	2.489	34.910	5.60
3800.0	2.470	34.908	5.59
3900.0	2.450	34.905	5.58
4000.0	2.446	34.903	5.57
4100.0	2.444	34.901	5.56
4200.0	2.456	34.902	5.57
4300.0	2.468	34.900	5.57
4400.0	2.480	34.901	5.58
4500.0	2.492	34.900	5.58
4600.0	2.504	34.901	5.58
4700.0	2.515	34.902	5.57
4800.0	2.528	34.901	5.56
4900.0	2.537	34.900	5.54
4933.0	2.542	34.900	5.52

Station : 8	Cruise : BORD-EST3
Date : 13-05-89	Ship : Le Noroit
Bottom depth: 4750 m	Institute: Ifremer
Position : N 35 50.07 W 10 26.77	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	18.718	36.435	5.31
10.0	18.713	36.431	5.33
20.0	17.551	36.363	5.74
30.0	16.859	36.335	5.87
40.0	16.612	36.332	5.78
50.0	16.439	36.338	5.80
60.0	16.327	36.326	5.73
70.0	16.255	36.319	5.57
80.0	16.171	36.307	5.46
90.0	16.045	36.284	5.42
100.0	15.849	36.252	5.35
200.0	13.984	35.919	4.89
300.0	12.780	35.731	4.81
400.0	11.871	35.610	4.82
500.0	11.225	35.564	4.51
600.0	11.087	35.656	4.38
700.0	10.797	35.731	4.22
800.0	10.974	35.924	4.20
900.0	10.192	35.838	4.11
1000.0	9.833	35.842	4.13
1100.0	10.379	36.075	4.20
1200.0	10.307	36.122	4.31
1300.0	9.966	36.094	4.40
1400.0	9.074	35.927	4.54
1500.0	8.025	35.745	4.76
1600.0	6.896	35.542	5.02
1700.0	6.087	35.404	5.25
1800.0	5.556	35.318	5.39
1900.0	5.208	35.270	5.45
2000.0	4.659	35.181	5.56
2100.0	4.258	35.125	5.62
2200.0	3.927	35.078	5.68
2300.0	3.731	35.052	5.71
2400.0	3.559	35.030	5.74
2500.0	3.349	35.006	5.73
2600.0	3.221	34.991	5.71
2700.0	3.101	34.978	5.70
2800.0	3.006	34.968	5.70
2900.0	2.912	34.958	5.66
3000.0	2.816	34.949	5.63
3100.0	2.744	34.940	5.61
3200.0	2.690	34.935	5.59
3300.0	2.637	34.929	5.58
3400.0	2.586	34.924	5.57
3500.0	2.552	34.919	5.56
3600.0	2.517	34.915	5.55
3700.0	2.488	34.911	5.54
3800.0	2.471	34.908	5.55
3900.0	2.459	34.906	5.53
4000.0	2.453	34.904	5.53
4100.0	2.445	34.902	5.51
4200.0	2.456	34.901	5.51
4300.0	2.468	34.900	5.51
4400.0	2.480	34.900	5.52
4500.0	2.492	34.900	5.52
4600.0	2.505	34.900	5.52
4700.0	2.518	34.900	5.52
4800.0	2.530	34.900	5.51
4856.0	2.537	34.901	5.49

Station : 9	Cruise : BORD-EST3
Date : 14-05-89	Ship : Le Noroit
Bottom depth: 4570 m	Institute: Ifremer
Position : N 35 49.90 W 10 0.11	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	18.394	36.389	5.29
10.0	18.320	36.389	5.37
20.0	17.379	36.404	5.58
30.0	17.091	36.398	5.72
40.0	16.823	36.401	5.76
50.0	16.731	36.403	5.72
60.0	16.637	36.393	5.62
70.0	16.480	36.381	5.50
80.0	16.346	36.366	5.36
90.0	16.231	36.349	5.31
100.0	16.156	36.335	5.28
200.0	14.435	35.981	4.78
300.0	13.207	35.791	4.82
400.0	12.181	35.649	4.77
500.0	11.438	35.574	4.68
600.0	10.944	35.566	4.46
700.0	10.569	35.622	4.15
800.0	10.931	35.843	4.10
900.0	10.719	35.925	4.13
1000.0	10.259	35.931	4.16
1100.0	10.519	36.087	4.18
1200.0	10.631	36.185	4.25
1300.0	9.759	36.031	4.39
1400.0	8.720	35.847	4.57
1500.0	7.851	35.708	4.78
1600.0	6.913	35.546	5.00
1700.0	6.213	35.428	5.19
1800.0	5.590	35.322	5.34
1900.0	5.084	35.243	5.49
2000.0	4.759	35.194	5.53
2100.0	4.386	35.142	5.59
2200.0	4.085	35.100	5.62
2300.0	3.848	35.068	5.66
2400.0	3.596	35.036	5.67
2500.0	3.415	35.014	5.68
2600.0	3.272	34.998	5.70
2700.0	3.155	34.985	5.68
2800.0	3.036	34.971	5.68
2900.0	2.950	34.963	5.63
3000.0	2.878	34.956	5.60
3100.0	2.798	34.947	5.58
3200.0	2.735	34.940	5.55
3300.0	2.669	34.933	5.52
3400.0	2.602	34.925	5.52
3500.0	2.558	34.919	5.52
3600.0	2.519	34.915	5.52
3700.0	2.487	34.911	5.51
3800.0	2.466	34.908	5.52
3900.0	2.449	34.905	5.51
4000.0	2.441	34.903	5.50
4100.0	2.444	34.902	5.48
4200.0	2.455	34.902	5.49
4300.0	2.468	34.900	5.50
4400.0	2.479	34.901	5.51
4500.0	2.491	34.901	5.51
4600.0	2.487	34.899	5.53
4665.0	2.476	34.897	5.57

Station : 10	Cruise : BORD-EST3
Date : 14-05-89	Ship : Le Noroit
Bottom depth: 4280 m	Institute: Ifremer
Position : N 35 50.11 W 9 30.19	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.892	36.400	5.22
10.0	17.891	36.401	5.33
20.0	17.699	36.387	5.46
30.0	17.111	36.355	5.60
40.0	16.576	36.365	5.71
50.0	16.442	36.373	5.66
60.0	16.369	36.373	5.51
70.0	16.334	36.374	5.47
80.0	16.292	36.367	5.41
90.0	16.209	36.350	5.36
100.0	16.177	36.349	5.32
200.0	14.129	35.938	4.72
300.0	13.024	35.767	4.72
400.0	12.222	35.658	4.66
500.0	11.523	35.586	4.60
600.0	11.003	35.587	4.28
700.0	10.747	35.641	4.07
800.0	10.914	35.830	4.11
900.0	10.895	35.970	4.10
1000.0	10.848	36.062	4.15
1100.0	10.685	36.117	4.17
1200.0	10.808	36.230	4.22
1300.0	10.489	36.202	4.30
1400.0	9.360	35.993	4.48
1500.0	7.911	35.715	4.70
1600.0	6.878	35.539	4.92
1700.0	6.281	35.443	5.08
1800.0	5.732	35.353	5.19
1900.0	5.272	35.282	5.29
2000.0	4.800	35.209	5.43
2100.0	4.405	35.148	5.50
2200.0	4.112	35.106	5.55
2300.0	3.865	35.072	5.61
2400.0	3.670	35.046	5.65
2500.0	3.490	35.024	5.68
2600.0	3.336	35.006	5.69
2700.0	3.211	34.991	5.67
2800.0	3.077	34.977	5.66
2900.0	2.991	34.966	5.64
3000.0	2.902	34.957	5.61
3100.0	2.813	34.948	5.57
3200.0	2.744	34.941	5.55
3300.0	2.677	34.933	5.55
3400.0	2.630	34.928	5.52
3500.0	2.581	34.922	5.52
3600.0	2.540	34.917	5.53
3700.0	2.508	34.913	5.53
3800.0	2.483	34.909	5.53
3900.0	2.463	34.906	5.53
4000.0	2.452	34.904	5.53
4100.0	2.448	34.902	5.53
4200.0	2.451	34.901	5.53
4300.0	2.449	34.898	5.56
4348.0	2.451	34.898	5.56

Station : 11	Cruise : BORD-EST3
Date : 14-05-89	Ship : Le Noroit
Bottom depth: 3515 m	Institute: Ifremer
Position : N 35 49.93 W 9 0.04	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	18.209	36.399	5.43
10.0	18.095	36.393	5.55
20.0	17.796	36.376	5.67
30.0	17.047	36.356	5.85
40.0	16.737	36.340	5.88
50.0	16.383	36.333	5.88
60.0	16.217	36.349	5.73
70.0	16.134	36.335	5.61
80.0	16.107	36.335	5.53
90.0	16.031	36.320	5.51
100.0	15.970	36.310	5.47
200.0	14.363	35.984	4.84
300.0	12.982	35.763	4.68
400.0	12.227	35.686	4.61
500.0	11.429	35.584	4.54
600.0	10.976	35.622	4.23
700.0	10.794	35.722	4.12
800.0	10.796	35.855	4.05
900.0	10.781	35.971	4.12
1000.0	10.674	36.038	4.13
1100.0	10.692	36.126	4.18
1200.0	10.601	36.174	4.27
1300.0	9.729	36.034	4.39
1400.0	8.681	35.856	4.58
1500.0	8.160	35.779	4.71
1600.0	7.277	35.624	4.87
1700.0	6.511	35.491	5.02
1800.0	5.746	35.363	5.19
1900.0	5.333	35.294	5.29
2000.0	4.804	35.208	5.43
2100.0	4.417	35.150	5.50
2200.0	4.043	35.095	5.58
2300.0	3.829	35.067	5.60
2400.0	3.622	35.040	5.65
2500.0	3.437	35.018	5.68
2600.0	3.260	34.996	5.69
2700.0	3.136	34.983	5.66
2800.0	3.047	34.973	5.63
2900.0	2.969	34.964	5.60
3000.0	2.886	34.954	5.60
3100.0	2.806	34.947	5.58
3200.0	2.752	34.940	5.58
3300.0	2.674	34.932	5.58
3400.0	2.613	34.925	5.56
3500.0	2.541	34.917	5.56
3562.0	2.480	34.910	5.58

Station : 12	Cruise : BORD-EST3
Date : 14-05-89	Ship : Le Noroit
Bottom depth: 3040 m	Institute: Ifremer
Position : N 36 13.68 W 9 0.04	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	18.036	36.382	5.45
10.0	18.015	36.380	5.65
20.0	17.746	36.368	5.79
30.0	16.967	36.355	5.90
40.0	16.751	36.355	5.87
50.0	16.566	36.352	5.84
60.0	16.325	36.344	5.77
70.0	16.248	36.338	5.68
80.0	16.177	36.337	5.64
90.0	16.148	36.339	5.61
100.0	16.114	36.336	5.59
200.0	14.044	35.934	4.81
300.0	12.744	35.729	4.77
400.0	12.064	35.638	4.79
500.0	11.306	35.579	4.58
600.0	10.884	35.623	4.28
700.0	10.311	35.627	4.00
800.0	9.963	35.622	3.87
900.0	10.035	35.718	3.96
1000.0	10.448	35.935	4.14
1100.0	10.547	36.061	4.22
1200.0	10.590	36.147	4.24
1300.0	11.110	36.356	4.32
1400.0	10.761	36.318	4.39
1500.0	9.046	35.979	4.63
1600.0	7.828	35.736	4.75
1700.0	6.888	35.558	4.90
1800.0	6.027	35.408	5.04
1900.0	5.549	35.329	5.15
2000.0	5.181	35.270	5.22
2100.0	4.712	35.196	5.32
2200.0	4.314	35.135	5.38
2300.0	4.014	35.093	5.47
2400.0	3.743	35.056	5.52
2500.0	3.559	35.032	5.54
2600.0	3.371	35.009	5.56
2700.0	3.233	34.994	5.55
2800.0	3.086	34.977	5.52
2900.0	2.996	34.966	5.51
3000.0	2.916	34.957	5.52
3062.0	2.866	34.952	5.46

Station : 13	Cruise : BORD-EST3
Date : 14-05-89	Ship : Le Noroit
Bottom depth: 2450 m	Institute: Ifremer
Position : N 36 24.03 W 9 0.11	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.614	36.343	5.55
10.0	17.617	36.343	5.61
20.0	17.212	36.357	5.83
30.0	16.957	36.388	5.94
40.0	16.912	36.385	5.95
50.0	16.851	36.380	5.91
60.0	16.456	36.344	5.89
70.0	16.285	36.308	5.86
80.0	16.137	36.274	5.82
90.0	15.918	36.264	5.69
100.0	15.872	36.267	5.57
200.0	13.814	35.889	4.80
300.0	12.704	35.721	4.78
400.0	11.901	35.632	4.73
500.0	11.334	35.571	4.66
600.0	10.861	35.571	4.40
700.0	10.706	35.670	4.15
800.0	10.376	35.705	4.02
900.0	10.716	35.905	4.19
1000.0	10.751	36.017	4.25
1100.0	10.462	36.042	4.29
1200.0	10.575	36.147	4.37
1300.0	9.717	36.009	4.52
1400.0	9.114	35.918	4.65
1500.0	8.346	35.796	4.79
1600.0	7.647	35.675	4.89
1700.0	6.759	35.530	5.07
1800.0	6.089	35.420	5.21
1900.0	5.559	35.331	5.32
2000.0	5.175	35.268	5.42
2100.0	4.757	35.203	5.50
2200.0	4.436	35.155	5.59
2300.0	4.203	35.123	5.65
2400.0	3.960	35.088	5.70
2407.0	3.966	35.089	5.66

Station : 14	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 1490 m	Institute: Ifremer
Position : N 36 35.46 W 9 0.26	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.548	36.371	5.64
10.0	17.545	36.371	5.66
20.0	17.181	36.347	5.86
30.0	16.934	36.338	5.95
40.0	16.682	36.343	5.90
50.0	16.358	36.321	5.87
60.0	16.288	36.316	5.81
70.0	16.240	36.337	5.73
80.0	16.166	36.333	5.63
90.0	16.093	36.320	5.55
100.0	15.938	36.294	5.53
200.0	13.858	35.902	4.87
300.0	12.906	35.757	4.86
400.0	12.055	35.642	4.80
500.0	11.401	35.583	4.70
600.0	11.291	35.686	4.42
700.0	11.744	35.999	4.43
800.0	11.652	36.161	4.42
900.0	11.489	36.176	4.33
1000.0	11.571	36.293	4.31
1100.0	11.985	36.458	4.34
1200.0	11.972	36.482	4.33
1300.0	11.974	36.520	4.31
1400.0	12.024	36.573	4.30
1500.0	11.781	36.560	4.34
1600.0	10.947	36.405	4.45
1700.0	9.262	36.072	4.71
1716.0	8.719	35.961	4.78

Station : 15	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 490 m	Institute: Ifremer
Position : N 36 46.63 W 9 0.00	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.451	36.405	5.47
10.0	17.459	36.405	5.59
20.0	17.461	36.405	5.71
30.0	17.357	36.396	5.77
40.0	16.940	36.362	5.89
50.0	16.290	36.317	5.91
60.0	16.191	36.319	5.81
70.0	16.132	36.312	5.69
80.0	16.042	36.299	5.57
90.0	15.983	36.293	5.54
100.0	15.927	36.284	5.48
200.0	13.773	35.890	4.92
300.0	12.275	35.689	4.71
400.0	11.918	35.766	4.58
477.0	12.603	36.132	4.55

Station : 16	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 500 m	Institute: Ifremer
Position : N 37 17.43 W 9 15.40	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.149	36.049	5.64
10.0	16.688	36.074	5.86
20.0	15.993	36.100	6.05
30.0	15.544	36.107	6.06
40.0	15.208	36.061	5.96
50.0	15.016	36.057	5.90
60.0	15.001	36.064	5.82
70.0	15.039	36.081	5.75
80.0	15.128	36.126	5.63
90.0	15.079	36.118	5.57
100.0	14.899	36.083	5.55
200.0	13.736	35.900	5.01
300.0	12.539	35.718	4.80
400.0	12.167	35.689	4.75
470.0	12.121	35.694	4.66

Station : 17	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 1125 m	Institute: Ifremer
Position : N 37 17.82 W 9 26.91	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.889	36.292	5.67
10.0	17.627	36.294	5.70
20.0	17.476	36.313	5.72
30.0	17.319	36.336	5.81
40.0	16.954	36.355	5.91
50.0	16.749	36.352	5.88
60.0	16.674	36.354	5.83
70.0	16.428	36.348	5.77
80.0	16.261	36.333	5.62
90.0	16.078	36.313	5.50
100.0	15.944	36.280	5.46
200.0	13.462	35.840	4.96
300.0	12.168	35.649	4.83
400.0	11.583	35.587	4.75
500.0	11.126	35.583	4.50
600.0	12.360	36.052	4.52
700.0	11.326	35.960	4.27
800.0	11.986	36.280	4.24
900.0	12.129	36.387	4.35
1000.0	11.928	36.413	4.29
1100.0	12.344	36.560	4.29
1135.0	12.319	36.561	4.32

Station : 18	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 2380 m	Institute: Ifremer
Position : N 37 17.86 W 9 39.49	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	18.040	36.382	5.41
10.0	17.875	36.370	5.69
20.0	17.709	36.378	5.79
30.0	17.211	36.363	5.86
40.0	16.954	36.358	5.91
50.0	16.602	36.359	5.88
60.0	16.474	36.356	5.86
70.0	16.376	36.348	5.76
80.0	16.229	36.330	5.64
90.0	16.050	36.305	5.52
100.0	15.954	36.287	5.44
200.0	13.533	35.842	4.81
300.0	12.446	35.689	4.82
400.0	11.760	35.607	4.79
500.0	11.245	35.564	4.56
600.0	10.909	35.591	4.32
700.0	10.848	35.733	4.18
800.0	10.914	35.889	4.21
900.0	10.498	35.870	4.15
1000.0	10.607	35.989	4.15
1100.0	11.673	36.375	4.24
1200.0	12.219	36.599	4.31
1300.0	11.914	36.575	4.32
1400.0	11.319	36.440	4.32
1500.0	10.769	36.361	4.37
1600.0	8.917	35.959	4.62
1700.0	7.486	35.668	4.84
1800.0	6.376	35.463	5.08
1900.0	5.637	35.337	5.31
2000.0	5.130	35.260	5.43
2100.0	4.691	35.193	5.55
2200.0	4.445	35.158	5.58
2300.0	4.125	35.112	5.65
2400.0	3.892	35.080	5.69
2500.0	3.608	35.043	5.75
2587.0	3.420	35.019	5.79

Station : 19	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 3545 m	Institute: Ifremer
Position : N 37 17.72 W 9 51.31	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	17.744	36.364	5.55
10.0	17.667	36.358	5.58
20.0	17.409	36.351	5.77
30.0	17.052	36.362	5.73
40.0	16.747	36.336	5.82
50.0	16.465	36.320	5.89
60.0	16.232	36.311	5.79
70.0	16.158	36.315	5.66
80.0	16.048	36.299	5.54
90.0	15.982	36.291	5.41
100.0	15.900	36.279	5.48
200.0	13.635	35.868	4.91
300.0	12.556	35.705	4.96
400.0	11.819	35.615	4.88
500.0	11.300	35.579	4.72
600.0	11.020	35.653	4.40
700.0	10.911	35.780	4.26
800.0	10.656	35.834	4.20
900.0	10.451	35.905	4.21
1000.0	11.057	36.132	4.22
1100.0	11.063	36.236	4.27
1200.0	11.734	36.480	4.34
1300.0	11.666	36.536	4.35
1400.0	11.243	36.467	4.39
1500.0	8.951	35.949	4.62
1600.0	7.543	35.659	4.82
1700.0	6.972	35.567	4.96
1800.0	6.031	35.403	5.21
1900.0	5.487	35.310	5.37
2000.0	4.964	35.228	5.50
2100.0	4.602	35.177	5.56
2200.0	4.291	35.134	5.62
2300.0	3.941	35.087	5.66
2400.0	3.718	35.056	5.69
2500.0	3.577	35.038	5.69
2600.0	3.382	35.013	5.72
2700.0	3.196	34.990	5.71
2800.0	3.110	34.980	5.71
2900.0	3.020	34.969	5.70
3000.0	2.988	34.965	5.68
3100.0	2.902	34.955	5.67
3200.0	2.814	34.945	5.66
3300.0	2.740	34.939	5.65
3400.0	2.680	34.931	5.64
3500.0	2.606	34.923	5.64
3596.0	2.551	34.915	5.63

Station : 20	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 3790 m	Institute: Ifremer
Position : N 37 18.64 W 10 8.13	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.662	36.331	5.64
10.0	17.666	36.330	5.62
20.0	17.545	36.332	5.59
30.0	16.831	36.342	5.77
40.0	16.114	36.212	6.03
50.0	15.665	36.173	6.13
60.0	15.652	36.224	5.88
70.0	15.664	36.229	5.59
80.0	15.463	36.215	5.60
90.0	15.436	36.218	5.52
100.0	15.427	36.218	5.55
200.0	13.737	35.893	4.89
300.0	12.661	35.729	4.81
400.0	11.922	35.637	4.82
500.0	11.415	35.628	4.64
600.0	11.349	35.776	4.40
700.0	11.532	35.986	4.32
800.0	11.615	36.104	4.32
900.0	11.421	36.160	4.28
1000.0	11.091	36.178	4.30
1100.0	11.068	36.242	4.29
1200.0	11.060	36.308	4.33
1300.0	10.609	36.236	4.41
1400.0	9.538	36.035	4.57
1500.0	8.307	35.801	4.77
1600.0	7.188	35.595	5.02
1700.0	6.210	35.428	5.24
1800.0	5.646	35.337	5.33
1900.0	5.068	35.245	5.49
2000.0	4.597	35.173	5.60
2100.0	4.213	35.118	5.66
2200.0	3.922	35.076	5.73
2300.0	3.695	35.049	5.75
2400.0	3.498	35.025	5.75
2500.0	3.387	35.011	5.76
2600.0	3.251	34.995	5.74
2700.0	3.164	34.986	5.72
2800.0	3.048	34.971	5.71
2900.0	2.952	34.962	5.70
3000.0	2.862	34.953	5.68
3100.0	2.793	34.945	5.67
3200.0	2.736	34.939	5.65
3300.0	2.663	34.931	5.65
3400.0	2.610	34.925	5.64
3500.0	2.551	34.918	5.61
3600.0	2.514	34.913	5.61
3700.0	2.501	34.911	5.60
3800.0	2.463	34.906	5.63
3838.0	2.453	34.905	5.63

Station : 21	Cruise : BORD-EST3
Date : 16-05-89	Ship : Le Noroit
Bottom depth: 4335 m	Institute: Ifremer
Position : N 37 17.58 W 10 44.33	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.214	36.173	5.79
10.0	17.218	36.172	5.87
20.0	17.005	36.154	5.99
30.0	16.101	36.132	6.14
40.0	15.434	36.135	6.00
50.0	15.290	36.136	5.84
60.0	15.207	36.131	5.79
70.0	15.161	36.130	5.72
80.0	15.017	36.117	5.66
90.0	14.895	36.113	5.57
100.0	14.886	36.114	5.54
200.0	13.669	35.894	4.96
300.0	12.413	35.719	4.77
400.0	11.690	35.669	4.73
500.0	11.470	35.755	4.47
600.0	11.605	35.928	4.38
700.0	11.700	36.115	4.35
800.0	11.500	36.166	4.31
900.0	11.011	36.131	4.25
1000.0	11.276	36.290	4.27
1100.0	11.090	36.302	4.35
1200.0	10.717	36.254	4.40
1300.0	9.540	36.030	4.55
1400.0	8.151	35.768	4.82
1500.0	7.259	35.609	5.02
1600.0	6.356	35.450	5.24
1700.0	5.762	35.348	5.38
1800.0	5.222	35.265	5.53
1900.0	4.733	35.184	5.64
2000.0	4.344	35.123	5.76
2100.0	4.065	35.090	5.78
2200.0	3.808	35.054	5.83
2300.0	3.551	35.024	5.84
2400.0	3.386	35.005	5.85
2500.0	3.231	34.989	5.84
2600.0	3.122	34.980	5.78
2700.0	3.022	34.969	5.74
2800.0	2.932	34.960	5.72
2900.0	2.854	34.952	5.71
3000.0	2.764	34.942	5.69
3100.0	2.697	34.935	5.68
3200.0	2.640	34.929	5.69
3300.0	2.606	34.925	5.67
3400.0	2.561	34.919	5.65
3500.0	2.536	34.916	5.64
3600.0	2.510	34.912	5.63
3700.0	2.480	34.908	5.63
3800.0	2.458	34.905	5.64
3900.0	2.445	34.903	5.65
4000.0	2.442	34.901	5.64
4100.0	2.436	34.900	5.66
4200.0	2.439	34.899	5.67
4300.0	2.451	34.898	5.68
4394.0	2.463	34.898	5.68

Station : 22	Cruise : BORD-EST3
Date : 16-05-89	Ship : Le Noroit
Bottom depth: 5070 m	Institute: Ifremer
Position : N 37 17.44 W 11 20.30	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.823	35.969	5.83
10.0	16.800	35.968	5.97
20.0	16.215	35.895	6.21
30.0	14.699	35.869	6.43
40.0	14.742	35.949	6.16
50.0	14.870	36.036	5.90
60.0	14.847	36.058	5.73
70.0	14.707	36.033	5.67
80.0	14.835	36.077	5.60
90.0	14.767	36.064	5.58
100.0	14.723	36.062	5.55
200.0	13.058	35.778	4.91
300.0	12.138	35.651	4.94
400.0	11.547	35.582	5.05
500.0	11.309	35.633	4.68
600.0	11.373	35.783	4.33
700.0	11.493	35.957	4.23
800.0	11.778	36.146	4.23
900.0	11.611	36.202	4.23
1000.0	11.400	36.229	4.20
1100.0	10.906	36.218	4.18
1200.0	10.566	36.202	4.28
1300.0	9.812	36.069	4.41
1400.0	9.083	35.943	4.52
1500.0	7.842	35.715	4.80
1600.0	6.924	35.551	5.01
1700.0	6.093	35.411	5.21
1800.0	5.500	35.313	5.37
1900.0	5.003	35.233	5.49
2000.0	4.517	35.160	5.59
2100.0	4.132	35.106	5.64
2200.0	3.836	35.064	5.69
2300.0	3.626	35.037	5.73
2400.0	3.447	35.015	5.75
2500.0	3.302	34.999	5.75
2600.0	3.166	34.984	5.74
2700.0	3.076	34.974	5.71
2800.0	2.969	34.963	5.69
2900.0	2.885	34.955	5.69
3000.0	2.820	34.948	5.67
3100.0	2.752	34.940	5.66
3200.0	2.697	34.935	5.63
3300.0	2.658	34.930	5.63
3400.0	2.623	34.926	5.62
3500.0	2.589	34.922	5.61
3600.0	2.552	34.917	5.60
3700.0	2.527	34.914	5.60
3800.0	2.504	34.910	5.60
3900.0	2.490	34.908	5.60
4000.0	2.480	34.906	5.60
4100.0	2.474	34.905	5.61
4200.0	2.473	34.901	5.62
4300.0	2.472	34.901	5.62
4400.0	2.473	34.899	5.62
4500.0	2.475	34.899	5.62
4600.0	2.480	34.898	5.63
4700.0	2.493	34.897	5.62
4800.0	2.505	34.897	5.63
4900.0	2.518	34.898	5.62
5000.0	2.531	34.898	5.61
5100.0	2.544	34.897	5.60
5186.0	2.555	34.898	5.59

Station : 23	Cruise : BORD-EST3
Date : 16-05-89	Ship : Le Noroit
Bottom depth: 5060 m	Institute: Ifremer
Position : N 37 17.78 W 11 56.39	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.517	36.247	5.68
10.0	17.490	36.245	5.75
20.0	17.234	36.239	5.98
30.0	16.554	36.217	6.05
40.0	16.145	36.208	6.02
50.0	15.773	36.208	5.93
60.0	15.594	36.207	5.76
70.0	15.549	36.224	5.59
80.0	15.476	36.220	5.51
90.0	15.437	36.220	5.46
100.0	15.438	36.221	5.42
200.0	14.737	36.090	5.08
300.0	12.832	35.749	4.66
400.0	11.843	35.638	4.63
500.0	11.862	35.832	4.39
600.0	12.921	36.242	4.46
700.0	12.862	36.282	4.47
800.0	12.210	36.190	4.34
900.0	11.673	36.176	4.19
1000.0	11.561	36.231	4.17
1100.0	11.480	36.258	4.13
1200.0	11.283	36.263	4.17
1300.0	11.294	36.313	4.20
1400.0	11.004	36.300	4.20
1500.0	10.234	36.156	4.33
1600.0	8.596	35.848	4.62
1700.0	7.269	35.611	4.89
1800.0	6.184	35.421	5.17
1900.0	5.549	35.311	5.34
2000.0	4.984	35.223	5.50
2100.0	4.573	35.163	5.58
2200.0	4.197	35.109	5.64
2300.0	3.972	35.079	5.67
2400.0	3.713	35.048	5.72
2500.0	3.550	35.027	5.72
2600.0	3.403	35.011	5.72
2700.0	3.254	34.992	5.69
2800.0	3.115	34.978	5.71
2900.0	2.994	34.965	5.67
3000.0	2.915	34.956	5.66
3100.0	2.832	34.950	5.65
3200.0	2.760	34.942	5.62
3300.0	2.717	34.937	5.63
3400.0	2.669	34.931	5.61
3500.0	2.628	34.927	5.61
3600.0	2.589	34.923	5.61
3700.0	2.561	34.919	5.59
3800.0	2.538	34.916	5.60
3900.0	2.513	34.912	5.59
4000.0	2.501	34.911	5.59
4100.0	2.487	34.906	5.59
4200.0	2.481	34.904	5.58
4300.0	2.480	34.903	5.59
4400.0	2.481	34.902	5.59
4500.0	2.482	34.901	5.59
4600.0	2.484	34.900	5.59
4700.0	2.493	34.899	5.59
4800.0	2.506	34.899	5.59
4900.0	2.518	34.899	5.60
5000.0	2.530	34.899	5.60
5100.0	2.543	34.899	5.60
5168.0	2.551	34.899	5.56

Station : 24	Cruise : BORD-EST3
Date : 16-05-89	Ship : Le Noroit
Bottom depth: 5053 m	Institute: Ifremer
Position : N 37 17.73 W 12 30.36	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.601	36.267	6.60
10.0	17.600	36.266	5.79
20.0	17.166	36.251	5.83
30.0	16.149	36.222	6.08
40.0	15.757	36.234	6.02
50.0	15.668	36.238	5.88
60.0	15.596	36.239	5.72
70.0	15.546	36.236	5.57
80.0	15.489	36.230	5.50
90.0	15.502	36.237	5.47
100.0	15.449	36.227	5.42
200.0	14.049	35.959	4.81
300.0	12.486	35.703	4.65
400.0	11.759	35.631	4.60
500.0	11.505	35.701	4.37
600.0	11.773	35.914	4.25
700.0	11.854	36.071	4.22
800.0	11.546	36.129	4.15
900.0	11.537	36.227	4.14
1000.0	11.981	36.425	4.15
1100.0	12.194	36.532	4.18
1200.0	12.070	36.538	4.15
1300.0	11.979	36.538	4.13
1400.0	11.556	36.456	4.16
1500.0	10.542	36.241	4.26
1600.0	8.644	35.861	4.53
1700.0	6.965	35.529	4.96
1800.0	6.128	35.388	5.24
1900.0	5.558	35.309	5.34
2000.0	4.999	35.221	5.50
2100.0	4.640	35.170	5.57
2200.0	4.219	35.107	5.68
2300.0	3.915	35.065	5.71
2400.0	3.754	35.053	5.70
2500.0	3.587	35.031	5.68
2600.0	3.396	35.010	5.70
2700.0	3.243	34.993	5.71
2800.0	3.101	34.976	5.70
2900.0	2.997	34.964	5.69
3000.0	2.902	34.957	5.66
3100.0	2.820	34.949	5.66
3200.0	2.768	34.943	5.63
3300.0	2.706	34.937	5.62
3400.0	2.657	34.931	5.61
3500.0	2.621	34.926	5.60
3600.0	2.588	34.922	5.59
3700.0	2.565	34.919	5.58
3800.0	2.535	34.916	5.58
3900.0	2.514	34.913	5.57
4000.0	2.497	34.910	5.57
4100.0	2.484	34.907	5.58
4200.0	2.480	34.904	5.58
4300.0	2.477	34.903	5.58
4400.0	2.477	34.902	5.59
4500.0	2.480	34.900	5.59
4600.0	2.480	34.900	5.59
4700.0	2.493	34.899	5.59
4800.0	2.506	34.899	5.59
4900.0	2.518	34.900	5.60
5000.0	2.531	34.899	5.60
5100.0	2.542	34.899	5.61
5165.0	2.548	34.899	5.60

Station : 25	Cruise : BORD-EST3
Date : 17-05-89	Ship : Le Noroit
Bottom depth: 4953 m	Institute: Ifremer
Position : N 37 51.10 W 12 30.09	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.496	36.241	5.54
10.0	17.485	36.241	5.62
20.0	17.373	36.230	5.75
30.0	16.398	36.206	6.04
40.0	15.699	36.210	6.02
50.0	15.595	36.225	5.85
60.0	15.478	36.207	5.64
70.0	15.352	36.185	5.59
80.0	15.399	36.207	5.53
90.0	15.438	36.223	5.50
100.0	15.487	36.239	5.46
200.0	14.853	36.110	5.18
300.0	12.840	35.746	4.87
400.0	12.050	35.654	4.74
500.0	11.464	35.613	4.69
600.0	11.222	35.690	4.41
700.0	11.252	35.842	4.27
800.0	11.488	36.029	4.26
900.0	11.005	36.014	4.28
1000.0	10.997	36.112	4.27
1100.0	10.848	36.163	4.33
1200.0	10.809	36.211	4.33
1300.0	10.452	36.194	4.41
1400.0	9.395	36.004	4.56
1500.0	8.305	35.800	4.74
1600.0	7.031	35.565	5.07
1700.0	6.298	35.445	5.19
1800.0	5.535	35.316	5.39
1900.0	4.960	35.219	5.57
2000.0	4.585	35.165	5.61
2100.0	4.225	35.116	5.69
2200.0	3.983	35.082	5.70
2300.0	3.755	35.054	5.72
2400.0	3.592	35.035	5.74
2500.0	3.404	35.014	5.71
2600.0	3.229	34.993	5.72
2700.0	3.117	34.980	5.75
2800.0	3.025	34.970	5.71
2900.0	2.925	34.960	5.68
3000.0	2.833	34.950	5.65
3100.0	2.773	34.944	5.66
3200.0	2.718	34.939	5.64
3300.0	2.671	34.933	5.64
3400.0	2.625	34.929	5.62
3500.0	2.577	34.923	5.61
3600.0	2.545	34.919	5.61
3700.0	2.524	34.916	5.60
3800.0	2.506	34.913	5.60
3900.0	2.494	34.911	5.61
4000.0	2.478	34.908	5.60
4100.0	2.470	34.907	5.59
4200.0	2.466	34.904	5.62
4300.0	2.466	34.902	5.62
4400.0	2.467	34.901	5.61
4500.0	2.468	34.900	5.61
4600.0	2.481	34.900	5.61
4700.0	2.492	34.900	5.63
4800.0	2.505	34.900	5.63
4900.0	2.517	34.900	5.64
5000.0	2.529	34.899	5.65
5042.0	2.534	34.900	5.65

Station : 26	Cruise : BORD-EST3
Date : 17-05-89	Ship : Le Noroit
Bottom depth: 4830 m	Institute: Ifremer
Position : N 38 26.01 W 12 30.52	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.330	36.044	5.80
10.0	17.236	36.038	5.94
20.0	15.547	36.032	6.31
30.0	14.992	36.019	6.19
40.0	14.821	36.029	5.94
50.0	14.715	36.016	5.75
60.0	14.790	36.046	5.65
70.0	14.822	36.060	5.59
80.0	14.781	36.055	5.54
90.0	14.773	36.057	5.52
100.0	14.755	36.058	5.49
200.0	14.058	35.928	5.49
300.0	12.529	35.702	4.94
400.0	11.826	35.608	4.98
500.0	11.320	35.584	4.84
600.0	11.220	35.673	4.60
700.0	11.476	35.880	4.32
800.0	11.563	36.019	4.32
900.0	11.347	36.087	4.26
1000.0	11.084	36.100	4.20
1100.0	10.962	36.166	4.23
1200.0	10.984	36.237	4.23
1300.0	10.885	36.284	4.29
1400.0	9.738	36.062	4.47
1500.0	8.074	35.744	4.78
1600.0	6.974	35.542	5.03
1700.0	5.784	35.338	5.34
1800.0	5.082	35.222	5.56
1900.0	4.528	35.141	5.70
2000.0	4.170	35.091	5.78
2100.0	4.045	35.084	5.77
2200.0	3.694	35.036	5.83
2300.0	3.516	35.017	5.82
2400.0	3.341	35.002	5.84
2500.0	3.186	34.984	5.83
2600.0	3.093	34.974	5.80
2700.0	2.984	34.965	5.81
2800.0	2.926	34.959	5.78
2900.0	2.843	34.950	5.74
3000.0	2.786	34.945	5.75
3100.0	2.733	34.939	5.72
3200.0	2.704	34.936	5.70
3300.0	2.660	34.932	5.68
3400.0	2.622	34.927	5.66
3500.0	2.584	34.922	5.64
3600.0	2.558	34.919	5.64
3700.0	2.530	34.916	5.62
3800.0	2.509	34.912	5.61
3900.0	2.491	34.910	5.61
4000.0	2.480	34.907	5.60
4100.0	2.474	34.906	5.61
4200.0	2.471	34.903	5.61
4300.0	2.471	34.902	5.62
4400.0	2.474	34.901	5.61
4500.0	2.476	34.900	5.59
4600.0	2.481	34.900	5.61
4700.0	2.493	34.899	5.61
4800.0	2.506	34.899	5.61
4900.0	2.518	34.899	5.61
4944.0	2.524	34.899	5.61

Station : 27	Cruise : BORD-EST3
Date : 17-05-89	Ship : Le Noroit
Bottom depth: 3880 m	Institute: Ifremer
Position : N 38 59.89 W 12 30.03	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.061	36.017	5.94
10.0	17.061	36.017	5.75
20.0	16.114	36.000	6.09
30.0	14.971	35.979	6.40
40.0	14.623	35.972	6.11
50.0	14.628	35.993	5.91
60.0	14.530	35.969	5.85
70.0	14.463	35.955	5.81
80.0	14.425	35.958	5.74
90.0	14.549	36.006	5.68
100.0	14.600	36.038	5.61
200.0	12.939	35.764	5.05
300.0	12.084	35.648	4.97
400.0	11.471	35.582	5.08
500.0	11.011	35.540	5.07
600.0	10.906	35.607	4.76
700.0	10.984	35.763	4.43
800.0	11.339	35.965	4.31
900.0	11.357	36.081	4.26
1000.0	11.072	36.118	4.26
1100.0	10.686	36.110	4.31
1200.0	10.662	36.165	4.32
1300.0	9.684	36.000	4.51
1400.0	7.883	35.664	4.89
1500.0	6.715	35.458	5.18
1600.0	5.802	35.312	5.46
1700.0	5.239	35.223	5.62
1800.0	4.946	35.180	5.72
1900.0	4.652	35.146	5.77
2000.0	4.329	35.109	5.83
2100.0	4.084	35.082	5.81
2200.0	3.827	35.046	5.86
2300.0	3.608	35.025	5.86
2400.0	3.450	35.009	5.86
2500.0	3.258	34.989	5.86
2600.0	3.115	34.974	5.85
2700.0	2.983	34.963	5.82
2800.0	2.894	34.956	5.79
2900.0	2.813	34.948	5.76
3000.0	2.758	34.943	5.75
3100.0	2.713	34.937	5.72
3200.0	2.661	34.932	5.70
3300.0	2.628	34.928	5.68
3400.0	2.605	34.926	5.67
3500.0	2.581	34.922	5.66
3600.0	2.555	34.919	5.64
3700.0	2.529	34.915	5.64
3800.0	2.518	34.913	5.63
3900.0	2.508	34.911	5.62
3920.0	2.510	34.911	5.61

Station : 28	Cruise : BORD-EST3
Date : 18-05-89	Ship : Le Noroit
Bottom depth: 3910 m	Institute: Ifremer
Position : N 39 29.98 W 12 30.07	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.649	35.900	5.82
10.0	16.652	35.899	5.94
20.0	15.510	35.921	6.38
30.0	14.832	35.934	6.42
40.0	14.546	35.894	6.33
50.0	14.292	35.871	6.21
60.0	14.228	35.866	6.04
70.0	14.219	35.874	5.92
80.0	14.284	35.904	5.76
90.0	14.164	35.891	5.76
100.0	14.212	35.932	5.68
200.0	12.875	35.756	5.05
300.0	11.975	35.630	5.10
400.0	11.370	35.562	5.24
500.0	11.053	35.545	5.15
600.0	10.920	35.613	4.87
700.0	10.927	35.723	4.56
800.0	11.567	36.026	4.37
900.0	11.236	36.030	4.35
1000.0	10.877	36.036	4.31
1100.0	10.548	36.021	4.33
1200.0	10.696	36.154	4.34
1300.0	10.055	36.064	4.47
1400.0	8.837	35.854	4.69
1500.0	7.766	35.664	4.93
1600.0	6.444	35.438	5.26
1700.0	5.454	35.273	5.53
1800.0	4.728	35.166	5.71
1900.0	4.313	35.108	5.80
2000.0	4.047	35.077	5.85
2100.0	3.766	35.043	5.90
2200.0	3.473	35.001	5.96
2300.0	3.357	34.993	5.98
2400.0	3.298	34.995	5.89
2500.0	3.158	34.978	5.90
2600.0	3.033	34.967	5.89
2700.0	2.955	34.962	5.85
2800.0	2.883	34.955	5.82
2900.0	2.818	34.948	5.79
3000.0	2.756	34.942	5.76
3100.0	2.715	34.938	5.74
3200.0	2.665	34.933	5.73
3300.0	2.636	34.929	5.71
3400.0	2.605	34.925	5.70
3500.0	2.564	34.920	5.69
3600.0	2.542	34.917	5.67
3700.0	2.512	34.914	5.67
3800.0	2.490	34.911	5.65
3900.0	2.468	34.907	5.65
4000.0	2.463	34.906	5.66
4063.0	2.464	34.905	5.65

Station : 29	Cruise : BORD-EST3
Date : 18-05-89	Ship : Le Noroit
Bottom depth: 5185 m	Institute: Ifremer
Position : N 40 0.58 W 12 30.63	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.575	35.994	5.86
10.0	16.576	35.993	5.86
20.0	15.759	35.962	6.17
30.0	14.575	35.909	6.31
40.0	14.377	35.915	6.17
50.0	14.239	35.901	5.99
60.0	14.284	35.926	5.89
70.0	14.290	35.930	5.79
80.0	14.238	35.921	5.75
90.0	14.186	35.913	5.74
100.0	14.135	35.908	5.71
200.0	13.375	35.826	5.23
300.0	12.214	35.663	5.02
400.0	11.521	35.585	5.08
500.0	11.197	35.616	4.80
600.0	11.287	35.768	4.47
700.0	11.635	35.983	4.37
800.0	11.760	36.110	4.37
900.0	11.655	36.151	4.34
1000.0	11.495	36.189	4.30
1100.0	11.308	36.222	4.27
1200.0	11.052	36.221	4.27
1300.0	10.693	36.190	4.29
1400.0	9.903	36.051	4.43
1500.0	8.434	35.770	4.74
1600.0	7.120	35.522	5.05
1700.0	6.218	35.370	5.31
1800.0	5.517	35.267	5.50
1900.0	5.061	35.208	5.64
2000.0	4.561	35.138	5.77
2100.0	4.156	35.076	5.84
2200.0	3.858	35.033	5.94
2300.0	3.676	35.018	5.93
2400.0	3.517	35.006	5.93
2500.0	3.414	35.003	5.90
2600.0	3.300	34.994	5.84
2700.0	3.173	34.983	5.78
2800.0	3.081	34.973	5.76
2900.0	2.981	34.963	5.75
3000.0	2.881	34.953	5.73
3100.0	2.828	34.948	5.71
3200.0	2.776	34.943	5.70
3300.0	2.724	34.937	5.68
3400.0	2.676	34.932	5.68
3500.0	2.649	34.929	5.67
3600.0	2.622	34.925	5.67
3700.0	2.598	34.921	5.66
3800.0	2.580	34.919	5.66
3900.0	2.553	34.915	5.65
4000.0	2.540	34.912	5.65
4100.0	2.524	34.909	5.65
4200.0	2.509	34.906	5.65
4300.0	2.501	34.905	5.66
4400.0	2.493	34.902	5.65
4500.0	2.492	34.901	5.65
4600.0	2.493	34.900	5.65
4700.0	2.498	34.899	5.65
4800.0	2.504	34.899	5.65
4900.0	2.512	34.898	5.65
5000.0	2.522	34.898	5.66
5100.0	2.531	34.898	5.67
5200.0	2.542	34.897	5.67
5300.0	2.553	34.897	5.67
5304.0	2.554	34.897	5.66

Station : 30	Cruise : BORD-EST3
Date : 18-05-89	Ship : Le Noroit
Bottom depth: 5115 m	Institute: Ifremer
Position : N 40 0.00 W 11 51.54	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.657	35.967	5.58
10.0	16.572	35.960	5.74
20.0	15.294	35.923	6.20
30.0	14.628	35.931	6.26
40.0	14.466	35.932	6.11
50.0	14.406	35.934	5.95
60.0	14.380	35.941	5.72
70.0	14.364	35.940	5.64
80.0	14.330	35.937	5.61
90.0	14.284	35.931	5.59
100.0	14.195	35.911	5.57
200.0	12.905	35.751	5.07
300.0	12.021	35.637	4.96
400.0	11.545	35.583	5.01
500.0	11.183	35.575	4.86
600.0	11.011	35.656	4.59
700.0	11.389	35.886	4.31
800.0	11.673	36.082	4.27
900.0	11.555	36.144	4.23
1000.0	11.431	36.190	4.19
1100.0	11.304	36.235	4.19
1200.0	10.953	36.214	4.21
1300.0	10.488	36.154	4.29
1400.0	9.456	35.973	4.50
1500.0	8.083	35.715	4.80
1600.0	5.995	35.320	5.35
1700.0	5.241	35.202	5.59
1800.0	4.957	35.167	5.69
1900.0	4.563	35.129	5.79
2000.0	4.344	35.102	5.80
2100.0	4.106	35.076	5.83
2200.0	3.948	35.063	5.80
2300.0	3.685	35.036	5.83
2400.0	3.527	35.019	5.79
2500.0	3.322	34.995	5.81
2600.0	3.168	34.979	5.81
2700.0	3.058	34.971	5.80
2800.0	2.957	34.960	5.81
2900.0	2.891	34.954	5.77
3000.0	2.811	34.946	5.75
3100.0	2.779	34.942	5.73
3200.0	2.726	34.937	5.71
3300.0	2.686	34.933	5.68
3400.0	2.645	34.929	5.66
3500.0	2.610	34.925	5.64
3600.0	2.589	34.921	5.63
3700.0	2.564	34.918	5.63
3800.0	2.545	34.915	5.63
3900.0	2.528	34.912	5.63
4000.0	2.518	34.910	5.63
4100.0	2.503	34.907	5.62
4200.0	2.495	34.904	5.62
4300.0	2.488	34.903	5.62
4400.0	2.487	34.901	5.62
4500.0	2.484	34.900	5.62
4600.0	2.488	34.900	5.63
4700.0	2.496	34.899	5.63
4800.0	2.503	34.898	5.63
4900.0	2.509	34.898	5.63
5000.0	2.518	34.897	5.64
5100.0	2.529	34.897	5.64
5200.0	2.541	34.896	5.65
5235.0	2.545	34.897	5.65

Station : 31	Cruise : BORD-EST3
Date : 18-05-89	Ship : Le Noroit
Bottom depth: 4835 m	Institute: Ifremer
Position : N 40 0.14 W 11 12.03	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.564	35.950	5.68
10.0	16.555	35.948	5.76
20.0	16.035	35.906	5.96
30.0	14.922	35.931	6.20
40.0	14.430	35.943	6.17
50.0	14.395	35.942	5.90
60.0	14.348	35.937	5.81
70.0	14.342	35.940	5.72
80.0	14.343	35.940	5.64
90.0	14.311	35.935	5.60
100.0	14.295	35.931	5.58
200.0	12.963	35.752	5.10
300.0	12.110	35.638	5.10
400.0	11.518	35.570	5.08
500.0	11.077	35.527	5.02
600.0	10.756	35.551	4.67
700.0	10.825	35.712	4.43
800.0	11.022	35.894	4.30
900.0	11.054	36.016	4.25
1000.0	11.120	36.135	4.24
1100.0	10.735	36.110	4.25
1200.0	10.458	36.115	4.29
1300.0	9.918	36.043	4.41
1400.0	9.149	35.934	4.57
1500.0	7.773	35.675	4.86
1600.0	6.600	35.465	5.14
1700.0	5.735	35.324	5.38
1800.0	5.018	35.209	5.57
1900.0	4.691	35.166	5.64
2000.0	4.274	35.107	5.72
2100.0	4.015	35.074	5.75
2200.0	3.806	35.050	5.76
2300.0	3.632	35.032	5.77
2400.0	3.439	35.011	5.76
2500.0	3.316	34.999	5.75
2600.0	3.201	34.987	5.73
2700.0	3.080	34.974	5.73
2800.0	2.965	34.962	5.71
2900.0	2.882	34.955	5.69
3000.0	2.800	34.946	5.67
3100.0	2.744	34.940	5.69
3200.0	2.696	34.935	5.66
3300.0	2.657	34.931	5.65
3400.0	2.625	34.927	5.63
3500.0	2.593	34.923	5.62
3600.0	2.571	34.920	5.62
3700.0	2.551	34.917	5.61
3800.0	2.532	34.914	5.60
3900.0	2.511	34.911	5.60
4000.0	2.497	34.908	5.59
4100.0	2.489	34.905	5.60
4200.0	2.481	34.904	5.59
4300.0	2.477	34.902	5.60
4400.0	2.478	34.901	5.59
4500.0	2.482	34.900	5.60
4600.0	2.485	34.899	5.60
4700.0	2.490	34.898	5.60
4800.0	2.496	34.898	5.60
4900.0	2.506	34.898	5.60
4905.0	2.507	34.898	5.59

Station : 32	Cruise : BORD-EST3
Date : 19-05-89	Ship : Le Noroit
Bottom depth: 4760 m	Institute: Ifremer
Position : N 39 59.97 W 10 42.37	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.712	35.925	5.83
10.0	16.577	35.909	5.86
20.0	15.891	35.901	6.11
30.0	14.631	35.899	6.40
40.0	14.158	35.885	6.32
50.0	14.054	35.877	6.03
60.0	14.016	35.872	5.89
70.0	13.990	35.872	5.86
80.0	14.002	35.884	5.78
90.0	13.873	35.861	5.74
100.0	13.807	35.847	5.75
200.0	12.699	35.720	5.15
300.0	11.865	35.609	5.18
400.0	11.345	35.556	5.13
500.0	10.839	35.511	4.98
600.0	10.644	35.581	4.65
700.0	10.757	35.739	4.41
800.0	11.122	35.953	4.33
900.0	11.347	36.124	4.24
1000.0	11.237	36.175	4.22
1100.0	11.066	36.214	4.25
1200.0	10.701	36.182	4.30
1300.0	10.045	36.080	4.43
1400.0	9.007	35.896	4.59
1500.0	7.578	35.641	4.88
1600.0	6.725	35.494	5.10
1700.0	5.961	35.371	5.29
1800.0	4.867	35.180	5.60
1900.0	4.513	35.127	5.72
2000.0	4.260	35.102	5.73
2100.0	4.023	35.079	5.73
2200.0	3.825	35.056	5.76
2300.0	3.606	35.029	5.77
2400.0	3.443	35.014	5.73
2500.0	3.267	34.994	5.75
2600.0	3.148	34.982	5.75
2700.0	3.047	34.971	5.73
2800.0	2.947	34.961	5.73
2900.0	2.877	34.954	5.71
3000.0	2.809	34.948	5.69
3100.0	2.756	34.942	5.66
3200.0	2.694	34.935	5.66
3300.0	2.652	34.930	5.62
3400.0	2.603	34.925	5.62
3500.0	2.572	34.921	5.59
3600.0	2.550	34.918	5.60
3700.0	2.521	34.915	5.58
3800.0	2.503	34.911	5.58
3900.0	2.494	34.910	5.58
4000.0	2.483	34.907	5.58
4100.0	2.480	34.905	5.58
4200.0	2.477	34.903	5.58
4300.0	2.478	34.902	5.58
4400.0	2.479	34.901	5.58
4500.0	2.483	34.900	5.58
4600.0	2.489	34.900	5.58
4700.0	2.497	34.899	5.58
4800.0	2.504	34.898	5.60
4859.0	2.509	34.898	5.60

Station : 33	Cruise : BORD-EST3
Date : 19-05-89	Ship : Le Noroit
Bottom depth: 3960 m	Institute: Ifremer
Position : N 39 59.93 W 10 16.90	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.710	35.981	5.70
10.0	16.545	35.968	5.73
20.0	16.104	35.945	6.02
30.0	14.777	35.921	6.41
40.0	14.551	35.933	6.31
50.0	14.353	35.920	6.11
60.0	14.241	35.905	5.89
70.0	14.164	35.901	5.75
80.0	14.193	35.917	5.69
90.0	14.076	35.897	5.65
100.0	13.979	35.890	5.62
200.0	12.627	35.720	4.98
300.0	11.841	35.620	4.97
400.0	11.202	35.550	5.16
500.0	11.276	35.663	4.66
600.0	11.519	35.838	4.35
700.0	11.677	36.010	4.27
800.0	11.524	36.080	4.24
900.0	11.755	36.231	4.25
1000.0	11.396	36.222	4.19
1100.0	11.395	36.293	4.16
1200.0	11.411	36.363	4.20
1300.0	10.875	36.267	4.22
1400.0	10.493	36.226	4.28
1500.0	8.965	35.927	4.54
1600.0	7.377	35.617	4.87
1700.0	6.336	35.429	5.15
1800.0	5.468	35.280	5.41
1900.0	4.992	35.207	5.54
2000.0	4.558	35.145	5.63
2100.0	4.133	35.086	5.72
2200.0	3.900	35.059	5.75
2300.0	3.740	35.043	5.74
2400.0	3.604	35.029	5.73
2500.0	3.432	35.010	5.75
2600.0	3.299	34.997	5.70
2700.0	3.153	34.982	5.71
2800.0	3.074	34.974	5.69
2900.0	2.965	34.962	5.68
3000.0	2.886	34.954	5.66
3100.0	2.805	34.946	5.64
3200.0	2.749	34.940	5.62
3300.0	2.681	34.933	5.61
3400.0	2.630	34.927	5.59
3500.0	2.591	34.922	5.60
3600.0	2.558	34.918	5.58
3700.0	2.529	34.914	5.57
3800.0	2.509	34.911	5.57
3900.0	2.484	34.908	5.56
4000.0	2.478	34.906	5.55
4005.0	2.478	34.906	5.56

Station	: 34	Cruise	: BORD-EST3
Date	: 19-05-89	Ship	: Le Noroit
Bottom depth: 2840 m		Institute:	Ifremer
Position	: N 40 0.10 W 10 3.30		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.193	36.001	5.41
10.0	16.756	35.985	5.63
20.0	16.387	36.015	5.77
30.0	15.881	35.951	5.90
40.0	14.905	35.938	6.09
50.0	14.609	35.918	5.98
60.0	14.407	35.921	5.69
70.0	14.370	35.926	5.59
80.0	14.426	35.961	5.53
90.0	14.340	35.944	5.49
100.0	14.170	35.912	5.46
200.0	12.829	35.755	4.88
300.0	11.803	35.613	4.95
400.0	11.254	35.580	4.89
500.0	11.484	35.757	4.51
600.0	11.774	35.948	4.39
700.0	11.865	36.110	4.33
800.0	11.741	36.141	4.28
900.0	11.490	36.165	4.25
1000.0	11.473	36.248	4.22
1100.0	11.367	36.287	4.21
1200.0	11.619	36.403	4.22
1300.0	11.843	36.488	4.21
1400.0	11.925	36.559	4.19
1500.0	10.120	36.150	4.35
1600.0	8.159	35.762	4.72
1700.0	6.861	35.520	5.02
1800.0	6.146	35.401	5.24
1900.0	5.469	35.285	5.41
2000.0	5.140	35.240	5.49
2100.0	4.448	35.140	5.61
2110.0	4.390	35.132	5.64

Station	: 35	Cruise	: BORD-EST3
Date	: 19-05-89	Ship	: Le Noroit
Bottom depth: 1480 m		Institute:	Ifremer
Position	: N 40 0.97 W 9 51.13		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.015	36.006	5.67
10.0	16.811	35.996	5.82
20.0	15.897	35.946	6.11
30.0	14.935	35.978	6.14
40.0	14.748	35.983	5.90
50.0	14.663	35.994	5.71
60.0	14.602	35.989	5.65
70.0	14.548	35.982	5.61
80.0	14.493	35.978	5.56
90.0	14.395	35.965	5.52
100.0	14.288	35.954	5.47
200.0	12.667	35.722	4.92
300.0	12.006	35.636	4.88
400.0	11.288	35.588	4.76
500.0	11.338	35.736	4.42
600.0	11.583	35.895	4.29
700.0	11.627	36.010	4.25
800.0	11.639	36.096	4.25
900.0	11.523	36.155	4.24
1000.0	11.463	36.209	4.23
1100.0	11.540	36.279	4.27
1200.0	11.694	36.384	4.27
1300.0	11.293	36.327	4.30
1400.0	10.578	36.216	4.43
1500.0	10.045	36.125	4.51
1580.0	9.865	36.090	4.52

Station : 36	Cruise : BORD-EST3
Date : 19-05-89	Ship : Le Noroit
Bottom depth: 635 m	Institute: Ifremer
Position : N 39 58.93 W 9 43.08	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.051	35.813	5.91
10.0	16.744	35.848	5.97
20.0	15.871	35.902	6.23
30.0	14.983	35.941	6.36
40.0	14.739	35.948	6.24
50.0	14.559	35.943	6.00
60.0	14.516	35.951	5.83
70.0	14.473	35.958	5.76
80.0	14.404	35.956	5.62
90.0	14.351	35.955	5.58
100.0	14.255	35.942	5.57
200.0	12.867	35.760	4.92
300.0	11.941	35.660	4.77
400.0	11.494	35.630	4.70
500.0	11.366	35.736	4.43
600.0	11.575	35.939	4.27
631.0	11.595	35.973	4.28

Station : 37	Cruise : BORD-EST3
Date : 20-05-89	Ship : Le Noroit
Bottom depth: 5185 m	Institute: Ifremer
Position : N 39 59.90 W 12 30.12	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.824	35.994	5.45
10.0	16.711	35.988	5.63
20.0	16.289	35.955	5.90
30.0	15.034	35.897	6.19
40.0	14.508	35.936	6.11
50.0	14.417	35.939	5.95
60.0	14.335	35.941	5.72
70.0	14.391	35.966	5.59
80.0	14.330	35.956	5.56
90.0	14.375	35.973	5.52
100.0	14.383	35.977	5.50
200.0	12.908	35.752	5.00
300.0	12.065	35.643	4.90
400.0	11.474	35.586	4.92
500.0	11.153	35.600	4.75
600.0	11.326	35.781	4.43
700.0	11.631	35.988	4.34
800.0	11.748	36.101	4.34
900.0	11.654	36.152	4.31
1000.0	11.506	36.184	4.25
1100.0	11.406	36.228	4.23
1200.0	11.293	36.256	4.21
1300.0	10.993	36.241	4.24
1400.0	10.395	36.142	4.33
1500.0	9.005	35.878	4.58
1600.0	7.248	35.538	4.95
1700.0	6.408	35.410	5.18
1800.0	5.712	35.308	5.38
1900.0	5.080	35.211	5.55
2000.0	4.663	35.154	5.63
2100.0	4.282	35.104	5.70
2200.0	3.764	35.027	5.85
2300.0	3.617	35.013	5.86
2400.0	3.476	35.002	5.86
2500.0	3.343	34.991	5.84
2600.0	3.197	34.979	5.83
2700.0	3.137	34.978	5.74
2800.0	3.046	34.968	5.73
2900.0	2.961	34.960	5.69
3000.0	2.895	34.952	5.71
3100.0	2.835	34.948	5.69
3200.0	2.765	34.941	5.65
3300.0	2.709	34.935	5.63
3400.0	2.669	34.930	5.62
3500.0	2.620	34.926	5.62
3600.0	2.588	34.921	5.62
3700.0	2.572	34.919	5.62
3800.0	2.556	34.917	5.62
3900.0	2.537	34.913	5.63
4000.0	2.524	34.910	5.63
4100.0	2.512	34.908	5.63
4200.0	2.503	34.906	5.62
4300.0	2.496	34.904	5.62
4400.0	2.493	34.902	5.62
4500.0	2.491	34.901	5.62
4600.0	2.493	34.900	5.62
4700.0	2.497	34.899	5.63
4800.0	2.502	34.898	5.63
4900.0	2.512	34.898	5.63
5000.0	2.522	34.898	5.63
5100.0	2.530	34.897	5.63
5200.0	2.541	34.897	5.63
5299.0	2.554	34.897	5.62

Station : 38	Cruise : BORD-EST3
Date : 20-05-89	Ship : Le Noroit
Bottom depth: 5240 m	Institute: Ifremer
Position : N 40 30.13 W 12 35.12	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.215	35.993	5.63
10.0	17.189	35.991	5.76
20.0	16.859	35.981	5.97
30.0	15.209	35.910	6.35
40.0	14.800	35.915	6.47
50.0	14.384	35.917	6.30
60.0	14.335	35.925	5.98
70.0	14.312	35.929	5.84
80.0	14.233	35.910	5.78
90.0	14.209	35.910	5.73
100.0	14.165	35.910	5.70
200.0	12.701	35.723	5.08
300.0	11.912	35.628	4.97
400.0	11.444	35.592	4.91
500.0	11.126	35.624	4.72
600.0	11.435	35.846	4.42
700.0	11.827	36.059	4.39
800.0	11.900	36.156	4.38
900.0	11.766	36.191	4.32
1000.0	11.639	36.227	4.26
1100.0	11.440	36.243	4.23
1200.0	11.323	36.269	4.22
1300.0	11.103	36.268	4.23
1400.0	10.525	36.193	4.33
1500.0	8.974	35.879	4.58
1600.0	7.575	35.623	4.87
1700.0	6.492	35.437	5.15
1800.0	5.530	35.275	5.42
1900.0	4.981	35.193	5.57
2000.0	4.600	35.143	5.66
2100.0	4.282	35.100	5.72
2200.0	4.052	35.075	5.75
2300.0	3.871	35.056	5.75
2400.0	3.656	35.032	5.76
2500.0	3.447	35.005	5.79
2600.0	3.253	34.983	5.83
2700.0	3.096	34.970	5.81
2800.0	3.005	34.962	5.78
2900.0	2.930	34.955	5.75
3000.0	2.865	34.950	5.74
3100.0	2.797	34.943	5.71
3200.0	2.751	34.939	5.69
3300.0	2.716	34.936	5.67
3400.0	2.685	34.932	5.66
3500.0	2.649	34.928	5.65
3600.0	2.611	34.924	5.63
3700.0	2.586	34.920	5.62
3800.0	2.565	34.918	5.62
3900.0	2.549	34.915	5.61
4000.0	2.534	34.911	5.61
4100.0	2.522	34.909	5.61
4200.0	2.513	34.907	5.61
4300.0	2.500	34.904	5.61
4400.0	2.493	34.902	5.61
4500.0	2.494	34.901	5.60
4600.0	2.494	34.900	5.61
4700.0	2.499	34.899	5.61
4800.0	2.505	34.898	5.61
4900.0	2.514	34.898	5.61
5000.0	2.523	34.898	5.61
5100.0	2.533	34.897	5.62
5200.0	2.543	34.897	5.63
5300.0	2.553	34.897	5.63
5363.0	2.562	34.897	5.63

Station : 39	Cruise : BORD-EST3
Date : 20-05-89	Ship : Le Noroit
Bottom depth: 5270 m	Institute: Ifremer
Position : N 40 59.83 W 12 40.26	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	17.055	35.903	5.78
10.0	16.981	35.884	5.97
20.0	15.216	35.850	6.40
30.0	14.447	35.842	6.45
40.0	14.112	35.871	6.15
50.0	13.904	35.847	5.85
60.0	13.965	35.885	5.68
70.0	13.901	35.876	5.68
80.0	13.859	35.871	5.65
90.0	13.725	35.841	5.64
100.0	13.611	35.827	5.60
200.0	12.366	35.672	5.12
300.0	11.730	35.601	5.10
400.0	11.360	35.576	4.95
500.0	10.806	35.519	4.97
600.0	10.709	35.581	4.65
700.0	10.897	35.774	4.36
800.0	10.983	35.906	4.28
900.0	10.672	35.933	4.28
1000.0	9.649	35.787	4.35
1100.0	9.651	35.867	4.37
1200.0	9.938	36.038	4.39
1300.0	8.367	35.726	4.73
1400.0	6.851	35.468	5.11
1500.0	5.969	35.324	5.36
1600.0	5.484	35.247	5.53
1700.0	4.864	35.147	5.74
1800.0	4.393	35.073	5.91
1900.0	4.177	35.055	5.93
2000.0	3.983	35.035	5.95
2100.0	3.834	35.027	5.95
2200.0	3.684	35.017	5.92
2300.0	3.584	35.012	5.89
2400.0	3.481	35.004	5.88
2500.0	3.384	34.994	5.87
2600.0	3.238	34.982	5.84
2700.0	3.106	34.971	5.83
2800.0	3.015	34.963	5.79
2900.0	2.927	34.956	5.78
3000.0	2.861	34.951	5.75
3100.0	2.809	34.945	5.73
3200.0	2.760	34.941	5.70
3300.0	2.725	34.937	5.69
3400.0	2.685	34.933	5.67
3500.0	2.650	34.929	5.65
3600.0	2.623	34.926	5.63
3700.0	2.600	34.923	5.62
3800.0	2.571	34.919	5.62
3900.0	2.556	34.915	5.62
4000.0	2.540	34.913	5.62
4100.0	2.522	34.909	5.62
4200.0	2.511	34.907	5.63
4300.0	2.505	34.905	5.64
4400.0	2.503	34.904	5.65
4500.0	2.503	34.903	5.65
4600.0	2.502	34.901	5.66
4700.0	2.505	34.901	5.68
4800.0	2.510	34.900	5.68
4900.0	2.517	34.899	5.68
5000.0	2.525	34.899	5.67
5100.0	2.534	34.898	5.67
5200.0	2.543	34.898	5.66
5300.0	2.555	34.898	5.65
5387.0	2.566	34.898	5.62

Station : 40	Cruise : BORD-EST3
Date : 21-05-89	Ship : Le Noroit
Bottom depth: 5257 m	Institute: Ifremer
Position : N 41 30.06 W 12 44.73	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.420	35.870	5.79
10.0	16.420	35.871	5.93
20.0	14.776	35.846	6.32
30.0	14.245	35.871	6.38
40.0	14.155	35.871	6.24
50.0	13.854	35.826	6.14
60.0	13.777	35.833	5.87
70.0	13.708	35.824	5.69
80.0	13.636	35.815	5.63
90.0	13.523	35.794	5.63
100.0	13.505	35.801	5.58
200.0	12.419	35.676	5.15
300.0	11.791	35.599	5.14
400.0	11.260	35.537	5.20
500.0	10.910	35.528	5.01
600.0	10.886	35.637	4.57
700.0	10.685	35.719	4.35
800.0	10.369	35.749	4.31
900.0	10.273	35.867	4.26
1000.0	10.366	35.967	4.27
1100.0	10.396	36.054	4.30
1200.0	10.165	36.066	4.36
1300.0	9.612	35.989	4.48
1400.0	8.321	35.741	4.75
1500.0	7.003	35.518	5.06
1600.0	5.719	35.299	5.41
1700.0	4.994	35.180	5.67
1800.0	4.467	35.096	5.83
1900.0	4.045	35.041	5.93
2000.0	3.846	35.026	5.96
2100.0	3.691	35.017	5.96
2200.0	3.564	35.009	5.91
2300.0	3.444	35.002	5.88
2400.0	3.285	34.988	5.88
2500.0	3.178	34.980	5.84
2600.0	3.075	34.971	5.82
2700.0	2.982	34.964	5.80
2800.0	2.912	34.958	5.78
2900.0	2.848	34.952	5.76
3000.0	2.804	34.948	5.73
3100.0	2.754	34.943	5.72
3200.0	2.712	34.938	5.69
3300.0	2.675	34.934	5.68
3400.0	2.641	34.931	5.65
3500.0	2.615	34.927	5.64
3600.0	2.592	34.924	5.62
3700.0	2.568	34.921	5.61
3800.0	2.551	34.918	5.61
3900.0	2.531	34.915	5.61
4000.0	2.520	34.912	5.61
4100.0	2.510	34.910	5.62
4200.0	2.501	34.908	5.62
4300.0	2.498	34.907	5.63
4400.0	2.494	34.904	5.64
4500.0	2.496	34.904	5.65
4600.0	2.497	34.903	5.66
4700.0	2.502	34.902	5.66
4800.0	2.510	34.901	5.67
4900.0	2.518	34.901	5.67
5000.0	2.527	34.901	5.66
5100.0	2.538	34.900	5.65
5200.0	2.549	34.900	5.65
5300.0	2.558	34.899	5.64
5390.0	2.570	34.899	5.61

Station : 41	Cruise : BORD-EST3
Date : 21-05-89	Ship : Le Noroit
Bottom depth: 5240 m	Institute: Ifremer
Position : N 41 59.93 W 12 50.15	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.772	35.893	5.85
10.0	16.734	35.885	5.94
20.0	14.523	35.738	6.71
30.0	13.619	35.737	6.95
40.0	13.190	35.748	6.39
50.0	13.148	35.750	6.10
60.0	13.120	35.750	5.99
70.0	13.081	35.748	5.92
80.0	13.015	35.737	5.89
90.0	12.968	35.736	5.86
100.0	12.949	35.737	5.83
200.0	12.261	35.656	5.52
300.0	11.572	35.585	5.32
400.0	11.193	35.549	5.32
500.0	10.827	35.516	5.17
600.0	10.331	35.486	4.92
700.0	10.490	35.637	4.57
800.0	10.603	35.806	4.39
900.0	10.659	35.911	4.32
1000.0	10.535	35.982	4.29
1100.0	10.097	35.970	4.38
1200.0	9.398	35.885	4.54
1300.0	8.579	35.765	4.74
1400.0	6.678	35.413	5.24
1500.0	5.532	35.215	5.60
1600.0	4.852	35.113	5.84
1700.0	4.563	35.079	5.94
1800.0	4.312	35.053	5.98
1900.0	4.020	35.023	6.03
2000.0	3.827	35.009	6.03
2100.0	3.667	35.007	5.98
2200.0	3.581	35.009	5.91
2300.0	3.474	35.003	5.87
2400.0	3.348	34.994	5.84
2500.0	3.218	34.981	5.83
2600.0	3.111	34.973	5.82
2700.0	3.016	34.966	5.80
2800.0	2.947	34.961	5.76
2900.0	2.878	34.955	5.74
3000.0	2.825	34.949	5.73
3100.0	2.766	34.944	5.70
3200.0	2.720	34.939	5.66
3300.0	2.686	34.936	5.65
3400.0	2.660	34.932	5.64
3500.0	2.627	34.928	5.63
3600.0	2.594	34.924	5.61
3700.0	2.572	34.921	5.61
3800.0	2.557	34.919	5.62
3900.0	2.536	34.916	5.62
4000.0	2.522	34.912	5.62
4100.0	2.515	34.911	5.62
4200.0	2.505	34.908	5.63
4300.0	2.500	34.907	5.63
4400.0	2.497	34.905	5.64
4500.0	2.495	34.904	5.64
4600.0	2.499	34.904	5.65
4700.0	2.503	34.902	5.66
4800.0	2.510	34.902	5.66
4900.0	2.517	34.902	5.66
5000.0	2.526	34.901	5.66
5100.0	2.535	34.901	5.65
5200.0	2.545	34.900	5.65
5300.0	2.557	34.900	5.63
5387.0	2.568	34.900	5.61

Station : 42	Cruise : BORD-EST3
Date : 21-05-89	Ship : Le Noroit
Bottom depth: 5260 m	Institute: Ifremer
Position : N 42 29.99 W 12 55.04	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.442	35.841	5.85
10.0	15.655	35.780	6.16
20.0	13.702	35.749	6.78
30.0	13.371	35.758	6.44
40.0	13.263	35.757	6.10
50.0	13.217	35.761	5.93
60.0	13.119	35.750	5.83
70.0	13.073	35.752	5.78
80.0	13.057	35.752	5.77
90.0	13.063	35.760	5.72
100.0	13.034	35.756	5.69
200.0	12.254	35.660	5.52
300.0	11.503	35.571	5.29
400.0	11.151	35.543	5.22
500.0	10.759	35.517	5.07
600.0	10.685	35.608	4.66
700.0	10.615	35.719	4.44
800.0	10.600	35.830	4.28
900.0	10.468	35.877	4.30
1000.0	10.122	35.902	4.32
1100.0	9.808	35.922	4.38
1200.0	9.085	35.814	4.57
1300.0	8.134	35.658	4.77
1400.0	7.219	35.503	5.05
1500.0	6.144	35.330	5.38
1600.0	5.141	35.168	5.71
1700.0	4.662	35.097	5.82
1800.0	4.339	35.058	5.91
1900.0	4.076	35.037	5.96
2000.0	3.939	35.031	5.94
2100.0	3.747	35.011	5.92
2200.0	3.624	35.009	5.89
2300.0	3.469	34.997	5.84
2400.0	3.323	34.985	5.82
2500.0	3.219	34.980	5.80
2600.0	3.101	34.972	5.76
2700.0	2.990	34.965	5.72
2800.0	2.920	34.958	5.69
2900.0	2.852	34.952	5.68
3000.0	2.778	34.945	5.67
3100.0	2.737	34.941	5.66
3200.0	2.698	34.937	5.64
3300.0	2.667	34.933	5.62
3400.0	2.639	34.930	5.60
3500.0	2.607	34.926	5.57
3600.0	2.575	34.922	5.58
3700.0	2.551	34.918	5.58
3800.0	2.531	34.916	5.59
3900.0	2.517	34.913	5.59
4000.0	2.510	34.911	5.59
4100.0	2.502	34.908	5.60
4200.0	2.497	34.906	5.59
4300.0	2.493	34.905	5.60
4400.0	2.491	34.904	5.60
4500.0	2.492	34.903	5.62
4600.0	2.495	34.904	5.61
4700.0	2.502	34.902	5.62
4800.0	2.511	34.902	5.62
4900.0	2.518	34.903	5.62
5000.0	2.527	34.903	5.63
5100.0	2.539	34.901	5.61
5200.0	2.548	34.902	5.61
5300.0	2.557	34.901	5.60
5371.0	2.568	34.900	5.59

Station : 43	Cruise : BORD-EST3
Date : 22-05-89	Ship : Le Noroit
Bottom depth: 5100 m	Institute: Ifremer
Position : N 42 59.90 W 13 0.01	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.122	35.862	5.88
10.0	16.149	35.860	6.02
20.0	15.659	35.819	6.29
30.0	14.007	35.832	6.69
40.0	13.664	35.809	6.50
50.0	13.623	35.812	6.19
60.0	13.420	35.781	6.01
70.0	13.314	35.776	5.86
80.0	13.243	35.766	5.78
90.0	13.173	35.762	5.80
100.0	13.077	35.753	5.73
200.0	11.984	35.623	5.30
300.0	11.459	35.567	5.28
400.0	11.097	35.533	5.22
500.0	10.825	35.530	4.99
600.0	10.643	35.584	4.72
700.0	10.487	35.668	4.45
800.0	10.658	35.821	4.29
900.0	10.405	35.848	4.25
1000.0	10.294	35.923	4.27
1100.0	9.730	35.882	4.36
1200.0	9.127	35.812	4.52
1300.0	8.221	35.681	4.73
1400.0	6.928	35.452	5.10
1500.0	5.891	35.285	5.40
1600.0	5.247	35.186	5.64
1700.0	4.727	35.109	5.81
1800.0	4.356	35.060	5.92
1900.0	4.117	35.038	5.98
2000.0	3.971	35.033	5.95
2100.0	3.842	35.028	5.89
2200.0	3.668	35.016	5.85
2300.0	3.516	35.003	5.82
2400.0	3.347	34.988	5.83
2500.0	3.254	34.984	5.79
2600.0	3.145	34.976	5.76
2700.0	3.043	34.969	5.71
2800.0	2.970	34.961	5.69
2900.0	2.904	34.956	5.67
3000.0	2.842	34.951	5.69
3100.0	2.792	34.947	5.66
3200.0	2.737	34.942	5.62
3300.0	2.692	34.937	5.61
3400.0	2.652	34.933	5.59
3500.0	2.616	34.928	5.59
3600.0	2.589	34.925	5.58
3700.0	2.572	34.921	5.59
3800.0	2.553	34.918	5.58
3900.0	2.537	34.915	5.59
4000.0	2.524	34.912	5.60
4100.0	2.508	34.910	5.60
4200.0	2.501	34.908	5.61
4300.0	2.498	34.906	5.62
4400.0	2.493	34.905	5.62
4500.0	2.496	34.904	5.62
4600.0	2.498	34.904	5.62
4700.0	2.504	34.904	5.63
4800.0	2.510	34.903	5.63
4900.0	2.518	34.902	5.63
5000.0	2.526	34.902	5.62
5100.0	2.535	34.901	5.62
5200.0	2.546	34.901	5.61
5225.0	2.550	34.900	5.60

Station : 44	Cruise	: BORD-EST3	
Date : 22-05-89	Ship	: Le Noroit	
Bottom depth: 4070 m	Institute:	Ifremer	
Position : N 42 59.62 W 12 35.44			

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.042	35.859	5.86
10.0	16.056	35.858	5.94
20.0	15.852	35.801	6.16
30.0	14.158	35.828	6.54
40.0	13.910	35.841	6.40
50.0	13.765	35.841	6.03
60.0	13.722	35.840	5.87
70.0	13.701	35.835	5.77
80.0	13.660	35.836	5.73
90.0	13.561	35.820	5.66
100.0	13.532	35.817	5.60
200.0	12.275	35.668	5.08
300.0	11.605	35.593	5.06
400.0	11.236	35.569	5.04
500.0	11.007	35.582	4.83
600.0	11.017	35.698	4.51
700.0	11.074	35.833	4.36
800.0	11.221	35.987	4.25
900.0	11.048	36.024	4.24
1000.0	11.030	36.126	4.20
1100.0	10.745	36.126	4.25
1200.0	10.211	36.044	4.35
1300.0	9.533	35.947	4.47
1400.0	8.556	35.780	4.71
1500.0	6.427	35.371	5.26
1600.0	5.412	35.207	5.57
1700.0	4.797	35.115	5.76
1800.0	4.599	35.102	5.81
1900.0	4.281	35.067	5.88
2000.0	4.058	35.048	5.92
2100.0	3.867	35.031	5.91
2200.0	3.684	35.015	5.89
2300.0	3.535	35.005	5.85
2400.0	3.403	34.995	5.85
2500.0	3.253	34.985	5.84
2600.0	3.171	34.977	5.78
2700.0	3.070	34.970	5.74
2800.0	2.978	34.962	5.73
2900.0	2.899	34.957	5.72
3000.0	2.843	34.951	5.70
3100.0	2.782	34.945	5.67
3200.0	2.728	34.940	5.64
3300.0	2.662	34.932	5.61
3400.0	2.622	34.928	5.61
3500.0	2.584	34.925	5.62
3600.0	2.554	34.921	5.60
3700.0	2.548	34.919	5.61
3800.0	2.531	34.916	5.61
3900.0	2.512	34.913	5.60
4000.0	2.505	34.912	5.61
4100.0	2.496	34.908	5.61
4200.0	2.483	34.906	5.62
4264.0	2.483	34.906	5.61

Station : 45	Cruise	: BORD-EST3	
Date : 22-05-89	Ship	: Le Noroit	
Bottom depth: 2345 m	Institute:	Ifremer	
Position : N 43 0.13 W 12 16.79			

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.237	35.807	5.74
10.0	16.197	35.806	5.80
20.0	15.696	35.788	6.15
30.0	13.834	35.768	6.58
40.0	13.671	35.767	6.44
50.0	13.471	35.765	6.18
60.0	13.366	35.774	5.95
70.0	13.305	35.775	5.83
80.0	13.251	35.773	5.76
90.0	13.182	35.768	5.73
100.0	13.142	35.766	5.71
200.0	12.379	35.670	5.37
300.0	11.541	35.581	5.29
400.0	11.153	35.549	5.16
500.0	10.805	35.543	5.05
600.0	10.832	35.646	4.61
700.0	11.127	35.828	4.36
800.0	11.443	36.014	4.25
900.0	11.280	36.061	4.23
1000.0	11.139	36.116	4.20
1100.0	10.939	36.148	4.20
1200.0	10.752	36.157	4.21
1300.0	9.997	36.045	4.39
1400.0	9.007	35.866	4.59
1500.0	7.773	35.639	4.88
1600.0	5.966	35.295	5.39
1700.0	5.252	35.186	5.60
1800.0	4.894	35.139	5.70
1900.0	4.718	35.125	5.76
2000.0	4.545	35.106	5.76
2100.0	4.242	35.071	5.79
2200.0	3.963	35.043	5.81
2300.0	3.606	35.011	5.81
2390.0	3.410	34.996	5.82

Station	: 46	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth: 1705 m		Institute:	Ifremer
Position	: N 43 0.00 W 12 0.11		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.220	35.798	5.79
10.0	15.898	35.799	5.94
20.0	15.368	35.766	6.28
30.0	13.676	35.771	6.51
40.0	13.510	35.777	6.20
50.0	13.429	35.778	5.96
60.0	13.382	35.776	5.86
70.0	13.301	35.773	5.80
80.0	13.250	35.771	5.74
90.0	13.217	35.769	5.74
100.0	13.162	35.765	5.72
200.0	12.148	35.644	5.32
300.0	11.399	35.561	5.27
400.0	11.098	35.539	5.18
500.0	10.937	35.566	4.94
600.0	10.824	35.635	4.62
700.0	10.844	35.745	4.39
800.0	10.958	35.872	4.28
900.0	10.921	35.946	4.21
1000.0	10.300	35.910	4.24
1100.0	10.126	35.954	4.28
1200.0	9.800	35.937	4.38
1300.0	8.540	35.731	4.68
1400.0	7.438	35.545	4.96
1500.0	6.999	35.470	5.09
1600.0	6.609	35.410	5.19
1700.0	5.898	35.294	5.40
1718.0	5.664	35.259	5.47

Station	: 47	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth: 2287 m		Institute:	Ifremer
Position	: N 43 1.36 W 11 38.26		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	15.883	35.795	5.88
10.0	15.456	35.765	6.05
20.0	14.213	35.772	6.39
30.0	13.559	35.769	6.24
40.0	13.400	35.780	6.07
50.0	13.363	35.780	5.92
60.0	13.327	35.779	5.84
70.0	13.316	35.781	5.74
80.0	13.297	35.783	5.73
90.0	13.270	35.780	5.70
100.0	13.219	35.776	5.68
200.0	12.524	35.689	5.33
300.0	11.756	35.607	5.11
400.0	11.304	35.562	5.16
500.0	11.030	35.566	4.97
600.0	10.839	35.619	4.70
700.0	10.931	35.759	4.41
800.0	10.989	35.876	4.27
900.0	10.945	35.937	4.20
1000.0	10.569	35.962	4.21
1100.0	10.113	35.940	4.27
1200.0	9.479	35.841	4.39
1300.0	8.630	35.727	4.59
1400.0	7.709	35.577	4.82
1500.0	6.616	35.388	5.14
1600.0	5.893	35.269	5.38
1700.0	5.403	35.199	5.53
1800.0	4.797	35.116	5.74
1900.0	4.287	35.047	5.86
2000.0	4.030	35.024	5.88
2100.0	3.764	35.006	5.88
2200.0	3.631	35.001	5.85
2300.0	3.426	34.990	5.84
2309.0	3.422	34.989	5.83

Station : 48	Cruise : BORD-EST3
Date : 22-05-89	Ship : Le Noroit
Bottom depth: 2580 m	Institute: Ifremer
Position : N 43 3.13 W 11 11.27	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	15.489	35.809	6.37
10.0	15.462	35.810	6.24
20.0	15.279	35.806	6.35
30.0	14.932	35.796	6.44
40.0	14.267	35.796	6.44
50.0	13.883	35.791	6.26
60.0	13.633	35.789	6.06
70.0	13.431	35.789	5.90
80.0	13.247	35.775	5.81
90.0	13.128	35.764	5.77
100.0	13.054	35.760	5.74
200.0	12.393	35.678	5.43
300.0	11.689	35.597	5.29
400.0	11.233	35.558	5.18
500.0	10.948	35.583	4.95
600.0	10.904	35.711	4.57
700.0	10.964	35.808	4.43
800.0	10.992	35.892	4.34
900.0	11.031	35.996	4.29
1000.0	10.744	36.011	4.28
1100.0	10.239	35.981	4.34
1200.0	9.629	35.906	4.47
1300.0	8.748	35.756	4.67
1400.0	7.359	35.509	4.99
1500.0	6.378	35.346	5.27
1600.0	5.372	35.188	5.61
1700.0	4.867	35.125	5.78
1800.0	4.426	35.062	5.90
1900.0	4.095	35.033	5.95
2000.0	3.896	35.017	5.97
2100.0	3.768	35.010	5.95
2200.0	3.624	34.998	5.95
2300.0	3.468	34.989	5.92
2400.0	3.385	34.987	5.90
2500.0	3.228	34.979	5.87
2574.0	3.147	34.972	5.85

Station : 49	Cruise : BORD-EST3
Date : 23-05-89	Ship : Le Noroit
Bottom depth: 3590 m	Institute: Ifremer
Position : N 43 6.08 W 10 30.41	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.034	35.713	6.05
10.0	16.036	35.712	6.11
20.0	15.967	35.699	6.28
30.0	14.115	35.646	6.81
40.0	12.825	35.681	6.67
50.0	12.602	35.682	6.32
60.0	12.545	35.682	6.14
70.0	12.489	35.680	6.02
80.0	12.446	35.670	5.92
90.0	12.383	35.674	5.84
100.0	12.332	35.669	5.80
200.0	11.856	35.614	5.45
300.0	11.311	35.553	5.37
400.0	10.976	35.516	5.43
500.0	10.686	35.498	5.27
600.0	10.526	35.517	4.97
700.0	10.342	35.590	4.61
800.0	10.371	35.727	4.38
900.0	10.642	35.900	4.31
1000.0	10.234	35.897	4.33
1100.0	9.687	35.851	4.41
1200.0	8.591	35.682	4.63
1300.0	7.602	35.534	4.88
1400.0	6.822	35.422	5.13
1500.0	5.937	35.279	5.40
1600.0	5.035	35.141	5.70
1700.0	4.650	35.094	5.80
1800.0	4.305	35.052	5.92
1900.0	4.098	35.036	5.93
2000.0	3.869	35.016	5.94
2100.0	3.731	35.011	5.92
2200.0	3.567	35.000	5.90
2300.0	3.437	34.992	5.89
2400.0	3.338	34.988	5.86
2500.0	3.229	34.977	5.85
2600.0	3.138	34.972	5.82
2700.0	3.017	34.962	5.81
2800.0	2.941	34.958	5.76
2900.0	2.846	34.950	5.73
3000.0	2.774	34.944	5.72
3100.0	2.717	34.939	5.68
3200.0	2.673	34.934	5.65
3300.0	2.627	34.929	5.63
3400.0	2.599	34.926	5.62
3500.0	2.573	34.922	5.62
3600.0	2.541	34.918	5.62
3643.0	2.533	34.918	5.61

Station	: 50	Cruise	: BORD-EST3
Date	: 23-05-89	Ship	: Le Noroit
Bottom depth: 3290 m		Institute:	Ifremer
Position	: N 43 7.50 W 10 9.89		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.144	35.725	5.97
10.0	16.142	35.725	6.07
20.0	16.115	35.722	6.26
30.0	14.230	35.702	6.64
40.0	13.765	35.699	6.80
50.0	12.865	35.727	6.39
60.0	12.848	35.736	6.04
70.0	12.822	35.737	5.92
80.0	12.797	35.736	5.86
90.0	12.770	35.728	5.80
100.0	12.650	35.711	5.78
200.0	12.227	35.657	5.60
300.0	11.513	35.568	5.45
400.0	11.094	35.528	5.43
500.0	10.800	35.502	5.33
600.0	10.554	35.534	4.95
700.0	10.664	35.685	4.56
800.0	10.722	35.851	4.36
900.0	10.565	35.906	4.30
1000.0	10.386	35.947	4.31
1100.0	10.184	35.983	4.36
1200.0	9.028	35.778	4.56
1300.0	8.244	35.670	4.75
1400.0	7.010	35.459	5.08
1500.0	6.141	35.317	5.35
1600.0	5.540	35.222	5.55
1700.0	4.989	35.146	5.74
1800.0	4.631	35.098	5.82
1900.0	4.361	35.072	5.88
2000.0	4.041	35.035	5.92
2100.0	3.824	35.014	5.94
2200.0	3.618	34.997	5.94
2300.0	3.480	34.990	5.92
2400.0	3.340	34.983	5.89
2500.0	3.181	34.974	5.85
2600.0	3.038	34.965	5.82
2700.0	2.944	34.959	5.78
2800.0	2.862	34.952	5.75
2900.0	2.793	34.947	5.73
3000.0	2.739	34.942	5.71
3100.0	2.681	34.936	5.67
3200.0	2.634	34.931	5.65
3300.0	2.602	34.928	5.63
3310.0	2.599	34.928	5.63

Station	: 51	Cruise	: BORD-EST3
Date	: 23-05-89	Ship	: Le Noroit
Bottom depth: 2970 m		Institute:	Ifremer
Position	: N 43 8.11 W 9 56.05		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	16.072	35.760	6.89
10.0	16.072	35.761	6.18
20.0	14.249	35.684	6.35
30.0	12.932	35.703	6.50
40.0	12.870	35.712	6.12
50.0	12.734	35.711	5.93
60.0	12.683	35.711	5.84
70.0	12.686	35.714	5.78
80.0	12.656	35.715	5.75
90.0	12.621	35.709	5.74
100.0	12.525	35.695	5.79
200.0	12.148	35.649	5.64
300.0	11.493	35.577	5.36
400.0	11.173	35.551	5.30
500.0	10.857	35.543	5.11
600.0	10.574	35.584	4.80
700.0	11.098	35.872	4.41
800.0	11.188	35.944	4.33
900.0	10.910	35.965	4.30
1000.0	10.592	35.959	4.28
1100.0	10.051	35.919	4.34
1200.0	9.282	35.810	4.49
1300.0	8.867	35.774	4.61
1400.0	7.329	35.506	4.97
1500.0	6.846	35.464	5.14
1600.0	5.610	35.250	5.51
1700.0	5.000	35.161	5.70
1800.0	4.491	35.090	5.85
1900.0	4.448	35.099	5.84
2000.0	4.196	35.071	5.85
2100.0	3.978	35.046	5.86
2200.0	3.758	35.027	5.87
2300.0	3.552	35.006	5.87
2400.0	3.351	34.986	5.87
2500.0	3.259	34.982	5.85
2600.0	3.168	34.979	5.81
2700.0	3.074	34.972	5.76
2800.0	2.977	34.960	5.74
2900.0	2.881	34.953	5.72
3000.0	2.785	34.945	5.64
3016.0	2.777	34.945	5.65

Station : 52	Cruise : BORD-EST3
Date : 23-05-89	Ship : Le Noroit
Bottom depth: 2120 m	Institute: Ifremer
Position : N 43 9.76 W 9 44.98	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	15.848	35.759	5.96
10.0	15.815	35.758	6.06
20.0	15.764	35.756	6.18
30.0	14.722	35.741	6.55
40.0	14.297	35.733	6.71
50.0	13.434	35.712	6.68
60.0	13.083	35.716	6.30
70.0	12.816	35.711	5.96
80.0	12.771	35.719	5.86
90.0	12.804	35.733	5.76
100.0	12.693	35.717	5.74
200.0	11.938	35.639	5.18
300.0	11.408	35.583	5.20
400.0	11.080	35.562	5.09
500.0	10.781	35.614	4.80
600.0	10.957	35.771	4.51
700.0	11.250	35.930	4.35
800.0	11.401	36.061	4.27
900.0	11.391	36.132	4.24
1000.0	11.311	36.170	4.22
1100.0	11.179	36.216	4.23
1200.0	10.765	36.180	4.28
1300.0	10.293	36.110	4.37
1400.0	9.562	35.991	4.51
1500.0	8.732	35.839	4.70
1600.0	7.602	35.637	4.96
1700.0	6.775	35.485	5.16
1800.0	5.229	35.205	5.58
1900.0	4.798	35.149	5.65
2000.0	4.433	35.105	5.72
2100.0	4.071	35.064	5.74
2112.0	4.002	35.056	5.73

Station : 53	Cruise : BORD-EST3
Date : 23-05-89	Ship : Le Noroit
Bottom depth: 1070 m	Institute: Ifremer
Position : N 43 10.26 W 9 37.42	

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	15.602	35.726	6.21
10.0	15.601	35.726	6.29
20.0	14.413	35.745	6.69
30.0	13.876	35.744	6.71
40.0	13.607	35.777	6.45
50.0	13.449	35.781	6.11
60.0	13.288	35.766	5.92
70.0	13.104	35.752	5.82
80.0	13.086	35.758	5.72
90.0	13.004	35.761	5.60
100.0	12.923	35.748	5.55
200.0	12.086	35.649	5.25
300.0	11.445	35.566	5.29
400.0	11.062	35.532	5.32
500.0	10.850	35.512	5.29
600.0	10.718	35.578	4.91
700.0	10.901	35.731	4.56
800.0	11.315	35.974	4.33
900.0	11.444	36.120	4.24
1000.0	11.255	36.156	4.25
1100.0	11.049	36.165	4.26
1164.0	10.919	36.161	4.28

Station : 54		Cruise	: BORD-EST3
Date	: 24-05-89	Ship	: Le Noroit
Bottom depth: 850 m		Institute:	Ifremer
Position	: N 44 12.69 W 8 30.75		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	15.144	35.714	6.16
10.0	14.762	35.706	6.29
20.0	14.485	35.704	6.52
30.0	13.695	35.705	6.48
40.0	13.436	35.710	6.34
50.0	13.342	35.714	6.22
60.0	13.245	35.712	6.09
70.0	13.084	35.709	5.94
80.0	12.986	35.715	5.80
90.0	12.906	35.712	5.72
100.0	12.802	35.715	5.62
200.0	12.399	35.697	5.45
300.0	11.742	35.632	5.21
400.0	11.388	35.613	5.10
500.0	11.155	35.629	4.92
600.0	10.969	35.643	4.78
700.0	10.948	35.704	4.65
800.0	10.738	35.821	4.32
900.0	10.939	36.008	4.22
1000.0	10.870	36.046	4.23
1100.0	10.363	36.016	4.28
1189.0	10.306	36.016	4.29

Station : 55		Cruise	: BORD-EST3
Date	: 24-05-89	Ship	: Le Noroit
Bottom depth: 3110 m		Institute:	Ifremer
Position	: N 44 17.06 W 8 30.18		

PRESSURE dbar	TEMPERATURE deg.cels.	SALINITY	DISS. OXYGEN ml/l
1.0	15.395	35.728	6.01
10.0	15.323	35.725	6.04
20.0	14.801	35.661	6.32
30.0	14.092	35.711	6.58
40.0	13.743	35.708	6.55
50.0	13.304	35.723	6.36
60.0	13.058	35.690	6.14
70.0	12.894	35.681	5.95
80.0	12.699	35.692	5.83
90.0	12.592	35.676	5.78
100.0	12.540	35.666	5.75
200.0	12.118	35.628	5.56
300.0	11.393	35.561	5.29
400.0	11.037	35.535	5.25
500.0	10.707	35.513	5.12
600.0	10.532	35.550	4.83
700.0	10.407	35.616	4.56
800.0	10.339	35.695	4.38
900.0	10.784	35.919	4.25
1000.0	10.530	35.972	4.25
1100.0	10.446	36.026	4.26
1200.0	10.146	36.005	4.33
1300.0	8.713	35.715	4.56
1400.0	7.552	35.508	4.79
1500.0	6.691	35.377	5.02
1600.0	5.797	35.244	5.30
1700.0	4.860	35.104	5.65
1800.0	4.793	35.126	5.68
1900.0	4.473	35.091	5.74
2000.0	4.085	35.047	5.80
2100.0	3.842	35.017	5.85
2200.0	3.696	35.008	5.85
2300.0	3.521	34.995	5.84
2400.0	3.403	34.991	5.80
2500.0	3.263	34.979	5.78
2600.0	3.209	34.975	5.75
2700.0	3.082	34.963	5.74
2800.0	2.997	34.957	5.71
2900.0	2.893	34.949	5.69
3000.0	2.796	34.943	5.66
3100.0	2.732	34.937	5.63
3200.0	2.706	34.934	5.62
3257.0	2.681	34.930	5.62

Station : 56	Cruise : BORD-EST3
Date : 24-05-89	Ship : Le Noroit
Bottom depth: 4720 m	Institute: Ifremer
Position : N 44 25.76 W 8 29.98	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	15.911	35.650	5.80
10.0	15.840	35.678	5.90
20.0	14.872	35.622	6.20
30.0	13.581	35.647	6.60
40.0	12.966	35.654	6.46
50.0	12.811	35.664	6.11
60.0	12.744	35.664	5.89
70.0	12.662	35.659	5.80
80.0	12.611	35.655	5.73
90.0	12.528	35.649	5.72
100.0	12.509	35.648	5.72
200.0	12.086	35.624	5.64
300.0	11.336	35.555	5.43
400.0	11.046	35.530	5.39
500.0	10.767	35.537	5.10
600.0	10.531	35.557	4.86
700.0	10.365	35.643	4.56
800.0	10.265	35.753	4.37
900.0	10.257	35.829	4.33
1000.0	10.263	35.913	4.32
1100.0	10.001	35.940	4.37
1200.0	9.558	35.905	4.50
1300.0	8.178	35.623	4.74
1400.0	7.107	35.440	4.98
1500.0	6.187	35.304	5.25
1600.0	5.398	35.184	5.51
1700.0	4.850	35.117	5.66
1800.0	4.416	35.067	5.80
1900.0	4.134	35.041	5.85
2000.0	3.969	35.030	5.85
2100.0	3.791	35.015	5.87
2200.0	3.638	35.005	5.85
2300.0	3.498	34.995	5.83
2400.0	3.338	34.984	5.86
2500.0	3.194	34.975	5.84
2600.0	3.102	34.967	5.80
2700.0	2.971	34.959	5.76
2800.0	2.910	34.954	5.75
2900.0	2.850	34.950	5.72
3000.0	2.812	34.946	5.70
3100.0	2.759	34.941	5.68
3200.0	2.717	34.938	5.66
3300.0	2.688	34.935	5.65
3400.0	2.648	34.928	5.64
3500.0	2.626	34.926	5.63
3600.0	2.599	34.923	5.62
3700.0	2.572	34.919	5.62
3800.0	2.557	34.916	5.61
3900.0	2.539	34.914	5.61
4000.0	2.530	34.910	5.62
4100.0	2.517	34.907	5.61
4200.0	2.516	34.906	5.61
4300.0	2.510	34.905	5.61
4400.0	2.507	34.903	5.61
4500.0	2.504	34.901	5.60
4600.0	2.503	34.901	5.59
4700.0	2.505	34.899	5.58
4800.0	2.513	34.899	5.56
4810.0	2.514	34.899	5.56

Station : 57	Cruise : BORD-EST3
Date : 24-05-89	Ship : Le Noroit
Bottom depth: 4860 m	Institute: Ifremer
Position : N 44 38.98 W 8 30.86	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.371	35.651	5.61
10.0	16.115	35.659	5.73
20.0	15.649	35.660	5.96
30.0	15.066	35.673	6.26
40.0	14.116	35.658	6.53
50.0	13.162	35.659	6.47
60.0	12.850	35.649	6.07
70.0	12.737	35.649	5.71
80.0	12.618	35.644	5.56
90.0	12.495	35.621	5.56
100.0	12.422	35.610	5.60
200.0	12.303	35.640	5.57
300.0	11.585	35.582	5.30
400.0	11.247	35.552	5.32
500.0	10.956	35.535	5.17
600.0	10.670	35.562	4.91
700.0	10.435	35.615	4.61
800.0	10.322	35.702	4.43
900.0	10.195	35.777	4.34
1000.0	9.897	35.803	4.34
1100.0	9.513	35.778	4.40
1200.0	8.786	35.692	4.55
1300.0	8.156	35.603	4.69
1400.0	7.177	35.447	4.94
1500.0	6.359	35.323	5.18
1600.0	5.697	35.230	5.41
1700.0	5.133	35.152	5.58
1800.0	4.650	35.090	5.73
1900.0	4.297	35.052	5.80
2000.0	4.022	35.030	5.83
2100.0	3.804	35.015	5.85
2200.0	3.640	35.001	5.84
2300.0	3.495	34.992	5.86
2400.0	3.364	34.984	5.84
2500.0	3.270	34.977	5.81
2600.0	3.163	34.970	5.81
2700.0	3.063	34.963	5.78
2800.0	2.966	34.957	5.75
2900.0	2.874	34.952	5.74
3000.0	2.803	34.946	5.70
3100.0	2.758	34.942	5.69
3200.0	2.701	34.937	5.66
3300.0	2.662	34.933	5.64
3400.0	2.636	34.928	5.62
3500.0	2.603	34.923	5.61
3600.0	2.576	34.920	5.60
3700.0	2.556	34.917	5.58
3800.0	2.542	34.914	5.59
3900.0	2.529	34.912	5.58
4000.0	2.518	34.909	5.59
4100.0	2.507	34.907	5.59
4200.0	2.504	34.905	5.59
4300.0	2.497	34.903	5.60
4400.0	2.496	34.902	5.60
4500.0	2.498	34.901	5.59
4600.0	2.501	34.900	5.58
4700.0	2.507	34.899	5.57
4800.0	2.514	34.899	5.55
4900.0	2.524	34.898	5.54
4955.0	2.532	34.898	5.51

Station : 58	Cruise : BORD-EST3
Date : 24-05-89	Ship : Le Noroit
Bottom depth: 4855 m	Institute: Ifremer
Position : N 45 4.85 W 8 29.77	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.322	35.690	5.91
10.0	16.329	35.689	5.93
20.0	15.045	35.648	6.26
30.0	13.521	35.654	6.62
40.0	13.018	35.656	6.57
50.0	12.737	35.652	6.28
60.0	12.608	35.655	6.02
70.0	12.520	35.657	5.80
80.0	12.560	35.673	5.75
90.0	12.566	35.680	5.75
100.0	12.562	35.682	5.73
200.0	12.230	35.641	5.74
300.0	11.492	35.567	5.32
400.0	11.254	35.548	5.29
500.0	10.965	35.530	5.20
600.0	10.671	35.527	5.01
700.0	10.558	35.570	4.79
800.0	10.474	35.665	4.46
900.0	10.313	35.735	4.35
1000.0	10.193	35.798	4.28
1100.0	9.818	35.808	4.32
1200.0	9.130	35.739	4.46
1300.0	8.400	35.639	4.64
1400.0	7.668	35.529	4.84
1500.0	6.742	35.379	5.08
1600.0	5.889	35.250	5.33
1700.0	5.172	35.149	5.55
1800.0	4.668	35.079	5.74
1900.0	4.312	35.043	5.86
2000.0	4.085	35.028	5.89
2100.0	3.860	35.015	5.86
2200.0	3.716	35.005	5.85
2300.0	3.559	34.995	5.84
2400.0	3.420	34.986	5.81
2500.0	3.297	34.977	5.81
2600.0	3.196	34.969	5.79
2700.0	3.090	34.962	5.78
2800.0	2.989	34.955	5.76
2900.0	2.912	34.950	5.72
3000.0	2.839	34.944	5.70
3100.0	2.778	34.938	5.68
3200.0	2.739	34.935	5.67
3300.0	2.708	34.932	5.66
3400.0	2.660	34.927	5.63
3500.0	2.627	34.924	5.61
3600.0	2.600	34.921	5.59
3700.0	2.575	34.917	5.57
3800.0	2.548	34.914	5.57
3900.0	2.534	34.911	5.56
4000.0	2.519	34.908	5.56
4100.0	2.507	34.905	5.56
4200.0	2.504	34.903	5.56
4300.0	2.500	34.902	5.57
4400.0	2.497	34.901	5.57
4500.0	2.500	34.900	5.57
4600.0	2.503	34.899	5.57
4700.0	2.509	34.898	5.57
4800.0	2.517	34.898	5.58
4900.0	2.526	34.897	5.58
4944.0	2.531	34.897	5.57

Station : 59	Cruise : BORD-EST3
Date : 25-05-89	Ship : Le Noroit
Bottom depth: 4830 m	Institute: Ifremer
Position : N 45 35.04 W 8 29.76	

PRESSURE	TEMPERATURE	SALINITY	DISS. OXYGEN
dbar	deg.cels.		ml/l
1.0	16.384	35.701	5.73
10.0	16.381	35.700	5.93
20.0	15.155	35.642	6.36
30.0	13.803	35.640	6.69
40.0	13.153	35.631	6.35
50.0	12.617	35.651	6.03
60.0	12.496	35.647	5.88
70.0	12.449	35.650	5.77
80.0	12.412	35.649	5.75
90.0	12.377	35.648	5.72
100.0	12.370	35.648	5.68
200.0	12.170	35.633	5.66
300.0	11.567	35.575	5.30
400.0	11.174	35.544	5.28
500.0	10.803	35.532	5.02
600.0	10.518	35.567	4.75
700.0	10.388	35.644	4.46
800.0	10.309	35.721	4.31
900.0	10.198	35.784	4.23
1000.0	9.806	35.792	4.29
1100.0	9.530	35.790	4.33
1200.0	8.921	35.707	4.46
1300.0	7.986	35.573	4.69
1400.0	7.392	35.485	4.86
1500.0	6.262	35.307	5.19
1600.0	5.380	35.176	5.49
1700.0	4.856	35.103	5.67
1800.0	4.512	35.063	5.81
1900.0	4.311	35.043	5.85
2000.0	4.133	35.029	5.89
2100.0	3.811	34.998	5.93
2200.0	3.703	35.002	5.87
2300.0	3.553	34.995	5.82
2400.0	3.374	34.982	5.81
2500.0	3.240	34.974	5.78
2600.0	3.116	34.964	5.79
2700.0	3.016	34.957	5.77
2800.0	2.932	34.951	5.73
2900.0	2.861	34.947	5.72
3000.0	2.794	34.940	5.69
3100.0	2.741	34.937	5.68
3200.0	2.698	34.933	5.65
3300.0	2.661	34.929	5.63
3400.0	2.633	34.926	5.61
3500.0	2.606	34.923	5.59
3600.0	2.588	34.921	5.58
3700.0	2.573	34.918	5.58
3800.0	2.556	34.915	5.57
3900.0	2.545	34.913	5.56
4000.0	2.529	34.909	5.56
4100.0	2.518	34.907	5.55
4200.0	2.513	34.905	5.56
4300.0	2.508	34.904	5.56
4400.0	2.502	34.903	5.57
4500.0	2.505	34.900	5.57
4600.0	2.508	34.900	5.57
4700.0	2.510	34.899	5.57
4800.0	2.517	34.897	5.57
4900.0	2.529	34.898	5.57
4946.0	2.535	34.898	5.55

4 Listings of the rosette sampled parameters

Some of the values listed below are followed by the letter "d", which means that they are dubious. All salinity and dissolved oxygen values which deviated from the fitted NBIS profiles by more the 2.8 r.m.s. differences were marked in this way.

Station	: 1	Cruise	: BORD-EST3
Date	: 12-05-89	Ship	: Le Noroit
Bottom depth	: 5067 m	Institute	: Ifremer
Position	: N 37 17.59 W 11 20.16		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
5.0	36.171	5.81	0.1	0.02	0.5
94.0	36.190	5.53	2.1	0.17	1.9
194.0	35.953	5.32	5.4	0.33	5.8
342.0	35.707	4.83	12.1	0.69	11.5
492.0	35.613	4.57	15.6	0.91	11.9
744.0	35.986	4.24	16.1	0.96	9.1
993.0	36.159	4.28	16.1	0.96	10.9
1242.0	36.270	4.40	15.7	0.93	15.5
1491.0	35.790	4.83	17.5	1.15	12.6
1991.0	35.161	5.63	19.1	1.23	20.0
2494.0	34.998	5.78	20.3	1.39	29.1
2995.0	34.948	5.77	20.9	1.42	37.0
3479.0	34.923	5.73	21.5	1.58	41.0
3997.0	34.907	5.68	21.8	1.52	47.8
4500.0	34.899	5.70	22.0	1.52	46.6
4922.0	34.893	5.64	22.2	1.54	48.2

Station	: 2	Cruise	: BORD-EST3
Date	: 12-05-89	Ship	: Le Noroit
Bottom depth	: 4820 m	Institute	: Ifremer
Position	: N 37 0.03 W 11 20.56		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
2493.0	35.014	5.74		19.7	1.34	27.9
2995.0	34.947	5.71		20.5	1.42	36.6
3497.0	34.919	5.71		21.1	1.47	42.7
3999.0	34.898	5.66		21.6	1.55	50.6
4501.0	34.894	5.64		21.9	1.59	51.7
4852.0	34.898	5.38	d	21.8	1.54	48.6

Station : 3	Cruise : BORD-EST3
Date : 12-05-89	Ship : Le Noroit
Bottom depth: 2325 m	Institute: Ifremer
Position : N 36 48.66 W 11 21.41	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.256	5.68		0.2	0.06	1.9
95.0	36.128	5.52		2.3	0.17	0.9
195.0	35.890	4.98		8.3	0.52	3.4
344.0	35.655	4.92		12.4	0.73	5.9
394.0	35.680	4.63		13.9	0.81	7.4
493.0	35.710	4.47		15.3	0.90	8.9
742.0	36.074	4.10	d	15.2	0.93	7.8
942.0	36.237	4.28		15.2	0.90	8.6
1141.0	36.308	4.01	d	15.4	0.91	9.3
1241.0	36.285	4.37		15.7	0.92	11.3
1491.0	35.711	4.88		17.7	1.11	12.8
1742.0	35.346	5.35		18.7	1.22	15.9
1993.0	35.187	5.55		19.2	1.28	19.1
2294.0	35.062	5.70		20.0	1.34	30.2

Station : 4	Cruise : BORD-EST3
Date : 13-05-89	Ship : Le Noroit
Bottom depth: 2000 m	Institute: Ifremer
Position : N 36 32.48 W 11 16.27	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
12.0	36.257	5.71	d	0.1	0.02	3.2
98.0	36.176	5.56		1.6	0.12	3.4
194.0	35.933	4.95		7.9	0.44	2.3
343.0	35.688	4.78		12.5	0.71	4.5
493.0	35.719	4.52		14.6	0.86	8.3
742.0	36.039	4.27		15.2	0.91	7.7
991.0	36.185	4.23		15.8	0.93	9.3
1038.0	36.211	4.23		15.7	0.92	9.9
1111.0	36.286	4.28		15.5	1.32	10.0
1241.0	36.202	4.37		15.8	0.96	10.4
1491.0	35.815	4.74		17.3	1.10	13.9
1992.0	35.197	5.55		18.9	1.23	18.7
2053.0	35.130	5.62		19.2	1.26	21.8

Station	: 5	Cruise	: BORD-EST3
Date	: 13-05-89	Ship	: Le Noroit
Bottom depth: 3780 m		Institute: Ifremer	
Position	: N 36 19.29 W 11 9.15		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
8.0	36.225	5.69	d	0.0	0.11	0.4
94.0	36.218	5.49		1.6	0.10	0.5
195.0	35.938	4.97		7.6	0.43	2.9
344.0	35.656	4.79		12.7	0.75	4.4
472.0	35.622	4.51	d	14.4	0.88	5.6
741.0	35.936 d	4.25		15.9	0.96	8.2
971.0	36.189	4.20		15.5	0.92	9.0
1241.0	36.254	4.38		15.6	0.92	10.9
1491.0	35.708	4.87		17.8	1.12	13.5
1992.0	35.134	5.62		19.3	1.28	20.6
2493.0	35.002	5.66		20.4	1.39	29.7
2996.0	34.948	5.68		21.0	1.45	36.6
3297.0	34.922			21.4	1.48	40.7
3397.0	34.920	5.60		21.5	1.50	43.6
3497.0	34.916	5.55		21.9	1.51	44.9
3827.0	34.908	5.59		21.9	1.52	45.6

Station	: 6	Cruise	: BORD-EST3
Date	: 13-05-89	Ship	: Le Noroit
Bottom depth: 4810 m		Institute: Ifremer	
Position	: N 36 5.65 W 11 2.47		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
15.0	36.321	5.65	d	0.2	0.02	0.9
97.0	36.274	5.46		1.4	0.09	1.3
194.0	35.910	4.92		8.1	0.48	2.7
345.0	35.664	4.89		12.1	0.72	7.0
497.0	35.589	4.71		14.5	0.86	5.6
745.0	35.927	4.22		16.2	0.98	8.6
994.0	35.947	4.21		17.3	1.06	11.3
1244.0	36.166	4.37		16.1	0.97	10.5
1495.0	35.754	4.81		17.6	1.10	14.0
1993.0	35.153	5.61		19.1	1.26	20.9
2495.0	35.004	5.73		20.1	1.37	29.1
2995.0	34.949	5.67		20.9	1.44	36.5
3498.0	34.917	5.62		21.6	1.50	42.5
3998.0	34.904	5.56		22.0	1.58	46.6
4405.0	34.901	5.54		22.1	1.58	47.4
4883.0	34.902	5.55		22.1	1.62	47.7

Station	: 7	Cruise	: BORD-EST3
Date	: 13-05-89	Ship	: Le Noroit
Bottom depth	: 4820 m	Institute	: Ifremer
Position	: N 35 50.03 W 10 54.05		

PRESSURE CHEM. dbar	SALINITY CHEM.		OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.222		5.21		0.0	0.01	0.8
75.0	36.302		5.50		0.7	0.06	0.6
194.0	36.071		5.21	d	4.7	0.28	2.0
344.0	35.696		4.66	d	12.3	0.71	4.1
493.0	35.652		4.51		14.9	0.88	6.3
740.0	35.974		4.24		15.7	0.93	8.2
992.0	36.224		4.26		15.2	0.89	8.9
1241.0	36.114	d	4.43		16.2	1.00	10.9
1492.0	35.637		4.95		17.7	1.12	13.9
1994.0	35.156		5.60		18.9	1.25	20.4
2493.0	35.011		5.71		19.9	1.38	29.7
2996.0	34.948		5.44	d	20.7	1.43	37.4
3497.0	34.915		5.62		21.4	1.49	42.8
3998.0	34.903		5.55		21.8	1.54	47.1
4461.0	34.899		5.53		21.9	1.54	47.6
4937.0	34.900		5.54		21.9	1.55	48.8

Station	: 8	Cruise	: BORD-EST3
Date	: 13-05-89	Ship	: Le Noroit
Bottom depth	: 4750 m	Institute	: Ifremer
Position	: N 35 50.07 W 10 26.77		

PRESSURE CHEM. dbar	SALINITY CHEM.		OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.402		5.55	d	0.2	0.03	0.2
96.0	36.282		5.41		1.5	0.11	1.0
195.0	35.920		4.90		8.2	0.53	3.1
344.0	35.685		4.73		12.6	0.74	4.2
493.0	35.571		4.61		14.9	0.89	5.7
793.0	35.894		4.17		16.6	1.01	8.8
992.0	35.885		4.12		18.1	1.12	11.3
1243.0	36.239		4.34		15.8	0.96	11.6
1495.0	35.733		4.81		17.7	1.13	13.6
1990.0	35.189		5.55		19.2	1.26	20.1
2495.0	35.011		5.69		20.2	1.37	29.0
2995.0	34.950		5.67		21.0	1.44	36.5
3497.0	34.921		5.60		21.8	1.50	43.5
3998.0	34.905		5.55		22.3	1.55	48.0
4503.0	34.900		5.53		22.3	1.59	48.4
4842.0	34.902		5.53		22.3	1.59	48.0

Station	: 9	Cruise	: BORD-EST3
Date	: 14-05-89	Ship	: Le Noroit
Bottom depth: 4570 m		Institute: Ifremer	
Position	: N 35 49.90 W 10 0.11		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.387	5.34	0.0	0.01	0.0
95.0	36.368	5.33	1.3	0.07	0.6
195.0	36.035 d	4.91	6.7	0.38	1.9
344.0	35.745	4.81	11.0	0.64	4.5
493.0	35.592	4.68	14.0	0.83	5.1
594.0	35.560	4.43	16.0	1.01	6.7
992.0	35.952	4.15	17.1	1.07	10.6
1243.0	36.089	4.36	16.4	1.00	10.4
1485.0	35.738 d	4.79	17.5	1.11	13.2
1993.0	35.209	5.55	18.5	1.22	17.5
2494.0	35.023	5.69	19.7	1.36	27.0
2996.0	34.960	5.66	20.7	1.43	35.5
3498.0	34.924	5.60	21.3	1.50	42.0
3999.0	34.901	5.51	21.7	1.54	46.4
4501.0	34.902	5.48	21.8	1.53	46.7
4660.0	34.899	5.56	21.7	1.53	47.4

Station	: 10	Cruise	: BORD-EST3
Date	: 14-05-89	Ship	: Le Noroit
Bottom depth: 4280 m		Institute: Ifremer	
Position	: N 35 50.11 W 9 30.19		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.401	5.59 d	0.0	0.01	0.3
95.0	36.365	5.47 d	0.6	0.07	0.6
194.0	36.065	4.83	7.0	0.39	2.5
343.0	35.729	4.75	11.8	0.67	4.0
493.0	35.586	4.56	14.9	0.88	6.0
595.0	35.592	4.28	16.6	1.00	7.4
742.0	35.701	4.05	17.8	1.10	9.7
992.0	36.048	4.16	16.6	1.01	9.9
1243.0	36.221	4.32	15.8	0.94	9.9
1492.0	35.769	4.68	17.5	1.10	13.4
1991.0	35.239	5.38	18.9	1.26	19.7
2495.0	35.031	5.65	19.7	1.36	27.3
2995.0	34.958	5.65	20.6	1.44	34.7
3498.0	34.920	5.59	21.3	1.51	42.2
3999.0	34.904	5.57	21.7	1.53	46.3
4345.0	34.899	5.56	21.9	1.56	48.0

Station	: 11	Cruise	: BORD-EST3
Date	: 14-05-89	Ship	: Le Noroit
Bottom depth	: 3515 m	Institute	: Ifremer
Position	: N 35 49.93 W 9 0.04		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.399	5.57		0.0	0.01	1.1
95.0	36.320	5.39		1.4	0.14	0.6
194.0	36.015	4.85		7.5	0.43	2.4
345.0	35.723	4.76		11.9	0.69	4.0
494.0	35.594	4.60		14.8	0.86	5.7
742.0	35.751	4.02		18.1	1.13	11.0
992.0	35.998	4.10		17.3	1.06	10.8
1242.0	36.145	4.29		16.6	1.00	11.2
1491.0	35.755	4.74		17.8	1.12	14.1
1993.0	35.217	5.44		19.4	1.27	20.2
2495.0	35.017	5.64		20.4	1.40	29.1
2997.0	34.954	5.61		21.1	1.46	37.6
3498.0	34.918	5.58		21.9	1.51	43.9
3567.0	34.910	5.56		22.0	1.53	45.1

Station	: 12	Cruise	: BORD-EST3
Date	: 14-05-89	Ship	: Le Noroit
Bottom depth	: 3040 m	Institute	: Ifremer
Position	: N 36 13.68 W 9 0.04		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.377	5.46		0.0	0.02	0.2
95.0	36.329	3.54	d	0.9	0.09	0.5
194.0	35.932	4.41	d	8.3	0.50	3.2
343.0	35.693	3.23	d	12.0	0.71	4.5
493.0	35.581	4.22	d	15.7	0.96	7.1
642.0	35.654	3.53	d	17.4	1.08	9.0
742.0	35.617	3.35	d	19.7	1.40	11.8
1242.0	36.244	3.95	d	15.9	0.98	10.8
1472.0	36.151 d	3.00	d	15.9	0.99	11.4
2494.0	35.028	5.06	d	20.1	1.39	27.3
2996.0	34.959	5.52		21.0	1.44	35.6
3057.0	34.948	5.46		21.1	1.47	36.6

Station	: 13	Cruise	: BORD-EST3
Date	: 14-05-89	Ship	: Le Noroit
Bottom depth: 2450 m		Institute:	Ifremer
Position	: N 36 24.03 W 9 0.11		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.346	5.70	0.0	0.01	0.3
94.0	36.295	5.62	0.2	0.05	0.5
195.0	35.947	4.88	7.9	0.48	2.7
344.0	35.716	4.76	11.8	0.69	4.2
493.0	35.580	4.70	14.4	0.86	5.8
742.0	35.721	4.07	17.6	1.09	10.3
992.0	36.011	4.16	16.8	1.03	10.9
1241.0	36.164 d	4.26	16.4	1.05	10.8
1493.0	35.804	4.65	17.8	1.20	13.8
1992.0	35.270	5.36	19.2	1.27	19.3
2397.0	35.097	5.56	19.9	1.36	25.8

Station	: 14	Cruise	: BORD-EST3
Date	: 15-05-89	Ship	: Le Noroit
Bottom depth: 1490 m		Institute:	Ifremer
Position	: N 36 35.46 W 9 0.26		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.376	5.64	0.0	0.03	0.6
95.0	36.292	5.59	0.4	0.05	1.0
187.0	36.030 d	4.95	6.8	0.38	2.2
344.0	35.712	4.81	11.9	0.68	3.8
493.0	35.589	4.62	14.9	0.87	5.6
742.0 d	36.126 d		14.6	0.84	7.3
993.0	36.285	4.26	15.1	0.88	8.2
1241.0	36.505	4.29	14.1	0.80	7.7
1713.0	36.038	4.73	16.4	1.01	13.2

Station	: 15	Cruise	: BORD-EST3
Date	: 15-05-89	Ship	: Le Noroit
Bottom depth:	490 m	Institute:	Ifremer
Position	: N 36 46.63 W 9 0.00		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.405	5.65	0.1	0.01	0.5
95.0	36.292 d	5.47	2.7	0.17	1.4
195.0	35.892	4.94	7.9	0.45	2.4
345.0	35.675	4.62	12.4	0.72	4.1
471.0	36.129	4.60	13.3	0.79	4.9

Station	: 16	Cruise	: BORD-EST3
Date	: 15-05-89	Ship	: Le Noroit
Bottom depth:	500 m	Institute:	Ifremer
Position	: N 37 17.43 W 9 15.40		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.075		0.1	0.01	0.5
95.0	36.060	5.51	2.7	0.17	1.4
194.0	35.895	5.05	7.9	0.45	2.4
343.0	35.696	4.77	12.4	0.72	4.1
467.0	35.704	4.68	13.4	0.79	4.9

Station : 17	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 1125 m	Institute: Ifremer
Position : N 37 17.82 W 9 26.91	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
11.0	36.310	5.62	0.0	0.05	0.5
95.0	36.295	5.44	1.4	0.10	1.3
194.0	35.879	5.00	7.9	0.47	2.4
268.0	35.716	4.85	11.4	0.67	4.1
343.0	35.620	4.83	12.8	0.76	4.9
418.0	35.588	4.68	14.0	0.83	5.4
493.0	35.579	4.59	15.9	0.94	6.9
618.0	35.853 d	4.28 d	15.5	0.93	7.4
715.0	35.956	4.24	15.8	0.96	8.4
938.0	36.416	4.36	13.4	0.77	7.2
1129.0	36.573 d	4.40	12.6	0.71	6.8

Station : 18	Cruise : BORD-EST3
Date : 15-05-89	Ship : Le Noroit
Bottom depth: 2380 m	Institute: Ifremer
Position : N 37 17.86 W 9 39.49	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.385	5.59	0.0	0.02	0.1
94.0	36.294	5.44	1.3	0.10	0.7
194.0	35.884	4.88	8.6	0.48	2.4
343.0	35.676	4.92	11.6	0.65	3.8
493.0	35.568	4.60	15.1	0.87	5.5
742.0	35.806	4.17	16.8	1.00	8.3
867.0	35.875	4.16	17.1	1.03	9.4
992.0	35.997	4.15	17.0	1.01	10.1
1230.0	36.584	4.34	13.5	0.76	7.8
1491.0	36.361 d	4.44	14.9	0.87	10.4
1979.0	35.269	5.39	18.9	1.21	18.1
2585.0	35.017	5.62 d	20.2	1.36	29.0

Station	: 19	Cruise	: BORD-EST3
Date	: 15-05-89	Ship	: Le Noroit
Bottom depth	: 3545 m	Institute	: Ifremer
Position	: N 37 17.72 W 9 51.31		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.357	5.64	0.0	0.02	0.4
94.0	36.253	5.39	1.9	0.20	1.3
193.0	35.836	5.01	8.2	0.48	2.6
344.0	35.656	4.93	11.9	0.69	4.0
493.0	35.583	4.63	14.9	0.88	5.8
743.0	35.803	4.17	16.8	1.06	8.9
892.0	35.878	4.17	17.3	1.07	10.4
1292.0	36.517	4.35	14.0	0.82	9.4
1591.0	35.647	4.91	17.9	1.14	14.4
1993.0 d	36.247 d	5.48	2.2	0.15	1.3
2494.0	35.040	5.63	20.0	1.36	27.9
2995.0	34.967	5.64	20.7	1.41	34.2
3593.0	34.923	5.61	21.5	1.50	43.0

Station	: 20	Cruise	: BORD-EST3
Date	: 15-05-89	Ship	: Le Noroit
Bottom depth	: 3790 m	Institute	: Ifremer
Position	: N 37 18.64 W 10 8.13		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.309	5.64	0.0	0.03	0.3
94.0	36.219 d	5.54	1.4	0.14	1.5
195.0	36.000 d	5.08	6.3	0.37	2.3
345.0	35.696	4.82	11.7	0.69	4.1
496.0	35.648	4.58	14.5	0.86	5.9
745.0	36.050		15.1	0.90	8.2
868.0	36.152	4.26	15.2	0.92	9.1
993.0	36.163 d	4.24	15.6	0.92	9.3
1191.0	36.282	4.30	15.2	0.91	9.5
1650.0	35.897 d	4.69 d	16.7	1.07	12.2
1991.0	35.195	5.55	18.8	1.25	19.1
2494.0	35.012	5.66	19.8	1.35	27.8
2995.0	34.946	5.66	20.7	1.43	35.8
3496.0	34.907	5.60	21.4	1.50	42.9
3808.0	34.897	5.62	21.6	1.51	44.7

Station : 21	Cruise : BORD-EST3
Date : 16-05-89	Ship : Le Noroit
Bottom depth: 4335 m	Institute: Ifremer
Position : N 37 17.58 W 10 44.33	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.177	5.73	0.1	0.05	0.9
94.0	36.120	5.50	2.4	0.15	1.1
195.0	35.920	4.95	7.9	0.45	2.7
343.0	35.696	4.69	13.1	0.76	5.3
492.0	35.801	4.40	15.0	0.89	6.9
742.0	36.096	4.26	15.2	0.89	8.2
990.0	36.294	4.28	15.0	0.87	9.3
1241.0	36.158	4.44	15.7	0.93	10.3
1491.0	35.647	4.96	17.6	1.10	13.2
1993.0	35.129	5.70	18.8	1.22	19.0
2495.0	34.993	5.77	19.8	1.32	28.2
2995.0	34.943	5.70	20.8	1.41	36.4
3497.0	34.913	5.65	21.4	1.46	41.9
3998.0	34.902	5.63	21.8	1.52	45.9
4389.0	34.900	5.64	21.9	1.51	45.9
4390.0	34.901	5.64	21.8	1.50	45.8

Station : 22	Cruise : BORD-EST3
Date : 16-05-89	Ship : Le Noroit
Bottom depth: 5070 m	Institute: Ifremer
Position : N 37 17.44 W 11 20.30	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.060	5.79	0.1	0.01	0.8
95.0	36.068 d	5.54	1.8	0.15	1.2
194.0	35.806 d	4.99	8.5	0.49	3.0
344.0	35.652	4.78	12.8	0.76	4.5
493.0	35.595	4.80	13.8	0.82	5.5
742.0	36.037	4.27	14.8	0.88	7.8
992.0	36.251	4.27	14.7	0.88	8.4
1241.0	36.164	4.39	15.8	0.94	9.9
1493.0	35.830	4.76	16.9	1.07	12.5
1993.0	35.165	5.63	19.0	1.26	20.0
2495.0	35.002	5.75	19.9	1.35	28.8
2997.0	34.948	5.71	20.7	1.42	35.8
3498.0	34.921	5.69	21.2	1.47	41.7
4000.0	34.906	5.64	21.6	1.51	45.1
4500.0	34.899	5.63	21.8	1.52	46.7
5188.0	34.898	5.61	21.8	1.53	47.3

Station	: 23	Cruise	: BORD-EST3
Date	: 16-05-89	Ship	: Le Noroit
Bottom depth	: 5060 m	Institute	: Ifremer
Position	: N 37 17.78 W 11 56.39		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.249	5.69		0.0	0.00	0.8
95.0	36.208	5.51		1.6	0.10	1.5
194.0	35.945	4.92	d	7.6	0.42	2.6
343.0	35.675	4.74		12.6	0.81	4.5
395.0	35.634	4.61		14.0	0.81	5.4
632.0	36.255	4.51		11.5	0.63	5.4
990.0	36.221	4.26		14.7	0.87	8.7
1291.0	36.306	4.28		14.9	0.87	9.3
1492.0	36.133	4.46	d	15.9	0.94	10.6
1993.0	35.226	5.53		18.4	1.20	17.0
2494.0	35.031	5.73		19.3	1.29	24.9
2997.0	34.958	5.73		20.2	1.37	33.2
3998.0	34.906	5.62		21.4	1.49	44.3
4501.0	34.899	5.61		21.5	1.50	46.2
5153.0	34.898	5.59		21.7	1.51	46.5

Station	: 24	Cruise	: BORD-EST3
Date	: 16-05-89	Ship	: Le Noroit
Bottom depth	: 5053 m	Institute	: Ifremer
Position	: N 37 17.73 W 12 30.36		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l

Station	: 25	Cruise	: BORD-EST3
Date	: 17-05-89	Ship	: Le Noroit
Bottom depth: 4953 m		Institute: Ifremer	
Position	: N 37 51.10 W 12 30.09		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.260	5.63	0.0	0.01	0.5
95.0	36.237	5.54	1.3	0.09	1.4
194.0	36.090	5.34	3.7	0.23	1.5
344.0	35.706	4.81	11.5	0.66	3.9
493.0	35.617	4.66	14.1	0.82	5.6
741.0	35.872	4.17	16.2	0.98	8.5
991.0	36.079	4.22	15.8	0.97	9.2
1191.0	36.184	4.31	15.6	0.92	9.8
1491.0	35.836	4.69	17.0	1.06	12.8
1992.0	35.169	5.61	18.5	1.22	18.2
2494.0	35.020	5.70	19.6	1.32	26.8
3497.0	34.924	5.65	21.0	1.46	40.9
3999.0	34.907	5.63	21.4	1.50	44.6
4501.0	34.899	5.62	21.6	1.52	46.4

Station	: 26	Cruise	: BORD-EST3
Date	: 17-05-89	Ship	: Le Noroit
Bottom depth: 4830 m		Institute: Ifremer	
Position	: N 38 26.01 W 12 30.52		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.047	5.79		0.1	0.00	0.5
95.0	36.033	5.55		2.4	0.14	1.0
192.0	35.867	5.13	d	7.0	0.40	2.2
344.0	35.647	4.96		11.9	0.68	3.9
488.0	35.597	4.83		13.7	0.79	5.2
744.0	35.947	4.28		15.4	0.89	7.6
893.0	36.063	4.23		15.5	0.90	8.3
1292.0	36.251	4.34		15.5	0.90	9.7
1492.0	35.861	4.74		16.6	1.02	11.6
1992.0	35.095	5.74				
2493.0	34.990	5.79		19.6	1.32	27.2
2996.0	34.944	5.71		20.6	1.42	35.4
3497.0	34.921	5.61		21.1	1.46	40.5
4000.0	34.907	5.62		21.6	1.50	44.5
4499.0	34.900	5.62		21.8	1.51	46.2
4943.0	34.897	5.58		21.6	1.51	46.5

Station : 27	Cruise : BORD-EST3
Date : 17-05-89	Ship : Le Noroit
Bottom depth: 3880 m	Institute: Ifremer
Position : N 38 59.89 W 12 30.03	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.011	5.81	0.0	0.00	0.8
97.0	35.976	5.64	2.0	0.13	1.2
194.0	35.784	5.07	8.7	0.54	3.3
343.0	35.612	5.08	12.0	0.74	4.1
443.0	35.548	5.11	12.9	0.80	4.7
743.0	35.816	4.36	15.9	1.12	8.0
991.0	36.136	4.25	15.8	0.99	9.1
1242.0	36.264	4.36	15.6	0.99	10.1
1492.0	35.485	5.20	17.9	1.20	12.7
1993.0	35.113	5.77	18.8	1.31	17.8
2495.0	34.984	5.84	19.9	1.43	27.5
2995.0	34.941	5.75	20.8	1.53	35.5
3245.0	34.930	5.71	21.2	1.56	38.4
3498.0	34.920	5.69	21.4	1.58	41.4
3699.0	34.913	5.67	21.6	1.60	43.0
3927.0	34.910	5.66	21.8	1.68	44.0

Station : 28	Cruise : BORD-EST3
Date : 18-05-89	Ship : Le Noroit
Bottom depth: 3910 m	Institute: Ifremer
Position : N 39 29.98 W 12 30.07	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	35.911	5.82		0.0	0.01	0.6
95.0	35.921	5.64		2.2	0.17	0.9
194.0	35.725	5.01		9.8	0.60	3.1
338.0	35.584	5.19		11.4	0.74	4.4
493.0	35.545	4.95	d	13.6	0.87	5.5
742.0	35.894	4.33		15.3	1.00	7.8
991.0	36.048	4.28		15.7	1.02	9.4
1243.0	36.096	4.46		15.7	1.02	10.1
1493.0	35.704	4.94		16.9	1.15	12.0
1992.0	35.094	5.77		18.6	1.31	19.2
2494.0	34.980	5.85		19.5	1.46	27.5
2996.0	34.933			20.3	1.51	35.4
3497.0	34.919	5.69		21.0	1.58	40.6
3999.0	34.903	5.64		21.4	1.62	44.8
4066.0	34.906	5.66		21.5	1.62	45.0
4066.0	34.904	5.67		21.5	1.62	44.8

Station	: 29	Cruise	: BORD-EST3
Date	: 18-05-89	Ship	: Le Noroit
Bottom depth: 5185 m		Institute:	Ifremer
Position	: N 40 0.58 W 12 30.63		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	35.999	5.87	0.0	0.01	0.8
94.0	35.960	5.62	2.1	0.14	1.1
194.0	35.800	5.16	7.6	0.46	2.6
343.0	35.628	4.96	12.3	0.77	4.3
443.0	35.590	4.93	13.2	0.83	4.9
742.0	36.085	4.34	14.3	0.90	7.1
992.0	36.193	4.29	14.7	0.93	8.1
1191.0	36.258	4.30	15.1	0.96	9.0
1490.0	35.798 d	4.79	16.8	1.36	11.3
1992.0	35.157	5.71	18.2	1.29	16.6
2494.0	35.001	5.85	19.2	1.42	24.8
2996.0	34.957	5.73	20.3	1.54	33.7
3498.0	34.932	5.70	20.8	1.57	38.6
4000.0	34.916	5.67	21.4	1.61	42.9
4498.0	34.905	5.67	21.6	1.64	45.4
5304.0	34.901	5.67	21.7	1.65	46.5

Station	: 30	Cruise	: BORD-EST3
Date	: 18-05-89	Ship	: Le Noroit
Bottom depth: 5115 m		Institute:	Ifremer
Position	: N 40 0.00 W 11 51.54		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	35.974	5.81	0.1	0.01	0.6
94.0	35.916	5.60	2.7	0.17	1.0
191.0	35.741	5.05	9.5	0.58	3.2
343.0	35.625	5.02	12.0	0.74	3.9
493.0	35.582		13.8	0.87	5.1
743.0	35.913	4.30	15.2	0.97	7.4
992.0	36.182	4.24	14.9	0.93	8.3
1191.0	36.217 d	4.28	15.4	0.98	9.4
1491.0	35.726	4.86	17.0	1.13	11.7
1993.0	35.108	5.74	18.2	1.29	16.8
2494.0	35.005	5.74	19.4	1.42	26.5
2996.0	34.953	5.72	20.2	1.48	33.4
3497.0	34.917	5.40 d	20.9	1.55	39.5
3999.0	34.917	5.59	21.3	1.60	43.0
4501.0	34.903	5.59	21.5	1.61	45.3
5234.0	34.903	5.60	21.5	1.62	45.9

Station	: 31	Cruise	: BORD-EST3
Date	: 18-05-89	Ship	: Le Noroit
Bottom depth	: 4835 m	Institute	: Ifremer
Position	: N 40 0.14 W 11 12.03		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	35.961	5.78	0.1	0.01	0.8
95.0	35.945	5.61	1.9	0.17	0.9
195.0	35.784	5.18	8.0	0.50	2.7
344.0	35.628	5.12	11.4	0.69	4.4
444.0	35.566	5.09	12.4	0.77	4.5
743.0	35.797	4.29	16.0	1.03	8.2
992.0	36.116	4.25	15.5	0.99	9.3
1192.0	36.085	4.36	16.1	1.03	10.0
1491.0	35.660	4.95	17.3	1.17	12.6
1993.0	35.090	5.75	18.7	1.32	19.7
2495.0	34.993	5.71	19.9	1.44	28.9
2997.0	34.964 d	5.68	20.6	1.55	35.9
3499.0	34.928	5.63	21.1	1.57	40.7
3999.0	34.914		21.5	1.63	44.3
4500.0	34.902	5.59	21.7	1.62	46.0
4904.0	34.900	5.59	21.8	1.67	46.7

Station	: 32	Cruise	: BORD-EST3
Date	: 19-05-89	Ship	: Le Noroit
Bottom depth	: 4760 m	Institute	: Ifremer
Position	: N 39 59.97 W 10 42.37		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.924	5.82	0.0	0.01	1.1
95.0	35.847	5.66	2.5	0.17	1.3
193.0	35.755	5.13	8.5	0.51	2.8
344.0	35.599	5.11	11.6	0.72	3.9
493.0	35.536	5.04	13.0	0.82	4.9
742.0	35.766	4.31	15.9	1.03	8.0
992.0	36.167	4.21	15.0	0.96	8.8
1242.0	36.232	4.32	15.3	0.98	9.6
1491.0	35.688 d	4.90	17.0	1.15	12.0
1992.0	35.104	5.57 d	18.4	1.31	18.3
2494.0	35.000	5.70	19.6	1.45	27.9
2996.0	34.949	5.70	20.3	1.53	34.8
3456.0	34.918	5.62	21.0	1.60	40.4
4000.0	34.902	5.60	21.5	1.64	44.4
4501.0	34.900	5.76 d	21.6	1.64	45.8
4860.0	34.900	5.59	21.7	1.66	46.3

Station	: 33	Cruise	: BORD-EST3
Date	: 19-05-89	Ship	: Le Noroit
Bottom depth: 3960 m		Institute:	Ifremer
Position	: N 39 59.93 W 10 16.90		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.975			0.1	0.01	0.7
94.0	35.896	5.60		2.7	0.16	1.0
195.0	35.726	5.00		10.0	0.62	3.1
344.0	35.592	5.02		12.4	0.78	4.2
394.0	35.575	4.97	d	13.1	0.82	4.9
742.0	36.099	4.31		14.5	0.92	7.9
990.0	36.262	4.26		14.7	0.92	8.7
1191.0	36.353	4.26		14.8	0.93	9.2
1487.0	35.981	4.63	d	16.4	1.08	11.5
1992.0	35.156	5.67		18.4	1.31	17.2
2493.0	35.009	5.76		19.5	1.44	26.3
2996.0	34.954	5.67		20.5	1.53	34.7
3497.0	34.924	5.62	d	21.2	1.60	41.2
4004.0	34.906	5.84		21.6	1.65	44.8

Station	: 34	Cruise	: BORD-EST3
Date	: 19-05-89	Ship	: Le Noroit
Bottom depth: 2840 m		Institute:	Ifremer
Position	: N 40 0.10 W 10 3.30		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	36.012	d 5.78	d	0.0		0.7
94.0	35.981	5.55		2.5		1.2
194.0	35.741	4.94		10.2		3.3
344.0	35.578	4.96		12.7		4.8
394.0	35.577	4.89		13.4		5.0
720.0	36.124	4.31		14.2	0.92	7.5
890.0	36.147	4.24		14.9	0.97	8.6
1043.0	36.265	4.24		14.8	0.96	8.9
1292.0	36.472	4.30		13.8	0.89	8.5
1392.0	36.554	4.30		13.5	0.86	8.6
2096.0	35.149	5.62		18.5	1.36	19.4

Station	: 35	Cruise	: BORD-EST3
Date	: 19-05-89	Ship	: Le Noroit
Bottom depth: 1480 m		Institute:	Ifremer
Position	: N 40 0.97 W 9 51.13		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	36.005 d	5.77	0.0	0.01	0.5
95.0	35.958	5.43	3.5	0.21	0.9
194.0	35.710	4.94	10.5	0.60	2.8
343.0	35.611	4.85	13.1	0.76	4.0
493.0	35.725	4.45	15.0	0.89	5.8
742.0	36.056	4.24	14.9	0.88	6.8
992.0	36.203	4.24	15.0	0.89	10.0
1241.0	36.354	4.28	14.6	0.87	9.9
1577.0	36.087 d	4.52	15.9	0.98	11.7

Station	: 36	Cruise	: BORD-EST3
Date	: 19-05-89	Ship	: Le Noroit
Bottom depth: 635 m		Institute:	Ifremer
Position	: N 39 58.93 W 9 43.08		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.854	5.94	0.1	0.02	0.7
95.0	35.947	5.57	2.6	0.18	1.2
195.0	35.792	4.99	9.1	0.53	3.1
343.0	35.640	4.81	13.0	0.77	4.8
492.0	35.764	4.44	15.0	0.90	6.8
634.0	35.973	4.28	14.9	0.89	7.7

Station : 37	Cruise : BORD-EST3
Date : 20-05-89	Ship : Le Noroit
Bottom depth: 5185 m	Institute: Ifremer
Position : N 39 59.90 W 12 30.12	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.990	6.21	d	0.0	0.01	1.0
95.0	35.978	5.59		2.0	0.13	1.3
195.0	35.764	5.05		8.9	0.52	3.1
343.0	35.613	4.96		12.2	0.72	4.4
444.0	35.584	4.81		14.0	0.84	5.6
743.0	36.021	4.30		14.7	0.87	7.3
991.0	36.194	4.25		14.9	0.89	8.3
1242.0	36.243	4.29		15.4	0.92	9.1
1492.0	35.932	4.69		16.7	1.05	11.2
1993.0	35.152	5.66		18.3	1.22	17.0
2494.0	34.997	5.82		19.2	1.31	24.6
2997.0	34.953	5.72		20.3	1.42	33.5
3499.0	34.927	5.63		20.9	1.47	39.6
3998.0	34.909	5.63		21.5	1.50	43.3
4499.0	34.902	5.62		21.8	1.52	45.8
5297.0	34.896	5.64		21.8	1.54	46.7

Station : 38	Cruise : BORD-EST3
Date : 20-05-89	Ship : Le Noroit
Bottom depth: 5240 m	Institute: Ifremer
Position : N 40 30.13 W 12 35.12	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.984	5.78	0.0	0.01	0.9
94.0	35.946	5.58	2.0	0.13	1.2
194.0	35.754	5.03	9.1	0.52	3.3
294.0	35.642	4.98	11.3	0.67	4.4
4499.0	34.901	5.62	21.4	1.50	45.6
5361.0	34.897	5.63	21.6	1.51	46.7

Station	: 39	Cruise	: BORD-EST3
Date	: 20-05-89	Ship	: Le Noroit
Bottom depth	: 5270 m	Institute	: Ifremer
Position	: N 40 59.83 W 12 40.26		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
2494.0	34.991	5.86	19.1	1.29	24.7
2996.0	34.946	5.75	20.1	1.40	33.4
3498.0	34.928	5.67	20.8	1.46	38.5
4000.0	34.911	5.63	21.5	1.50	43.2
4501.0	34.901	5.63	21.7	1.52	45.4
5387.0	34.897	5.62	21.8	1.54	46.3

Station	: 40	Cruise	: BORD-EST3
Date	: 21-05-89	Ship	: Le Noroit
Bottom depth	: 5257 m	Institute	: Ifremer
Position	: N 41 30.06 W 12 44.73		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.871	5.86		0.0	0.02	0.9
95.0	35.797	5.68		2.9	0.20	1.1
195.0	35.733	5.58	d	5.5	0.33	1.7
343.0	35.566	5.17		12.0	0.71	4.3
492.0	35.517	5.06		13.4	0.81	5.2
743.0	35.830	4.28		16.0	0.97	8.2
941.0	35.852	4.26		17.0	1.04	9.8
1142.0	36.058	4.36		16.2	0.98	9.9
1492.0	35.569	5.07		17.3	1.10	12.3
1989.0	35.028	5.91		18.3	1.22	17.5
2493.0	34.978	5.82		19.4	1.34	26.6
2995.0	34.942	5.73		20.3	1.40	34.0
3498.0	34.926	5.66		21.2	1.45	39.5
3999.0	34.912	5.62		21.6	1.50	43.3
4499.0	34.901	5.63		21.8	1.53	45.3
5385.0	34.897	5.63		21.9	1.54	46.5

Station	: 41	Cruise	: BORD-EST3
Date	: 21-05-89	Ship	: Le Noroit
Bottom depth: 5240 m		Institute:	Ifremer
Position	: N 41 59.93 W 12 50.15		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0	35.819	5.89		0.0	0.03	0.9
96.0	35.734	5.74		4.1	0.26	1.3
194.0	35.666	5.68		6.2	0.37	2.0
343.0	35.564	5.21		11.6	0.68	4.0
493.0	35.550	4.97	d	13.4	0.79	5.4
742.0	35.690	4.38		16.3	0.99	8.4
992.0	35.864	d 4.30		16.8	1.02	10.0
1242.0	35.816	4.62		16.9	1.05	11.1
1493.0	35.234	5.47		17.9	1.16	12.8
1993.0	35.015	5.94		18.2	1.20	17.0
2495.0	34.982	5.81		19.5	1.31	27.0
2996.0	34.950	5.72		20.3	1.40	34.6
3498.0	34.926	5.66		21.1	1.46	40.0
3998.0	34.911	5.61		21.5	1.50	43.9
4500.0	34.904	5.61		21.8	1.53	46.0
5366.0	34.899	5.61		21.7	1.53	47.0

Station	: 42	Cruise	: BORD-EST3
Date	: 21-05-89	Ship	: Le Noroit
Bottom depth: 5260 m		Institute:	Ifremer
Position	: N 42 29.99 W 12 55.04		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.844	5.90	0.2	0.05	1.4
95.0	35.756	5.71	3.7	0.28	1.6
194.0	35.664	5.48	7.7	0.46	3.3
344.0	35.563	5.23	11.6	0.70	4.5
492.0	35.511	5.09	13.6	0.82	5.9
740.0	35.724	4.36	16.3	0.98	8.7
992.0	35.920	4.30	16.9	1.02	10.5
1240.0	35.767	4.65	17.4	1.07	11.7
1492.0	35.312	5.36	18.0	1.16	13.1
1991.0	35.022	5.91	18.5	1.22	17.6
2491.0	34.978	5.81	19.7	1.31	27.1
2994.0	34.945	5.70	20.6	1.41	34.8
3497.0	34.924	5.63	21.3	1.47	40.5
4000.0	34.911	5.59	21.7	1.51	44.3
4494.0	34.895		21.8	1.52	46.3
5374.0	34.893	5.60	21.9	1.53	47.1

Station	: 43	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth: 5100 m		Institute:	Ifremer
Position	: N 42 59.90 W 13 0.01		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.867	5.91	0.1	0.03	1.1
96.0	35.754	5.69	4.2	0.34	1.4
193.0	35.623	5.30	10.9	0.62	3.8
345.0	35.546	5.29	12.3	0.70	4.4
493.0	35.539	4.96	14.5	0.84	5.8
743.0	35.732	4.35	17.1	1.00	8.7
992.0	35.946	4.30	17.0	1.00	10.1
1242.0	35.751	4.67	17.7	1.10	11.2
1493.0	35.320	5.34	18.4	1.18	12.6
1994.0	35.029	5.96	18.6	1.23	16.6
2495.0	34.988	5.84	19.7	1.32	25.2
2996.0	34.953	5.72	20.8	1.41	34.0
3496.0	34.926	5.65	21.6	1.47	40.1
3998.0	34.913	5.61	21.9	1.52	43.7
4499.0	34.904	5.62	22.0	1.53	45.7
5207.0	34.896	5.62	22.2	1.53	46.7

Station	: 44	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth: 4070 m		Institute:	Ifremer
Position	: N 42 59.62 W 12 35.44		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.852	5.86	0.0	0.02	1.2
95.0	35.831	5.65	2.7	0.18	1.3
194.0	35.707	5.26	7.9	0.48	2.8
345.0	35.570	5.08	12.0	0.72	4.4
492.0	35.574	4.80	14.1	0.85	5.9
741.0	35.847	4.27	15.6	0.96	8.1
987.0	36.119	4.22	15.4	0.92	9.2
1241.0	36.088	4.39	15.8	0.97	10.1
1489.0	35.414	5.17	17.6	1.14	12.7
1991.0	35.053	5.84	18.3	1.23	17.6
2494.0	34.989	5.77	19.4	1.32	26.6
2996.0	34.948	5.67	20.3	1.42	34.1
3497.0	34.921	5.59	21.1	1.48	40.7
4000.0	34.910	5.61	21.6	1.53	43.9
4266.0	34.901	5.58	21.8	1.54	45.5
4267.0	34.895	5.59	21.8	1.54	45.5

Station	: 45	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth: 2345 m		Institute:	Ifremer
Position	: N 43 0.13 W 12 16.79		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.802	5.89	0.0	0.02	0.9
94.0	35.757 d	5.84	3.5	0.22	1.1
195.0	35.665 d	5.24 d	9.0	0.54	3.1
342.0	35.563	5.22	11.5	0.68	4.1
494.0	35.540	5.03	13.3	0.80	5.4
743.0	35.901	4.27	15.4	0.93	7.9
993.0	36.109	4.23	15.5	0.92	8.9
1241.0	36.140 d	4.32	15.7	0.93	9.7
1491.0	35.704	4.85	17.1	1.07	11.6
1993.0	35.105	5.73	18.3	1.20	16.2
2389.0	34.992	5.79	19.3	1.30	24.6

Station	: 46	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth: 1705 m		Institute:	Ifremer
Position	: N 43 0.00 W 12 0.11		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.793	5.89	0.0	0.03	1.0
95.0	35.748 d	5.68	3.2	0.23	1.1
194.0	35.672	5.37	7.8	0.49	2.7
342.0	35.543 d	5.32	11.6	0.71	4.3
493.0	35.546 d	4.96	13.4	0.86	5.6
741.0	35.832	4.33	15.5	0.96	8.1
993.0	35.915	4.24	16.3	1.02	9.6
1240.0	35.933	4.47	16.3	1.02	10.5
1714.0	35.259	5.45	17.7	1.17	13.3

Station	: 47	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth	: 2287 m	Institute	: Ifremer
Position	: N 43 1.36 W 11 38.26		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.804	5.90	0.0	0.02	1.1
95.0	35.797	5.71	3.2	0.21	1.2
194.0	35.714	5.42	6.8	0.42	2.4
344.0	35.585	5.18	11.2	0.67	4.1
492.0	35.569	4.96	13.2	0.80	5.6
740.0	35.849	4.32	15.6	0.94	8.6
991.0	35.964	4.21	16.1	0.99	9.7
1243.0	35.807	4.53	17.0	1.05	11.1
1493.0	35.375	5.19	17.8	1.15	13.1
1995.0	35.030	5.87	18.4	1.23	17.3
2305.0	34.992	5.86	19.1	1.29	23.7

Station	: 48	Cruise	: BORD-EST3
Date	: 22-05-89	Ship	: Le Noroit
Bottom depth	: 2580 m	Institute	: Ifremer
Position	: N 43 3.13 W 11 11.27		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.811	5.95 d	0.0	0.03	1.1
95.0	35.771	5.67	3.8	0.25	1.3
195.0	35.679	5.38	8.2	0.49	2.8
345.0	35.576	5.25	11.4	0.67	4.4
493.0	35.575	4.95	13.5	0.82	5.6
741.0	35.867	4.34	15.6	0.93	8.3
993.0	36.045	4.30	15.8	0.96	9.5
1242.0	35.803 d	4.62	16.8	1.04	11.0
1492.0	35.339 d	5.31	17.8	1.15	12.6
1993.0	35.020	5.91	18.4	1.23	17.9
2495.0	34.982	5.83	19.4	1.31	26.5
2575.0	34.981	5.78	19.7	1.34	28.2

Station	: 49	Cruise	: BORD-EST3
Date	: 23-05-89	Ship	: Le Noroit
Bottom depth	: 3590 m	Institute	: Ifremer
Position	: N 43 6.08 W 10 30.41		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
7.0 d	35.007 d	5.87 d	19.0	1.25	19.9
96.0	35.675	5.82	4.8	0.31	1.5
193.0	35.619	5.48	8.3	0.50	2.9
343.0	35.537	5.40	11.2	0.66	4.1
493.0	35.500	5.24	12.8	0.78	5.5
743.0	35.637	4.43	16.1	1.00	8.3
992.0	35.900	4.28	16.2	1.00	9.6
1242.0	35.680	4.67	17.1	1.08	11.1
1491.0	35.254	5.40	17.9	1.17	12.9
1992.0	35.012	5.89	18.4	1.24	18.1
2495.0	34.981	5.80	19.4	1.30	26.9
2996.0	34.942	5.70	20.6	1.41	35.2
3497.0	34.921	5.63	21.4	1.48	41.2
3639.0	34.914	5.61	21.6	1.49	42.6

Station	: 50	Cruise	: BORD-EST3
Date	: 23-05-89	Ship	: Le Noroit
Bottom depth	: 3290 m	Institute	: Ifremer
Position	: N 43 7.50 W 10 9.89		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.717 d	6.03	0.0	0.04	1.0
95.0	35.716	5.72	5.0	0.30	1.5
194.0	35.656	5.82	6.0	0.36	2.1
344.0	35.549	5.38	11.3	0.65	4.1
493.0	35.503	5.22	13.2	0.79	5.2
742.0	35.780	4.38	15.9	0.97	8.1
891.0	35.910	4.26	16.3	0.98	9.0
1092.0	36.007	4.35	16.4	0.99	9.8
1492.0	35.364	5.27	17.9	1.14	12.5
1992.0	35.023	5.91	18.3	1.23	17.2
2494.0	34.979	5.80	19.4	1.34	27.0
2997.0	34.943	5.69	20.5	1.43	35.7
3311.0	34.928	5.64	21.1	1.48	39.8

Station	: 51	Cruise	: BORD-EST3
Date	: 23-05-89	Ship	: Le Noroit
Bottom depth	: 2970 m	Institute	: Ifremer
Position	: N 43 8.11 W 9 56.05		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.761	5.96	d	0.0	0.04	1.1
95.0	35.707	5.74		4.8	0.32	1.6
194.0	35.668	5.78		5.5	0.35	1.5
344.0	35.559	5.32		10.8	0.65	3.5
494.0	35.556	4.97		13.7	0.83	5.4
742.0	35.769	4.38		16.2	0.98	8.2
990.0	35.949	4.27		16.4	1.00	9.3
1241.0	35.772	4.56		17.3	1.08	10.9
1492.0	35.437	5.15		17.8	1.13	12.5
1987.0	35.052 d	5.82		18.5	1.22	17.5
2494.0	34.978	5.83		19.5	1.31	26.3
3008.0	34.943	5.73		20.8	1.41	35.3

Station	: 52	Cruise	: BORD-EST3
Date	: 23-05-89	Ship	: Le Noroit
Bottom depth	: 2120 m	Institute	: Ifremer
Position	: N 43 9.76 W 9 44.98		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l		NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.756	5.99		0.0	0.04	0.7
96.0	35.761	5.52	d	9.4	0.61	3.4
194.0	35.644	5.24		9.5	0.61	3.3
337.0	35.569	5.12		12.1	0.78	4.7
489.0	35.545	5.00		13.5	0.88	5.7
742.0	35.972			15.3	0.99	8.2
991.0	36.170	4.24		15.1	0.97	8.9
1182.0	36.176	4.32		15.4	1.01	9.7
1490.0	35.871	4.70		16.6	1.10	11.6
1992.0	35.100	5.72		18.6	1.32	18.5
2096.0	35.068	5.74		18.9	1.36	20.5

Station : 53	Cruise : BORD-EST3
Date : 23-05-89	Ship : Le Noroit
Bottom depth: 1070 m	Institute: Ifremer
Position : N 43 10.26 W 9 37.42	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.733	6.14	0.0	0.04	0.4
96.0	35.742	5.77	4.2	0.30	1.8
194.0	35.655	5.30	9.0	0.59	3.6
344.0	35.548	5.35	11.3	0.73	4.3
490.0	35.518	5.23	12.7	0.85	5.4
742.0	35.872	4.33	15.6	1.02	8.4
1159.0	36.156	4.31	15.6	1.01	10.0

Station : 54	Cruise : BORD-EST3
Date : 24-05-89	Ship : Le Noroit
Bottom depth: 850 m	Institute: Ifremer
Position : N 44 12.69 W 8 30.75	

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.714	6.10	0.0	0.06	0.4
94.0	35.718 d	5.67	4.8	0.34	2.1
195.0	35.671	5.51	7.4	0.49	2.8
343.0	35.577	5.24	11.3	0.74	4.3
493.0	35.622	4.95	13.0	0.85	6.1
742.0	35.686	4.55	15.5	1.00	7.7
992.0	35.975	4.28	16.2	1.07	9.6
1168.0	36.011	4.37	16.2	1.07	10.2

Station	: 55	Cruise	: BORD-EST3
Date	: 24-05-89	Ship	: Le Noroit
Bottom depth	: 3110 m	Institute	: Ifremer
Position	: N 44 17.06 W 8 30.18		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.711 d	5.94	0.0	0.03	0.6
95.0	35.696	5.72	4.4	0.30	1.7
194.0	35.625	5.67	6.4	0.41	2.3
344.0	35.554	5.35	10.4	0.68	3.8
494.0	35.515	5.15	12.9	0.85	5.2
722.0	35.643	4.49	15.9	1.06	8.2
987.0	36.073	4.26	15.5	1.01	9.2
1243.0	35.779	4.56	16.9	1.15	11.1
1494.0	35.358	5.11	18.0	1.27	13.6
1993.0	35.075	5.78	18.2	1.31	17.9
2494.0	34.983	5.83	19.3	1.43	26.3
2997.0	34.942	5.72	20.3	1.53	34.5
3229.0	34.935	5.68	20.8	1.56	37.7

Station	: 56	Cruise	: BORD-EST3
Date	: 24-05-89	Ship	: Le Noroit
Bottom depth	: 4720 m	Institute	: Ifremer
Position	: N 44 25.76 W 8 29.98		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.645	5.86	0.0	0.03	1.0
93.0	35.680	5.66	4.1	0.29	1.5
194.0	35.628	5.64	6.6	0.45	2.4
343.0	35.551	5.35	11.0	0.71	4.0
494.0	35.549	4.97	13.6	0.88	5.6
742.0	35.693	4.40	16.4	1.09	8.7
992.0	35.822	4.33	16.9	1.14	10.1
1141.0	35.831	4.47	17.0	1.18	10.6
1489.0	35.346	5.15	18.2	1.27	13.3
1993.0	35.037	5.82	18.6	1.36	18.7
2495.0	34.979	5.82	19.5	1.47	26.6
2997.0	34.944	5.73	20.5	1.54	34.6
3496.0	34.924	5.64	21.1	1.60	39.6
4000.0	34.910	5.61	21.6	1.64	43.4
4499.0	34.898	5.60	21.9	1.65	44.4
4813.0	34.898	5.57	21.9	1.72	44.8

Station	: 57	Cruise	: BORD-EST3
Date	: 24-05-89	Ship	: Le Noroit
Bottom depth: 4860 m		Institute:	Ifremer
Position	: N 44 38.98 W 8 30.86		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.661	5.86	0.0	0.03	0.9
93.0	35.661	5.61	4.4	0.32	1.2
195.0	35.646	5.66	5.7	0.38	1.9
343.0	35.563	5.41	10.1	0.65	3.6
495.0	35.547	5.11	12.6	0.84	5.1
742.0	35.655	4.48	15.9	1.04	8.2
993.0	35.815	4.31	16.8	1.11	9.9
1245.0	35.687	4.57	17.4	1.18	11.5
1485.0	35.358	5.12	18.2	1.27	13.4
1992.0	35.045	5.80	18.5	1.34	18.7
2491.0	34.980	5.78	19.5	1.44	27.0
2991.0	34.947	5.74	20.3	1.52	34.1
3496.0	34.930	5.64	22.3	1.61	40.2

Station	: 58	Cruise	: BORD-EST3
Date	: 24-05-89	Ship	: Le Noroit
Bottom depth: 4855 m		Institute:	Ifremer
Position	: N 45 4.85 W 8 29.77		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
5.0	35.686 d	5.85	0.1	0.02	1.2
95.0	35.675	5.76	4.4	0.28	1.7
194.0	35.647	5.78	5.2	0.34	1.9
343.0	35.562	5.42	9.8	0.64	3.6
493.0	35.540	5.20	11.8	0.77	4.7
742.0	35.614	4.58	15.5	1.03	7.8
1092.0	35.826	4.34	16.9	1.15	10.5
1491.0	35.430	5.02	18.1	1.24	12.8
1990.0	35.037	5.84	18.5	1.32	17.8
2493.0	34.979	5.78	19.7	1.47	27.2
4500.0	34.905	5.59	22.0	1.65	46.0
4942.0	34.901	5.56	22.2	1.68	47.1

Station	: 59	Cruise	: BORD-EST3
Date	: 25-05-89	Ship	: Le Noroit
Bottom depth: 4830 m		Institute:	Ifremer
Position	: N 45 35.04 W 8 29.76		

PRESSURE CHEM. dbar	SALINITY CHEM.	OXYGEN CHEM. ml/l	NITRATE micromol/l	PHOSPHATE micromol/l	SILICATE micromol/l
6.0	35.701	5.83	0.0	0.02	1.1
94.0	35.645	5.77	4.6	0.29	1.5
188.0	35.637	5.68	6.0	0.43	2.3
342.0	35.544	5.35	10.7	0.70	3.9
492.0	35.533	5.09	12.8	0.82	5.2
741.0	35.676	4.40	16.4	1.07	8.5
990.0	35.806	4.29	17.1	1.10	10.0
1239.0	35.671	4.59	17.7	1.19	11.6
1448.0	35.390	5.05	18.2	1.25	12.8
1993.0	35.012	5.89	18.4	1.29	17.5
2474.0	34.974	5.78	19.7	1.43	27.8
2996.0	34.941	5.71	20.6	1.52	35.1
3499.0	34.915	5.62	21.4	1.59	40.7
4000.0	34.906	5.61	21.7	1.68	44.0
4484.0	34.908	5.58	22.0	1.65	45.9
4952.0	34.898	5.57	22.1	1.66	46.9

PART II

THE CURRENT METERS MEASUREMENTS

5 Original data serials description

5.1 Moorings description

Eight moorings with a total of 42 current meters have been deployed for 13 months off the Iberian Peninsula at the locations shown on figure 16. The array consists in two quasi zonal lines of 4 moorings each at about 38°N and 40°N, the easternmost mooring of each line being over a bottom depth of about 1200 m on the continental slope, and the westernmost one being at 11°W over the abyssal plain.

The deployment was done from the RV "Le Suroit" during the cruise "BORD-EST 1" from 24th March to 6th April 1988. Recovery took place from the RV "Le Noroit" during the cruise "BORD-EST 3" from 30th April to 9th May 1989.

Nominal depths of measurements were chosen at 300, 700, 1000, 1500 and 3000 m and additional instruments were put on some moorings at a distance of 200 m and 500 m from the bottom.

We used Aanderaa instruments, 39 of them being of the RCM 5 model and the 3 others of RCM 8. In order to compare the measurements of the RCM 5 with the RCM 8 currentmeters, two pairs (one RCM 5 and one RCM 8) were installed at the deepest levels of the N1 and N3 moorings. Figure 17 shows how the currentmeters are distributed along the eight moorings lines. This figure gives the nominal depth for each instrument, and the foreseen sea floor depth at each mooring location. Figure 18 gives, as an example, the S2 mooring scheme. The mooring line is made of parafil in its lower part and steel cable in the upper part. Acoustic releases are "Oceano Instrument".

5.2 Currentmeters preparation and sensors calibration

a) Preparation

Each instrument was assigned a particular level depending on its rotor threshold, and equipped in accordance for the adequate temperature and pressure ranges and with a conductivity sensor for those to be set at 1000 m depth.

To check for leaks, all instruments have been tested in high pressure conditions : 48 hours under pressures higher than the foreseen pressure level, and 48 hours under 20 m of water in the test pool.

Preparation of the instruments was completed by a sensors calibration and the measurement and improvement of the rotor threshold. The currentmeters were then conditionned to be installed on the mooring lines.

The instruments were prepared to record the following parameters with a time step of one hour :

1/ Reference of electronics.

2/ Temperature in the range -2° to 21°C (resolution of 0.024°C).

3/ According to the depth :

- temperature in the range 6° to 13°C at 300, 700 and 1500 m (resolution of 0.008°C),
- temperature in the range 0° to 7°C at 1800 m and deeper levels (resolution of 0.008°C),
- conductivity in the range 32 to 55 mmho/cm at the 1000 m level (resolution of 0.023 mmho/cm).

Conductivity measurements, subject to time drift, are not presented in this report.

4/ Pressure in the sensor range.

5/ Current direction with respect to the magnetic North from 0 to 360° (resolution is 0.3°).

6/ Current speed, as the number of revolutions made by the rotor during one hour.

The way current intensity and direction are obtained in RCM 8 instruments is different from that in RCM 5 model, and may be noted : fifty times per hour, the current direction and speed are stored as current vectors, the vectorial sum of these fifty vectors being done every hour to give a hourly velocity vector measurement.

b) Pressure sensor calibration

The pressure sensor is checked against a deadweight tester "Desgranges et Huot" calibrated at the French "Laboratoire National d'Essais" (LNE). The precision of the reference pressure is $2\ 10^{-4}$. The calibration parameters within the range of the sensor are obtained through a linear regression among data points close to the actual level of currentmeter on mooring.

c) Temperature sensor calibration

The recording units are immersed in a regulated temperature bath. The temperature is measured by a Rosemount probe also calibrated at the LNE and periodically referenced to the triple point of water. Measurements at six points (between 2° and 7°C) or seven points (between 6° and 12°C) give the encoded values for each point on channels 2 and 3. A second order polynomial fit determines the calibration curve for each channel with an error smaller than the temperature resolution, respectively 0.024°C for channel 2 and 0.008°C for channel 3.
We may observe (figure 19) that such a calibration differs by +0.45°C to -0.10°C from the manufacturer's calibration formula.

d) Compass calibration

The manufacturer's calibration formula has been used. The compass gives the current direction referred to the magnetic North. The measurements have to be corrected from the declination taken at 7.30°W for the BORD-EST measurements.
It must be noted that previous tests have shown that the deviation between the actual current direction and the manufacturer's one may reach 7.5°.

e) Rotor calibration

The rotors were tested in the IFREMER towing tank. Figure 20 shows the histogram of the starting threshold of all rotors used for BORD-EST. Ten rotors have a threshold higher than 3.5 cm s^{-1}, clearly above the manufacturer's maximum value of 3 cm s^{-1}.
These 10 rotors were installed on the upper part of the moorings where current is expected to be more intense.
The rotor calibration is then performed by counting the number of revolutions for different prescribed velocities up to 75 cm s^{-1}. Figure 21 shows, as an example, the linear regression obtained for the 5485 rotor currentmeter.
The difference between calibrated and manufacturer velocities is presented figure 22.

f) Resolution and accuracy

The next table summarizes the resolution and accuracy values for each sensor :

Pressure	Resolution accuracy	Depends on the range (from 1 to 7 dB) 1 %
Temperature	Resolution accuracy	0.024°C or 0.008°C ± 0.03°C
Current direction	Resolution accuracy	0.35°C ± 7.5°C
Current speed	Resolution accuracy	0.05° cm s^{-1} ± 1 cm s^{-1}

Table 4

6 Data presentation

The upper part of the N4 mooring (4 instruments) was not recovered. Unfortunately the data return was also rather poor for the 38 others, mainly due to battery problems which occured on 20 of them, and leaks on two RCM 8 instruments. Figure 23 (a to d) summarizes the data return for all parameters, P, T, D, V and C standing respectively for pressure, temperature, velocity direction, intensity and conductivity. The overall data return for the velocity components was 54 per cent. More information on the data description and causes of failure may be found in Billant and Branellec (1990).

6.1 Time series

They are presented in section 7 for temperature, velocity vector and pressure.

A Lanczos filter was used to remove high frequency fluctuations (Hamming, 1977) on all parameters. The filtered values, y_j, are obtained from the original data series, x_j, through the following relation :

$$y_j = \sum_{i=-N_w}^{i=+N_w} x_{j-i}.w_i \quad \text{for} \quad j = 1,...N$$

N : length of the series.

The weights of the filters w_i are given by :

$$w_i = \frac{\sin(2\Pi(i-1)f_c)}{\Pi(i-1)} \times \frac{\sin(\Pi(i-1)/N_w)}{\Pi(i-1)/N_w}$$

f_c is the cut off frequency of the filter and can be any k/N with (k = 1, ..., $N/2$). The total number of points of the filter is $2N_w + 1$. N_w controls the transition width of the filter (the larger N_w, the sharper the filter).

For the plots and for the statistics we used $f_c = 1/40$ h^{-1} (transition period 1.66 days) and $N_w = 200$.

6.2 Statistics

For each currentmeter, basic statistics have been computed (Bendat and Piersol, 1971) on the East and North current components, pressure and temperature series and are presented in section 8 below.

⋆ Mean and variance were computed using the following relations, from Branellec, Salaun and Mercier (1989) :

$$\bar{x} = \frac{1}{N}\sum_{i=1}^{N} x_i$$

$$var(x) = \frac{1}{N}\sum_{i=1}^{N}(x_i - \bar{x})^2$$

Estimates of statistical errors are given between brackets (section 8), according to :

$$err(\bar{x}) = \left[\frac{2}{N^2}\sum_{j=0}^{N}\sum_{i=1}^{N-j} y_i y_{i+j}\right]^{1/2}$$

$$err(var(x)) = \left[\frac{4}{N^2}\sum_{j=0}^{N}\frac{1}{N-j}\left(\sum_{i=1}^{N-j} y_i y_{i+j}\right)^2\right]^{1/2}$$

where $y_i = x_i - \bar{x}$.

⋆ Covariances and correlation coefficients between East and North current components, East component and temperature, North component and temperature, pressure and temperature were also computed from :

$$cov(u,v) = \frac{1}{N}\sum_{i=1}^{N}(u_i - \bar{u})(v_i - \bar{v})$$

$$cor(u,v) = \frac{cov(u,v)}{[var(u)\ \ var(v)]^{1/2}}$$

The statistical error on the covariance estimate is given by :

$$\frac{2}{N^2}\sum_{j=0}^{N}\frac{1}{N-j}\left\{\sum_{i=j}^{N-j} U_i.U_{i+j}.\sum_{i=1}^{N-j} V_i.V_{i+j} + \left(\sum_{i=1}^{N-j} U_i.U_{i+j}\right)^2\right\}$$

where $U_i = u_i - \bar{u}$ and $V_i = v_i - \bar{v}$

⋆ Other statistics illustrating the energy of the flow are given :

- mean kinetic energy (MKE) $= \frac{1}{2}(\bar{u}^2 + \bar{v}^2)$
- eddy kinetic energy (EKE) $= \frac{1}{2}(var(u) + var(v))$

where u and v are the East and North components respectively.

REFERENCES for SECTIONS 5 AND 6

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Billant, A. and P. Branellec, 1990. Bilan des mesures de courantométrie BORD-EST 88-89. Rapport interne DERO/EO-90.02/EO/Brest.

Branellec, P., C. Salaun and H. Mercier, 1989. ANAIS Analyse Interactive de Séries Temporelles. Rapport interne IFREMER, Décembre 1989.

Hamming, R.W., 1977. Digital filters. Prentice-Hall signal processing series. A.W. Openheim Ser. Ed., Prentice Hall.

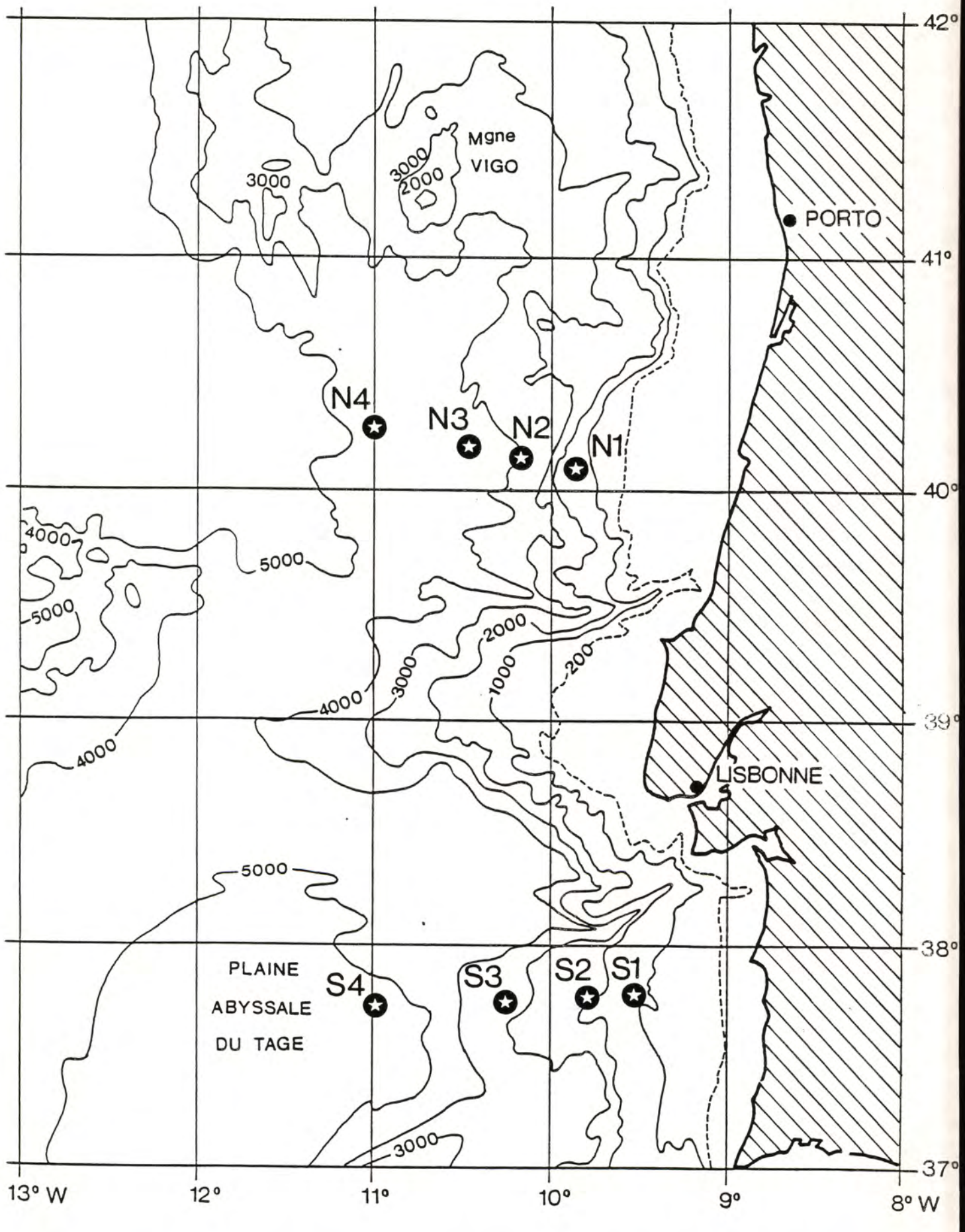


Figure 16: Location of current meter moorings deployed during "Bord Est".

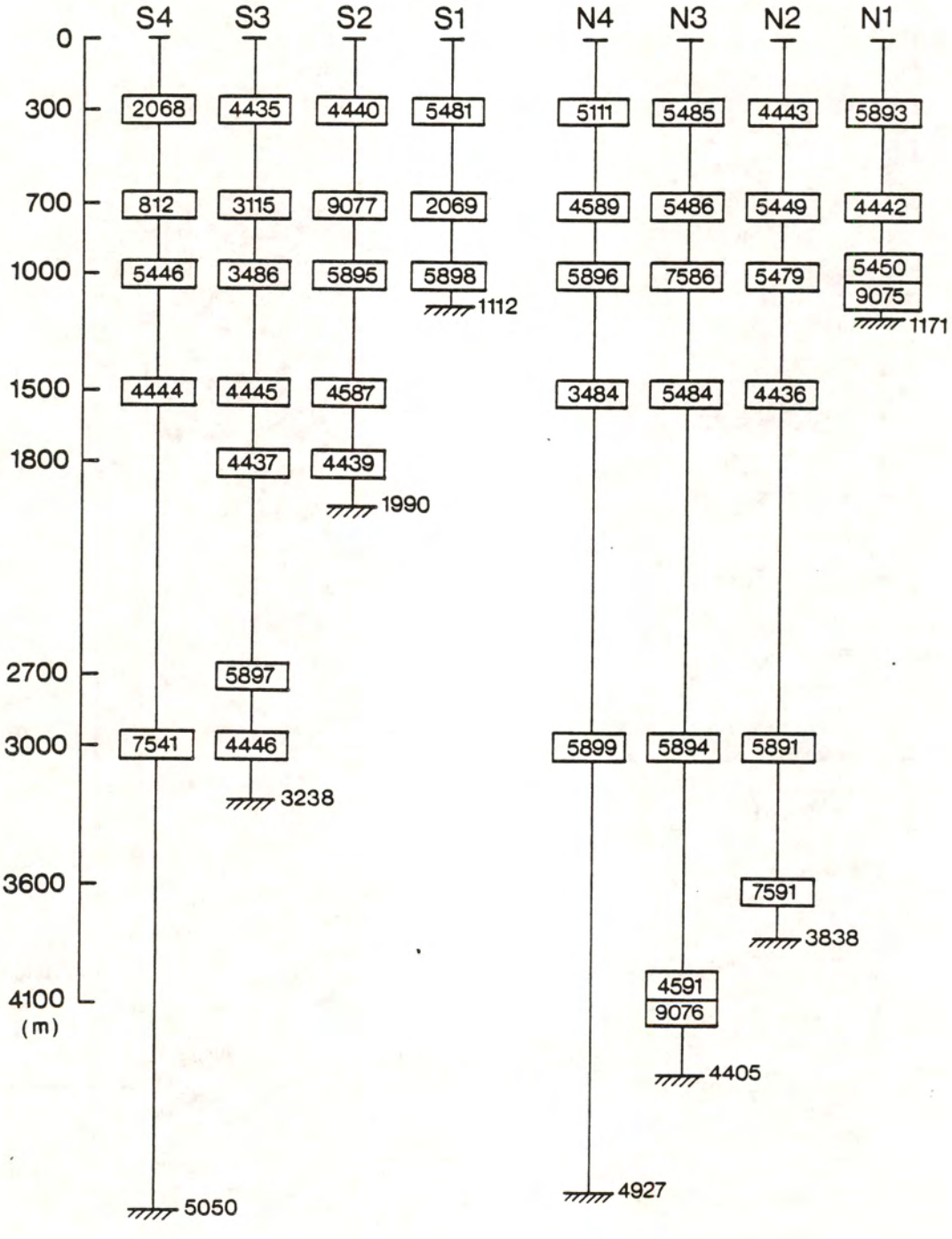


Figure 17: Vertical distribution of current meters on the moorings.

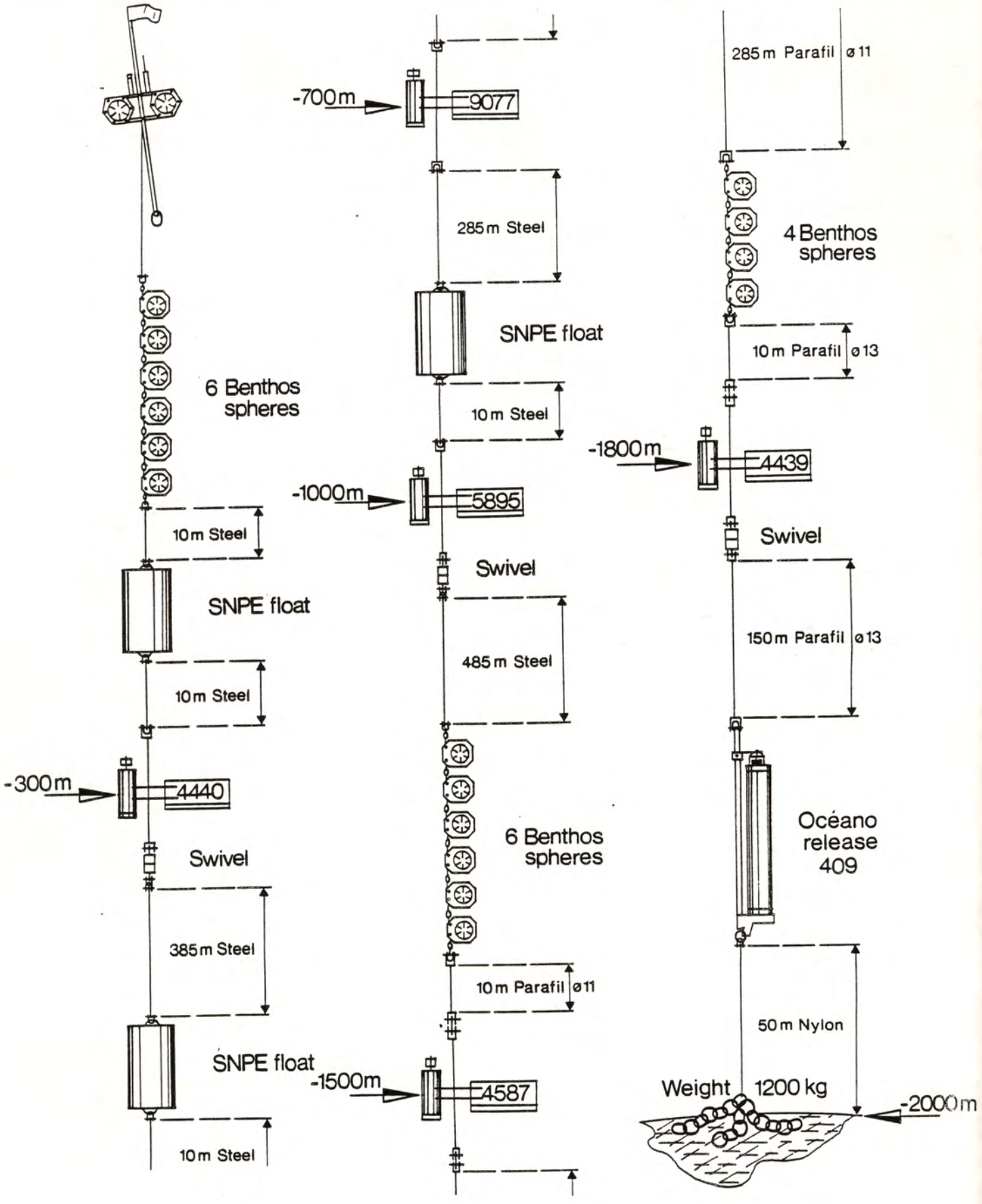


Figure 18: Mooring scheme (S2 example).

Figure 19: Difference between calibrated and constructor temperatures as function of temperature.

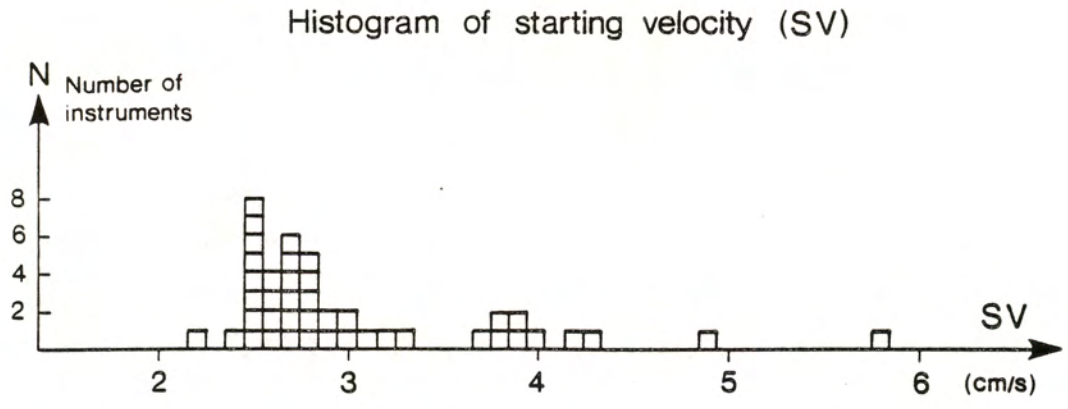


Figure 20: Histogram of starting velocity (SV).

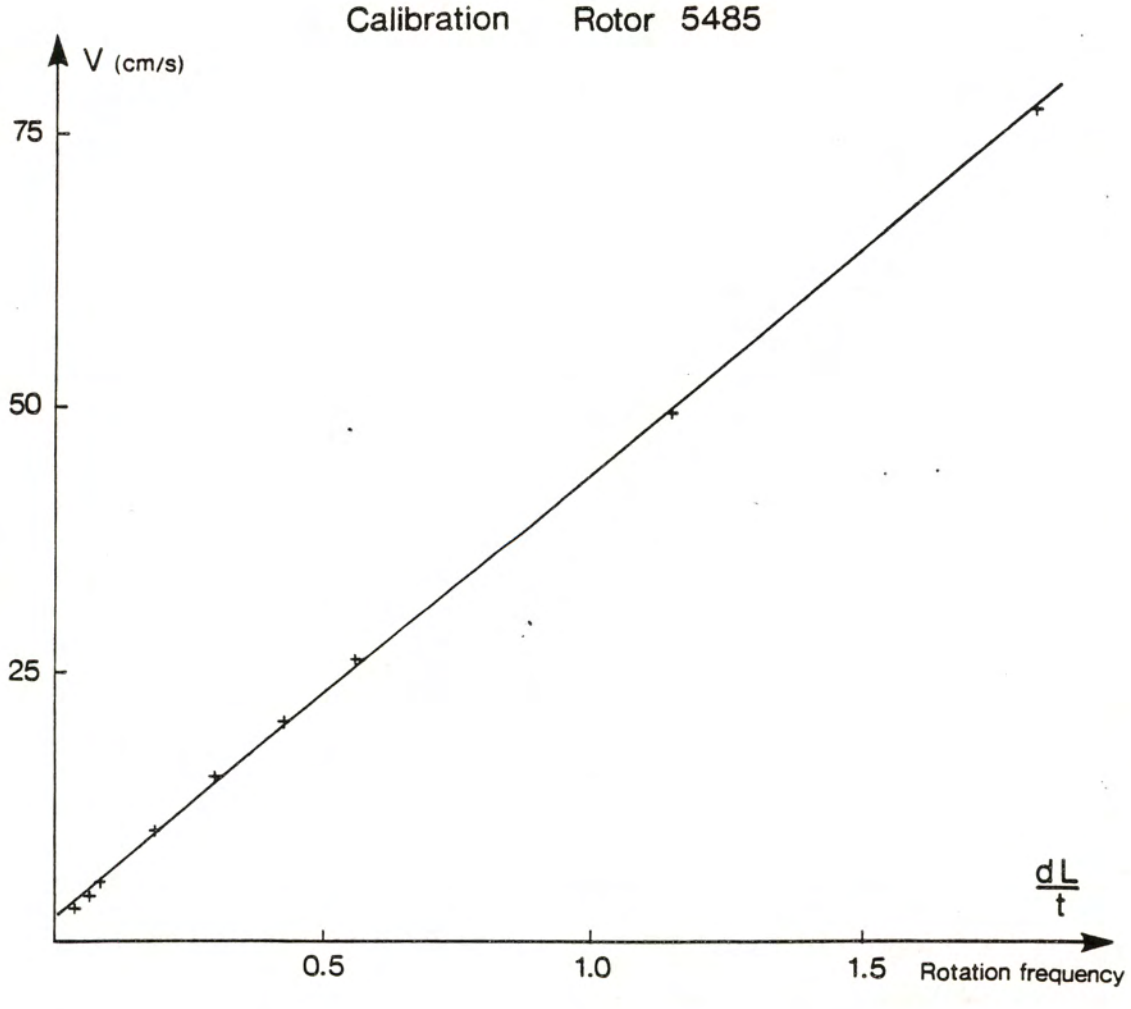


Figure 21: Calibration curve of rotor 5485.

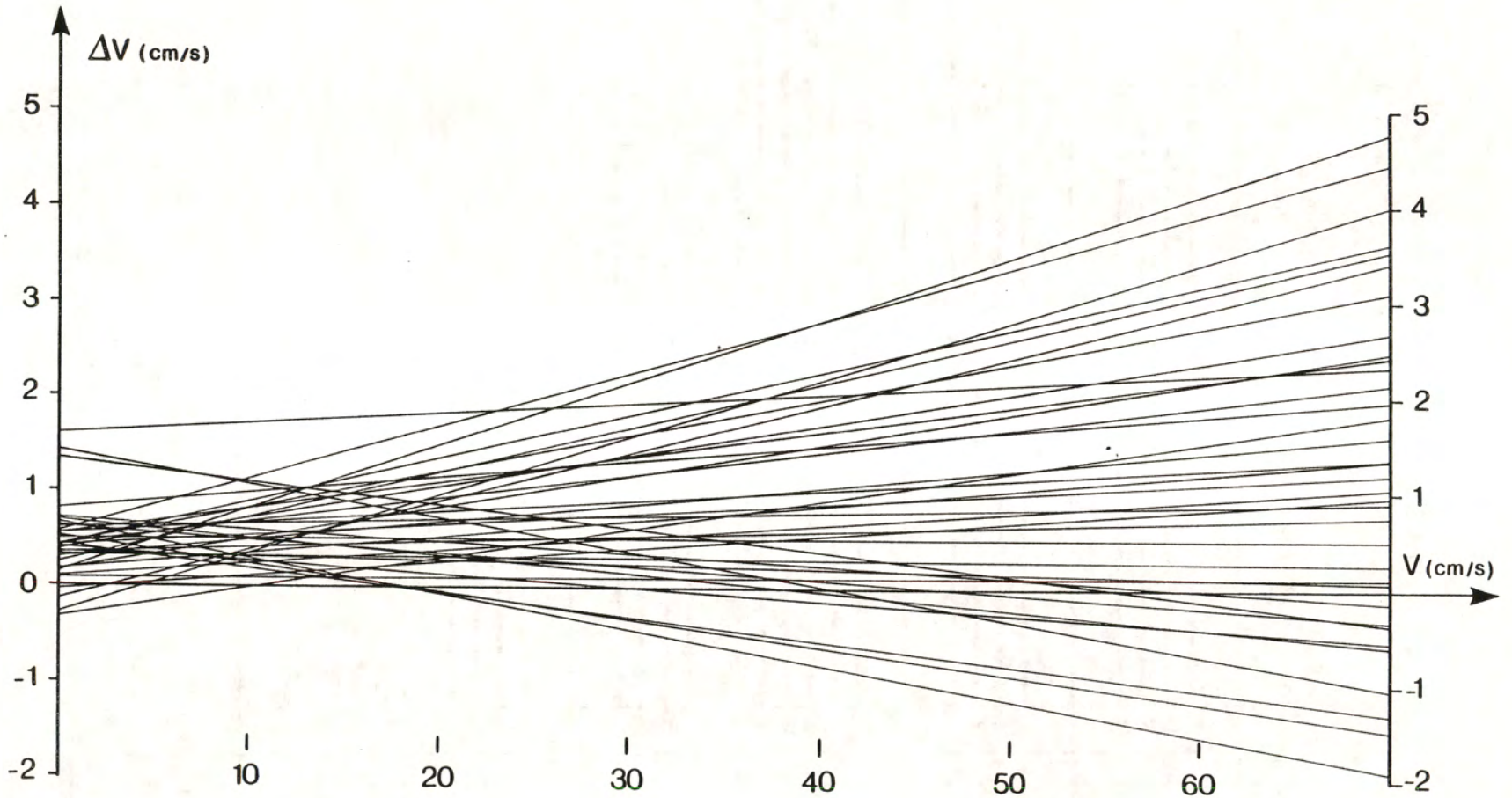


Figure 22: Difference between calibrated and constructor velocities as function of velocity.

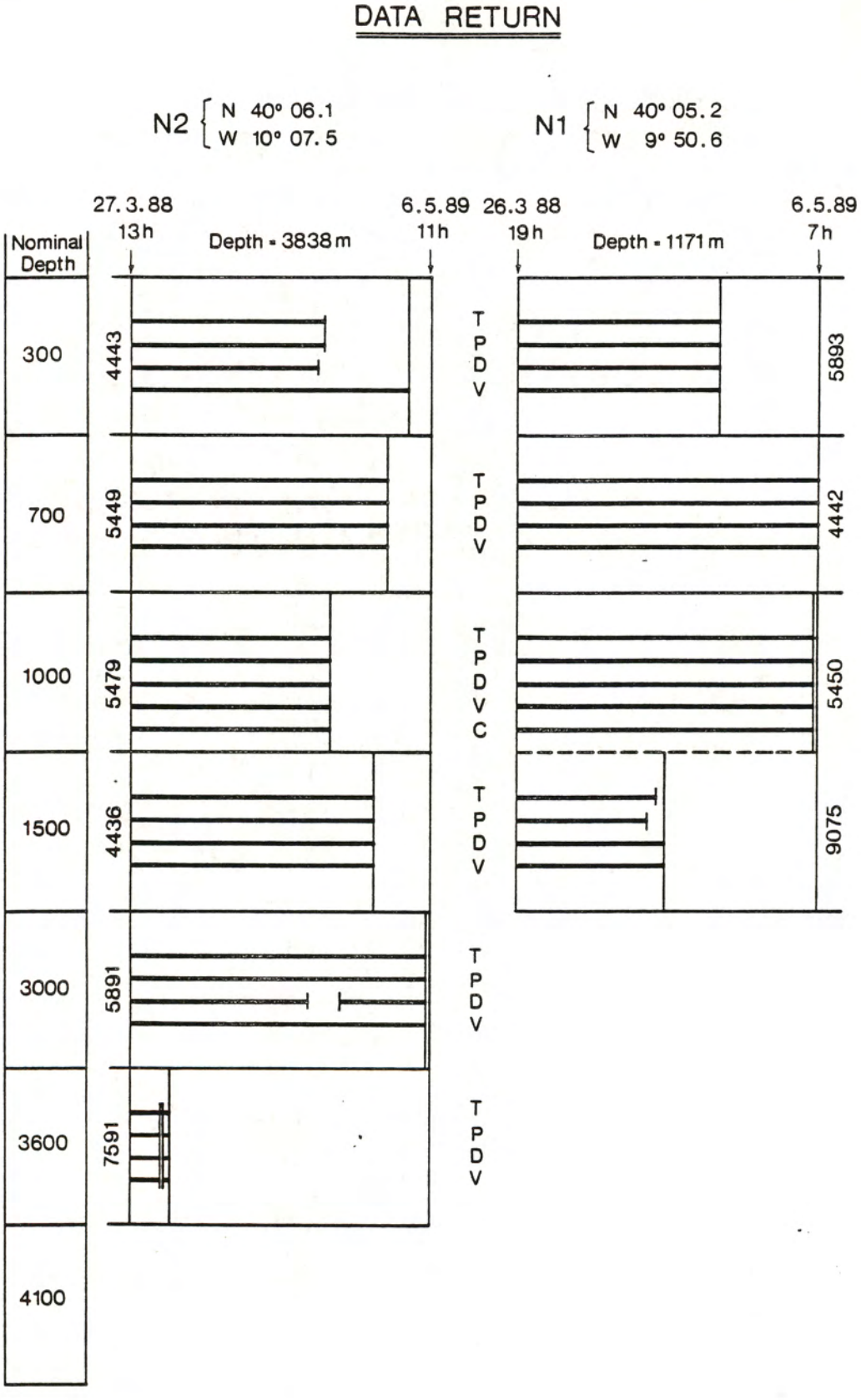


Figure 23a: Summary of data return at moorings N1 and N2.

DATA RETURN

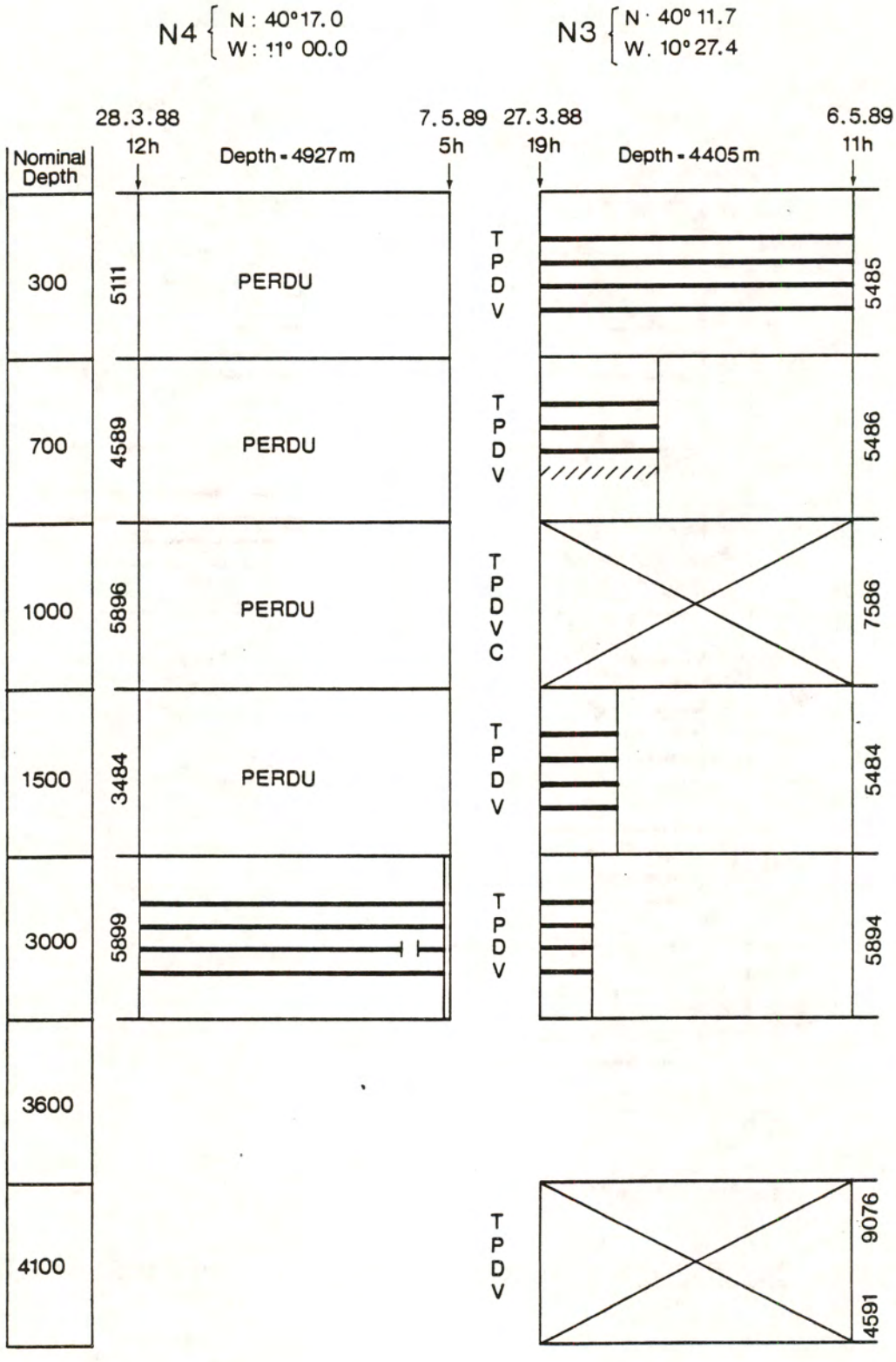


Figure 23b: Summary of data return at moorings N3 and N4.

DATA RETURN

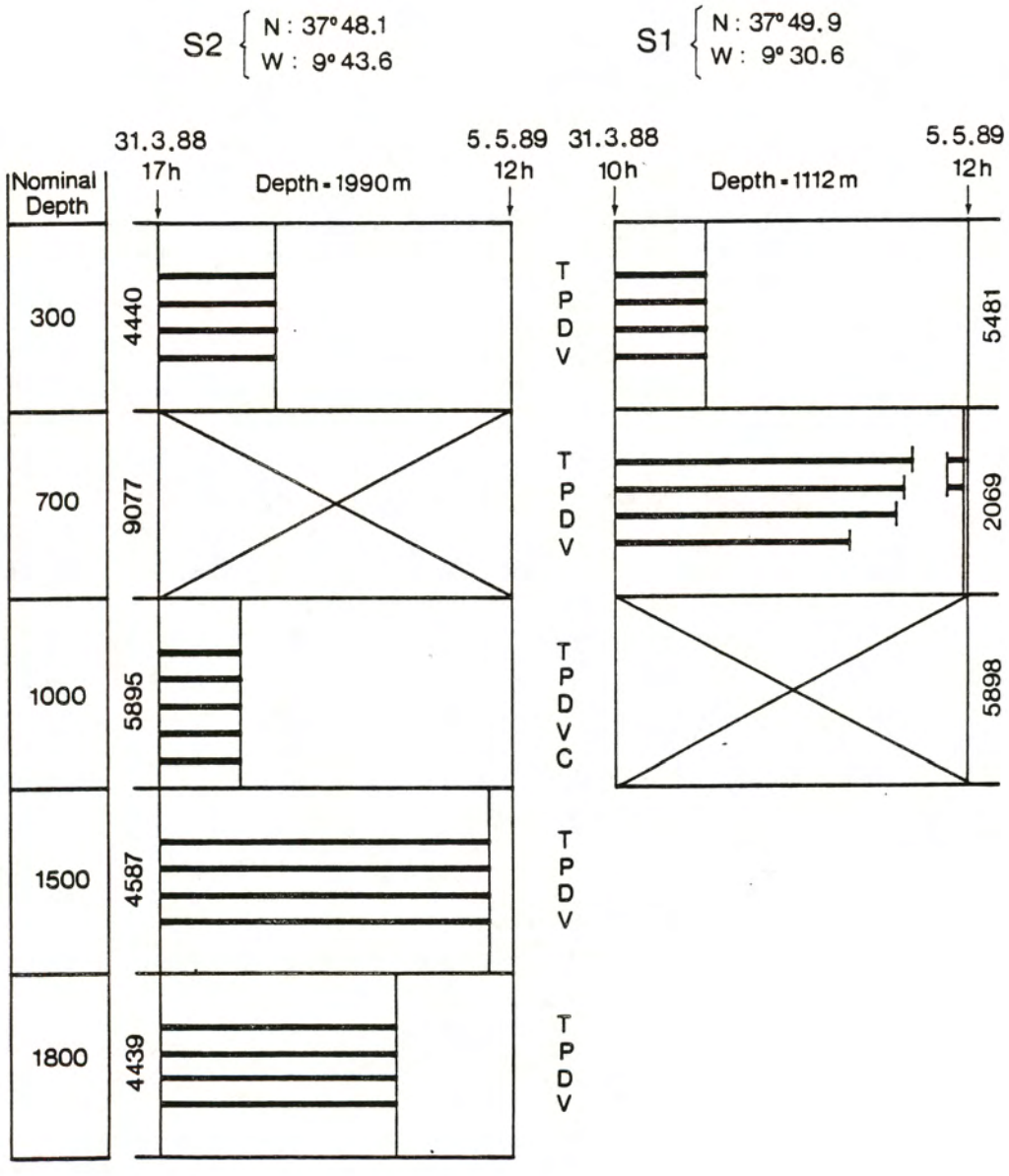


Figure 23c: Summary of data return at moorings S1 and S2.

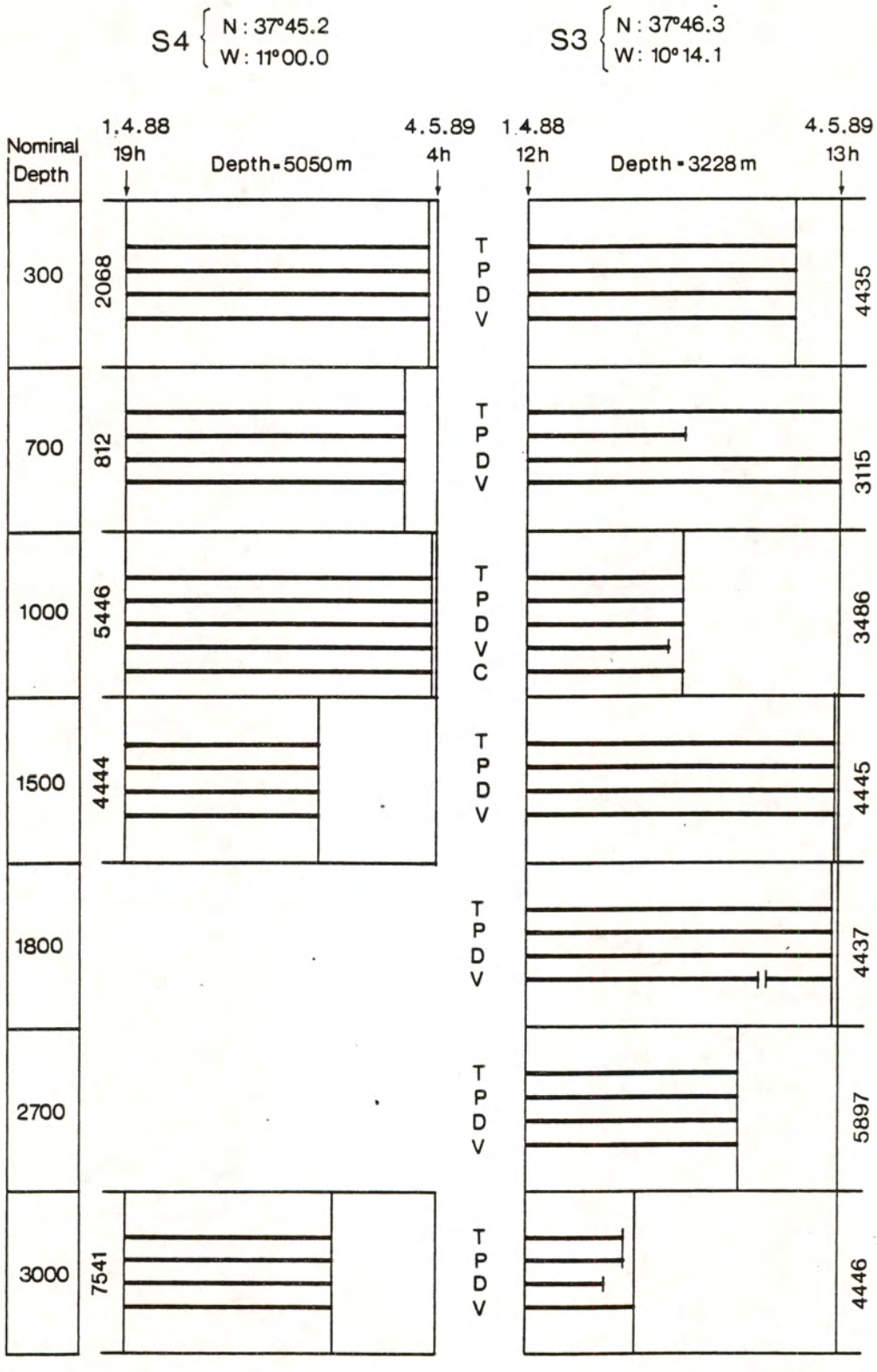
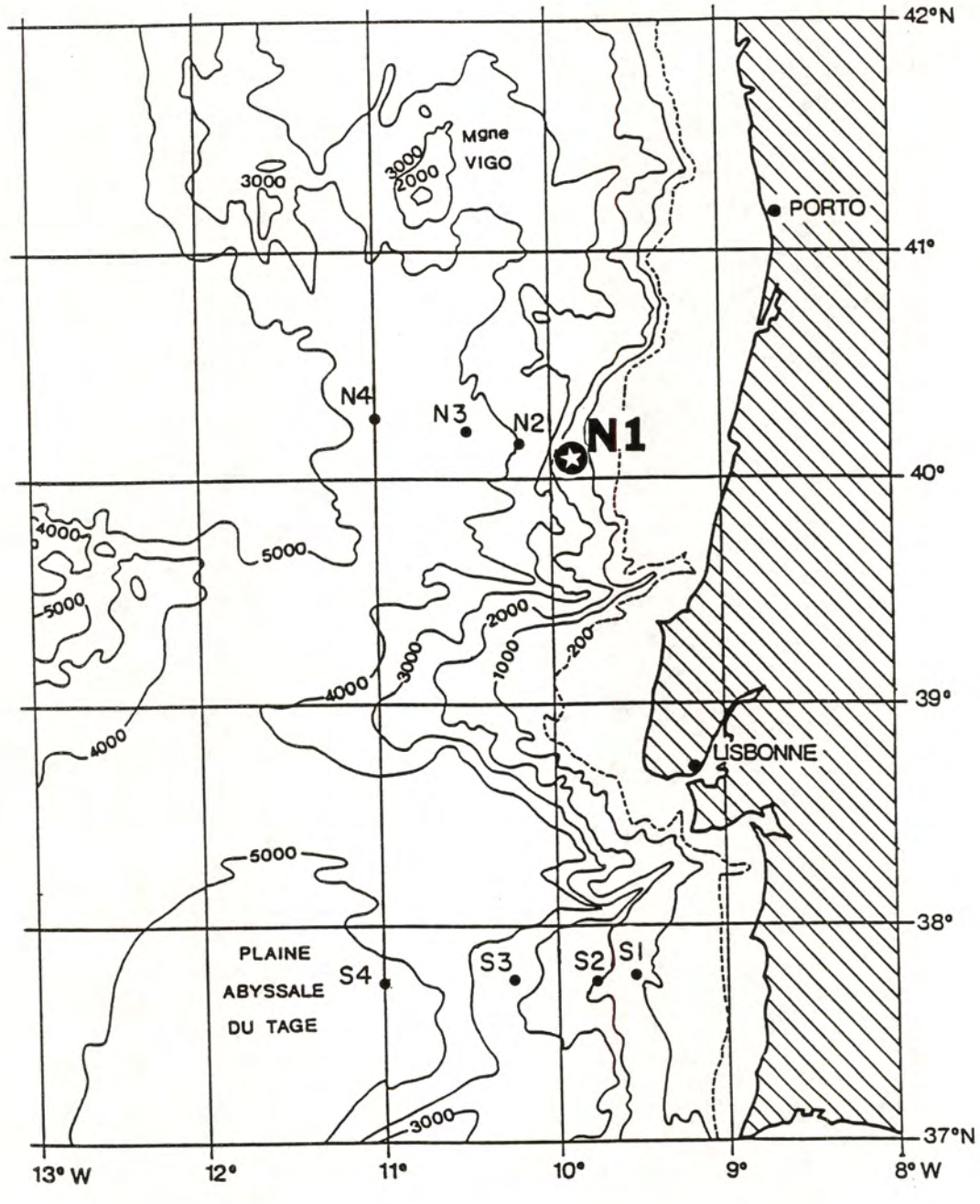


Figure 23d: Summary of data return at moorings S3 and S4.

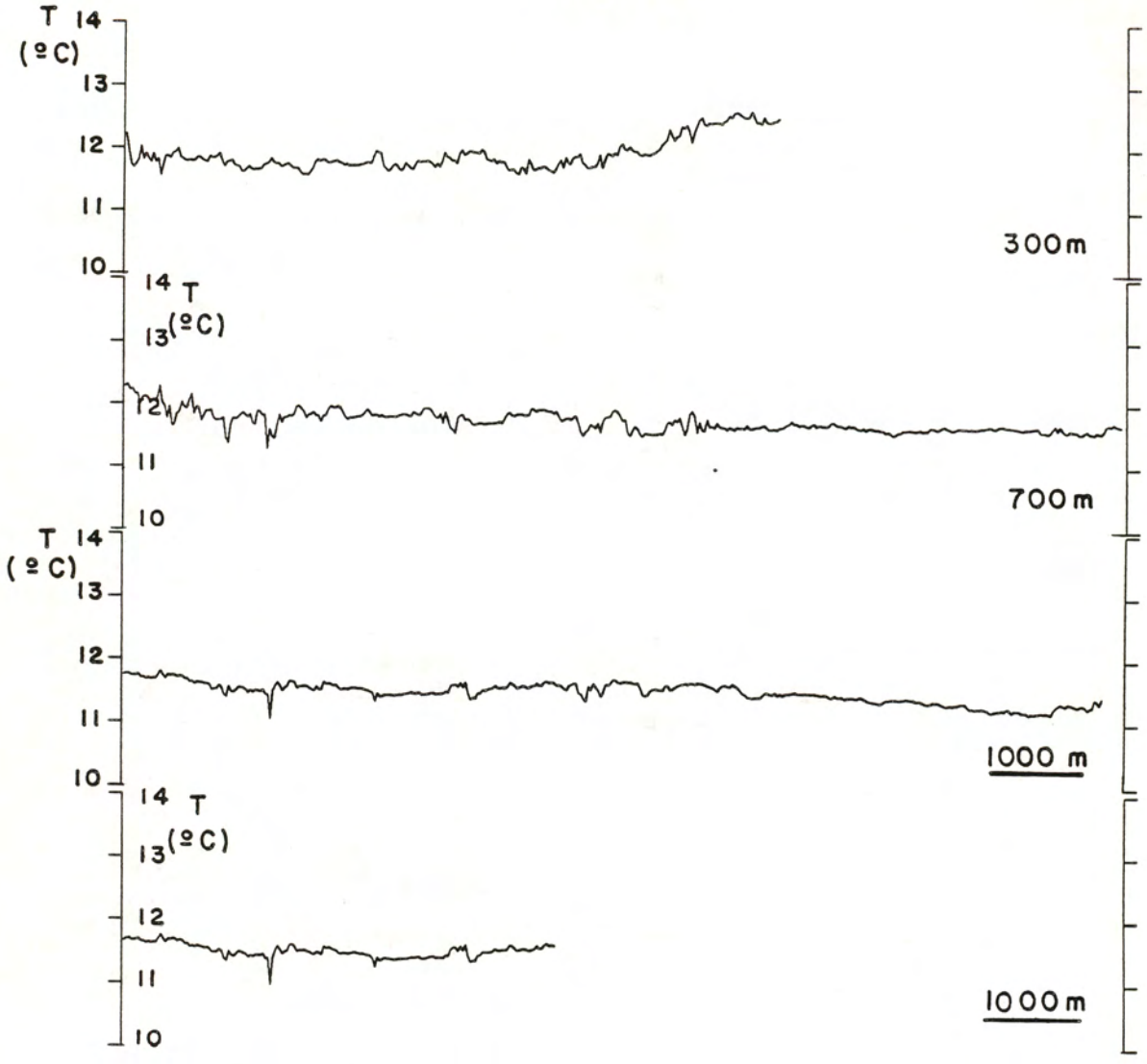
7 Time series

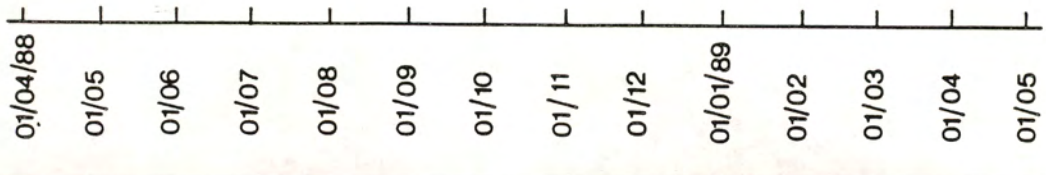
The time series presented in the following pages have been submitted to a low-pass filtering using a Lanczos filter with a 1/40 h^{-1} cut-off frequency.


42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
1000
200
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

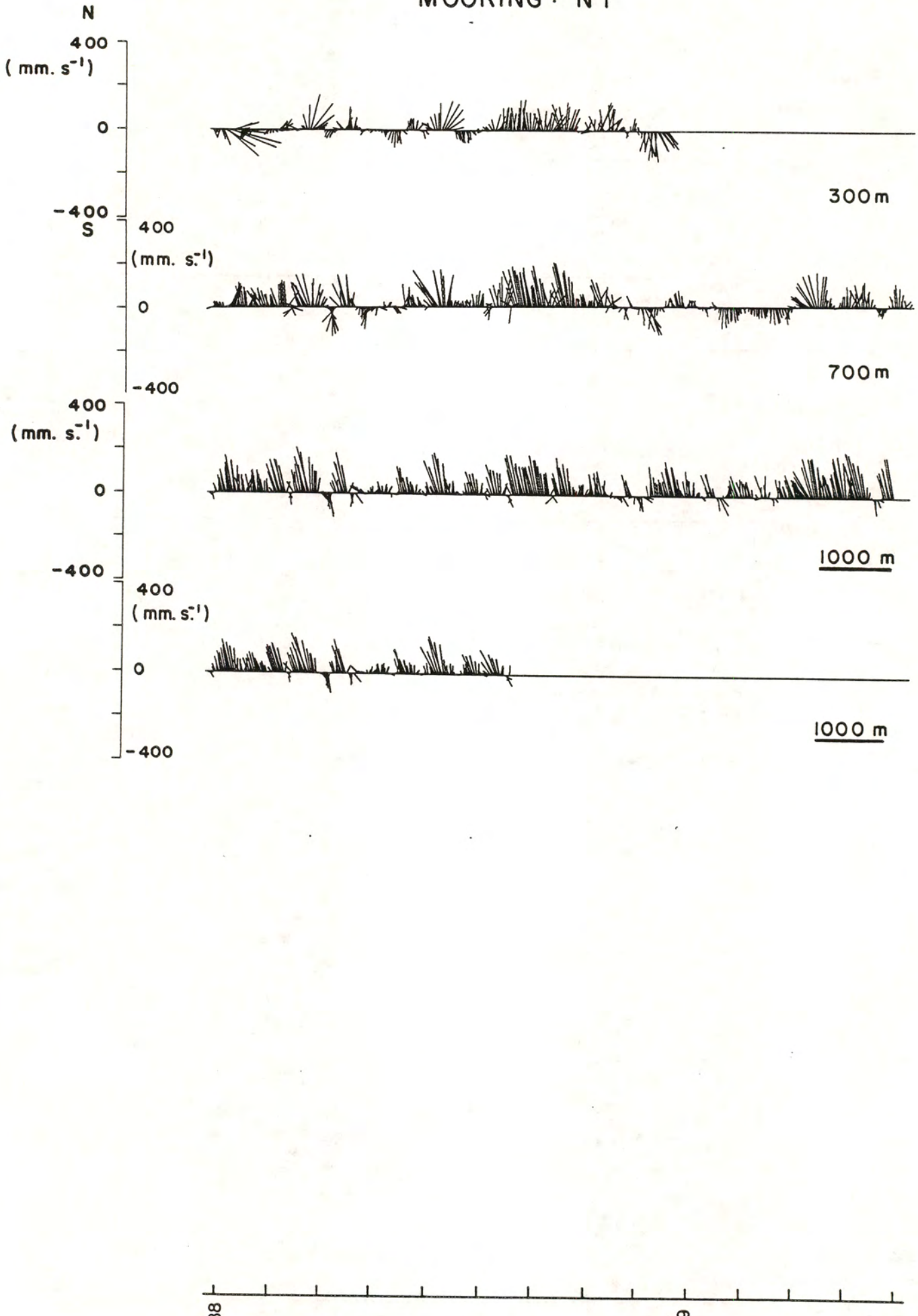
N1 MOORING

MOORING : N I

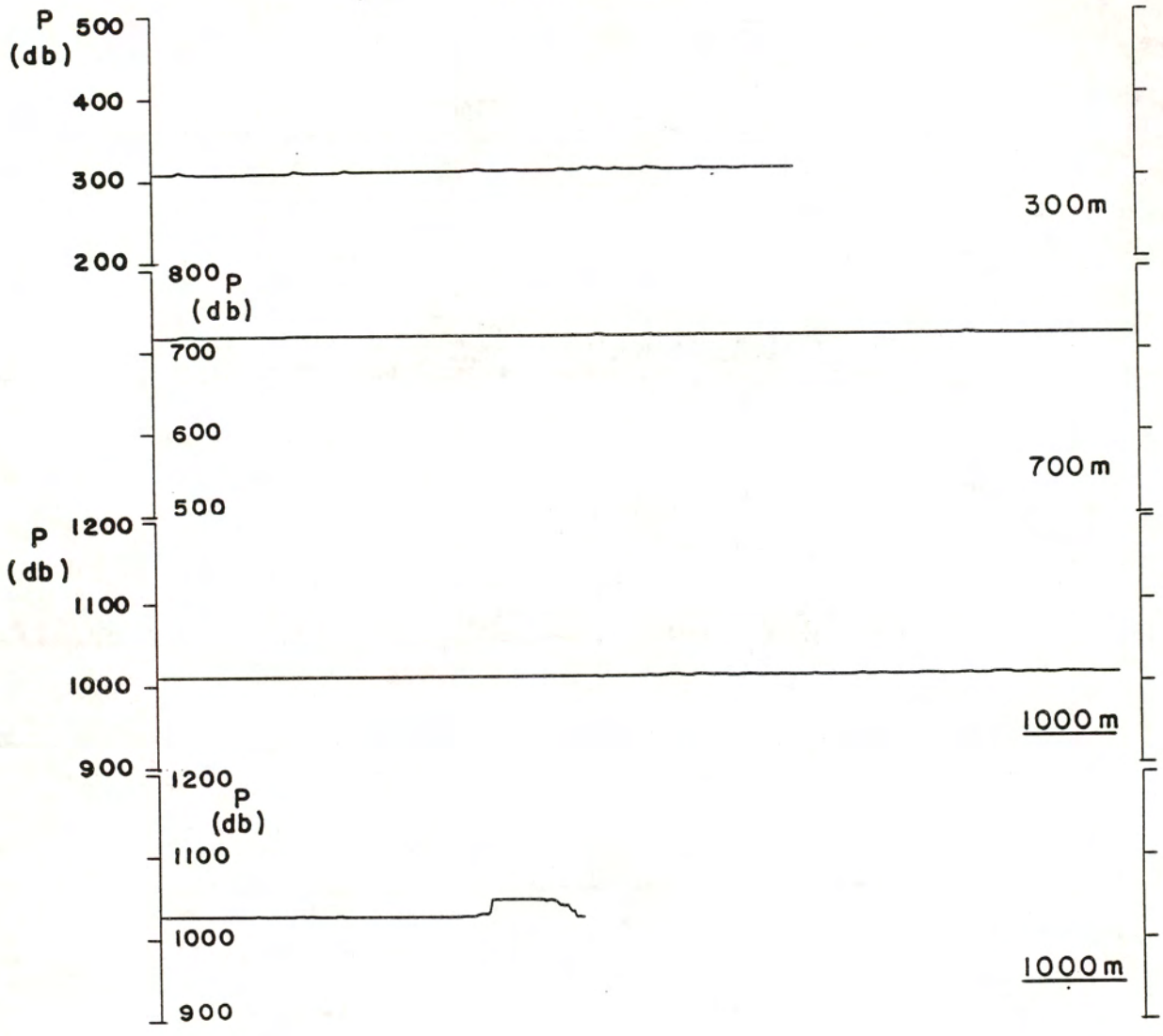

T (ºC)
14
13
12
11
10
300m
700m
1000 m
1000m

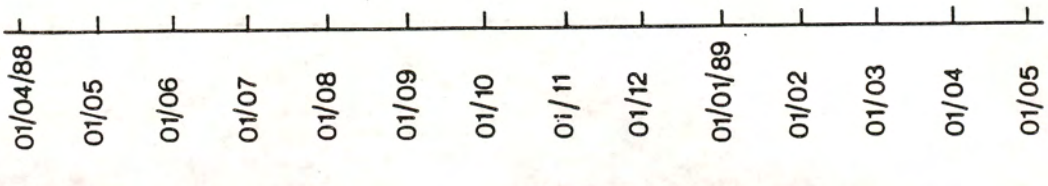

01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

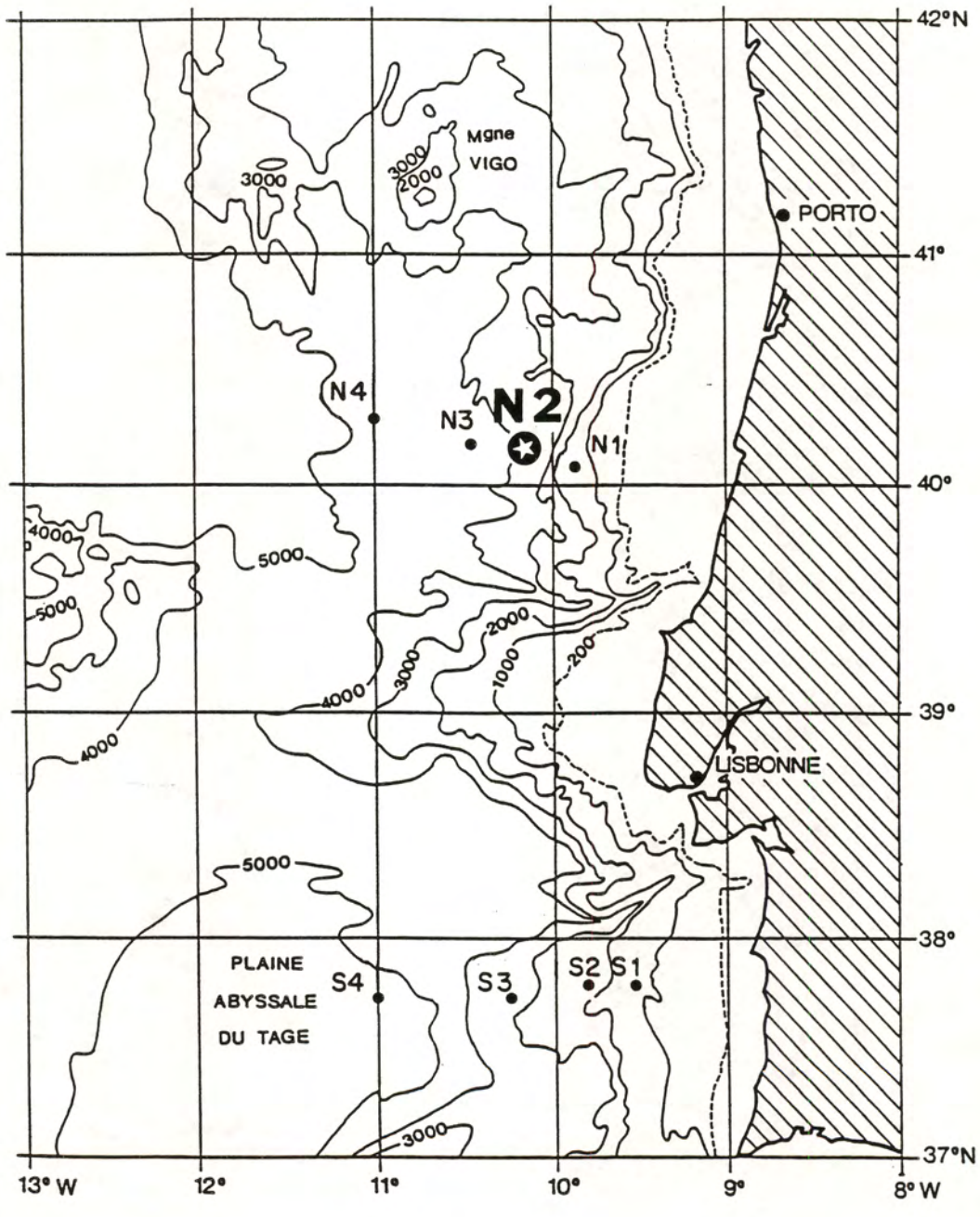
MOORING : N 1


N
400
(mm. s⁻¹)
0
-400
300 m
S
400
(mm. s⁻¹)
0
-400
700 m
400
(mm. s⁻¹)
0
-400
1000 m
400
(mm. s⁻¹)
0
-400
1000 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

MOORING : N1

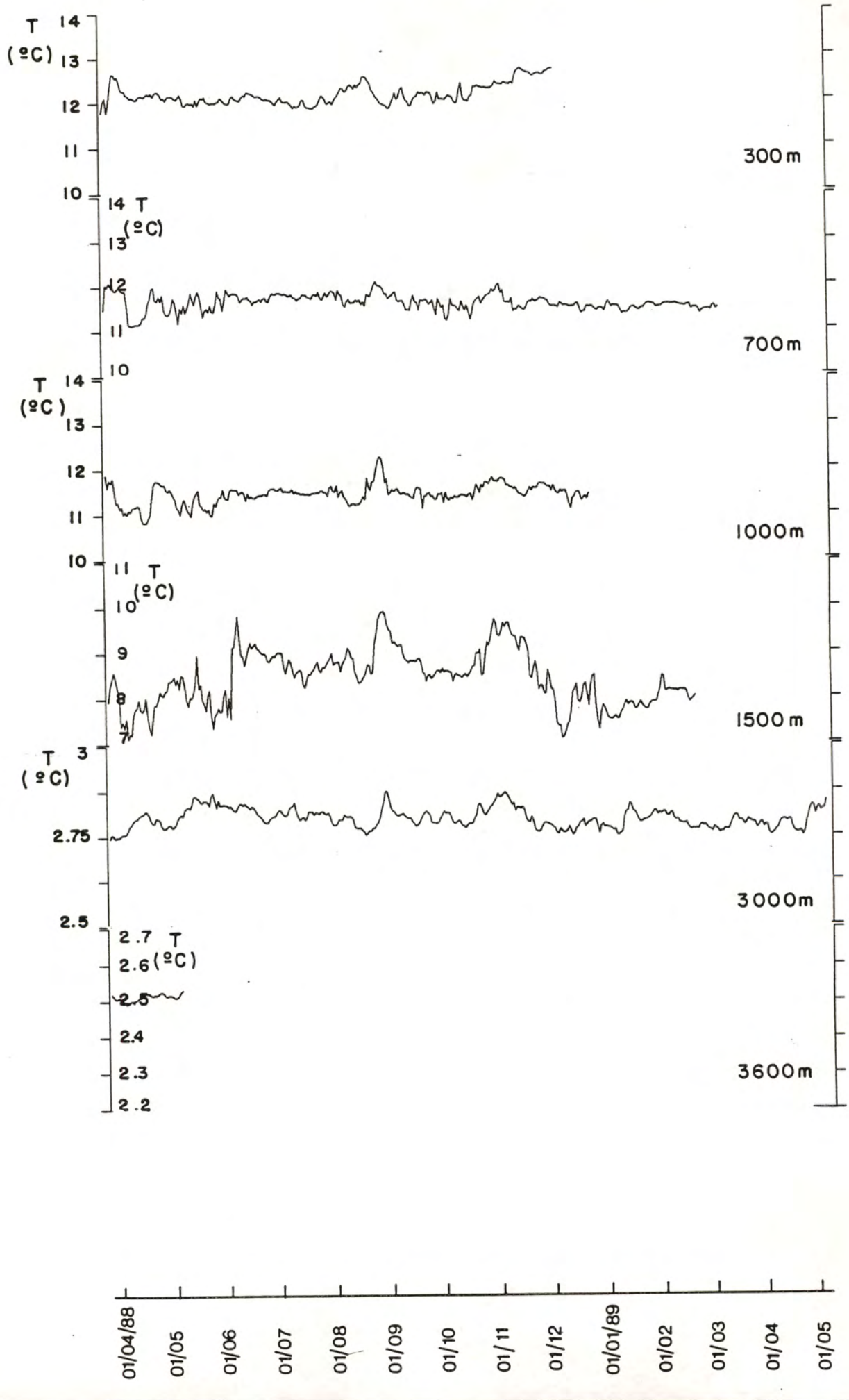

P (db)
500
400
300
200
300m
800
P (db)
700
600
500
700 m
P (db)
1200
1100
1000
900
1000 m
1200
P (db)
1100
1000
900
1000 m

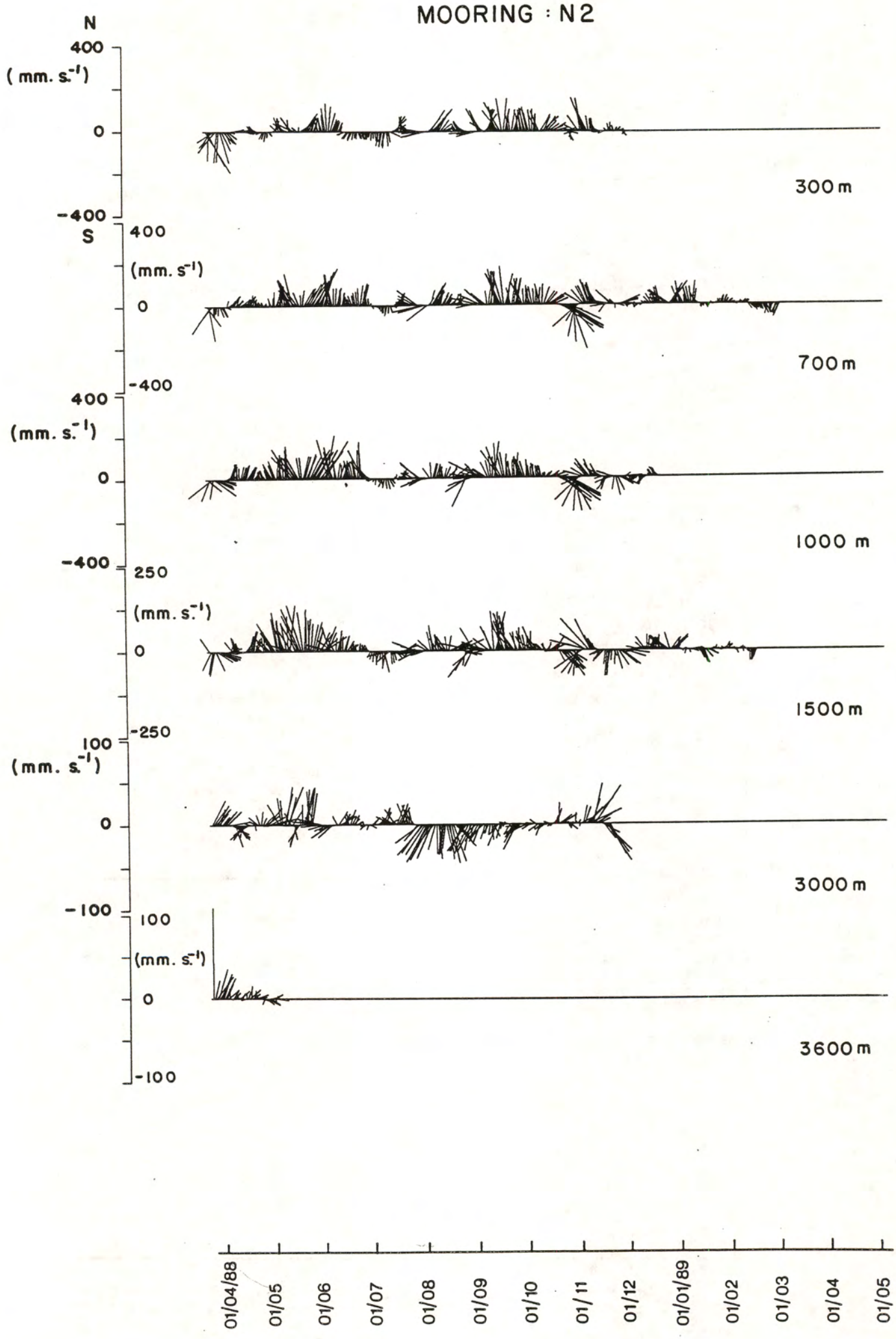

01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
5000
4000
3000
2000
1000
200
4000
LISBONNE
5000
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1
3000

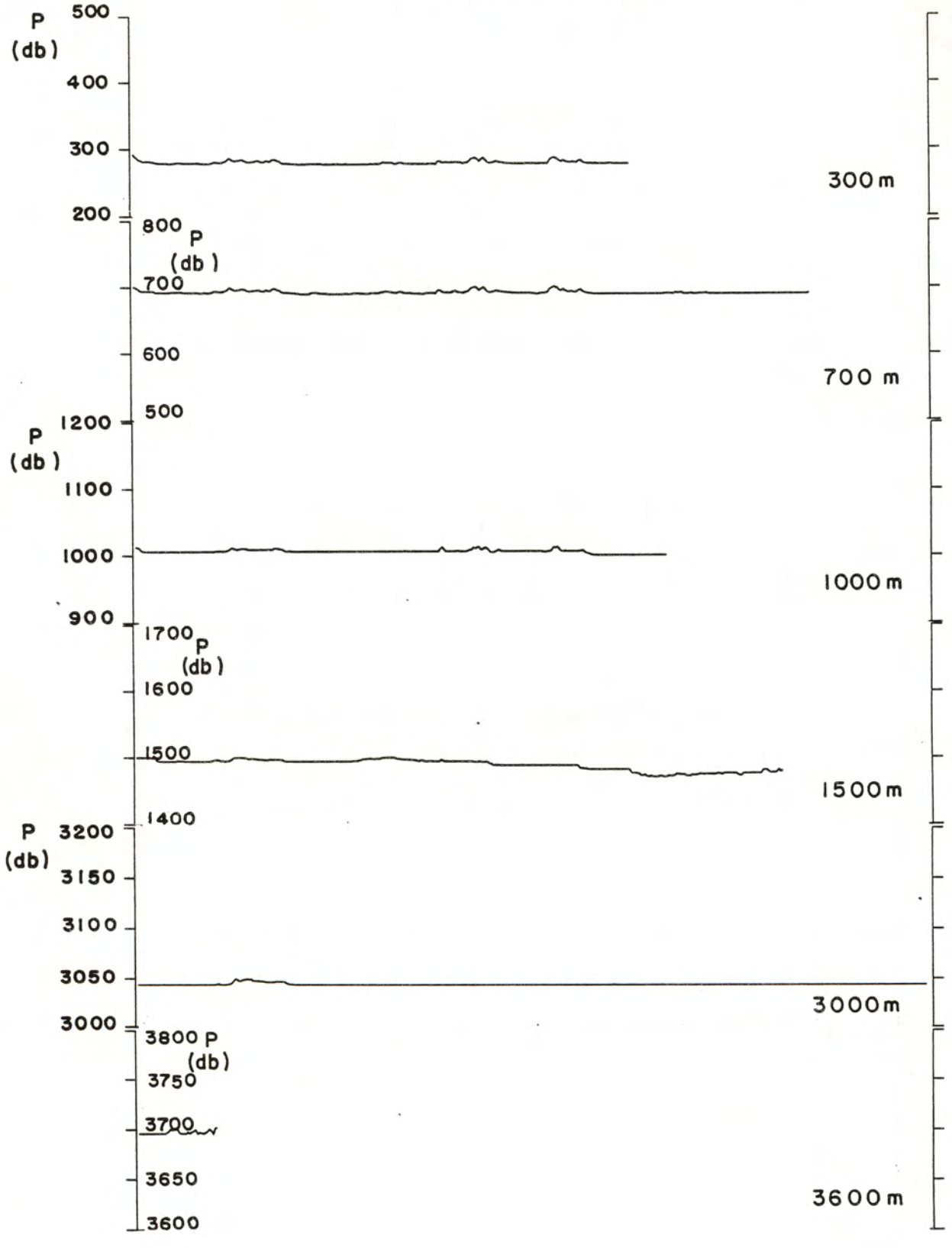
N2 MOORING

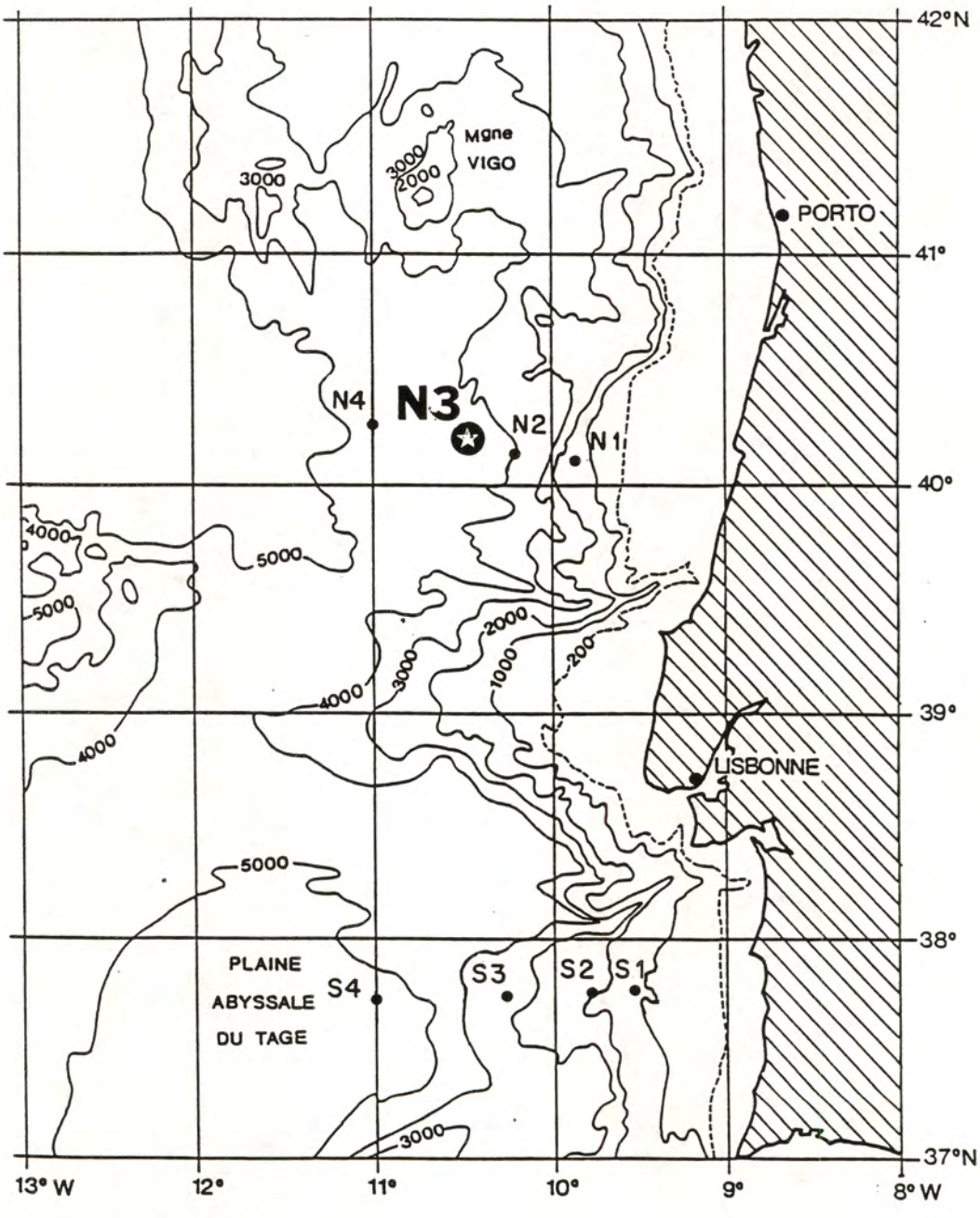
MOORING : N 2


T (ºC)
14
13
12
11
10
300m
14 T (ºC)
13
12
11
10
700m
T (ºC)
14
13
12
11
10
1000m
11 T (ºC)
10
9
8
7
1500m
T (ºC)
3
2.75
2.5
3000m
2.7 T (ºC)
2.6
2.5
2.4
2.3
2.2
3600m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


MOORING : N2
N
400
(mm. s.-1)
0
-400
300 m
S
400
(mm. s-1)
0
-400
700 m
400
(mm. s-1)
0
-400
1000 m
250
(mm. s-1)
0
-250
1500 m
100
(mm. s-1)
0
-100
3000 m
100
(mm. s-1)
0
-100
3600 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

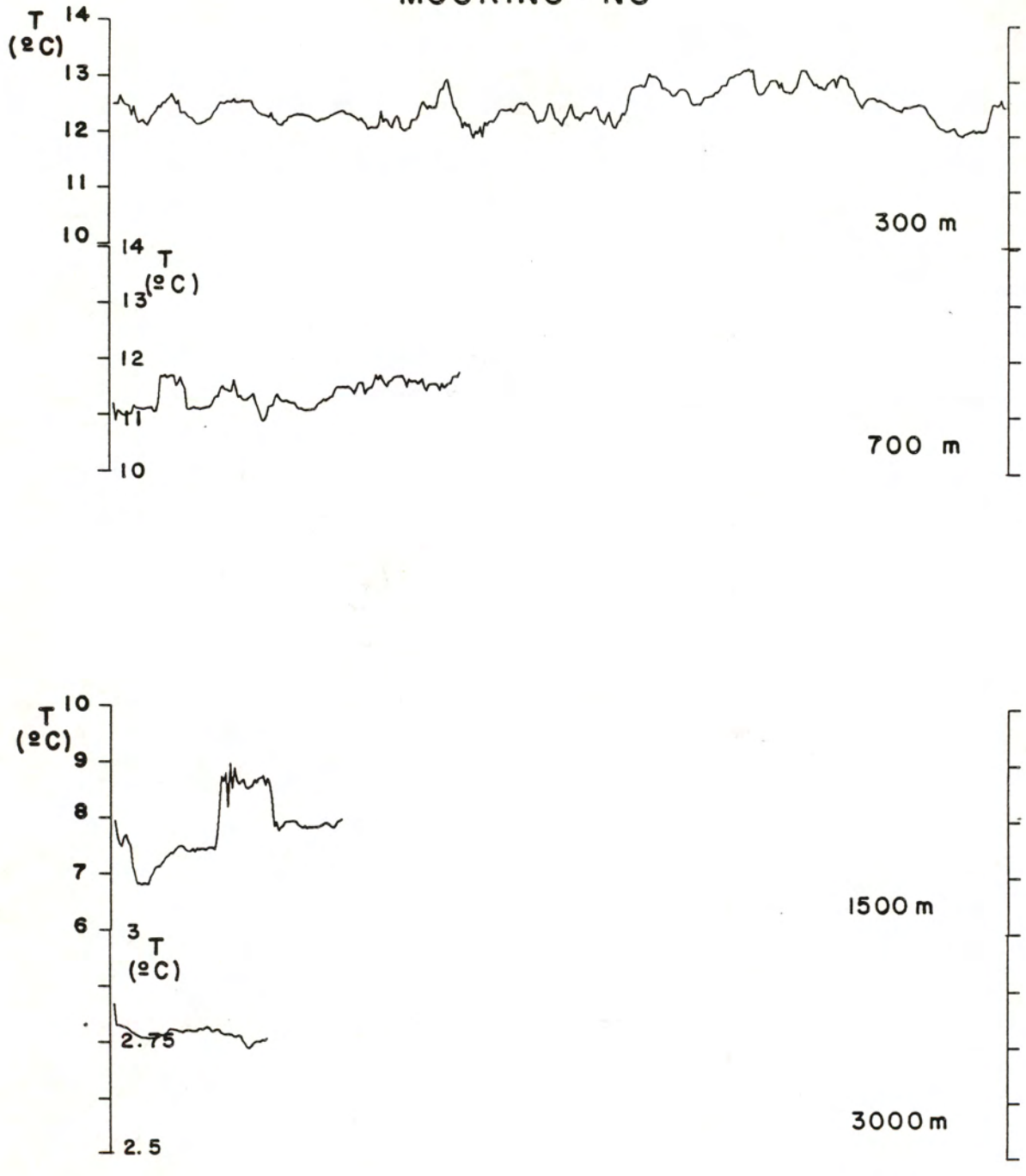
MOORING : N 2


P (db)
500
400
300
200
300 m
800
P (db)
700
600
500
700 m
1200
P (db)
1100
1000
900
1000 m
1700
P (db)
1600
1500
1400
1500 m
P (db)
3200
3150
3100
3050
3000
3000 m
3800
P (db)
3750
3700
3650
3600
3600 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

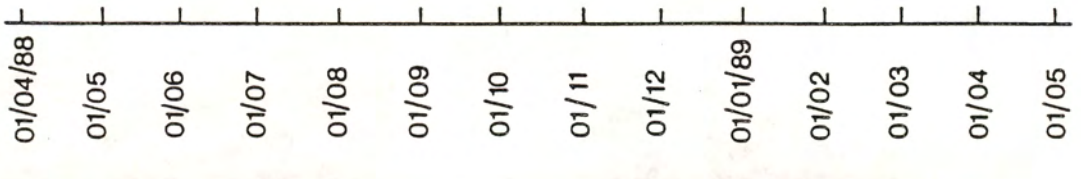

42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
1000
200
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

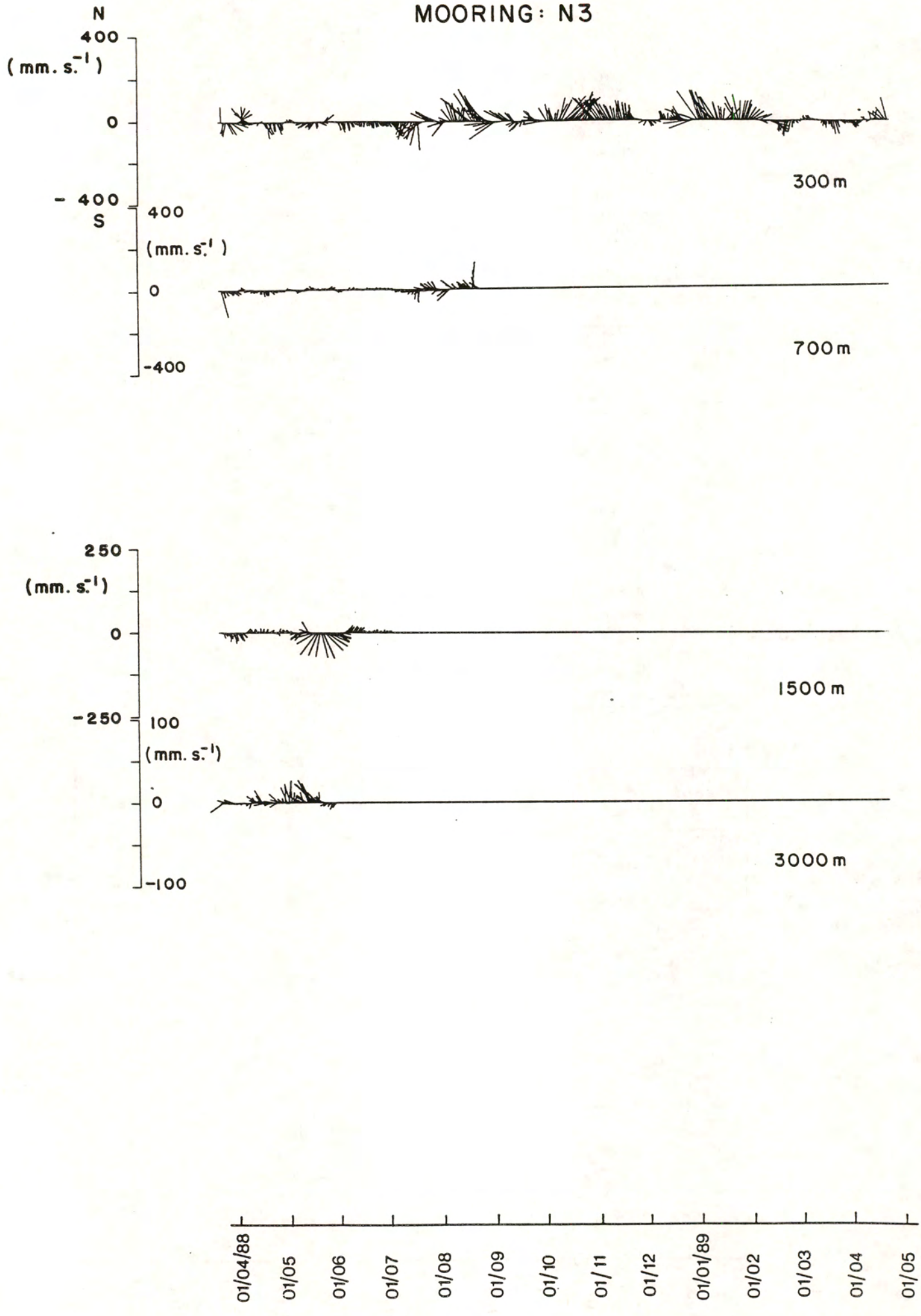
N3 MOORING

MOORING : N3

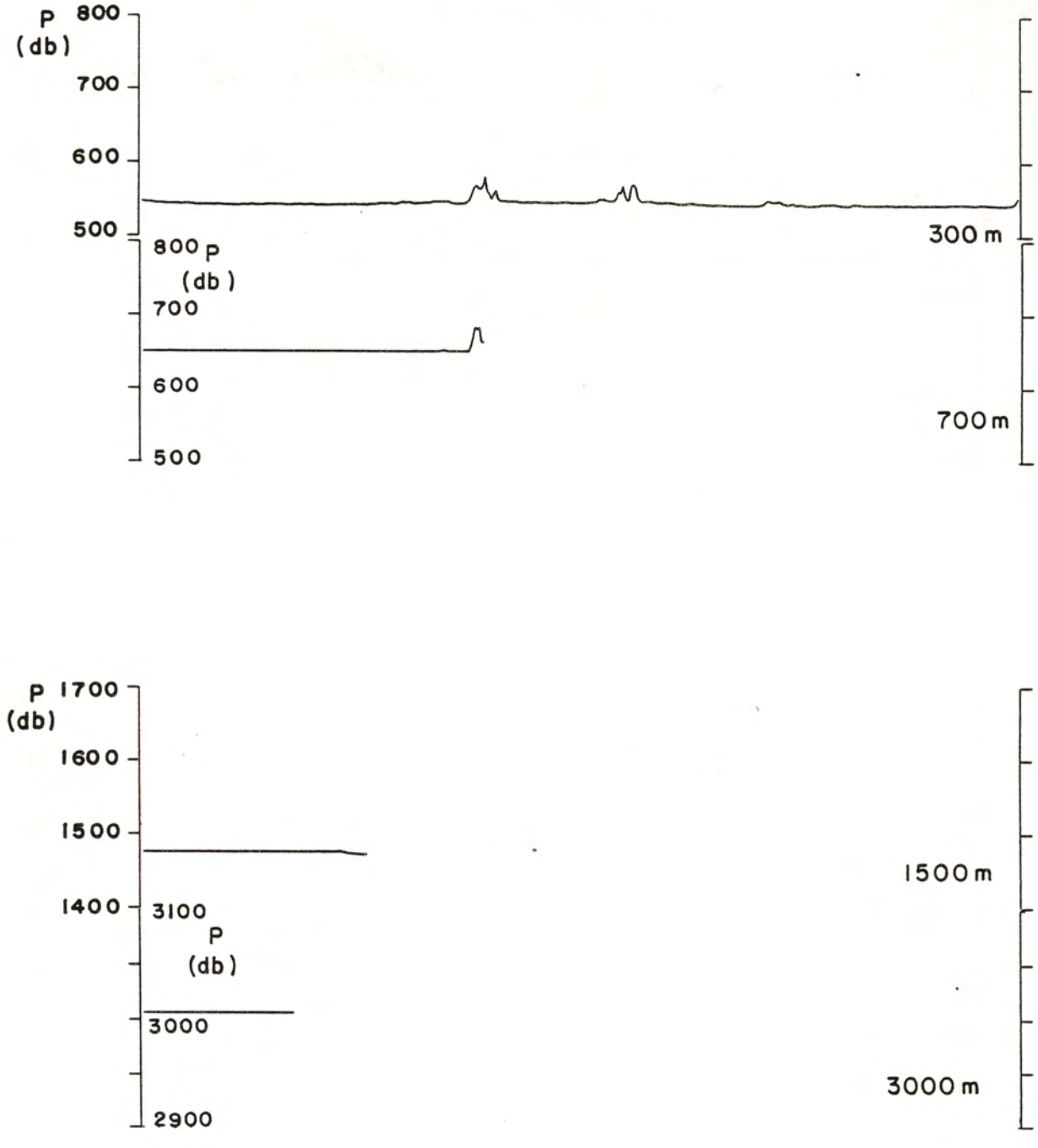

T (ºC)
14
13
12
11
10
300 m
14
T (ºC)
13
12
11
10
700 m

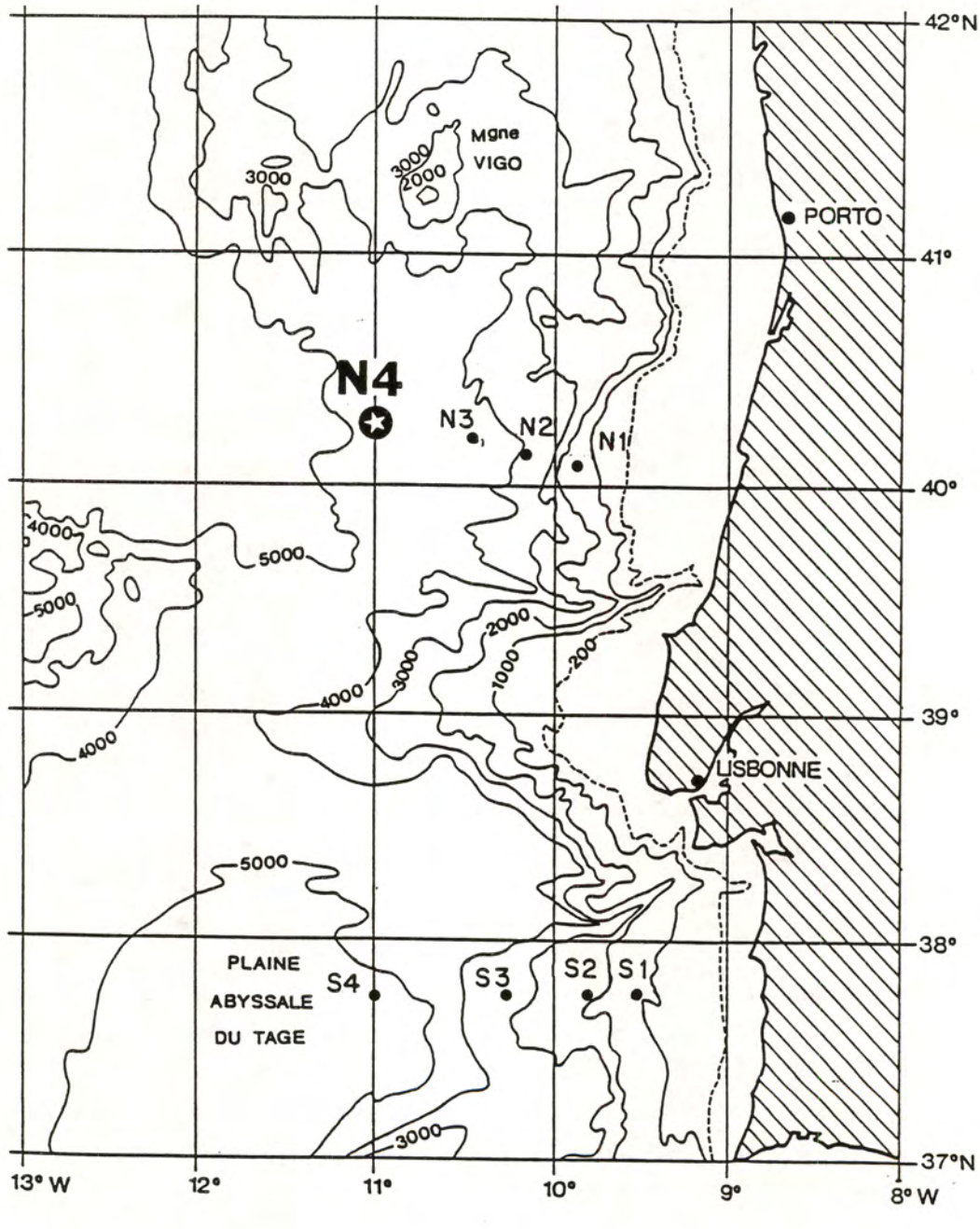
T (ºC)
10
9
8
7
6
1500 m
3
T (ºC)
2.75
2.5
3000 m


01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


MOORING: N3
N
400
(mm. s.⁻¹)
0
- 400
300 m
S
400
(mm. s.⁻¹)
0
-400
700 m
250
(mm. s.⁻¹)
0
-250
1500 m
100
(mm. s.⁻¹)
0
-100
3000 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

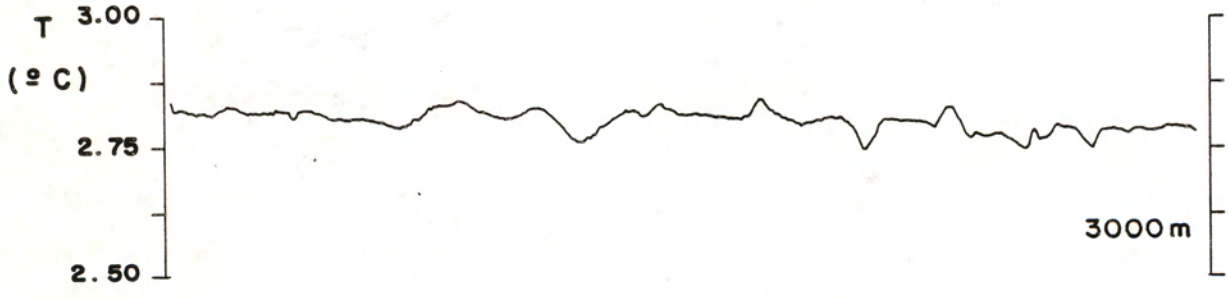
MOORING : N3

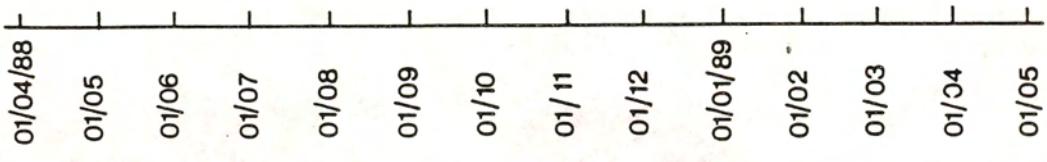

P (db)
800
700
600
500
300 m
800 P (db)
700
600
500
700 m
P (db)
1700
1600
1500
1400
1500 m
3100 P (db)
3000
2900
3000 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
1000
200
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

N4 MOORING

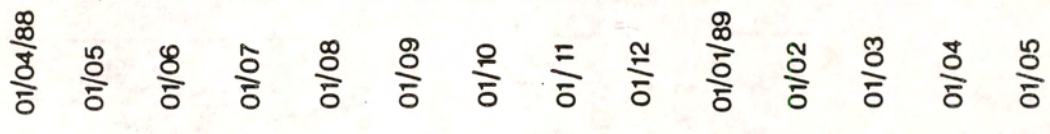
MOORING : N4


T
(º C)
3.00
2.75
2.50
3000 m

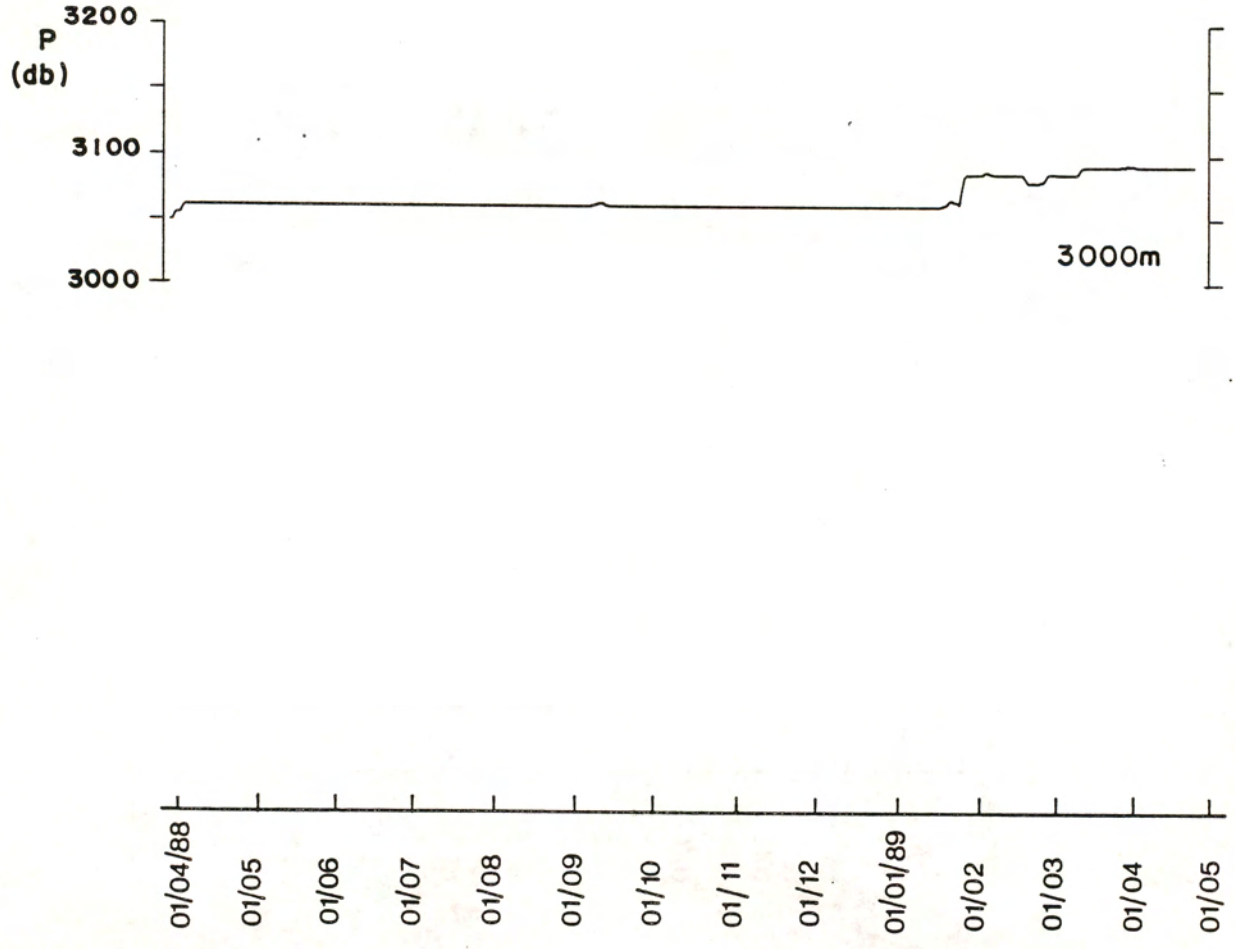

01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

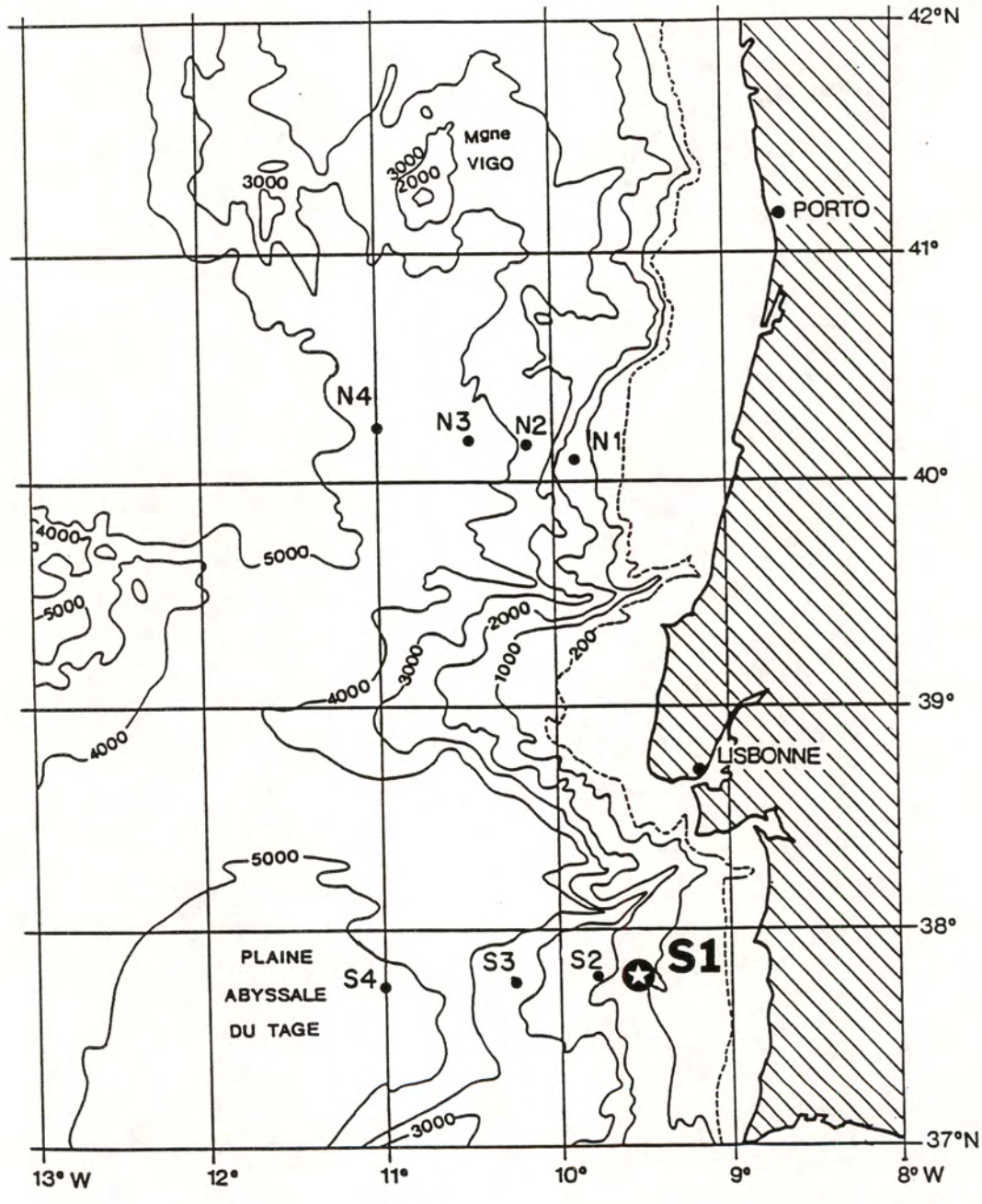
MOORING : N4


100
(mm.s.-1)
0
-100
3000 m


01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

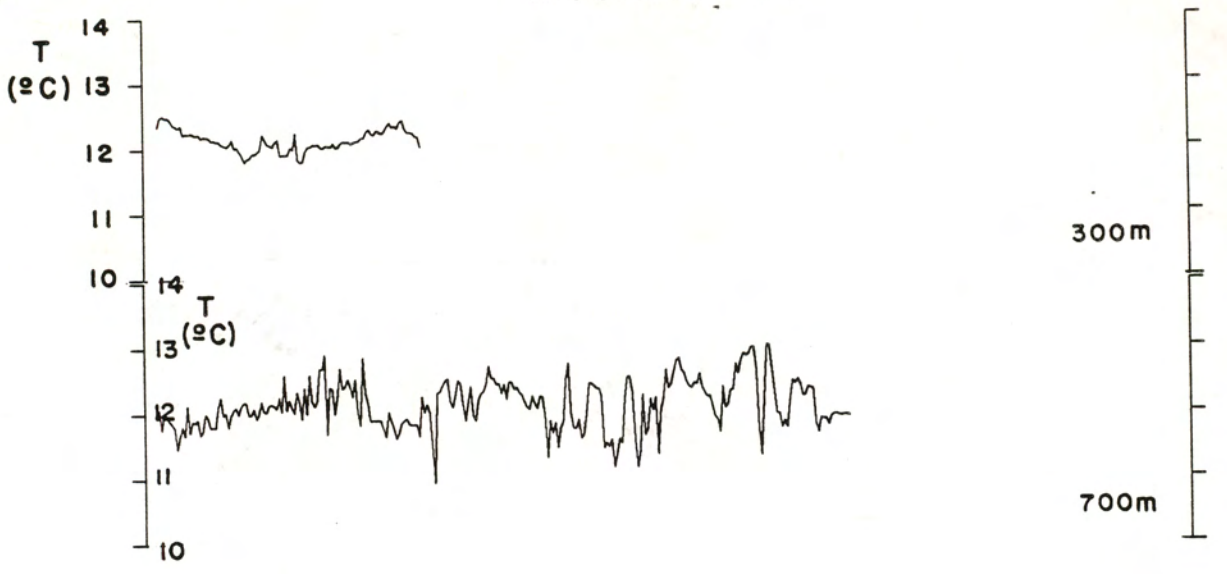
MOORING : N4

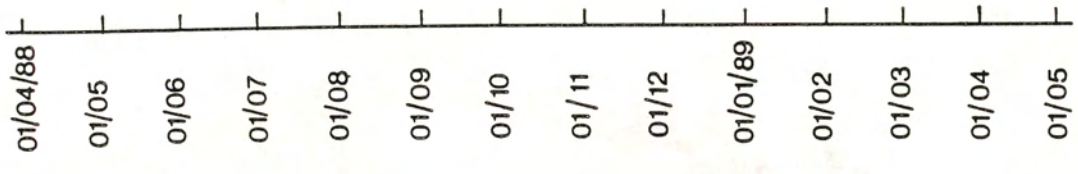

P
(db)
3200
3100
3000
3000m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
1000
200
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

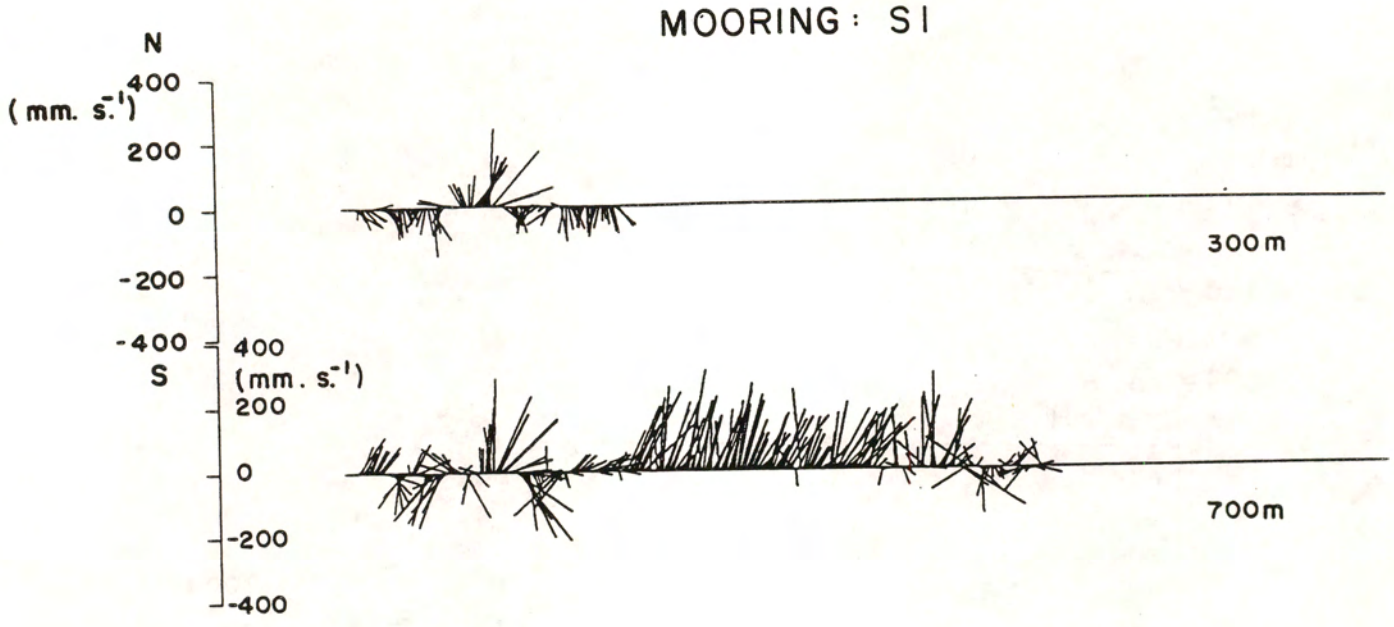
S1 MOORING

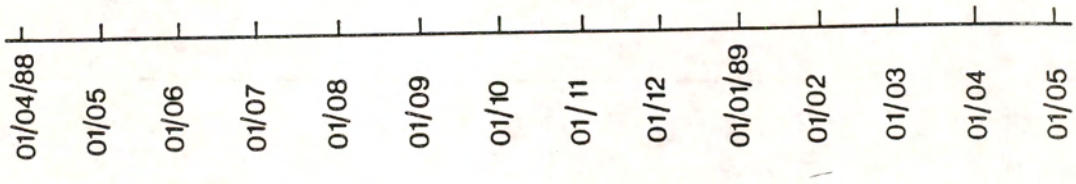
MOORING: S I


T
(ºC)
14
13
12
11
10
300m
T
(ºC)
14
13
12
11
10
700m

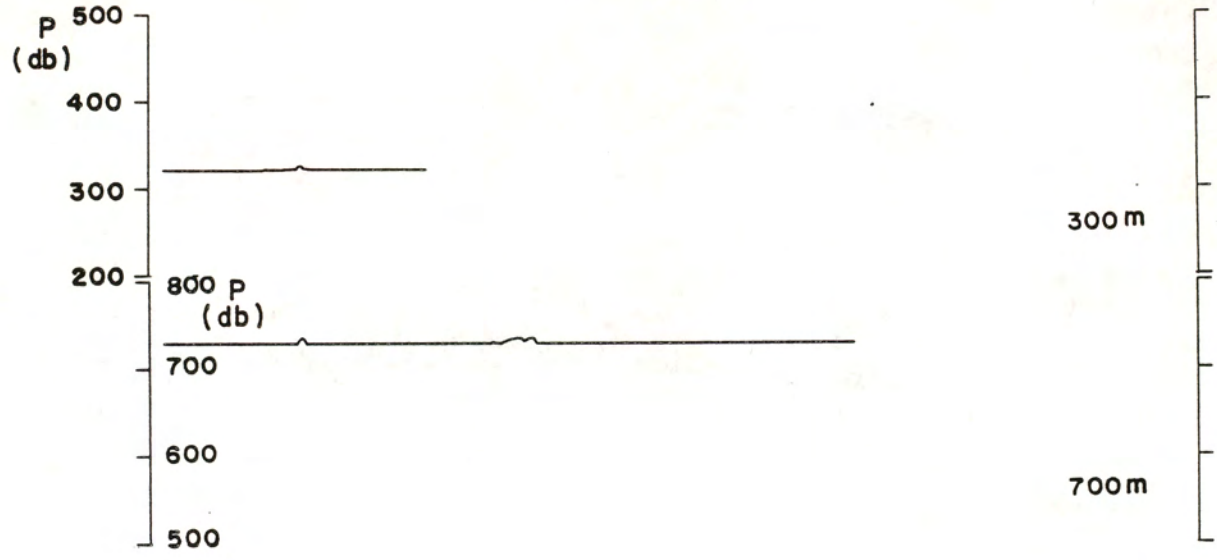

01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

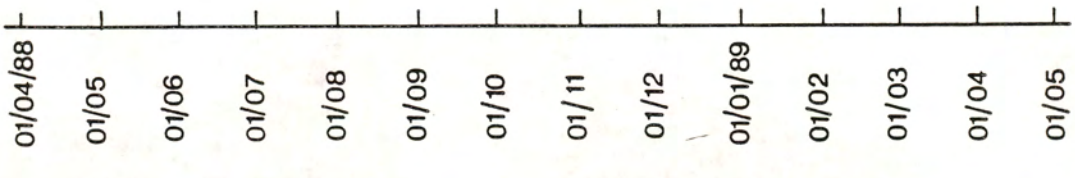
MOORING : S1

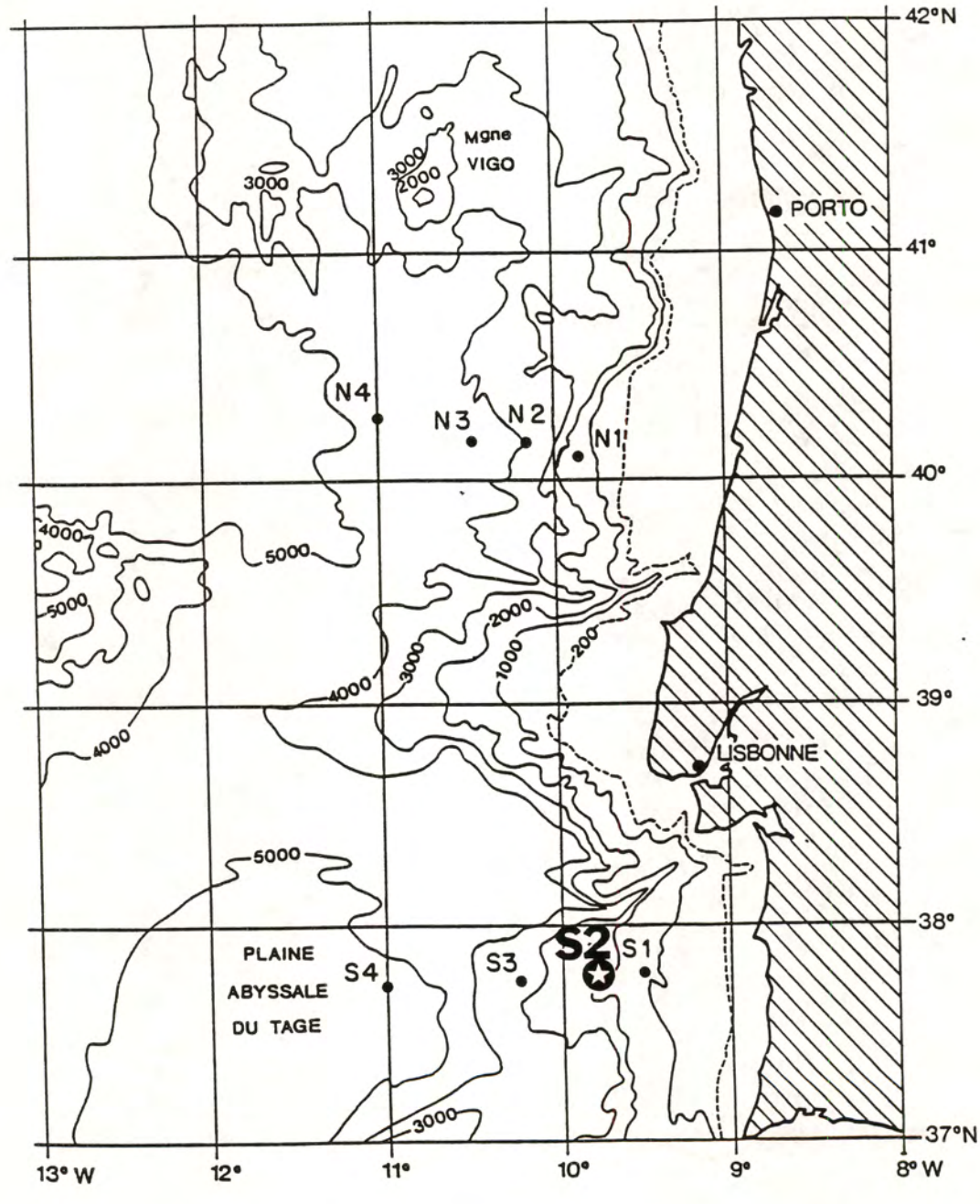

N
(mm. s.⁻¹)
400
200
0
-200
-400
300m
S
400
(mm. s.⁻¹)
200
0
-200
-400
700m


01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

MOORING : S I

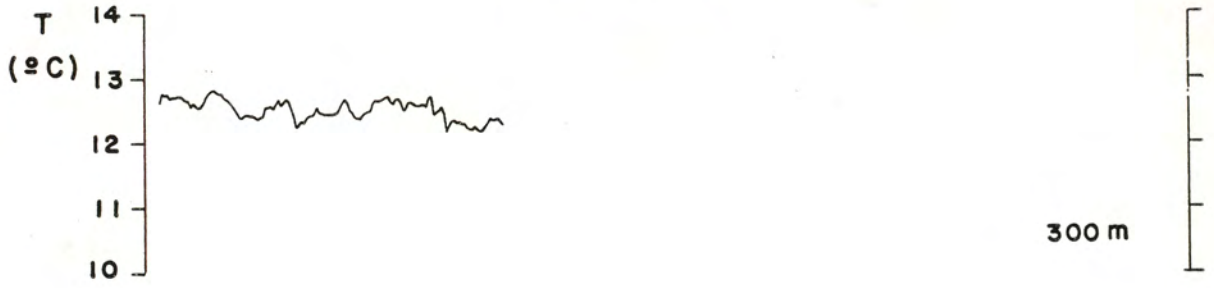

P
(db)
500
400
300
200
800 P
(db)
700
600
500
300 m
700 m

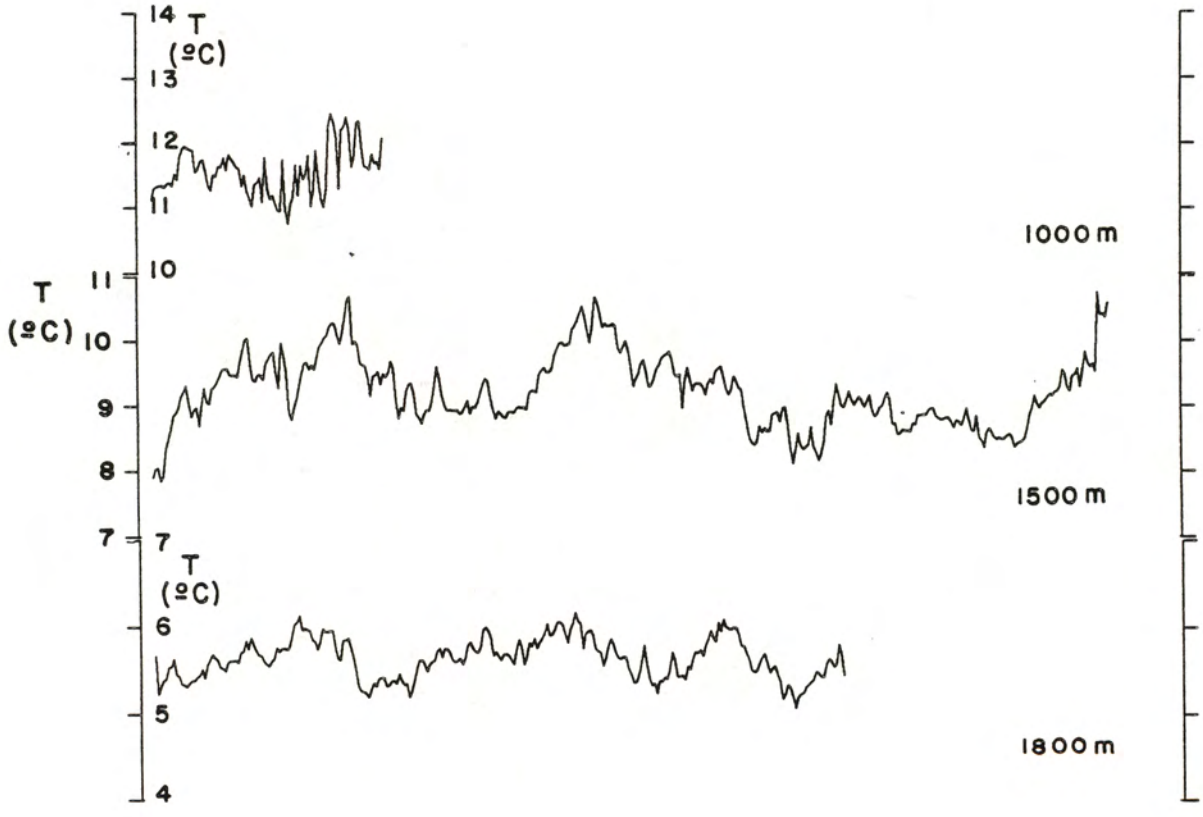

01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

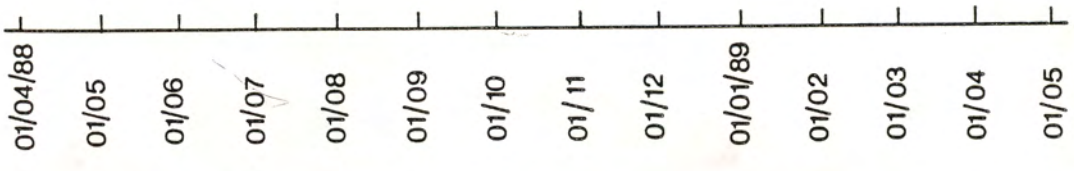

42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
1000
200
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

S2 MOORING

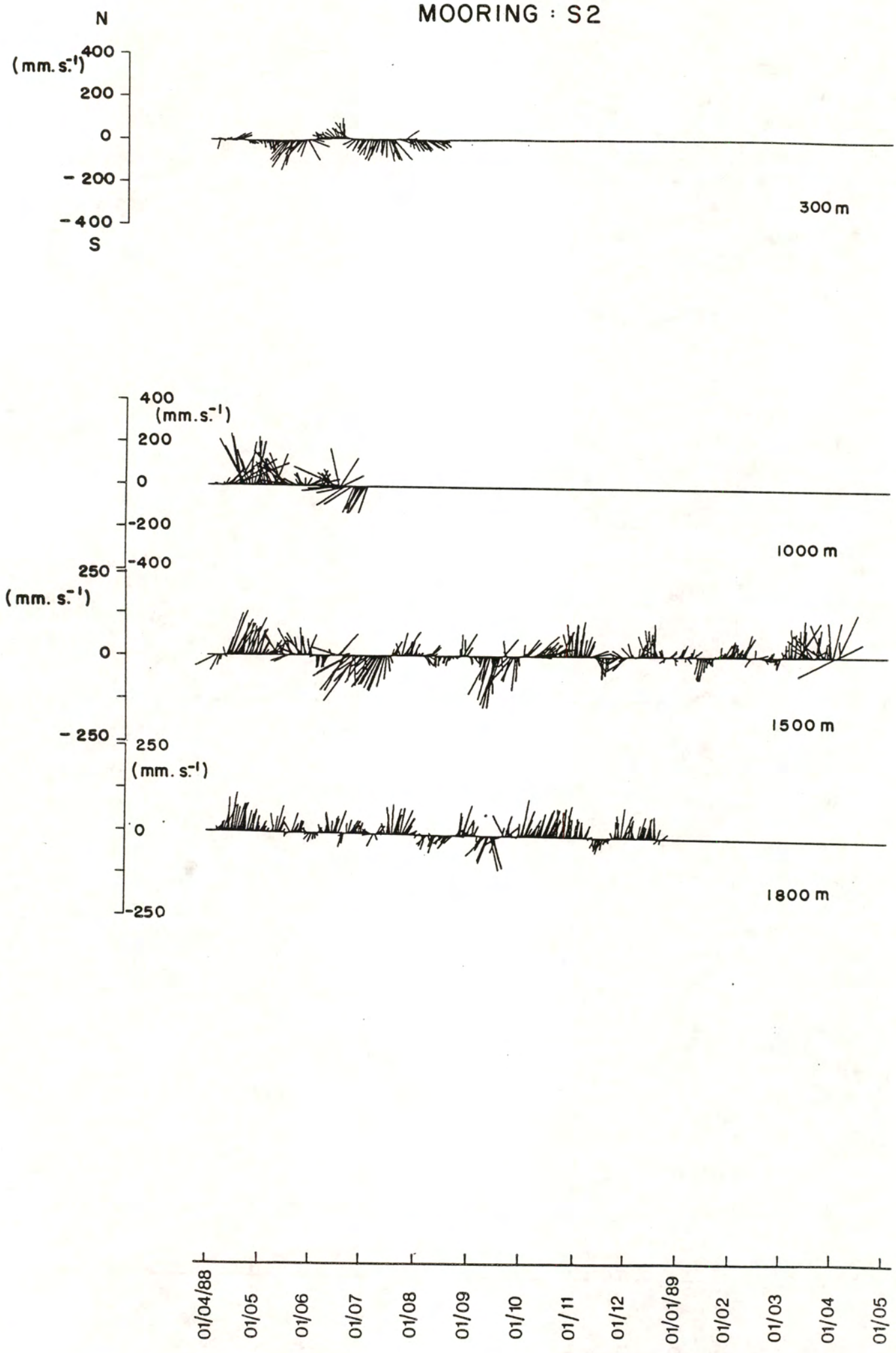
MOORING : S2


T
(ºC)
14
13
12
11
10
300 m

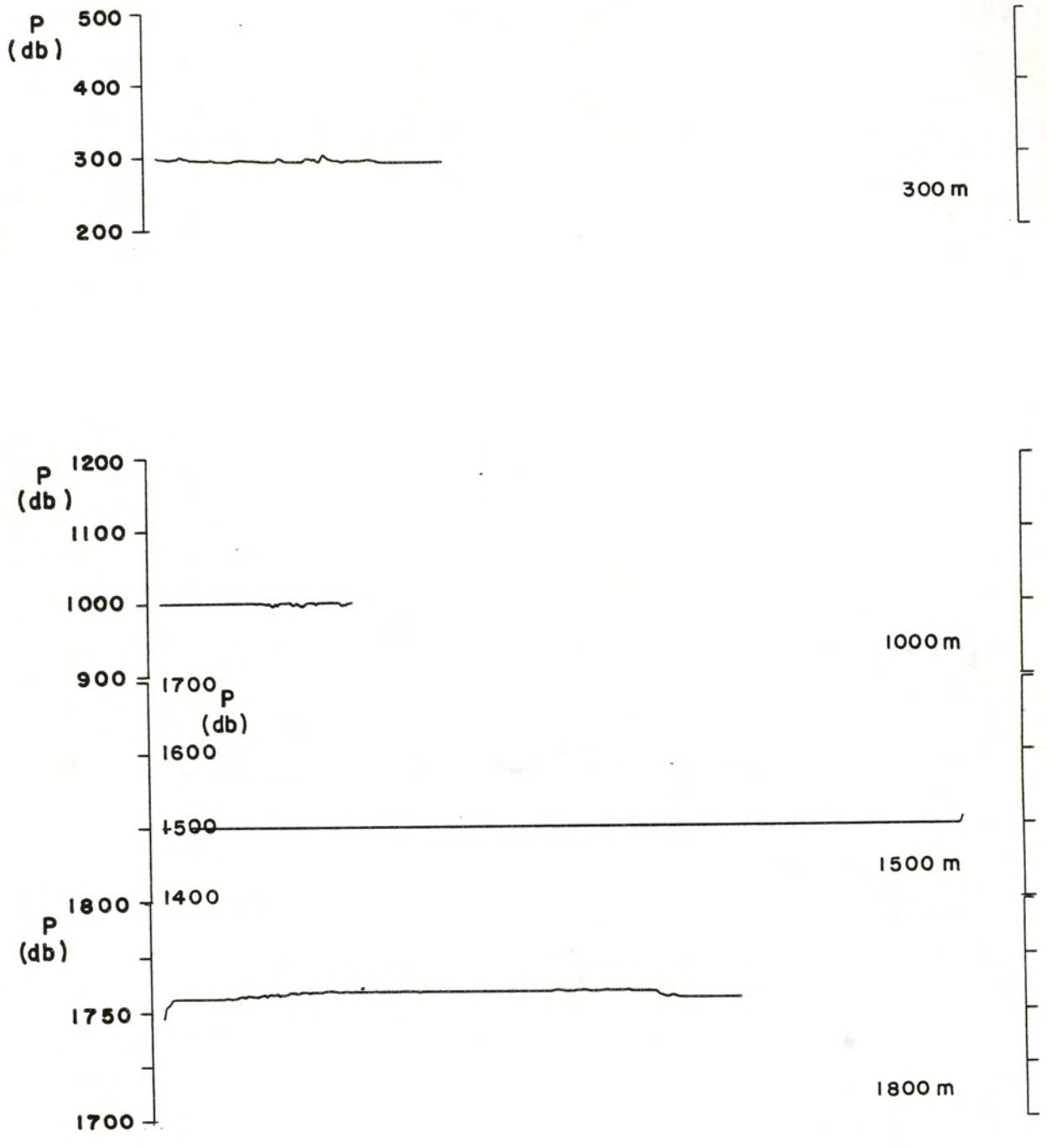

14
T
(ºC)
13
12
11
1000 m
T
(ºC)
11
10
9
8
7
1500 m
7
T
(ºC)
6
5
4
1800 m

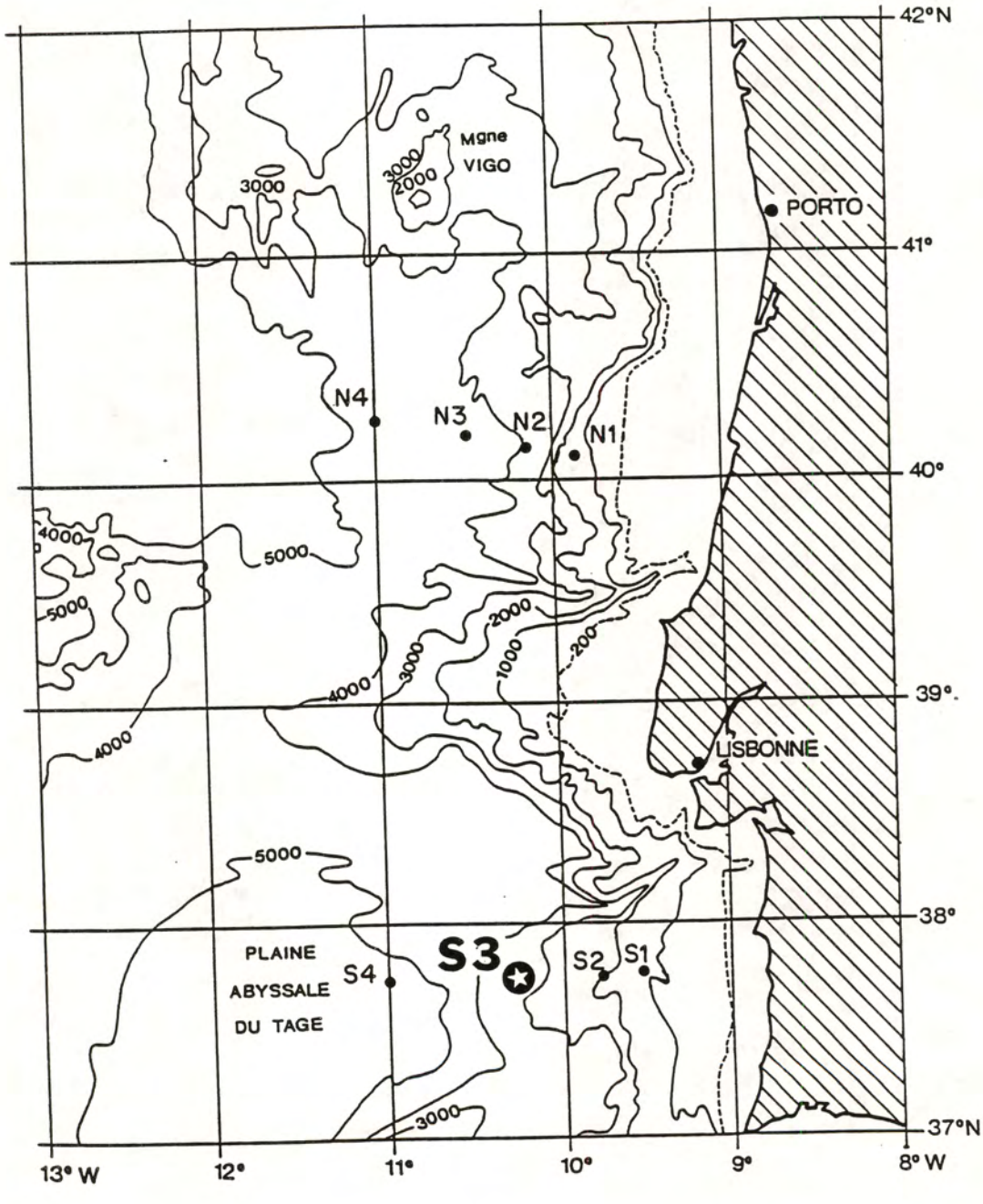

01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

MOORING : S2

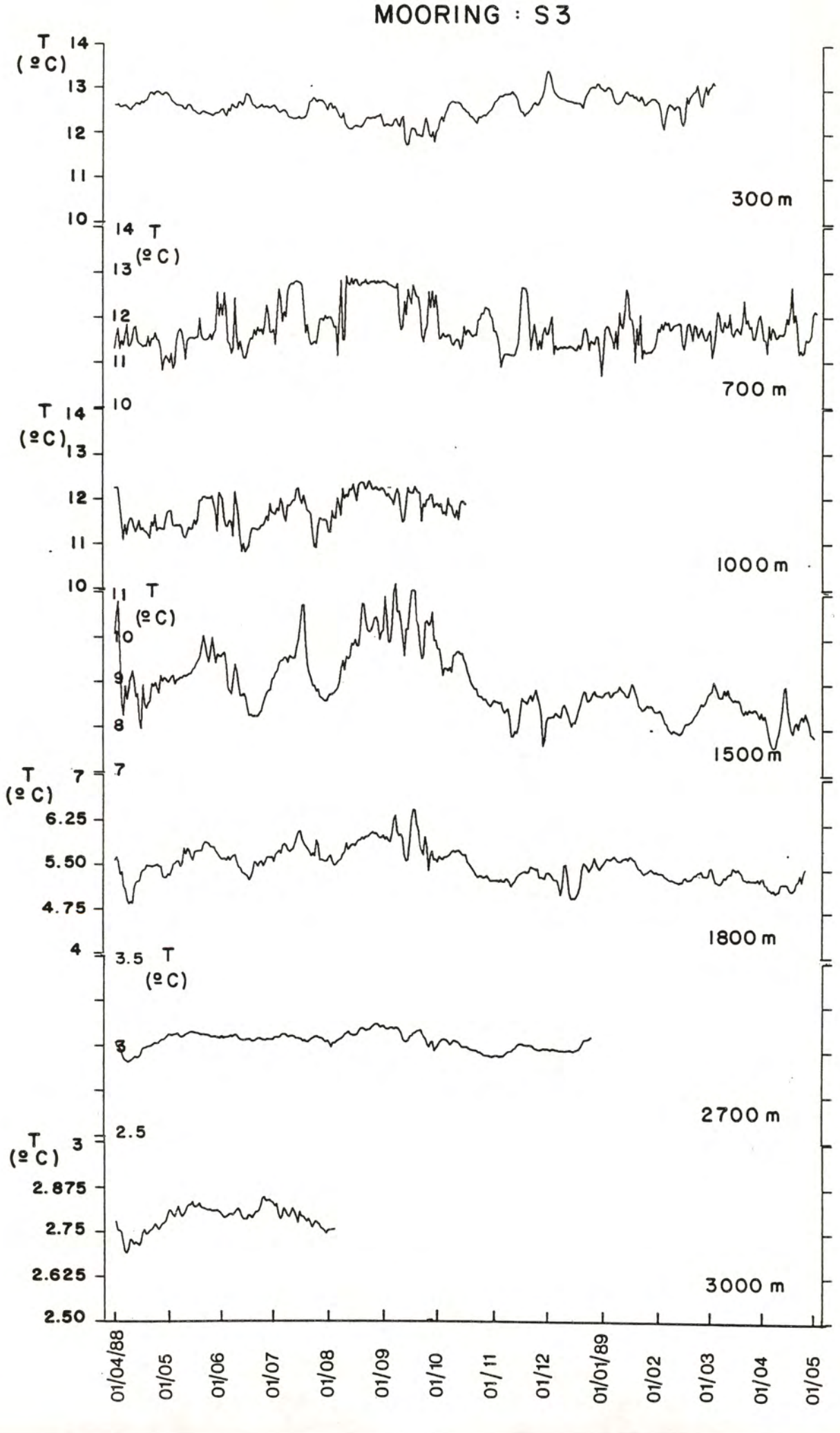

N
(mm.s.-1)
400
200
0
- 200
-400
S
300 m
400
(mm.s.-1)
200
0
-200
-400
1000 m
250
(mm. s.-1)
0
- 250
1500 m
250
(mm. s.-1)
0
-250
1800 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

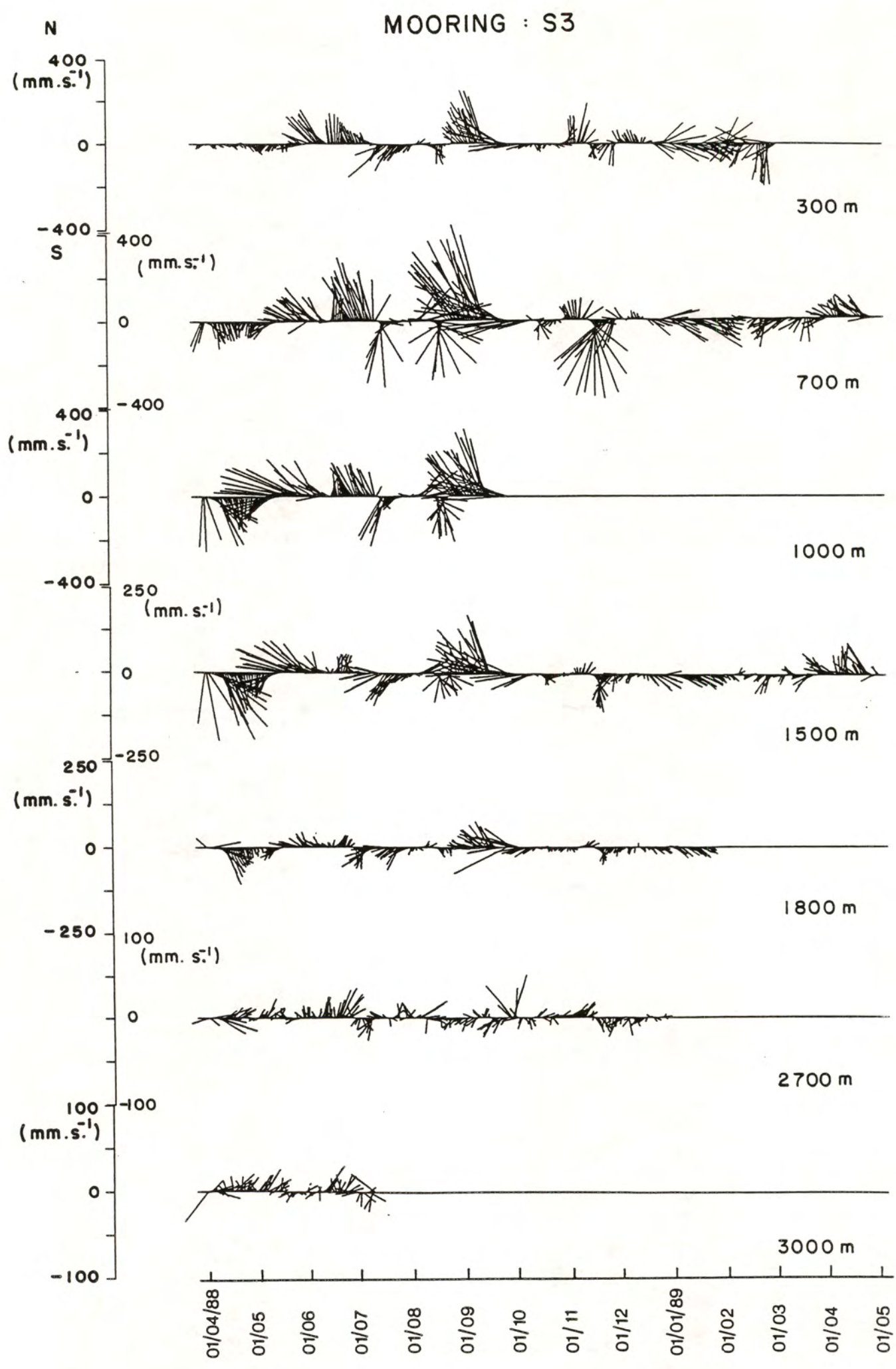
MOORING S2


P
(db)
500
400
300
200
300 m
P
(db)
1200
1100
1000
900
1000 m
1700
P
(db)
1600
1500
1500 m
1800
1400
P
(db)
1750
1700
1800 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

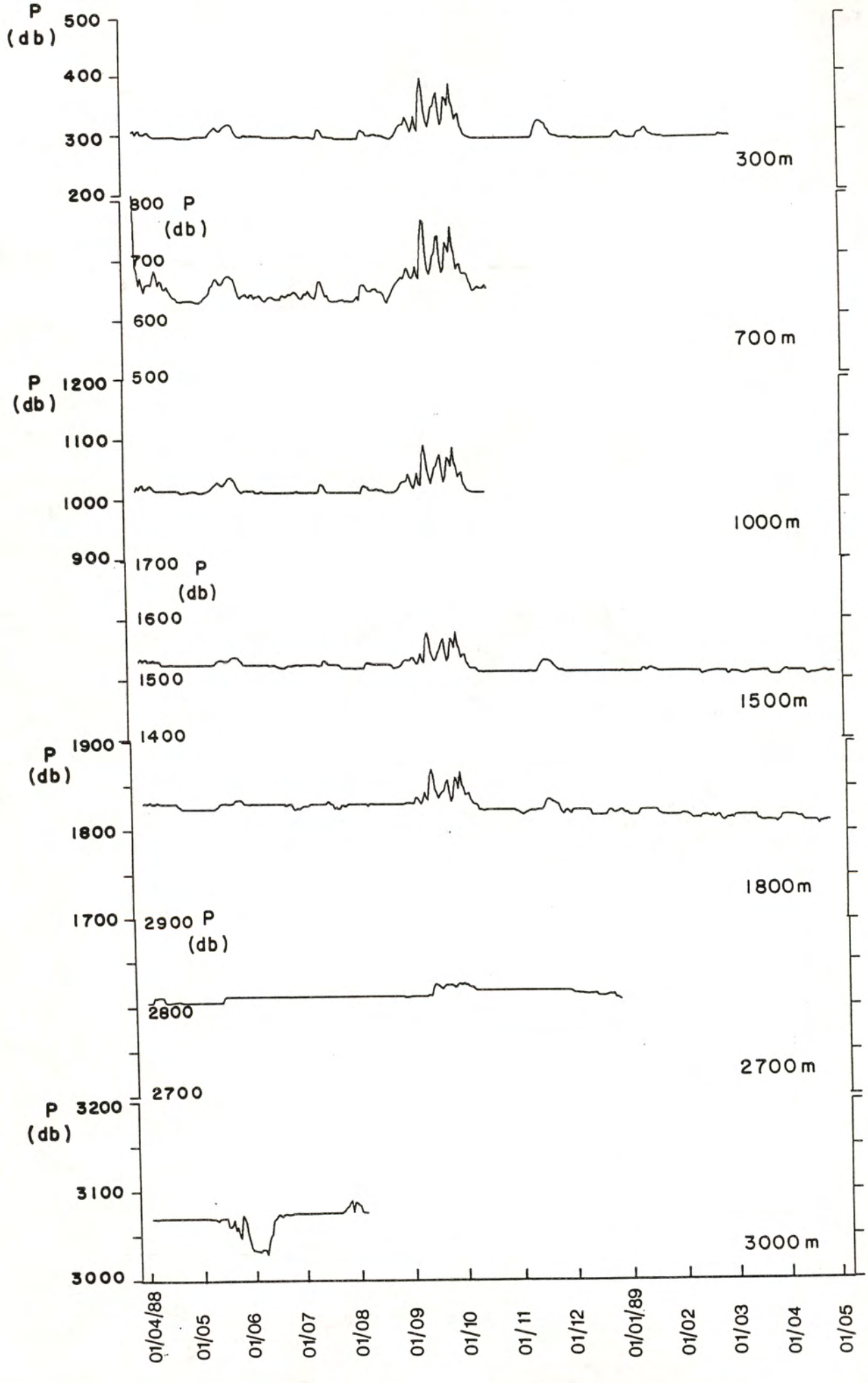

42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
5000
4000
3000
2000
1000
200
4000
5000
3000
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

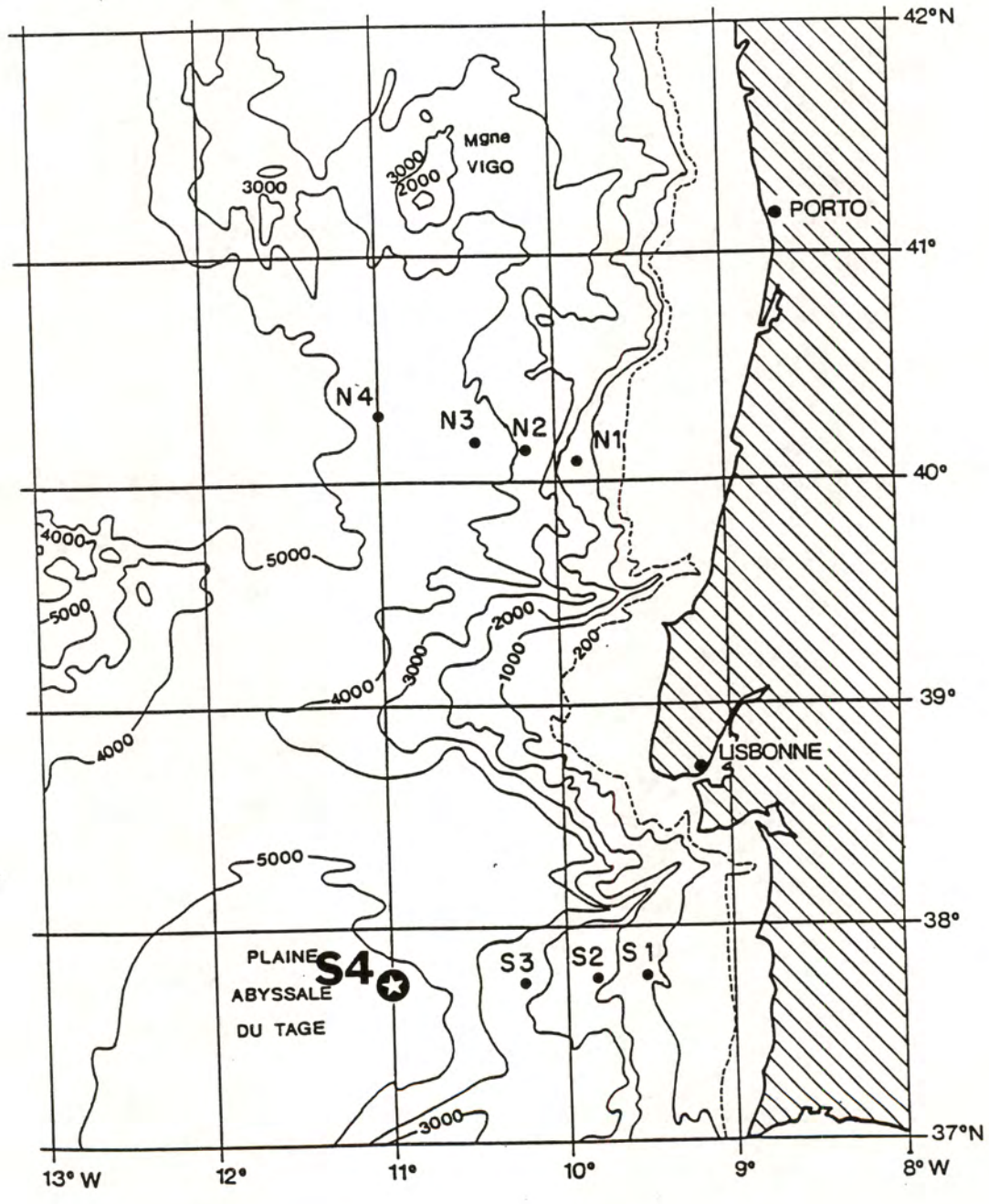
S3 MOORING


MOORING : S3
T (ºC)
14
13
12
11
10
300 m
14 T (ºC)
13
12
11
10
700 m
T (ºC)
14
13
12
11
10
1000 m
11 T (ºC)
10
9
8
7
1500 m
T (ºC)
7
6.25
5.50
4.75
4
1800 m
3.5 T (ºC)
3
2.5
2700 m
T (ºC)
3
2.875
2.75
2.625
2.50
3000 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


MOORING : S3
N
400
(mm.s.-1)
0
-400
300 m
S
400
(mm.s.-1)
0
-400
700 m
400
(mm.s.-1)
0
-400
1000 m
250
(mm.s.-1)
0
-250
1500 m
250
(mm.s.-1)
0
-250
1800 m
100
(mm.s.-1)
0
-100
2700 m
100
(mm.s.-1)
0
-100
3000 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

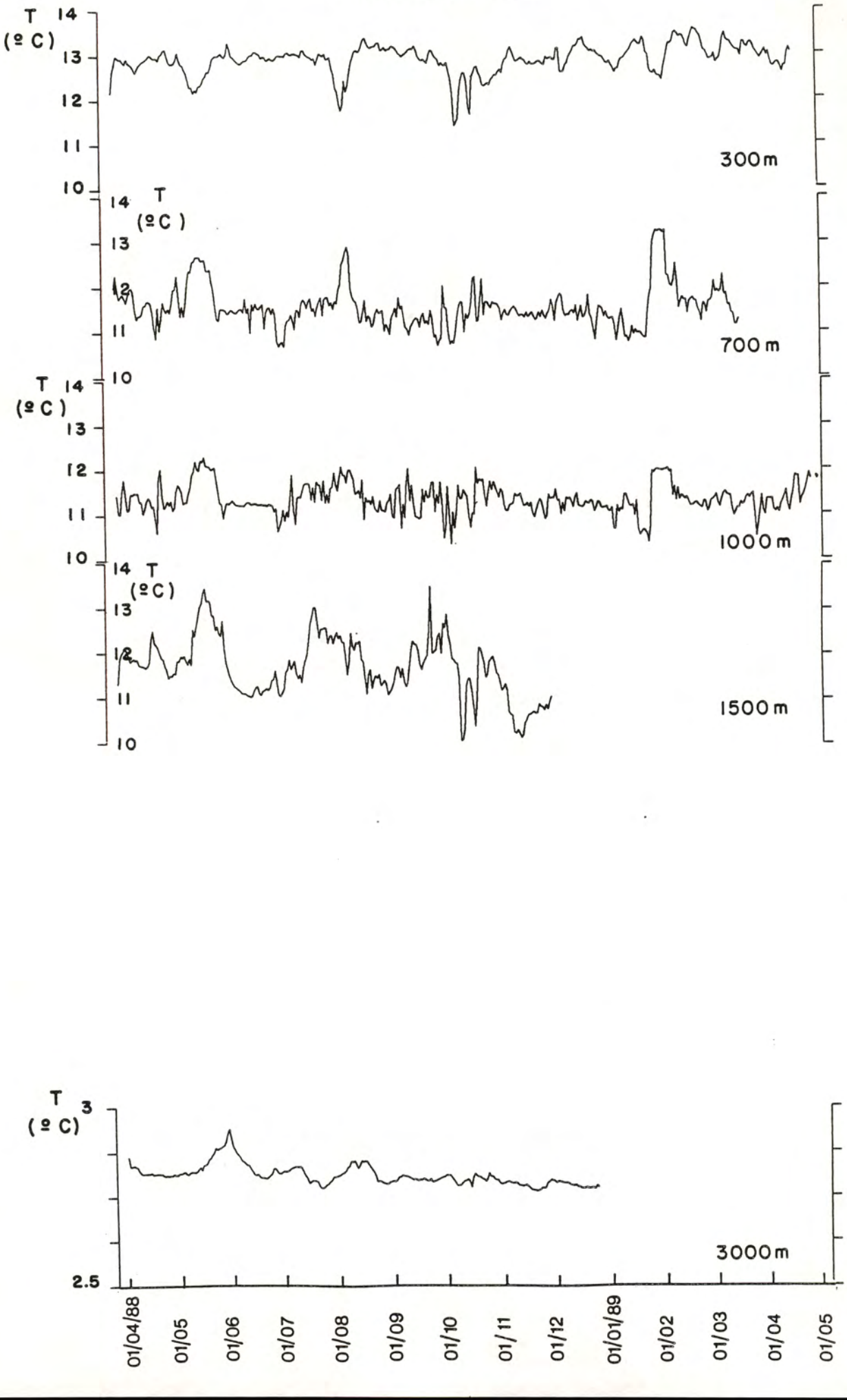
MOORING : S3

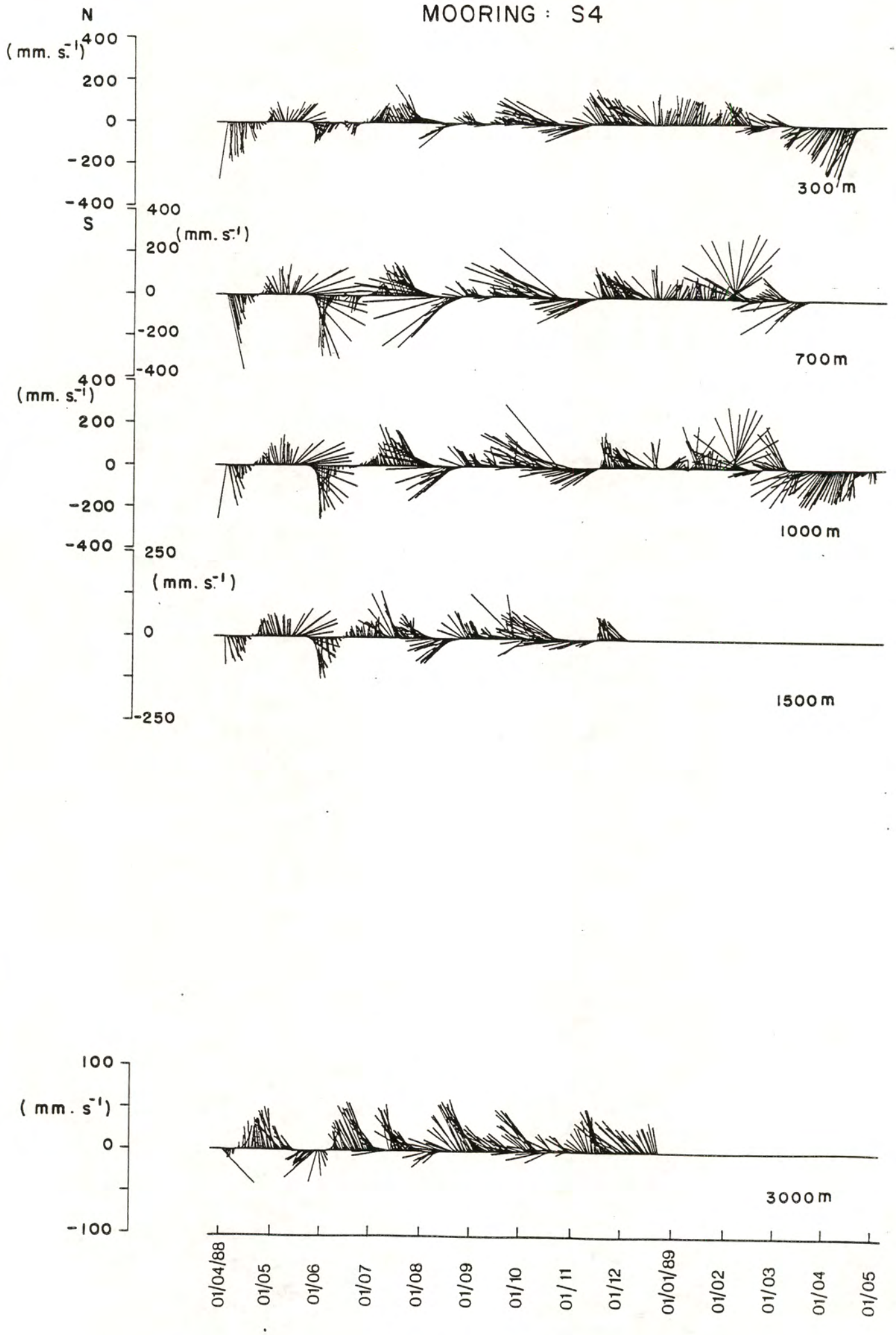

P (db)
500
400
300
200
300m
800 P (db)
700
600
700 m
P (db)
1200
1100
1000
900
500
1000m
1700 P (db)
1600
1500
1500m
1400
P (db)
1900
1800
1800m
1700
2900 P (db)
2800
2700m
2700
P (db)
3200
3100
3000
3000 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
1000
200
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

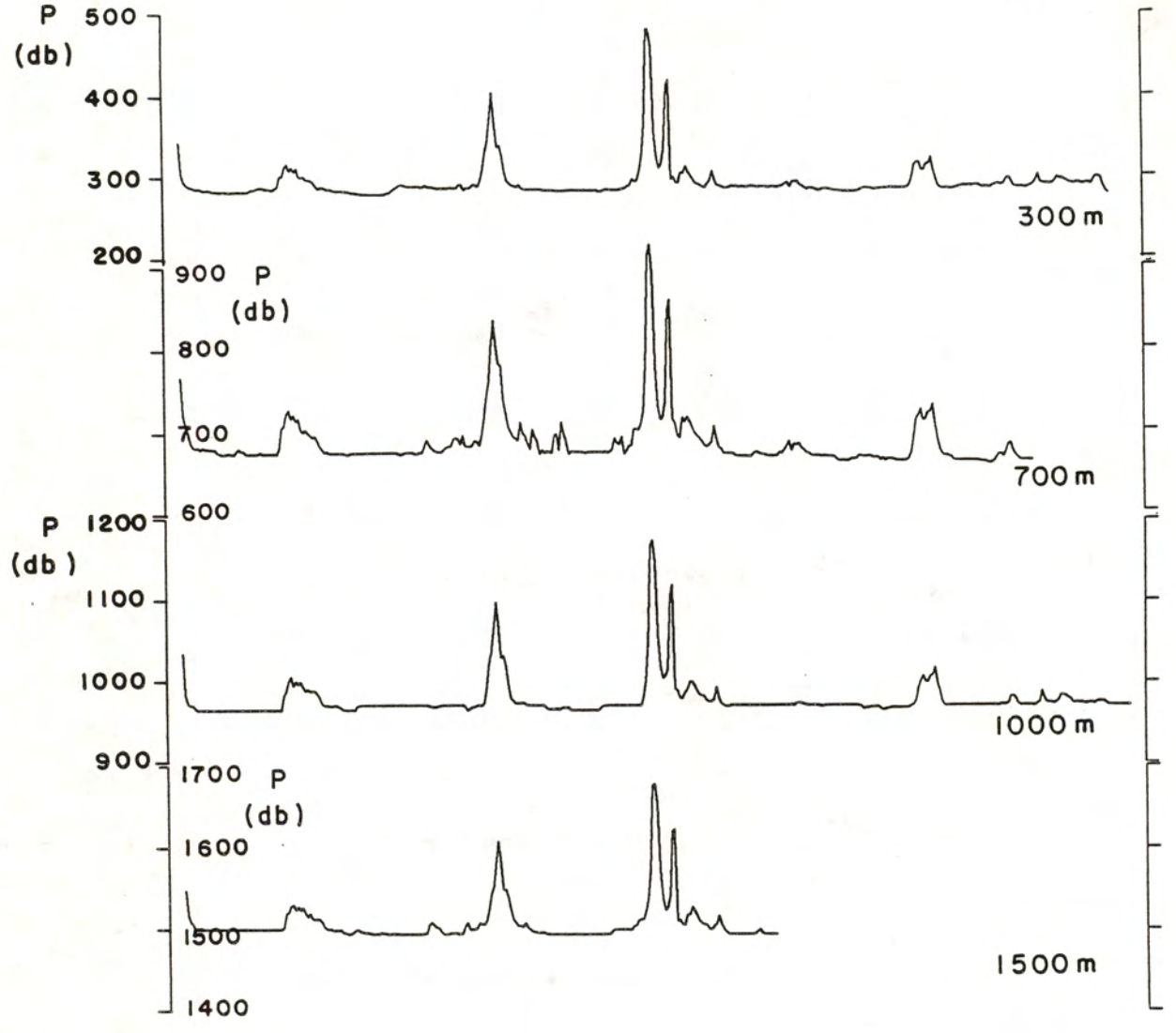
S4 MOORING

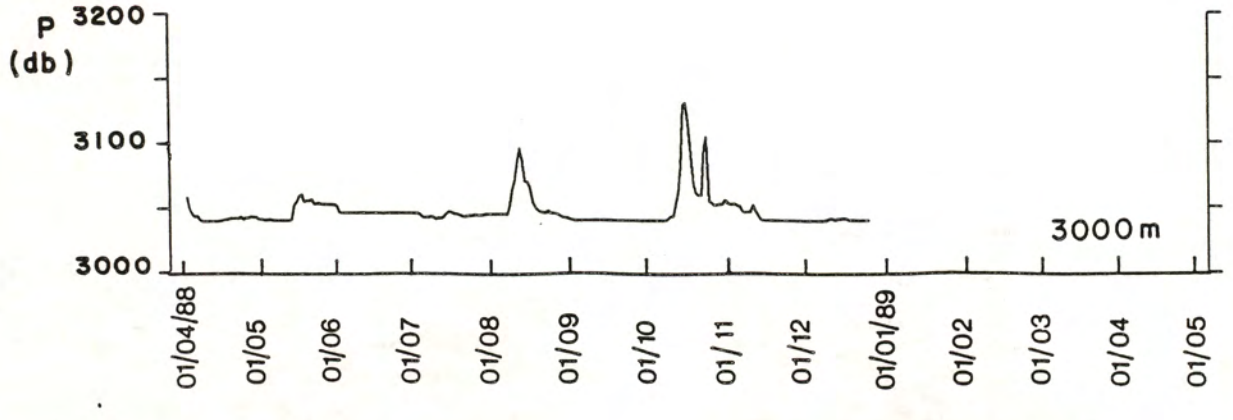
MOORING : S4


T (ºC)
14
13
12
11
10
300m
700m
1000m
1500m
3000m
2.5
3
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05


MOORING : S4
N
(mm. s⁻¹)
400
200
0
-200
-400
300 m
S
400
(mm. s⁻¹)
200
0
-200
-400
700 m
400
(mm. s⁻¹)
200
0
-200
-400
1000 m
250
(mm. s⁻¹)
0
-250
1500 m
100
(mm. s⁻¹)
0
-100
3000 m
01/04/88
01/05
01/06
01/07
01/08
01/09
01/10
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

MOORING : S4


P (db)
500
400
300
200
300 m
900 P (db)
800
700
700 m
600
P (db)
1200
1100
1000
900
1000 m
1700 P (db)
1600
1500
1400
1500 m


P (db)
3200
3100
3000
3000 m
01/04/88
01/05
01/06
01/07
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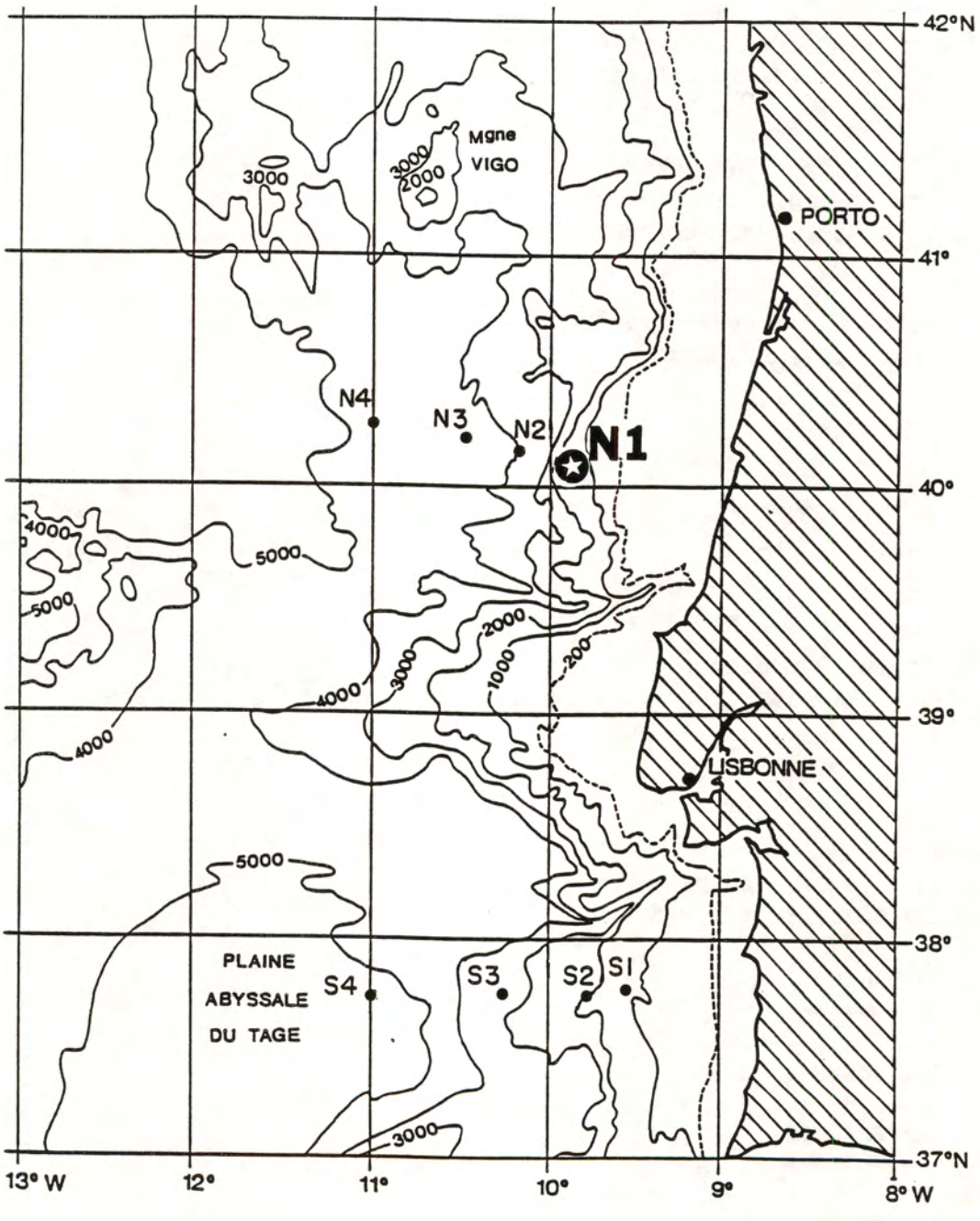
01/11
01/12
01/01/89
01/02
01/03
01/04
01/05

8 Summary of statistics


42°N
41°
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37°N
13° W
12°
11°
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9°
8° W
Mgne
VIGO
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
1000
200
LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

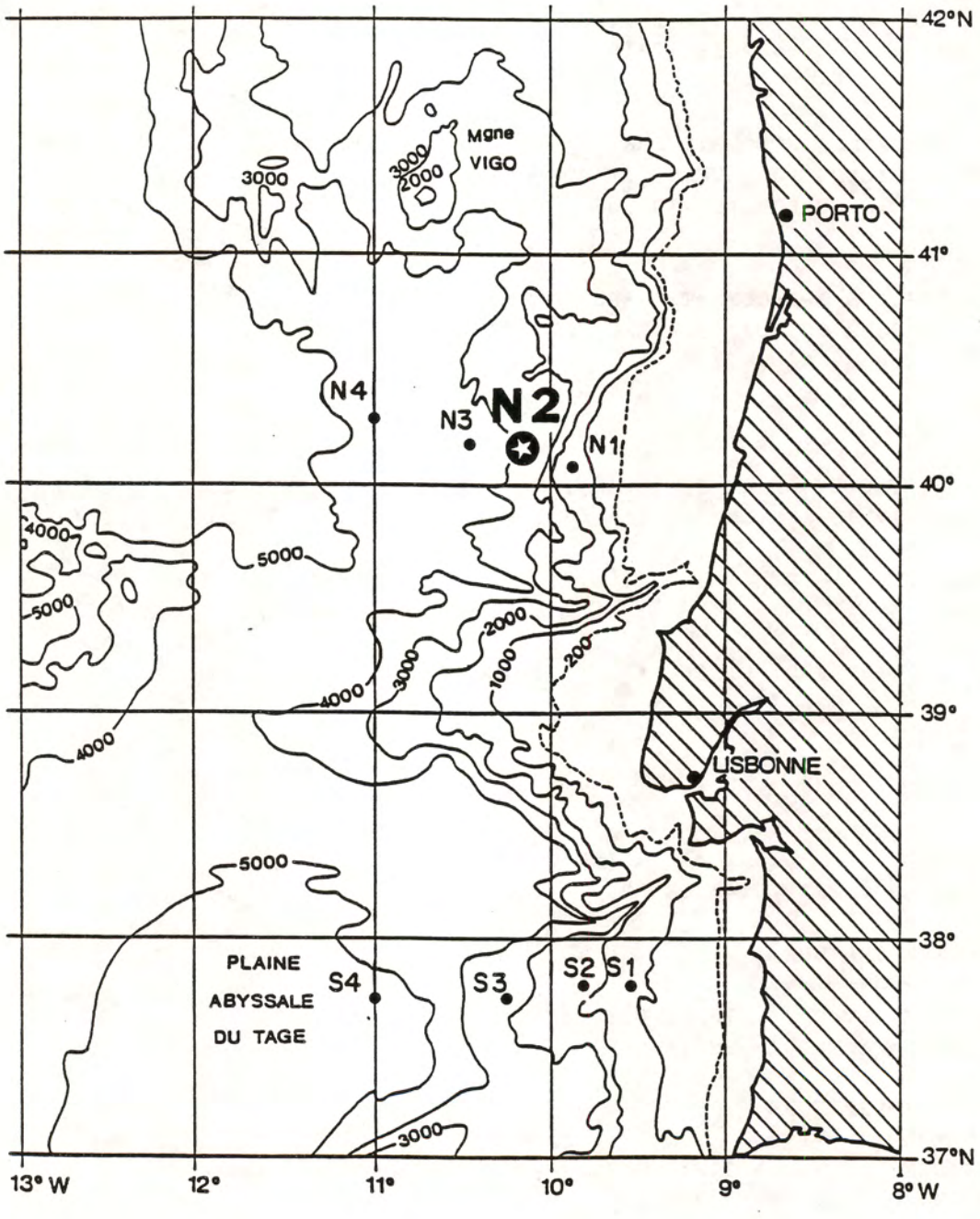
N1 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N1
LATITUDE             : N 40 05.24
LONGITUDE            : W 009 50.60
WATER DEPTH          : 1171m
INSTRUMENT NUMBER    : 5893 AANDERA
NOMINAL DEPTH        : 300m
START TIME           : 26- 3-1988   19H
STOP TIME            : 16-12-1988   23H


NUMBER OF CYCLES FOR PRESSURE              : 6365 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 6365
NUMBER OF CYCLES FOR TEMPERATURE           : 6365


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    : .8772     CM/S        [.67    ]  MEAN    : 1.619     CM/S        [1.5    ]
VARIANCE: 14.64    (CM/S)**2    [3.1    ]  VARIANCE: 32.83    (CM/S)**2    [9.3    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.91     D.CEL.      [.11    ]  MEAN    : 310.433    DB          [.80    ]
VARIANCE: .6983E-01(D.CEL.)**2 [.34E-01]  VARIANCE: 2.280     (DB    )**2 [1.3    ]


EAST - NORTH
============
COVARIANCE         :-.8369    (CM/S)**2 [3.5    ]
CORRELATION COEFF :-.3817E-01

EAST - TEMPERATURE
==================
COVARIANCE         : .1024    (CM/S)**2 [.13    ]
CORRELATION COEFF : .1013

NORTH - TEMPERATURE
===================
COVARIANCE         :-.2432    (CM/S)**2 [.51    ]
CORRELATION COEFF :-.1606

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .1997    (CM/S)**2 [.22    ]
CORRELATION COEFF : .5005

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  1.695     (CM/S)**2
EDDY KINETIC ENERGY :  23.74     (CM/S)**2
MKE/EKE             :  .7143E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N1
LATITUDE             : N 040 05.2
LONGITUDE            :  W 009 50.6
WATER DEPTH          : 1171m
INSTRUMENT NUMBER    : 4442 AANDERA
NOMINAL DEPTH        : 700m
START TIME           : 26- 3-1988   19H
STOP TIME            :  6- 5-1989    7H


NUMBER OF CYCLES FOR PRESSURE              : 9733 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9733
NUMBER OF CYCLES FOR TEMPERATURE           : 9733


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     :-.6747     CM/S        [.30    ] MEAN     : 3.466     CM/S        [1.6    ]
VARIANCE: 6.697    (CM/S)**2    [.96    ] VARIANCE: 44.06    (CM/S)**2    [10.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 11.74     D.CEL.      [0.0    ] MEAN     : 719.586    DB          [.15    ]
VARIANCE: .2034E-01(D.CEL.)**2   [0.0    ] VARIANCE: .2170     (DB    )**2 [0.0    ]



EAST - NORTH
============
COVARIANCE         :-5.674    (CM/S)**2 [2.4    ]
CORRELATION COEFF :-.3303

EAST - TEMPERATURE
==================
COVARIANCE         : .1444E-01(CM/S)**2 [0.0    ]
CORRELATION COEFF : .3912E-01

NORTH - TEMPERATURE
===================
COVARIANCE         : .3233E-01(CM/S)**2 [0.0    ]
CORRELATION COEFF : .3414E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.3201E-01(CM/S)**2 [0.0    ]
CORRELATION COEFF :-.4818

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  6.235     (CM/S)**2
EDDY KINETIC ENERGY :  25.38     (CM/S)**2
MKE/EKE             :  .2456
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N1
LATITUDE             : N 40 05.24
LONGITUDE            : W 009 50.60
WATER DEPTH          : 1171m
INSTRUMENT NUMBER    : 5450 AANDERA
NOMINAL DEPTH        : 1000m
START TIME           : 26- 3-1988   19H
STOP TIME            : 29- 4-1989   14H


NUMBER OF CYCLES FOR PRESSURE              : 9572 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9572
NUMBER OF CYCLES FOR TEMPERATURE           : 9572


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-1.227     CM/S        [.28    ]  MEAN    : 6.460     CM/S        [.91    ]
VARIANCE: 4.610    (CM/S)**2    [.69    ]  VARIANCE: 38.70    (CM/S)**2    [6.9    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.48     D.CEL.      [.55E-01]  MEAN    : 1010.80    DB         [.11    ]
VARIANCE: .1861E-01(D.CEL.)**2  [.78E-02]  VARIANCE: .1824      (DB    )**2 [.44E-01]



EAST - NORTH
============
COVARIANCE         :-9.706    (CM/S)**2 [2.1    ]
CORRELATION COEFF  :-.7267

EAST - TEMPERATURE
==================
COVARIANCE         : .6003E-01(CM/S)**2 [.38E-01]
CORRELATION COEFF  : .2050

NORTH - TEMPERATURE
===================
COVARIANCE         :-.1516    (CM/S)**2 [.12    ]
CORRELATION COEFF  :-.1786

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.1818E-01(CM/S)**2 [.16E-01]
CORRELATION COEFF  :-.3120

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  21.62     (CM/S)**2
EDDY KINETIC ENERGY :  21.66     (CM/S)**2
MKE/EKE             :  .9982
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N1
LATITUDE             : N 40 05.24
LONGITUDE            : W 009 50.60
WATER DEPTH          : 1171m
INSTRUMENT NUMBER    : 9075 AANDERA
NOMINAL DEPTH        : 1000m
START TIME           : 26- 3-1988   19H
STOP TIME            : 14-10-1988   20H


NUMBER OF CYCLES FOR PRESSURE              : 4229 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 4850
NUMBER OF CYCLES FOR TEMPERATURE           : 4613


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-1.562     CM/S        [.43    ]  MEAN    : 5.353     CM/S        [1.1    ]
VARIANCE: 5.231    (CM/S)**2    [1.1    ]  VARIANCE: 30.22    (CM/S)**2    [7.3    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.52     D.CEL.      [.41E-01]  MEAN    : 1031.82    DB          [3.7    ]
VARIANCE: .1046E-01(D.CEL.)**2  [.38E-02]  VARIANCE: 58.21     (DB    )**2 [30.    ]



EAST - NORTH
============
COVARIANCE         :-9.933    (CM/S)**2 [2.8    ]
CORRELATION COEFF  :-.7901

EAST - TEMPERATURE
==================
COVARIANCE         : .1593E-01(CM/S)**2 [.37E-01]
CORRELATION COEFF  : .6834E-01

NORTH - TEMPERATURE
===================
COVARIANCE         :-.2182E-01(CM/S)**2 [.99E-01]
CORRELATION COEFF  :-.3903E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .5041E-01(CM/S)**2 [.27    ]
CORRELATION COEFF  : .6357E-01

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  15.55     (CM/S)**2
EDDY KINETIC ENERGY :  17.72     (CM/S)**2
MKE/EKE             :  .8773
```


42°N
41°
40°
39°
38°
37°N
13° W
12°
11°
10°
9°
8° W
Mgne
VIGO
3000
3000
2000
PORTO
N4
N3
N2
N1
4000
5000
5000
4000
3000
2000
1000
200
4000
5000
USBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1
3000

N2 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N2
LATITUDE             : N 40 06.12
LONGITUDE            : W 010 07.48
WATER DEPTH          : 3838m
INSTRUMENT NUMBER    : 4443 AANDERA
NOMINAL DEPTH        : 300m
START TIME           : 27- 3-1988   13H
STOP TIME            : 15-12-1988   21H


NUMBER OF CYCLES FOR PRESSURE              : 6321 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 6091
NUMBER OF CYCLES FOR TEMPERATURE           : 6321


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     :-.2048      CM/S        [.72    ] MEAN     : 2.430      CM/S        [1.5    ]
VARIANCE: 17.75     (CM/S)**2    [4.1    ] VARIANCE: 33.21     (CM/S)**2    [9.4    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 12.17      D.CEL.      [.65E-01] MEAN     : 278.957    DB          [.59    ]
VARIANCE: .4479E-01(D.CEL.)**2   [.14E-01] VARIANCE: 6.158      (DB    )**2 [1.6    ]



EAST - NORTH
============
COVARIANCE         : .1037     (CM/S)**2 [4.0     ]
CORRELATION COEFF  : .4270E-02

EAST - TEMPERATURE
==================
COVARIANCE         : .7625E-01(CM/S)**2 [.15     ]
CORRELATION COEFF  : .8551E-01

NORTH - TEMPERATURE
===================
COVARIANCE         :-.1151     (CM/S)**2 [.32     ]
CORRELATION COEFF  :-.9439E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.1358     (CM/S)**2 [.13     ]
CORRELATION COEFF  :-.2431

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  2.973      (CM/S)**2
EDDY KINETIC ENERGY :  25.48      (CM/S)**2
MKE/EKE             :  .1167
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N2
LATITUDE             : N 40 06.12
LONGITUDE            : W 010 07.48
WATER DEPTH          : 3838m
INSTRUMENT NUMBER    : 5449 AANDERA
NOMINAL DEPTH        : 700m
START TIME           : 27- 3-1988   13H
STOP TIME            :  8- 3-1989    6H


NUMBER OF CYCLES FOR PRESSURE              : 8298 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 8298
NUMBER OF CYCLES FOR TEMPERATURE           : 8298


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     :-.1544      CM/S        [.82    ] MEAN     : 3.357      CM/S        [1.2    ]
VARIANCE: 24.29     (CM/S)**2    [5.9    ] VARIANCE: 36.58     (CM/S)**2    [11.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 11.61     D.CEL.      [.30E-01] MEAN     : 692.098    DB          [.63    ]
VARIANCE: .3498E-01(D.CEL.)**2  [.79E-02] VARIANCE: 6.306      (DB    )**2 [1.7    ]



EAST - NORTH
============
COVARIANCE         :-3.177     (CM/S)**2 [5.1    ]
CORRELATION COEFF :-.1066

EAST - TEMPERATURE
==================
COVARIANCE         :-.9091E-01(CM/S)**2 [.12    ]
CORRELATION COEFF :-.9861E-01

NORTH - TEMPERATURE
===================
COVARIANCE         :-.2195     (CM/S)**2 [.19    ]
CORRELATION COEFF :-.1940

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .1330     (CM/S)**2 [.89E-01]
CORRELATION COEFF : .2831

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  5.646      (CM/S)**2
EDDY KINETIC ENERGY :  30.44      (CM/S)**2
MKE/EKE             :  .1855
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N2
LATITUDE             : N 40 06.12
LONGITUDE            : W 010 07.48
WATER DEPTH          : 3838m
INSTRUMENT NUMBER    : 5479 AANDERA
NOMINAL DEPTH        : 1000m
START TIME           : 27- 3-1988   13H
STOP TIME            : 23-12-1988   14H


NUMBER OF CYCLES FOR PRESSURE              : 6506 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 6506
NUMBER OF CYCLES FOR TEMPERATURE           : 6506


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-.2375     CM/S        [1.1    ]  MEAN    : 3.580     CM/S        [1.9    ]
VARIANCE: 30.10    (CM/S)**2    [8.0    ]  VARIANCE: 44.88    (CM/S)**2    [15.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.45     D.CEL.      [.40E-01]  MEAN    : 1006.19    DB         [.99    ]
VARIANCE: .4451E-01(D.CEL.)**2  [.11E-01]  VARIANCE: 8.607     (DB    )**2 [3.1    ]



EAST - NORTH
============
COVARIANCE         :-4.432    (CM/S)**2 [6.1    ]
CORRELATION COEFF  :-.1206

EAST - TEMPERATURE
==================
COVARIANCE         : .3695E-02(CM/S)**2 [.21    ]
CORRELATION COEFF  : .3193E-02

NORTH - TEMPERATURE
===================
COVARIANCE         :-.5996    (CM/S)**2 [.26    ]
CORRELATION COEFF  :-.4242

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.1800E-01(CM/S)**2 [.11    ]
CORRELATION COEFF  :-.2909E-01

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  6.438     (CM/S)**2
EDDY KINETIC ENERGY :  37.49     (CM/S)**2
MKE/EKE             :  .1717
```

INSTITUTION : I.F.R.E.MER
SITE : N2
LATITUDE : N 40 06.12
LONGITUDE : W 010 07.48
WATER DEPTH : 3838m
INSTRUMENT NUMBER : 4436 AANDERA
NOMINAL DEPTH : 1500m
START TIME : 27- 3-1988 13H
STOP TIME : 21- 2-1989 12H

NUMBER OF CYCLES FOR PRESSURE : 7944 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR VELOCITY COMPONENTS : 7944
NUMBER OF CYCLES FOR TEMPERATURE : 7944

THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
(40 HOUR CUT-OFF, LANCZOS FILTERING)

EAST

MEAN	:-.4118	CM/S	[.52]
VARIANCE:	10.72	(CM/S)**2	[2.2]

NORTH

MEAN	: 1.741	CM/S	[1.0]
VARIANCE:	18.83	(CM/S)**2	[5.5]

TEMPERATURE

MEAN	: 8.432	D.CEL.	[.21]
VARIANCE:	.3667	(D.CEL.)**2	[.13]

PRESSURE

MEAN	: 1488.99	DB	[4.8]
VARIANCE:	79.37	(DB)**2	[50.]

EAST - NORTH

COVARIANCE	:-2.437	(CM/S)**2	[2.2]
CORRELATION COEFF	:-.1715		

EAST - TEMPERATURE

COVARIANCE	:-.4116	(CM/S)**2	[.29]
CORRELATION COEFF	:-.2076		

NORTH - TEMPERATURE

COVARIANCE	:-.3381	(CM/S)**2	[.61]
CORRELATION COEFF	:-.1287		

PRESSURE - TEMPERATURE

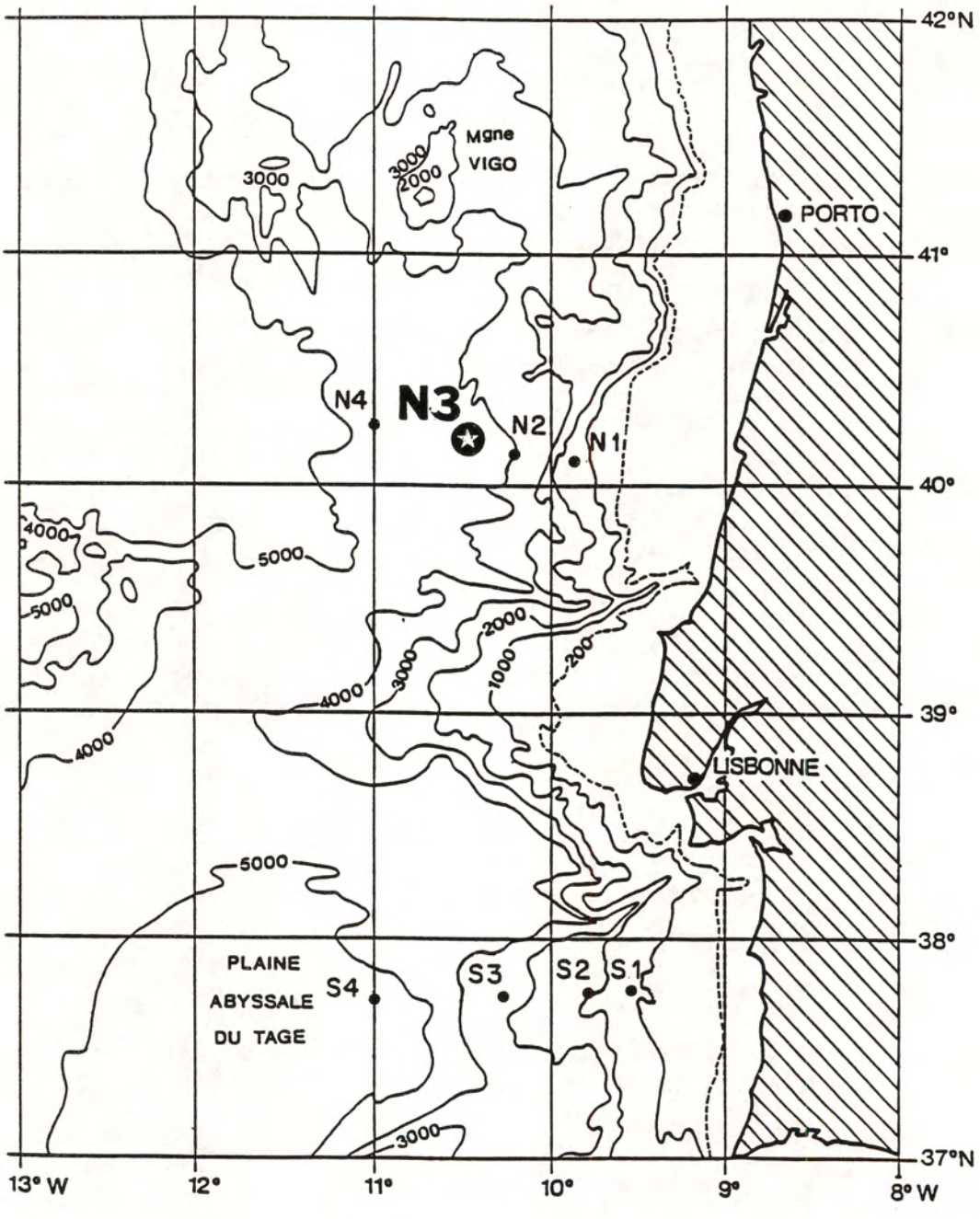
COVARIANCE	: 1.978	(CM/S)**2	[2.2]
CORRELATION COEFF	: .3666		

OTHER STATISTICS

MEAN KINETIC ENERGY	: 1.600	(CM/S)**2
EDDY KINETIC ENERGY	: 14.77	(CM/S)**2
MKE/EKE	: .1083	

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N2
LATITUDE             : N 40 06.12
LONGITUDE            : W 010 07.48
WATER DEPTH          : 3838m
INSTRUMENT NUMBER    : 5891 AANDERA
NOMINAL DEPTH        : 3000m
START TIME           : 27- 3-1988   13H
STOP TIME            :  4- 5-1989   15H


NUMBER OF CYCLES FOR PRESSURE              : 9675 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 8619
NUMBER OF CYCLES FOR TEMPERATURE           : 9675


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    : .4949E-01 CM/S       [.22    ]   MEAN    : .5804E-02  CM/S       [.44    ]
VARIANCE: 1.682    (CM/S)**2   [.31    ]   VARIANCE: 3.869     (CM/S)**2   [.92    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 2.801     D.CEL.     [.71E-02]   MEAN    : 3043.60    DB         [.28    ]
VARIANCE: .7811E-03(D.CEL.)**2 [.20E-03]   VARIANCE: 1.178     (DB    )**2 [.35    ]



EAST - NORTH
============
COVARIANCE         : .8845    (CM/S)**2 [.42    ]
CORRELATION COEFF  : .3468

EAST - TEMPERATURE
==================
COVARIANCE         :-.2100E-02(CM/S)**2 [.60E-02]
CORRELATION COEFF  :-.5795E-01

NORTH - TEMPERATURE
===================
COVARIANCE         : .1162E-01(CM/S)**2 [.10E-01]
CORRELATION COEFF  : .2113

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .1324E-01(CM/S)**2 [.67E-02]
CORRELATION COEFF  : .4349

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .1242E-02 (CM/S)**2
EDDY KINETIC ENERGY :  2.775     (CM/S)**2
MKE/EKE             :  .4474E-03
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N2
LATITUDE             : N 40 06.12
LONGITUDE            : W 010 07.48
WATER DEPTH          : 3838m
INSTRUMENT NUMBER    : 7591 AANDERA
NOMINAL DEPTH        : 3600m
START TIME           : 27- 3-1988   14H
STOP TIME            : 21- 5-1988   16H


NUMBER OF CYCLES FOR PRESSURE              : 1284 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 1284
NUMBER OF CYCLES FOR TEMPERATURE           : 1284


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    : .5878     CM/S        [.20    ]  MEAN    : .7975     CM/S        [.47    ]
VARIANCE: .5633    (CM/S)**2    [.16    ]  VARIANCE: 1.455    (CM/S)**2    [.54    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 2.518     D.CEL.      [.73E-02]  MEAN    : 3698.53    DB         [1.5    ]
VARIANCE: .1466E-03(D.CEL.)**2  [.85E-04]  VARIANCE: 6.894     (DB    )**2 [3.5    ]



EAST - NORTH
============
COVARIANCE         : .3783    (CM/S)**2 [.22    ]
CORRELATION COEFF  : .4179

EAST - TEMPERATURE
==================
COVARIANCE         :-.1912E-02(CM/S)**2 [.27E-02]
CORRELATION COEFF  :-.2105

NORTH - TEMPERATURE
===================
COVARIANCE         :-.3259E-02(CM/S)**2 [.58E-02]
CORRELATION COEFF  :-.2231

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .2479E-01(CM/S)**2 [.17E-01]
CORRELATION COEFF  : .7799

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .4908     (CM/S)**2
EDDY KINETIC ENERGY :  1.009     (CM/S)**2
MKE/EKE             :  .4863
```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LISBONNE
PLAINE
ABYSSALE
DU TAGE
S4
S3
S2
S1

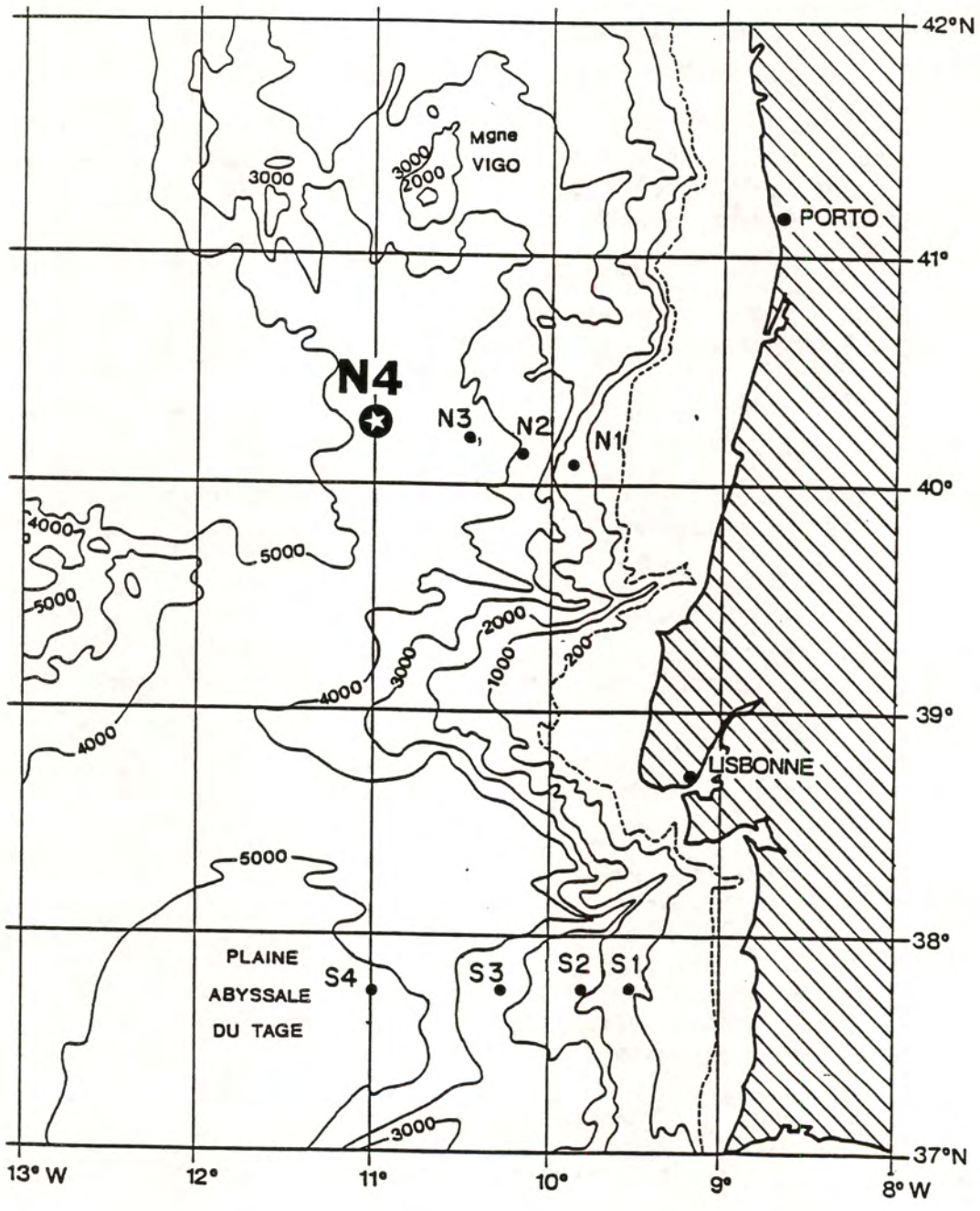
N3 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N3
LATITUDE             : N 040 11.9
LONGITUDE            :  W 010 27.6
WATER DEPTH          : 4405m
INSTRUMENT NUMBER    : 5485 AANDERA
NOMINAL DEPTH        : 300m
START TIME           : 27- 3-1988   19H
STOP TIME            :  7- 5-1989    5H


NUMBER OF CYCLES FOR PRESSURE              : 9731 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9731
NUMBER OF CYCLES FOR TEMPERATURE           : 9731


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-1.397     CM/S        [1.0    ]  MEAN    : 1.649     CM/S        [1.5    ]
VARIANCE: 26.97    (CM/S)**2    [6.9    ]  VARIANCE: 31.64    (CM/S)**2    [9.6    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 12.47     D.CEL.      [.11    ]  MEAN    : 245.004    DB          [1.4    ]
VARIANCE: .8523E-01(D.CEL.)**2 [.32E-01]  VARIANCE: 23.23     (DB    )**2 [6.1    ]


EAST - NORTH
============
COVARIANCE        :-3.890    (CM/S)**2 [5.4    ]
CORRELATION COEFF :-.1332

EAST - TEMPERATURE
==================
COVARIANCE        : .5172E-01(CM/S)**2 [.28    ]
CORRELATION COEFF : .3412E-01

NORTH - TEMPERATURE
===================
COVARIANCE        : .4676    (CM/S)**2 [.54    ]
CORRELATION COEFF : .2848

PRESSURE - TEMPERATURE
======================
COVARIANCE        :-.2344    (CM/S)**2 [.39    ]
CORRELATION COEFF :-.1666

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  2.335     (CM/S)**2
EDDY KINETIC ENERGY :  29.30     (CM/S)**2
MKE/EKE             :  .7969E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N3
LATITUDE             : N 40 11.92
LONGITUDE            : W 010 27.60
WATER DEPTH          : 4405m
INSTRUMENT NUMBER    : 5486 AANDERA
NOMINAL DEPTH        : 700m
START TIME           : 27- 3-1988   19H
STOP TIME            :  1- 9-1988   11H


NUMBER OF CYCLES FOR PRESSURE              : 3785 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 3785
NUMBER OF CYCLES FOR TEMPERATURE           : 3785


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     :-.9048     CM/S        [.97    ] MEAN     :-.2482E-01  CM/S        [.44    ]
VARIANCE: 7.184    (CM/S)**2    [2.1    ] VARIANCE: 4.772     (CM/S)**2    [1.2    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 11.37     D.CEL.      [.99E-01] MEAN     : 651.654    DB          [1.1    ]
VARIANCE: .5405E-01(D.CEL.)**2  [.20E-01] VARIANCE: 22.89     (DB    )**2  [5.5    ]



EAST - NORTH
============
COVARIANCE         :-.6137    (CM/S)**2 [1.3    ]
CORRELATION COEFF  :-.1048

EAST - TEMPERATURE
==================
COVARIANCE         :-.2898    (CM/S)**2 [.19    ]
CORRELATION COEFF  :-.4650

NORTH - TEMPERATURE
===================
COVARIANCE         : .6167E-01(CM/S)**2 [.11    ]
CORRELATION COEFF  : .1214

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .2703    (CM/S)**2 [.22    ]
CORRELATION COEFF  : .2430

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .4097     (CM/S)**2
EDDY KINETIC ENERGY :  5.978     (CM/S)**2
MKE/EKE             :  .6853E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N3
LATITUDE             : N 40 11.92
LONGITUDE            : W 010 27.60
WATER DEPTH          : 4405m
INSTRUMENT NUMBER    : 5484 AANDERA
NOMINAL DEPTH        : 1500m
START TIME           : 27- 3-1988   19H
STOP TIME            :  9- 7-1988   10H


NUMBER OF CYCLES FOR PRESSURE              : 2488 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 2488
NUMBER OF CYCLES FOR TEMPERATURE           : 2488


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     : .5249     CM/S        [.74    ] MEAN     :-.4641     CM/S        [.71    ]
VARIANCE: 4.936     (CM/S)**2   [2.1    ] VARIANCE: 4.537     (CM/S)**2   [2.0    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 7.817     D.CEL.      [.31    ] MEAN     : 1475.85    DB          [.43    ]
VARIANCE: .3070     (D.CEL.)**2 [.18    ] VARIANCE: 1.026     (DB    )**2 [.41    ]



EAST - NORTH
============
COVARIANCE         :-.3613     (CM/S)**2 [1.8     ]
CORRELATION COEFF :-.7635E-01

EAST - TEMPERATURE
==================
COVARIANCE         :-.7822E-02(CM/S)**2 [.41     ]
CORRELATION COEFF :-.6355E-02

NORTH - TEMPERATURE
===================
COVARIANCE         :-.4375     (CM/S)**2 [.39     ]
CORRELATION COEFF :-.3707

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.3541E-01(CM/S)**2 [.18     ]
CORRELATION COEFF :-.6310E-01

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .2455      (CM/S)**2
EDDY KINETIC ENERGY :  4.736      (CM/S)**2
MKE/EKE             :  .5182E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N3
LATITUDE             : N 40 11.92
LONGITUDE            : W 010 27.60
WATER DEPTH          : 4405m
INSTRUMENT NUMBER    : 5894 AANDERA
NOMINAL DEPTH        : 3000m
START TIME           : 27- 3-1988   19H
STOP TIME            :  5- 6-1988    2H


NUMBER OF CYCLES FOR PRESSURE              : 1664 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 1664
NUMBER OF CYCLES FOR TEMPERATURE           : 1664


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-.8006     CM/S        [.17    ]  MEAN    : .5401     CM/S        [.34    ]
VARIANCE: .3604    (CM/S)**2    [.15    ]  VARIANCE: .8759    (CM/S)**2    [.35    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 2.769     D.CEL.      [.52E-02]  MEAN    : 3006.48    DB          [0.0    ]
VARIANCE: .1461E-03(D.CEL.)**2  [.65E-04]  VARIANCE: .3915E-16 (DB    )**2  [0.0    ]



EAST - NORTH
============
COVARIANCE         :-.1269    (CM/S)**2 [.13    ]
CORRELATION COEFF  :-.2258

EAST - TEMPERATURE
==================
COVARIANCE         :-.8766E-03(CM/S)**2 [.19E-02]
CORRELATION COEFF  :-.1208

NORTH - TEMPERATURE
===================
COVARIANCE         : .2286E-02(CM/S)**2 [.36E-02]
CORRELATION COEFF  : .2021

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .3681E-19(CM/S)**2 [0.0    ]
CORRELATION COEFF  : 0.000

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .4663     (CM/S)**2
EDDY KINETIC ENERGY :  .6181     (CM/S)**2
MKE/EKE             :  .7544
```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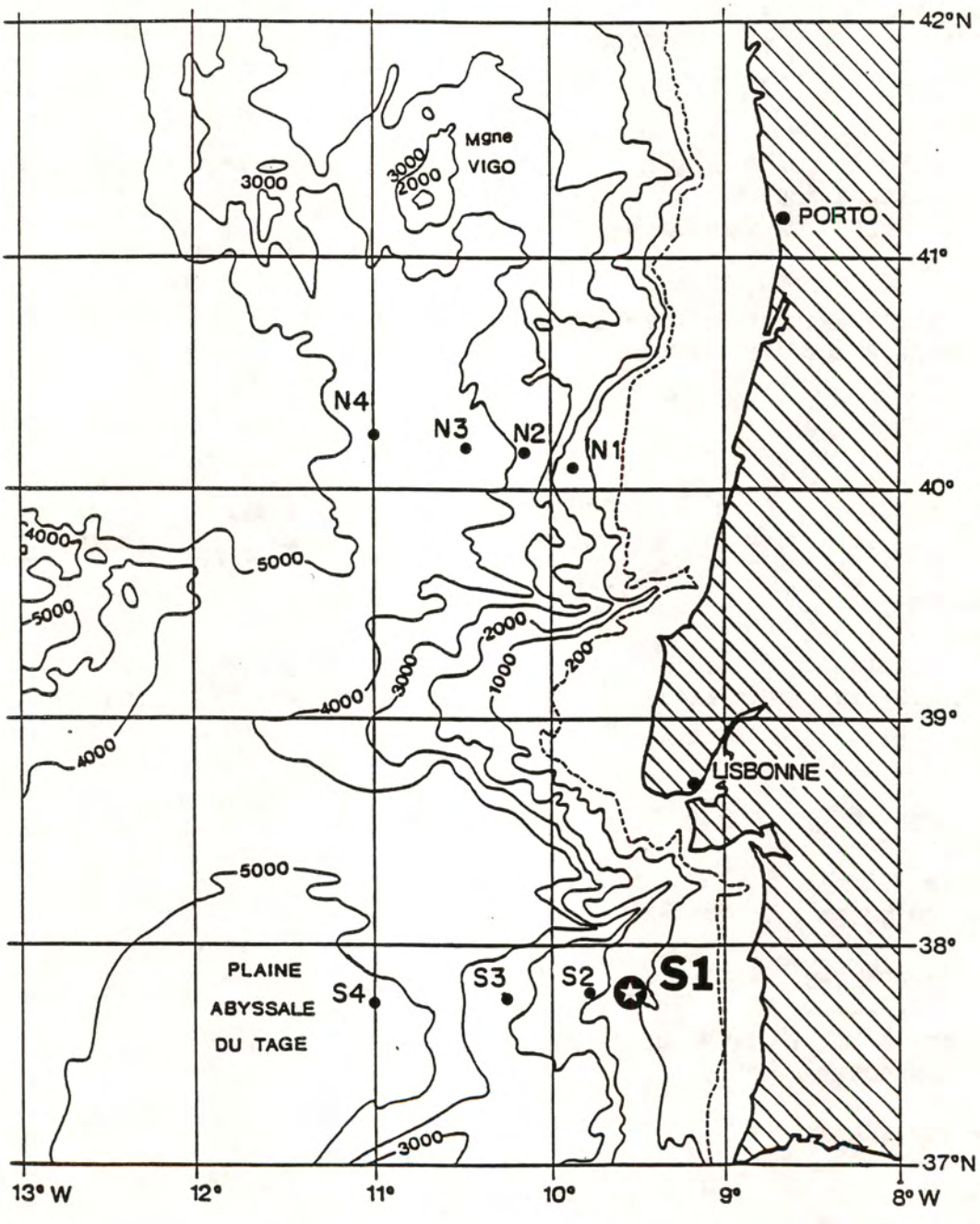
N4 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : N4
LATITUDE             : N 040 17.0
LONGITUDE            :  W 011 00.0
WATER DEPTH          : 4405m
INSTRUMENT NUMBER    : 5899 AANDERA
NOMINAL DEPTH        : 3000m
START TIME           : 28- 3-1988   12H
STOP TIME            :  2- 5-1989   15H


NUMBER OF CYCLES FOR PRESSURE              : 9604 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9073
NUMBER OF CYCLES FOR TEMPERATURE           : 9604


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-.3232     CM/S        [.19    ]  MEAN    :-.1710E-01  CM/S        [.17    ]
VARIANCE: .7275    (CM/S)**2    [.15    ]  VARIANCE: .8692     (CM/S)**2    [.19    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 2.802     D.CEL.      [.64E-02]  MEAN    : 3067.73    DB          [5.2    ]
VARIANCE: .3779E-03(D.CEL.)**2  [.11E-03]  VARIANCE: 132.6     (DB    )**2  [69.    ]



EAST - NORTH
============
COVARIANCE         :-.5288E-01(CM/S)**2 [.11    ]
CORRELATION COEFF  :-.6650E-01

EAST - TEMPERATURE
==================
COVARIANCE         : .3571E-04(CM/S)**2 [.34E-02]
CORRELATION COEFF  : .2154E-02

NORTH - TEMPERATURE
===================
COVARIANCE         : .6564E-03(CM/S)**2 [.33E-02]
CORRELATION COEFF  : .3622E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.1440    (CM/S)**2 [.79E-01]
CORRELATION COEFF  :-.6209

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .5238E-01 (CM/S)**2
EDDY KINETIC ENERGY :  .7983     (CM/S)**2
MKE/EKE             :  .6561E-01
```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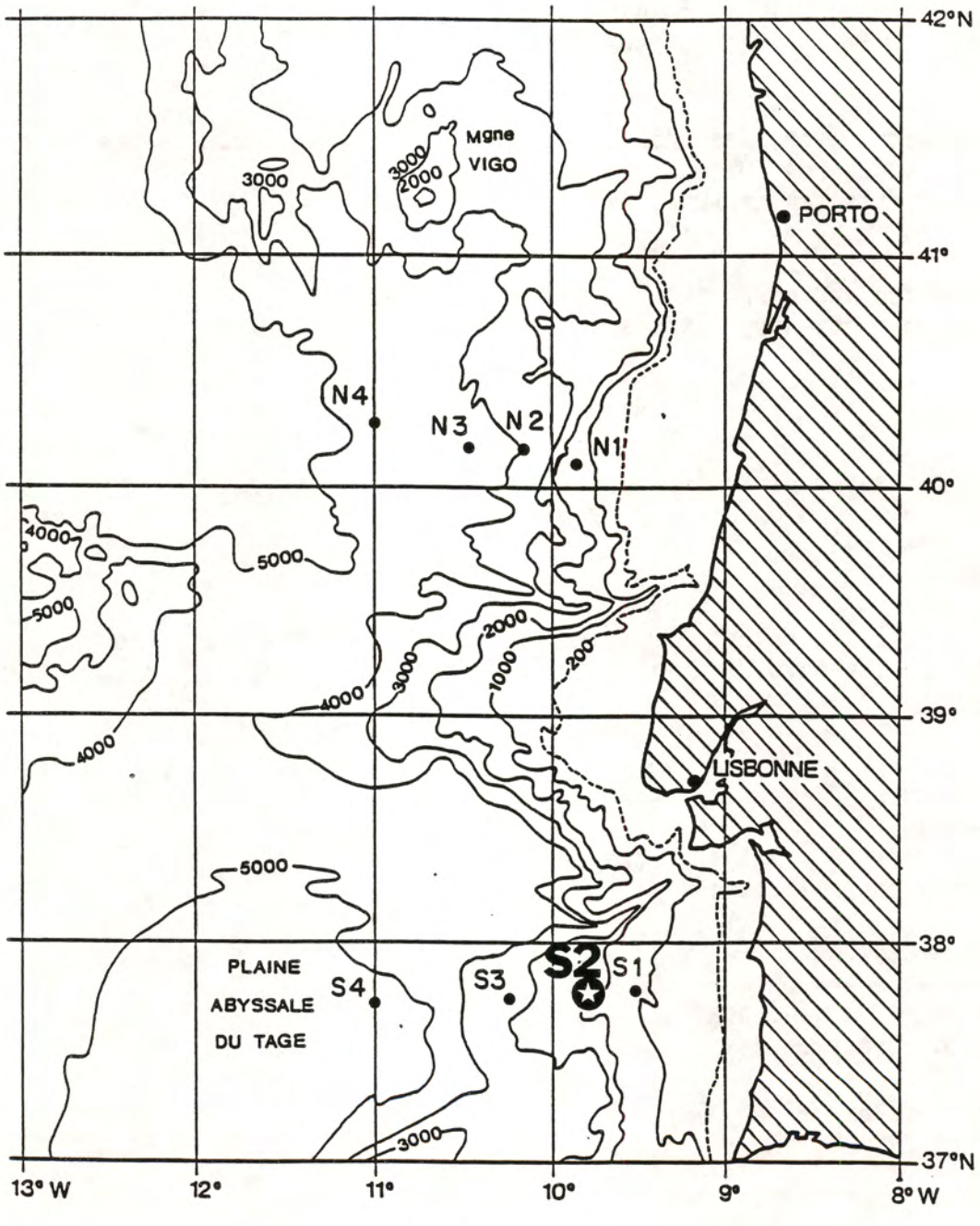
S1 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S1
LATITUDE             : N 37 49.90
LONGITUDE            : W 009 30.56
WATER DEPTH          : 1112m
INSTRUMENT NUMBER    : 5481 AANDERA
NOMINAL DEPTH        : 300m
START TIME           : 31- 3-1988   10H
STOP TIME            : 12- 7-1988   12H


NUMBER OF CYCLES FOR PRESSURE              : 2475 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 2475
NUMBER OF CYCLES FOR TEMPERATURE           : 2475


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    : .7319     CM/S        [1.7    ]  MEAN    :-2.529     CM/S        [2.5    ]
VARIANCE: 30.54    (CM/S)**2    [12.    ]  VARIANCE: 43.53    (CM/S)**2    [19.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 12.14     D.CEL.      [.75E-01]  MEAN    : 322.642    DB          [.45    ]
VARIANCE: .2741E-01(D.CEL.)**2  [.14E-01]  VARIANCE: .8401     (DB    )**2 [.34    ]


EAST - NORTH
============
COVARIANCE         : 7.573    (CM/S)**2 [12.    ]
CORRELATION COEFF  : .2077

EAST - TEMPERATURE
==================
COVARIANCE         : .3625E-01(CM/S)**2 [.23    ]
CORRELATION COEFF  : .3962E-01

NORTH - TEMPERATURE
===================
COVARIANCE         :-.3616    (CM/S)**2 [.43    ]
CORRELATION COEFF  :-.3310

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.2379E-01(CM/S)**2 [.63E-01]
CORRELATION COEFF  :-.1568

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  3.465     (CM/S)**2
EDDY KINETIC ENERGY :  37.03     (CM/S)**2
MKE/EKE             :  .9357E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S1
LATITUDE             : N 037 49.9
LONGITUDE            :  W 009 30.5
WATER DEPTH          : 1112m
INSTRUMENT NUMBER    : 2069 AANDERA
NOMINAL DEPTH        : 700m
START TIME           : 31- 3-1988   10H
STOP TIME            :  3- 5-1989    2H


NUMBER OF CYCLES FOR PRESSURE             : 8380 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 6463
NUMBER OF CYCLES FOR TEMPERATURE          : 8604


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                      NORTH
====                                      =====
MEAN    : 3.384     CM/S       [1.2    ]  MEAN    : 6.012     CM/S       [3.6    ]
VARIANCE: 40.69    (CM/S)**2   [7.9    ]  VARIANCE: 112.9    (CM/S)**2  [33.    ]

TEMPERATURE                               PRESSURE
===========                               ========
MEAN    : 12.11     D.CEL.     [.68E-01]  MEAN    : 728.944   DB         [0.0    ]
VARIANCE: .1345    (D.CEL.)**2 [.27E-01]  VARIANCE: 2.120     (DB    )**2 [0.0    ]



EAST - NORTH
============
COVARIANCE        : 22.82    (CM/S)**2 [12.    ]
CORRELATION COEFF : .3367

EAST - TEMPERATURE
==================
COVARIANCE        :-.1186    (CM/S)**2 [.30    ]
CORRELATION COEFF :-.5070E-01

NORTH - TEMPERATURE
===================
COVARIANCE        : .1791    (CM/S)**2 [.60    ]
CORRELATION COEFF : .4597E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE        :-.5410E-01(CM/S)**2 [0.0    ]
CORRELATION COEFF :-.9890E-01

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  23.80     (CM/S)**2
EDDY KINETIC ENERGY :  76.78     (CM/S)**2
MKE/EKE             :  .3099
```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LISBONNE
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PLAINE
ABYSSALE
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S2
S1
3000

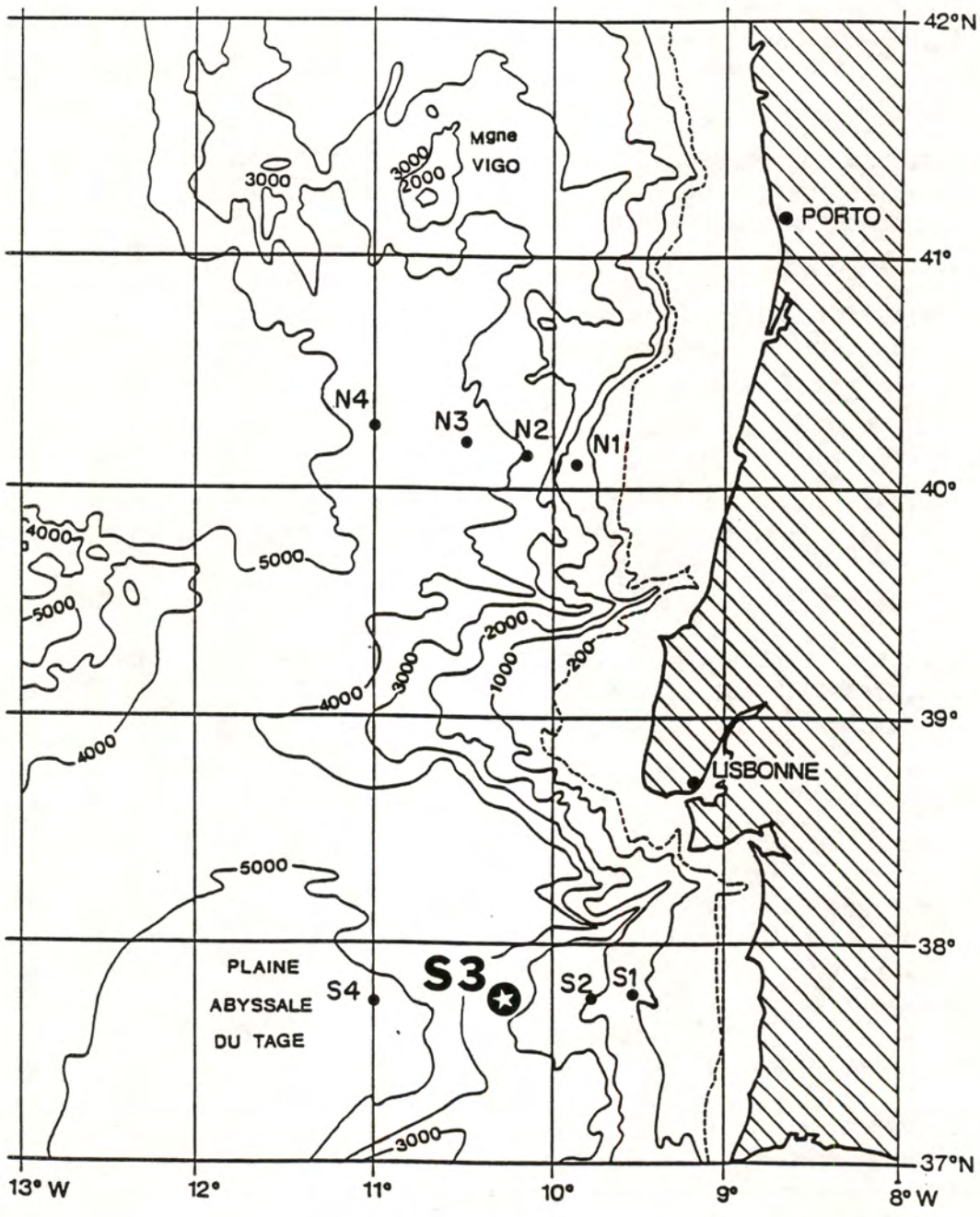
S2 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S2
LATITUDE             : N 37 48.14
LONGITUDE            : W 009 43.57
WATER DEPTH          : 1112m
INSTRUMENT NUMBER    : 4440 AANDERA
NOMINAL DEPTH        : 300m
START TIME           : 31- 3-1988   17H
STOP TIME            : 13- 8-1988   11H


NUMBER OF CYCLES FOR PRESSURE              : 3235 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 3235
NUMBER OF CYCLES FOR TEMPERATURE           : 3235


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    : .3185E-01 CM/S       [1.7    ]   MEAN    :-2.732      CM/S       [1.6    ]
VARIANCE: 20.75    (CM/S)**2   [8.1    ]   VARIANCE: 20.67     (CM/S)**2  [10.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 12.51     D.CEL.     [.69E-01]   MEAN    : 295.341    DB         [.73    ]
VARIANCE: .2713E-01(D.CEL.)**2 [.11E-01]   VARIANCE: 4.298     (DB    )**2 [1.5    ]



EAST - NORTH
============
COVARIANCE         : 2.534    (CM/S)**2 [6.4    ]
CORRELATION COEFF  : .1224

EAST - TEMPERATURE
==================
COVARIANCE         :-.1898    (CM/S)**2 [.23    ]
CORRELATION COEFF  :-.2530

NORTH - TEMPERATURE
===================
COVARIANCE         : .1433E-01(CM/S)**2 [.30    ]
CORRELATION COEFF  : .1914E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .1507    (CM/S)**2 [.13    ]
CORRELATION COEFF  : .4414

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  3.732     (CM/S)**2
EDDY KINETIC ENERGY :  20.71     (CM/S)**2
MKE/EKE             :  .1802
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S2
LATITUDE             : N 37 48.14
LONGITUDE            : W 009 43.57
WATER DEPTH          : 1990m
INSTRUMENT NUMBER    : 5895 AANDERA
NOMINAL DEPTH        : 1000m
START TIME           : 31- 3-1988   17H
STOP TIME            : 29- 6-1988   21H


NUMBER OF CYCLES FOR PRESSURE              : 2165 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 2165
NUMBER OF CYCLES FOR TEMPERATURE           : 2165


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     :-2.114     CM/S        [2.7    ] MEAN     : 5.783     CM/S        [4.6    ]
VARIANCE: 72.05    (CM/S)**2    [25.    ] VARIANCE: 76.07    (CM/S)**2    [35.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 11.56     D.CEL.      [.13    ] MEAN     : 999.634   DB          [.35    ]
VARIANCE: .1406    (D.CEL.)**2  [.49E-01] VARIANCE: 1.741     (DB    )**2 [.45    ]


EAST - NORTH
============
COVARIANCE         : 9.976    (CM/S)**2 [23.    ]
CORRELATION COEFF : .1348

EAST - TEMPERATURE
==================
COVARIANCE         :-.3622    (CM/S)**2 [.88    ]
CORRELATION COEFF :-.1138

NORTH - TEMPERATURE
===================
COVARIANCE         :-.2387    (CM/S)**2 [1.0    ]
CORRELATION COEFF :-.7298E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .2216    (CM/S)**2 [.12    ]
CORRELATION COEFF : .4478

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  18.95     (CM/S)**2
EDDY KINETIC ENERGY :  74.06     (CM/S)**2
MKE/EKE             :  .2559
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S2
LATITUDE             : N 037 48.1
LONGITUDE            :  W 009 43.5
WATER DEPTH          : 1990m
INSTRUMENT NUMBER    : 4587 AANDERA
NOMINAL DEPTH        : 1500m
START TIME           : 31- 3-1988   17H
STOP TIME            :  9- 4-1989   18H


NUMBER OF CYCLES FOR PRESSURE             : 8978 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 8978
NUMBER OF CYCLES FOR TEMPERATURE          : 8978


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                      NORTH
====                                      =====
MEAN    : .3327E-01 CM/S       [.54    ]  MEAN    : 1.036      CM/S       [1.1    ]
VARIANCE: 9.456    (CM/S)**2   [1.7    ]  VARIANCE: 26.68     (CM/S)**2  [6.1    ]

TEMPERATURE                               PRESSURE
===========                               ========
MEAN    : 9.224     D.CEL.     [.16    ]  MEAN    : 1500.32    DB         [.19E-01]
VARIANCE: .2997    (D.CEL.)**2 [.96E-01]  VARIANCE: .9884E-01 (DB    )**2 [.97E-02]



EAST - NORTH
============
COVARIANCE         : 7.908    (CM/S)**2 [2.5    ]
CORRELATION COEFF  : .4978

EAST - TEMPERATURE
==================
COVARIANCE         :-.2256    (CM/S)**2 [.31    ]
CORRELATION COEFF  :-.1340

NORTH - TEMPERATURE
===================
COVARIANCE         :-.4202    (CM/S)**2 [.52    ]
CORRELATION COEFF  :-.1486

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .1228E-01(CM/S)**2 [.12E-01]
CORRELATION COEFF  : .7137E-01

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .5373     (CM/S)**2
EDDY KINETIC ENERGY :  18.07     (CM/S)**2
MKE/EKE             :  .2973E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S2
LATITUDE             : N 37 48.14
LONGITUDE            : W 009 43.57
WATER DEPTH          : 1990m
INSTRUMENT NUMBER    : 4439 AANDERA
NOMINAL DEPTH        : 1800m
START TIME           : 31- 3-1988   17H
STOP TIME            : 26-12-1988   14H


NUMBER OF CYCLES FOR PRESSURE              : 6478 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 6478
NUMBER OF CYCLES FOR TEMPERATURE           : 6478


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    : .3621     CM/S        [.27    ]  MEAN    : 2.361     CM/S        [.82    ]
VARIANCE: 2.392    (CM/S)**2    [.43    ]  VARIANCE: 14.39    (CM/S)**2    [3.7    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 5.638     D.CEL.      [.60E-01]  MEAN    : 1816.26    DB         [1.2    ]
VARIANCE: .5306E-01(D.CEL.)**2  [.18E-01]  VARIANCE: 8.748     (DB    )**2 [3.6    ]



EAST - NORTH
============
COVARIANCE        : 3.345    (CM/S)**2 [1.1    ]
CORRELATION COEFF : .5702

EAST - TEMPERATURE
==================
COVARIANCE        :-.1028    (CM/S)**2 [.61E-01]
CORRELATION COEFF :-.2886

NORTH - TEMPERATURE
===================
COVARIANCE        :-.3345    (CM/S)**2 [.18    ]
CORRELATION COEFF :-.3828

PRESSURE - TEMPERATURE
======================
COVARIANCE        : .2451    (CM/S)**2 [.16    ]
CORRELATION COEFF : .3598

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  2.854     (CM/S)**2
EDDY KINETIC ENERGY :  8.392     (CM/S)**2
MKE/EKE             :  .3401
```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S3 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S3
LATITUDE             : N 37 46.26
LONGITUDE            : W 010 14.07
WATER DEPTH          : 3238m
INSTRUMENT NUMBER    : 4435 AANDERA
NOMINAL DEPTH        : 300m
START TIME           :  1- 4-1988   12H
STOP TIME            :  8- 3-1989    8H


NUMBER OF CYCLES FOR PRESSURE              : 8181 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 8181
NUMBER OF CYCLES FOR TEMPERATURE           : 8181


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-1.693     CM/S        [2.4    ]  MEAN    : .2652     CM/S        [1.6    ]
VARIANCE: 67.36    (CM/S)**2    [23.    ]  VARIANCE: 54.13    (CM/S)**2    [15.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 12.58     D.CEL.      [.10    ]  MEAN    : 299.871    DB          [4.2    ]
VARIANCE: .7778E-01(D.CEL.)**2  [.28E-01]  VARIANCE: 243.9     (DB    )**2 [70.    ]



EAST - NORTH
============
COVARIANCE         :-12.18    (CM/S)**2 [13.    ]
CORRELATION COEFF  :-.2016

EAST - TEMPERATURE
==================
COVARIANCE         : .9802    (CM/S)**2 [.56    ]
CORRELATION COEFF  : .4282

NORTH - TEMPERATURE
===================
COVARIANCE         :-.5571    (CM/S)**2 [.39    ]
CORRELATION COEFF  :-.2715

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-2.772    (CM/S)**2 [1.1    ]
CORRELATION COEFF  :-.6365

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  1.468     (CM/S)**2
EDDY KINETIC ENERGY :  60.74     (CM/S)**2
MKE/EKE             :  .2416E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S3
LATITUDE             : N 037 46.2
LONGITUDE            :  W 010 14.0
WATER DEPTH          : 3238m
INSTRUMENT NUMBER    : 3115 AANDERA
NOMINAL DEPTH        : 700m
START TIME           :  1- 4-1988   12H
STOP TIME            :  4- 5-1989   13H


NUMBER OF CYCLES FOR PRESSURE              : 4838 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9554
NUMBER OF CYCLES FOR TEMPERATURE           : 9554


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-3.476     CM/S        [3.3    ]  MEAN    : .2697     CM/S        [2.3    ]
VARIANCE: 141.2    (CM/S)**2    [43.    ]  VARIANCE: 146.2    (CM/S)**2    [34.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.79     D.CEL.      [.14    ]  MEAN    : 653.905    DB          [9.6    ]
VARIANCE: .2301    (D.CEL.)**2  [.61E-01]  VARIANCE: 709.7     (DB    )**2 [.24E+03]



EAST - NORTH
============
COVARIANCE         :-42.07    (CM/S)**2 [30.    ]
CORRELATION COEFF  :-.2929

EAST - TEMPERATURE
==================
COVARIANCE         :-.8351    (CM/S)**2 [1.0    ]
CORRELATION COEFF  :-.1465

NORTH - TEMPERATURE
===================
COVARIANCE         : 1.080    (CM/S)**2 [1.0    ]
CORRELATION COEFF  : .1863

PRESSURE - TEMPERATURE
======================
COVARIANCE         : 2.690    (CM/S)**2 [4.4    ]
CORRELATION COEFF  : .1821

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  6.079     (CM/S)**2
EDDY KINETIC ENERGY :  143.7     (CM/S)**2
MKE/EKE             :  .4232E-01
```

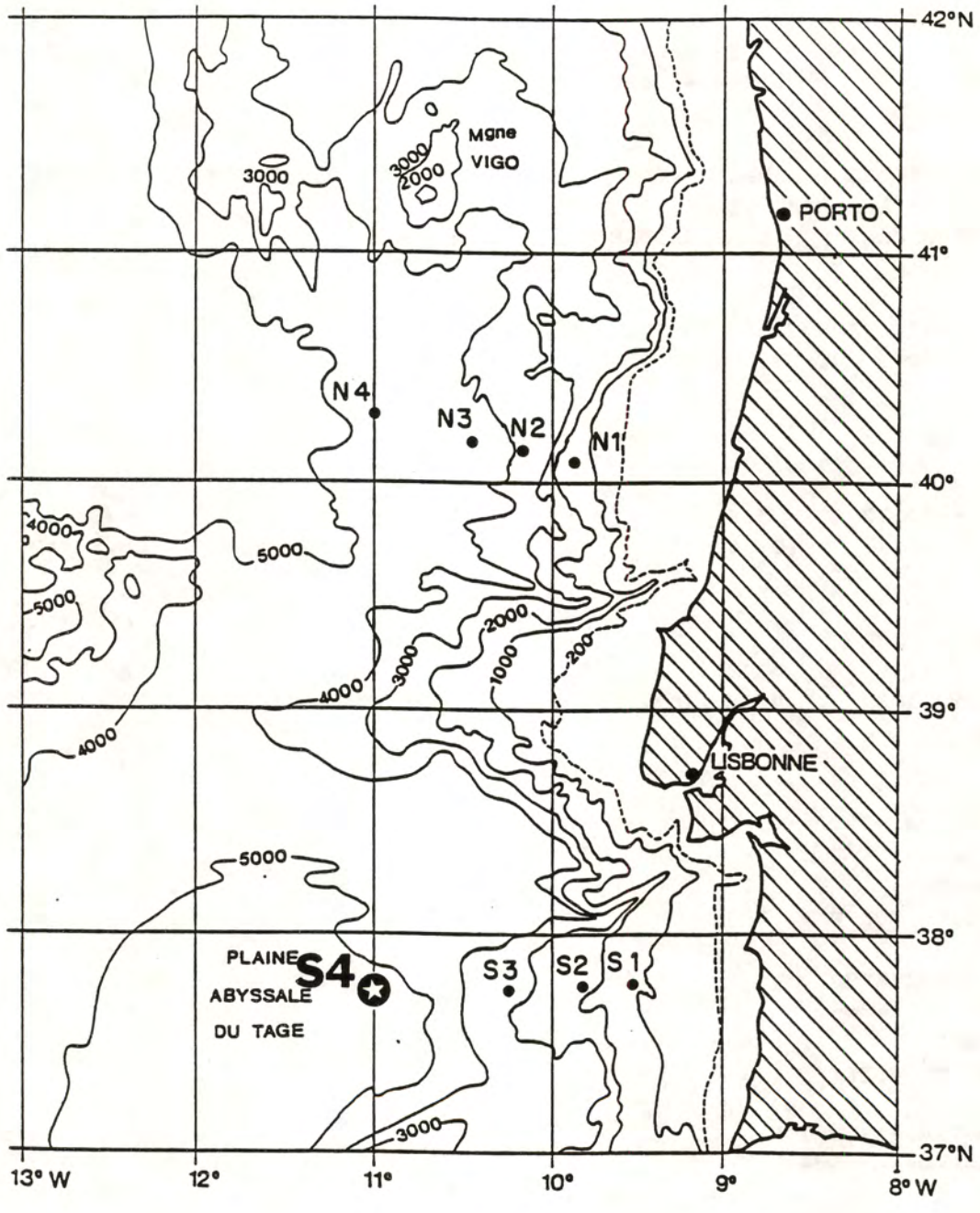
```
INSTITUTION          : I.F.R.E.MER
SITE                 : S3
LATITUDE             : N 037 46.2
LONGITUDE            :  W 010 14.0
WATER DEPTH          : 3238m
INSTRUMENT NUMBER    : 3486 AANDERA
NOMINAL DEPTH        : 1000m
START TIME           :  1- 4-1988   12H
STOP TIME            : 17-10-1988   23H


NUMBER OF CYCLES FOR PRESSURE              : 4788 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 4367
NUMBER OF CYCLES FOR TEMPERATURE           : 4788


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-7.176     CM/S       [4.2    ]   MEAN    : 1.164     CM/S       [4.0    ]
VARIANCE: 172.1    (CM/S)**2   [79.     ]   VARIANCE: 157.8    (CM/S)**2  [63.     ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.74     D.CEL.     [.16    ]   MEAN    : 1020.56    DB         [5.1    ]
VARIANCE: .1547    (D.CEL.)**2 [.53E-01]   VARIANCE: 226.8     (DB    )**2 [77.     ]



EAST - NORTH
============
COVARIANCE         :-62.24    (CM/S)**2 [59.     ]
CORRELATION COEFF  :-.3776

EAST - TEMPERATURE
==================
COVARIANCE         :-.6977    (CM/S)**2 [1.3     ]
CORRELATION COEFF  :-.1352

NORTH - TEMPERATURE
===================
COVARIANCE         : 1.102    (CM/S)**2 [1.4     ]
CORRELATION COEFF  : .2230

PRESSURE - TEMPERATURE
======================
COVARIANCE         : 1.621    (CM/S)**2 [1.4     ]
CORRELATION COEFF  : .2845

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  26.42      (CM/S)**2
EDDY KINETIC ENERGY :  165.0      (CM/S)**2
MKE/EKE             :  .1602
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S3
LATITUDE             : N 37 46.26
LONGITUDE            : W 010 14.07
WATER DEPTH          : 3238m
INSTRUMENT NUMBER    : 4445 AANDERA
NOMINAL DEPTH        : 1500m
START TIME           :  1- 4-1988   12H
STOP TIME            :  3- 5-1989   21H


NUMBER OF CYCLES FOR PRESSURE              : 9538 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9538
NUMBER OF CYCLES FOR TEMPERATURE           : 9538


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     :-1.980     CM/S        [1.6    ] MEAN     :-.7224     CM/S        [1.2    ]
VARIANCE: 40.66    (CM/S)**2    [13.    ] VARIANCE: 25.04    (CM/S)**2    [7.0    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 8.961     D.CEL.      [.26    ] MEAN     : 1520.42    DB          [0.0    ]
VARIANCE: .5540    (D.CEL.)**2  [.20    ] VARIANCE: 125.2     (DB    )**2  [0.0    ]


EAST - NORTH
============
COVARIANCE         :-12.88    (CM/S)**2 [7.3    ]
CORRELATION COEFF :-.4036

EAST - TEMPERATURE
==================
COVARIANCE         :-1.747    (CM/S)**2 [1.1    ]
CORRELATION COEFF :-.3682

NORTH - TEMPERATURE
===================
COVARIANCE         : .5062    (CM/S)**2 [.72    ]
CORRELATION COEFF : .1359

PRESSURE - TEMPERATURE
======================
COVARIANCE         : 5.257    (CM/S)**2 [0.0    ]
CORRELATION COEFF : .6312

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  2.221     (CM/S)**2
EDDY KINETIC ENERGY :  32.85     (CM/S)**2
MKE/EKE             :  .6762E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S3
LATITUDE             : N 037 46.2
LONGITUDE            :  W 010 14.0
WATER DEPTH          : 3238m
INSTRUMENT NUMBER    : 4437 AANDERA
NOMINAL DEPTH        : 1800m
START TIME           :  1- 4-1988   12H
STOP TIME            : 28- 4-1989   15H


NUMBER OF CYCLES FOR PRESSURE             : 9412 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9193
NUMBER OF CYCLES FOR TEMPERATURE          : 9412


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                      NORTH
====                                      =====
MEAN    :-1.059     CM/S       [.96    ]  MEAN    :-.5170     CM/S       [.65    ]
VARIANCE: 13.46    (CM/S)**2   [4.2    ]  VARIANCE: 7.718    (CM/S)**2  [2.0    ]

TEMPERATURE                               PRESSURE
===========                               ========
MEAN    : 5.553     D.CEL.     [.95E-01]  MEAN    : 1824.98    DB         [3.7    ]
VARIANCE: .7512E-01(D.CEL.)**2 [.26E-01]  VARIANCE: 82.33     (DB    )**2 [33.    ]


EAST - NORTH
============
COVARIANCE        :-2.715    (CM/S)**2 [2.2    ]
CORRELATION COEFF :-.2664

EAST - TEMPERATURE
==================
COVARIANCE        :-.3872    (CM/S)**2 [.22    ]
CORRELATION COEFF :-.3851

NORTH - TEMPERATURE
===================
COVARIANCE        : .4273E-01(CM/S)**2 [.14    ]
CORRELATION COEFF : .5611E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE        : 1.254    (CM/S)**2 [.77    ]
CORRELATION COEFF : .5094

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .6944     (CM/S)**2
EDDY KINETIC ENERGY :  10.59     (CM/S)**2
MKE/EKE             :  .6558E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S3
LATITUDE             : N 37 46.26
LONGITUDE            : W 010 14.07
WATER DEPTH          : 3238m
INSTRUMENT NUMBER    : 5897 AANDERA
NOMINAL DEPTH        : 2700m
START TIME           :  1- 4-1988   12H
STOP TIME            : 28-12-1988    2H


NUMBER OF CYCLES FOR PRESSURE              : 6495 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 6495
NUMBER OF CYCLES FOR TEMPERATURE           : 6495


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    : .2205     CM/S        [.26    ]  MEAN    : .7691E-01  CM/S        [.22    ]
VARIANCE: 1.490    (CM/S)**2    [.37    ]  VARIANCE: 1.291     (CM/S)**2    [.27    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 3.040     D.CEL.      [.16E-01]  MEAN    : 2812.29    DB          [2.2    ]
VARIANCE: .2053E-02(D.CEL.)**2  [.80E-03]  VARIANCE: 24.02      (DB    )**2 [12.    ]



EAST - NORTH
============
COVARIANCE         : .3741    (CM/S)**2 [.23    ]
CORRELATION COEFF  : .2697

EAST - TEMPERATURE
==================
COVARIANCE         :-.2676E-01(CM/S)**2 [.12E-01]
CORRELATION COEFF  :-.4838

NORTH - TEMPERATURE
===================
COVARIANCE         :-.5551E-02(CM/S)**2 [.11E-01]
CORRELATION COEFF  :-.1078

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.2711E-01(CM/S)**2 [.90E-01]
CORRELATION COEFF  :-.1221

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .2728E-01 (CM/S)**2
EDDY KINETIC ENERGY :  1.391     (CM/S)**2
MKE/EKE             :  .1962E-01
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S3
LATITUDE             : N 37 46.26
LONGITUDE            : W 010 14.07
WATER DEPTH          : 3238m
INSTRUMENT NUMBER    : 4446 AANDERA
NOMINAL DEPTH        : 3000m
START TIME           :  1- 4-1988   12H
STOP TIME            :  4- 8-1988   10H


NUMBER OF CYCLES FOR PRESSURE              : 2999 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 2380
NUMBER OF CYCLES FOR TEMPERATURE           : 2999


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
     (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH.
====                                       =====
MEAN    : .3399     CM/S        [.23    ]  MEAN    : .4758     CM/S        [.29    ]
VARIANCE: 1.223    (CM/S)**2    [.33    ]  VARIANCE: 1.018    (CM/S)**2    [.34    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 2.792     D.CEL.      [.21E-01]  MEAN    : 3067.98    DB         [5.4    ]
VARIANCE: .1334E-02(D.CEL.)**2  [.73E-03]  VARIANCE: 160.8     (DB    )**2 [75.    ]



EAST - NORTH
============
COVARIANCE         : .4372    (CM/S)**2 [.22    ]
CORRELATION COEFF  : .3917

EAST - TEMPERATURE
==================
COVARIANCE         :-.9306E-02(CM/S)**2 [.72E-02]
CORRELATION COEFF  :-.2304

NORTH - TEMPERATURE
===================
COVARIANCE         :-.1879E-02(CM/S)**2 [.10E-01]
CORRELATION COEFF  :-.5096E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-.6238E-01(CM/S)**2 [.16    ]
CORRELATION COEFF  :-.1454

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  .1710     (CM/S)**2
EDDY KINETIC ENERGY :  1.121     (CM/S)**2
MKE/EKE             :  .1526
```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ABYSSALE
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S1
3000

S4 MOORING

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S4
LATITUDE             : N 37 45.18
LONGITUDE            : W 011 00.00
WATER DEPTH          : 5050m
INSTRUMENT NUMBER    : 2068 AANDERA
NOMINAL DEPTH        : 300m
START TIME           :  1- 4-1988   19H
STOP TIME            : 24- 4-1989    7H


NUMBER OF CYCLES FOR PRESSURE              : 9301 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9301
NUMBER OF CYCLES FOR TEMPERATURE           : 9301


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN     :-6.172     CM/S        [2.6    ] MEAN     : 1.506     CM/S        [2.7    ]
VARIANCE: 58.43    (CM/S)**2    [22.    ] VARIANCE: 76.51    (CM/S)**2    [24.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN     : 12.90     D.CEL.      [.61E-01] MEAN     : 293.522    DB          [3.8    ]
VARIANCE: .1011    (D.CEL.)**2  [.22E-01] VARIANCE: 546.3     (DB    )**2 [.10E+03]



EAST - NORTH
============
COVARIANCE         : 6.719    (CM/S)**2 [19.    ]
CORRELATION COEFF  : .1005

EAST - TEMPERATURE
==================
COVARIANCE         : .7632    (CM/S)**2 [.48    ]
CORRELATION COEFF  : .3141

NORTH - TEMPERATURE
===================
COVARIANCE         :-.1074E-01(CM/S)**2 [.52    ]
CORRELATION COEFF  :-.3864E-02

PRESSURE - TEMPERATURE
======================
COVARIANCE         :-5.597    (CM/S)**2 [1.3    ]
CORRELATION COEFF  :-.7533

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  20.18     (CM/S)**2
EDDY KINETIC ENERGY :  67.47     (CM/S)**2
MKE/EKE             :  .2991
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S4
LATITUDE             : N 37 45.18
LONGITUDE            : W 011 00.00
WATER DEPTH          : 5050m
INSTRUMENT NUMBER    : 0812 AANDERA
NOMINAL DEPTH        : 700m
START TIME           :  1- 4-1988   19H
STOP TIME            : 23- 3-1989   13H


NUMBER OF CYCLES FOR PRESSURE              : 8539 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 8539
NUMBER OF CYCLES FOR TEMPERATURE           : 8539


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-6.615     CM/S        [3.5    ]  MEAN    : 3.086     CM/S        [1.9    ]
VARIANCE: 142.3    (CM/S)**2    [43.    ]  VARIANCE: 93.80    (CM/S)**2    [23.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.55     D.CEL.      [.83E-01]  MEAN    : 686.477    DB          [6.6    ]
VARIANCE: .2185    (D.CEL.)**2  [.46E-01]  VARIANCE: 1142.     (DB    )**2 [.25E+03]



EAST - NORTH
============
COVARIANCE         :-2.331    (CM/S)**2 [22.    ]
CORRELATION COEFF  :-.2018E-01

EAST - TEMPERATURE
==================
COVARIANCE         : .2259    (CM/S)**2 [1.1    ]
CORRELATION COEFF  : .4050E-01

NORTH - TEMPERATURE
===================
COVARIANCE         :-.4330    (CM/S)**2 [.76    ]
CORRELATION COEFF  :-.9564E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         : 5.530    (CM/S)**2 [2.8    ]
CORRELATION COEFF  : .3501

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  26.64     (CM/S)**2
EDDY KINETIC ENERGY :  118.1     (CM/S)**2
MKE/EKE             :  .2257
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S4
LATITUDE             : N 037 45.1
LONGITUDE            :  W 011 00.0
WATER DEPTH          : 5050m
INSTRUMENT NUMBER    : 5446 AANDERA
NOMINAL DEPTH        : 1000m
START TIME           :  1- 4-1988   19H
STOP TIME            :  2- 5-1989    9H


NUMBER OF CYCLES FOR PRESSURE              : 9495 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 9495
NUMBER OF CYCLES FOR TEMPERATURE           : 9495


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-6.083     CM/S        [2.9    ]  MEAN    : 2.174     CM/S        [2.3    ]
VARIANCE: 104.4    (CM/S)**2    [31.    ]  VARIANCE: 99.38    (CM/S)**2    [24.    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 11.34     D.CEL.      [.48E-01]  MEAN    : 977.187    DB         [4.0    ]
VARIANCE: .1154    (D.CEL.)**2  [.20E-01]  VARIANCE: 607.2     (DB    )**2 [.12E+03]



EAST - NORTH
============
COVARIANCE         : .3416    (CM/S)**2 [20.    ]
CORRELATION COEFF  : .3354E-02

EAST - TEMPERATURE
==================
COVARIANCE         : .1379    (CM/S)**2 [.47    ]
CORRELATION COEFF  : .3973E-01

NORTH - TEMPERATURE
===================
COVARIANCE         :-.1487    (CM/S)**2 [.51    ]
CORRELATION COEFF  :-.4390E-01

PRESSURE - TEMPERATURE
======================
COVARIANCE         : 2.406    (CM/S)**2 [1.2    ]
CORRELATION COEFF  : .2874

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  20.87     (CM/S)**2
EDDY KINETIC ENERGY :  101.9     (CM/S)**2
MKE/EKE             :  .2048
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S4
LATITUDE             : N 037 45.1
LONGITUDE            :  W 011 00.0
WATER DEPTH          : 5050m
INSTRUMENT NUMBER    : 4444 AANDERA
NOMINAL DEPTH        : 1500m
START TIME           :  1- 4-1988   19H
STOP TIME            :  4-12-1988   17H


NUMBER OF CYCLES FOR PRESSURE              : 5927 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 5927
NUMBER OF CYCLES FOR TEMPERATURE           : 5927


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-3.682     CM/S        [2.4    ]  MEAN    : 1.787     CM/S        [1.2    ]
VARIANCE: 27.72    (CM/S)**2    [12.    ]  VARIANCE: 23.70    (CM/S)**2    [8.1    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 8.702     D.CEL.      [.19    ]  MEAN    : 1507.69    DB          [5.9    ]
VARIANCE: .4475    (D.CEL.)**2  [.15    ]  VARIANCE: 696.5     (DB    )**2 [.19E+03]



EAST - NORTH
============
COVARIANCE        :-2.991    (CM/S)**2 [5.0    ]
CORRELATION COEFF :-.1167

EAST - TEMPERATURE
==================
COVARIANCE        : .6183    (CM/S)**2 [1.0    ]
CORRELATION COEFF : .1756

NORTH - TEMPERATURE
===================
COVARIANCE        :-.9172    (CM/S)**2 [1.0    ]
CORRELATION COEFF :-.2816

PRESSURE - TEMPERATURE
======================
COVARIANCE        :-1.693    (CM/S)**2 [4.6    ]
CORRELATION COEFF :-.9587E-01

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  8.375     (CM/S)**2
EDDY KINETIC ENERGY :  25.71     (CM/S)**2
MKE/EKE             :  .3257
```

```
INSTITUTION          : I.F.R.E.MER
SITE                 : S4
LATITUDE             : N 37 45.18
LONGITUDE            : W 011 00.00
WATER DEPTH          : 5050m
INSTRUMENT NUMBER    : 7541 AANDERA
NOMINAL DEPTH        : 3000m
START TIME           :  1- 4-1988   19H
STOP TIME            : 25-12-1988    4H


NUMBER OF CYCLES FOR PRESSURE              : 6418 (ONE CYCLE IS ONE HOUR)
NUMBER OF CYCLES FOR  VELOCITY COMPONENTS : 6418
NUMBER OF CYCLES FOR TEMPERATURE           : 6418


THE STATISTICS ARE COMPUTED FROM LOW-PASS SERIES.
      (40 HOUR CUT-OFF, LANCZOS FILTERING)


EAST                                       NORTH
====                                       =====
MEAN    :-2.223     CM/S        [.58    ]  MEAN    : 2.166     CM/S        [.47    ]
VARIANCE: 2.015    (CM/S)**2    [.73    ]  VARIANCE: 4.201    (CM/S)**2    [1.5    ]

TEMPERATURE                                PRESSURE
===========                                ========
MEAN    : 2.811     D.CEL.      [.12E-01]  MEAN    : 3046.44    DB         [2.8    ]
VARIANCE: .8938E-03(D.CEL.)**2  [.35E-03]  VARIANCE: 166.8     (DB    )**2 [46.    ]



EAST - NORTH
============
COVARIANCE         :-.3848    (CM/S)**2 [.53    ]
CORRELATION COEFF  :-.1323

EAST - TEMPERATURE
==================
COVARIANCE         : .1158E-01(CM/S)**2 [.16E-01]
CORRELATION COEFF  : .2728

NORTH - TEMPERATURE
===================
COVARIANCE         :-.3772E-01(CM/S)**2 [.15E-01]
CORRELATION COEFF  :-.6156

PRESSURE - TEMPERATURE
======================
COVARIANCE         : .7582E-01(CM/S)**2 [.82E-01]
CORRELATION COEFF  : .1963

OTHER STATISTICS
================
MEAN KINETIC ENERGY :  4.817     (CM/S)**2
EDDY KINETIC ENERGY :  3.108     (CM/S)**2
MKE/EKE             :  1.550
```

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Centre IFREMER de Brest

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A hydrographic array and current measurements were carried out in 1988-89 offshore from the Iberian Peninsula as part of the BORD-EST programme with the aim of describing the eastern boundary flows occuring in that area. This report presents all the hydrographic, tracers and velocity measurements, with the calibration procedures, vertical distributions and listings of the hydrographic parameters, and time series and basic statistics of the Eulerian parameters.

Un réseau hydrographique et des mesures de courant ont été réalisés en 1988-89 au large de la péninsule Ibérique pour le programme BORD-EST, dans le but de décrire les écoulements de frontière Est présents dans cette région. Dans ce rapport sont présentées les données hydrographiques, de traceurs géochimiques et de courants. Les procédures de calibration, coupes verticales et listings sont fournis pour les paramètres hydrographiques, ainsi que les séries temporelles et statistiques de base des paramètres eulériens.

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