

F. CONAND

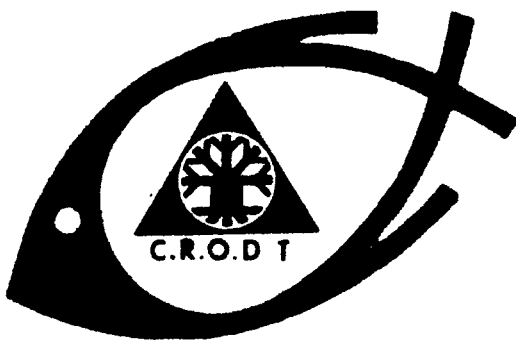
N. MIELNIKOV

RAPPORT DE LA CAMPAGNE

du " VIANDRA "

RECHERCHE DES LARVES DE THONS

NOVEMBRE 1975



TOUT OU PARTIE DE CE DOCUMENT  
NE PEUT ETRE CITÉ OU UTILISÉ SANS  
AUTORISATION PRÉALABLE DE L'AUTEUR.

OFFICE DE LA RECHERCHE SCIENTIFIQUE ET TECHNIQUE OUTRE-MER

CENTRE DE RECHERCHES Océanographiques DE DAKAR - THIANBOYE

ARCHIVE

N°33

AVRIL 1976

RAPPORT DE LA CAMPAGNE  
du "VIANDRA"  
Recherche des larves de thons - novembre 1975

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par

F. CONAND\*

N. MIELNIKOV\*\*

CENTRE DE RECHERCHES OcéANOGRAPHIQUES  
DE DAKAR-THIAROYE  
(SENEGAL)

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NE PEUT ETRE CITÉ OU UTILISÉ SANS  
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ARCHIVE N° 33

AVRIL 1976

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\*\* Chef de mission soviétique à bord du "VIANDRA"

Le "VIANDRA" navire de recherche soviétique a effectué du 4 au 18 novembre 1975 une campagne conjointe au large des côtes du Sénégal dans le cadre des accords de coopérations scientifiques passés entre la République du Sénégal et l'U.R.S.S.

Le but de cette campagne était la recherche des larves de thunnidae dans le plancton entre 11°40'N et 19°40'N d'une part le plateau continental et 21°W d'autre part.

On a pu en même temps faire les observations scientifiques suivantes :

- Observations hydrologiques de surface (température, salinité)
- Bathythermogramme à chaque station (0-200 m)
- Composition par famille de l'ichtyoplancton.

La figure 1 indique la position des stations.

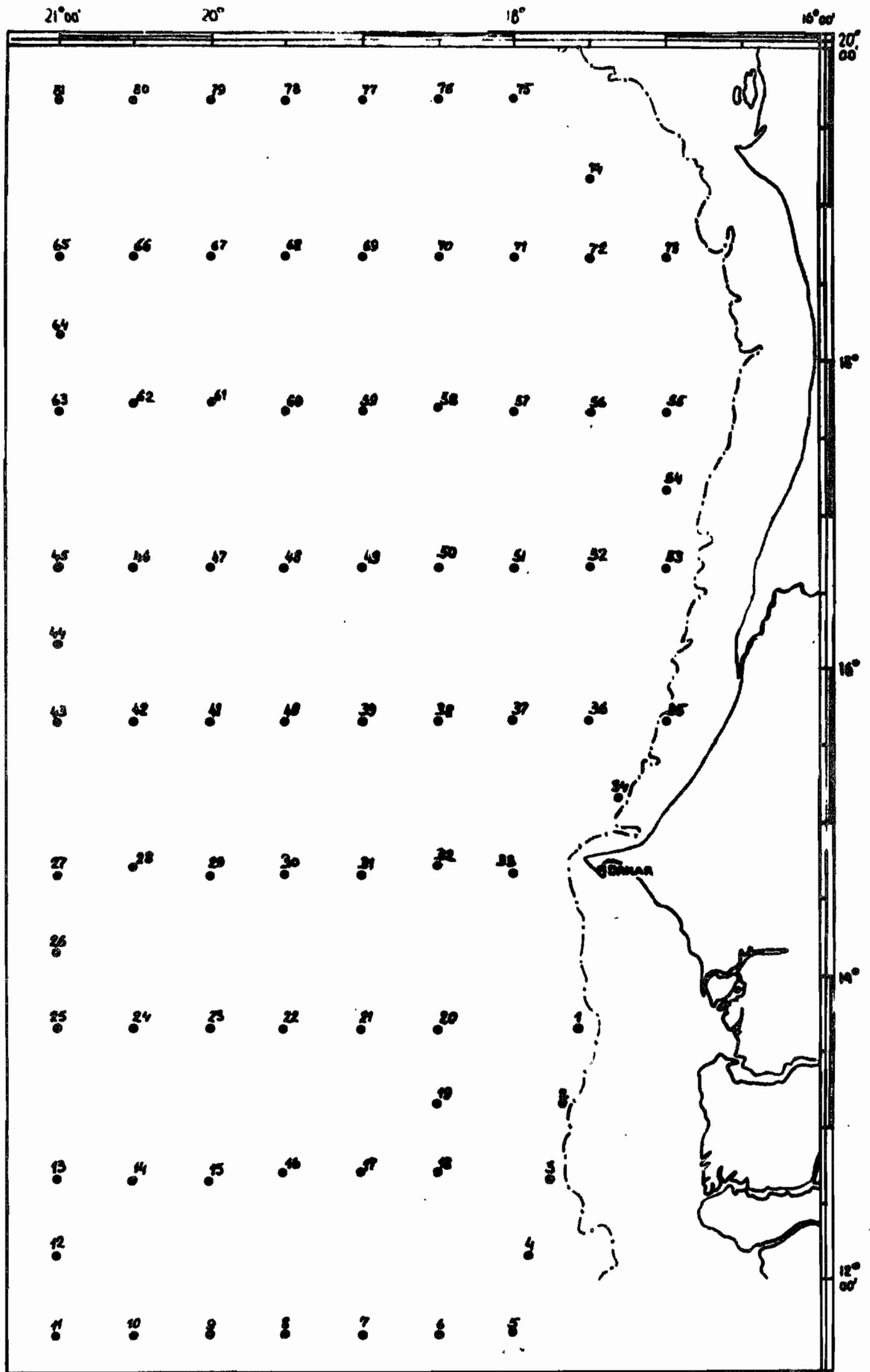


Fig.N° 1 -POSITION DES STATIONS DU "VIANDRA"

## PREMIERE PARTIE

### PHYSIQUE

81 stations hydrologiques ont été effectuées pendant la campagne

La température de l'eau a été déterminée à l'aide d'un bathythermographe jusqu'à la profondeur de 200 m. Des échantillons d'eau ont été prélevés en surface, et dosés à bord en vue de déterminer la salinité (dosage au salinomètre CSIRO).

On trouvera dans les pages qui suivent, les données présentées sous forme de tableaux, les enregistrements bathythermographiques ayant été lus. Ensuite, les cartes d'isothermes (figure 2) et isohalines (figure 3) de surface sont présentées ainsi qu'un certain nombre de profils thermiques (figures 4 à 13).

RESULTATS DES OBSERVATIONS HYDROLOGIQUES EFFECTUEES

SUR LE N.O

"VIANDRA"

| Station N° | 1         |  | 2         |  | 3         |  | 4         |  | 5         |  |
|------------|-----------|--|-----------|--|-----------|--|-----------|--|-----------|--|
| Latitude   | 13°40'0 N |  | 13°10'0 N |  | 12°40'0 N |  | 12°10'0 N |  | 11°40'0 N |  |
| Longitude  | 17°34'0 W |  | 17°41'1 W |  | 17°45'0 W |  | 17°53'0 W |  | 18°00'0 W |  |
| Année      | 1975      |  | 1975      |  | 1975      |  | 1975      |  | 1975      |  |
| Mois       | 11        |  | 11        |  | 11        |  | 11        |  | 11        |  |
| Jour       | 04        |  | 04        |  | 05        |  | 05        |  | 05        |  |
| Heure      | 17.53     |  | 21.40     |  | 01.05     |  | 04.20     |  | 08.00     |  |
| Profondeur | 1200 m    |  | 1000 m    |  | 1250 m    |  | 2800 m    |  | 3500 m    |  |
| S ‰        | 34.117    |  | 32.669    |  | 33.300    |  | 33.148    |  | 34.898    |  |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 28.6 | 0     | 28.8 | 0     | 28.7 | 0     | 28.5 | 0     | 28.7 |
|  | 10    | 28.6 | 10    | 28.9 | 10    | 28.9 | 10    | 28.6 | 10    | 28.7 |
|  | 20    | 28.6 | 20    | 28.7 | 20    | 28.6 | 15    | 28.7 | 20    | 28.6 |
|  | 25    | 28.3 | 25    | 28.2 | 30    | 27.6 | 20    | 28.7 | 30    | 28.0 |
|  | 30    | 27.0 | 30    | 25.0 | 35    | 25.4 | 30    | 28.4 | 35    | 26.4 |
|  | 35    | 23.9 | 35    | 21.7 | 40    | 22.4 | 40    | 28.0 | 40    | 24.7 |
|  | 40    | 21.7 | 40    | 18.5 | 45    | 19.8 | 45    | 26.6 | 45    | 23.1 |
|  | 45    | 20.0 | 45    | 17.6 | 50    | 18.6 | 50    | 24.2 | 50    | 22.2 |
|  | 50    | 18.4 | 50    | 17.5 | 65    | 16.3 | 55    | 22.8 | 55    | 20.8 |
|  | 55    | 17.8 | 60    | 17.2 | 70    | 15.9 | 60    | 21.0 | 60    | 18.8 |
|  | 60    | 17.3 | 70    | 16.2 | 80    | 15.7 | 65    | 19.6 | 65    | 17.9 |
|  | 75    | 16.1 | 75    | 15.7 | 90    | 15.2 | 70    | 18.0 | 70    | 17.2 |
|  | 100   | 15.4 | 80    | 15.5 | 100   | 15.0 | 75    | 17.2 | 80    | 16.7 |
|  | 125   | 14.7 | 90    | 15.1 | 110   | 14.7 | 80    | 16.0 | 90    | 16.3 |
|  | 150   | 14.2 | 100   | 14.9 | 120   | 14.3 | 90    | 15.6 | 100   | 15.6 |
|  | 200   | 13.6 | 110   | 14.7 | 130   | 14.1 | 100   | 15.1 | 110   | 15.1 |
|  |       |      | 120   | 14.5 | 140   | 14.1 | 110   | 14.9 | 120   | 14.7 |
|  |       |      | 130   | 14.3 | 150   | 13.9 | 120   | 14.5 | 130   | 14.3 |
|  |       |      | 140   | 14.3 | 160   | 13.6 | 130   | 14.2 | 140   | 14.0 |
|  |       |      | 150   | 14.3 | 170   | 13.3 | 140   | 13.9 | 150   | 13.8 |
|  |       |      | 170   | 13.9 | 180   | 13.2 | 150   | 13.7 | 160   | 13.7 |
|  |       |      | 180   | 13.8 | 190   | 13.1 | 200   | 12.8 | 170   | 13.4 |
|  |       |      | 190   | 13.7 | 200   | 13.1 |       |      | 180   | 13.3 |
|  |       |      | 200   | 13.4 |       |      |       |      | 190   | 13.1 |
|  |       |      |       |      |       |      |       |      | 200   | 13.0 |

| Station N° | 6         | 7         | 8         | 9         | 10        |
|------------|-----------|-----------|-----------|-----------|-----------|
| Latitude   | 11°40'0 N | 11°40'0 N | 11°40'0 N | 11°40'0 N | 11°40'0 N |
| Longitude  | 18°30'0 W | 19°00'0 W | 19°30'0 W | 20°00'0 W | 20°30'0 W |
| Année      | 1975      | 1975      | 1975      | 1975      | 1975      |
| Mois       | 11        | 11        | 11        | 11        | 11        |
| Jours      | 05        | 05        | 05        | 05        | 06        |
| Heure      | 11.20     | 14.43     | 17.50     | 21.22     | 00.41     |
| Profondeur | 4150 m    | 4500 m    | 4600 m    | 4700 m    | 4800 m    |
| S ‰        | 35.417    | 35.122    | 35.173    | 35.173    | 35.401    |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 28.7 | 0     | 28.9 | 0     | 28.8 | 0     | 28.7 | 0     | 28.6 |
|  | 10    | 28.7 | 10    | 28.7 | 10    | 28.7 | 10    | 28.7 | 10    | 28.6 |
|  | 20    | 28.6 | 20    | 28.3 | 20    | 28.4 | 20    | 28.6 | 20    | 28.5 |
|  | 30    | 28.2 | 25    | 28.3 | 25    | 28.2 | 25    | 28.6 | 30    | 28.0 |
|  | 35    | 26.4 | 30    | 27.6 | 30    | 27.0 | 30    | 28.5 | 35    | 26.4 |
|  | 40    | 23.6 | 35    | 25.4 | 35    | 24.8 | 35    | 27.5 | 40    | 24.8 |
|  | 45    | 22.0 | 40    | 24.0 | 40    | 22.0 | 40    | 26.2 | 45    | 23.2 |
|  | 50    | 20.0 | 45    | 22.4 | 45    | 20.4 | 45    | 24.5 | 50    | 21.4 |
|  | 55    | 18.6 | 50    | 20.8 | 50    | 19.4 | 50    | 23.0 | 55    | 20.5 |
|  | 60    | 17.4 | 55    | 18.8 | 55    | 18.3 | 55    | 21.2 | 60    | 19.3 |
|  | 70    | 16.7 | 60    | 17.7 | 60    | 17.8 | 60    | 19.6 | 65    | 18.4 |
|  | 80    | 16.2 | 65    | 17.1 | 65    | 17.5 | 65    | 18.4 | 70    | 17.7 |
|  | 90    | 15.6 | 70    | 16.6 | 70    | 17.4 | 70    | 17.9 | 75    | 16.6 |
|  | 100   | 15.2 | 80    | 16.0 | 110   | 15.6 | 75    | 17.3 | 80    | 15.6 |
|  | 110   | 15.0 | 90    | 15.4 | 120   | 15.2 | 80    | 16.7 | 85    | 14.9 |
|  | 120   | 14.6 | 100   | 14.8 | 130   | 15.0 | 85    | 16.3 | 90    | 14.7 |
|  | 130   | 14.2 | 110   | 14.5 | 140   | 14.9 | 90    | 16.0 | 95.   | 14.5 |
|  | 140   | 13.9 | 120   | 14.1 | 150   | 14.7 | 95    | 15.5 | 100   | 14.3 |
|  | 150   | 13.7 | 130   | 13.8 | 160   | 14.4 | 100   | 15.3 | 110   | 14.0 |
|  | 160   | 13.3 | 140   | 13.6 | 170   | 13.9 | 110.  | 15.0 | 120   | 13.8 |
|  | 170   | 13.1 | 150   | 13.4 | 180   | 13.5 | 120   | 14.5 | 130   | 13.6 |
|  | 180   | 13.0 | 160   | 13.2 | 190   | 13.2 | 130   | 14.1 | 140   | 13.3 |
|  | 190   | 12.8 | 170   | 13.0 | 200   | 13.0 | 140   | 13.9 | 150   | 13.1 |
|  | 200   | 12.6 | 180   | 12.9 |       |      | 150   | 13.7 | 160   | 12.9 |
|  |       |      | 190   | 12.6 |       |      | 160   | 13.5 | 170   | 12.8 |
|  |       |      | 200   | 12.5 |       |      | 170   | 13.2 | 180   | 12.5 |
|  |       |      |       |      |       |      | 180   | 13.1 | 190   | 12.5 |
|  |       |      |       |      |       |      | 190   | 12.9 | 200   | 12.4 |
|  |       |      |       |      |       |      | 200   | 12.7 |       |      |

|            |           |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|-----------|
| Station N° | 11        | 12        | 13        | 14        | 15        |
| Latitude   | 11°40'0 N | 12°10'0 N | 12°40'0 N | 12°40'0 N | 12°40'0 N |
| Longitude  | 21°00'0 W | 21°00'0 W | 21°00'0 W | 20°30'0 W | 20°00'0 W |
| Année      | 1975      | 1975      | 1975      | 1975      | 1975      |
| Mois       | 11        | 11        | 11        | 11        | 11        |
| Jour       | 06        | 06        | 06        | 06        | 06        |
| Heure      | 03.55     | 07.40     | 11.10     | 14.35     | 18.23     |
| Profondeur | 4900 m    | 4800 m    | 7700 m    | 4800 m    | 4600 m    |
| S ‰        | 35.189    | 35.205    | 35.205    | 35.208    | 35.197    |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 28.3 | 0     | 28.1 | 0     | 28.2 | 0     | 28.0 | 0     | 28.2 |
|  | 10    | 28.3 | 10    | 28.1 | 10    | 28.2 | 10    | 28.0 | 10    | 28.2 |
|  | 20    | 28.3 | 20    | 28.1 | 20    | 28.2 | 20    | 28.0 | 20    | 28.1 |
|  | 30    | 28.3 | 30    | 28.0 | 30    | 28.0 | 30    | 28.0 | 25    | 27.8 |
|  | 35    | 27.9 | 35    | 27.5 | 35    | 26.4 | 35    | 26.7 | 30    | 25.2 |
|  | 40    | 26.2 | 40    | 26.2 | 40    | 23.7 | 40    | 24.3 | 35    | 24.2 |
|  | 45    | 25.3 | 45    | 24.6 | 45    | 22.3 | 45    | 23.0 | 40    | 21.8 |
|  | 50    | 24.7 | 50    | 23.2 | 50    | 21.3 | 50    | 20.8 | 45    | 20.0 |
|  | 55    | 21.6 | 55    | 22.2 | 55    | 20.0 | 55    | 18.8 | 50    | 18.2 |
|  | 60    | 19.1 | 60    | 19.6 | 60    | 18.4 | 60    | 17.1 | 55    | 17.2 |
|  | 65    | 17.8 | 65    | 18.5 | 65    | 17.3 | 65    | 16.4 | 60    | 16.2 |
|  | 70    | 17.0 | 70    | 17.5 | 70    | 16.5 | 70    | 15.8 | 65    | 15.4 |
|  | 75    | 16.2 | 75    | 16.8 | 75    | 15.9 | 75    | 15.6 | 70    | 15.1 |
|  | 80    | 15.5 | 80    | 16.2 | 80    | 15.3 | 80    | 15.3 | 75    | 14.9 |
|  | 90    | 14.9 | 85    | 15.9 | 90    | 14.9 | 90    | 14.7 | 80    | 14.6 |
|  | 100   | 14.5 | 90    | 15.5 | 100   | 14.3 | 100   | 14.2 | 90    | 14.1 |
|  | 110   | 14.2 | 100   | 14.6 | 110   | 13.9 | 110   | 13.9 | 100   | 13.8 |
|  | 120   | 13.8 | 110   | 14.1 | 120   | 13.6 | 120   | 13.6 | 110   | 13.7 |
|  | 130   | 13.5 | 120   | 13.8 | 130   | 13.3 | 130   | 13.5 | 120   | 13.5 |
|  | 140   | 13.3 | 130   | 13.5 | 140   | 13.1 | 140   | 13.2 | 130   | 13.3 |
|  | 150   | 13.0 | 140   | 13.2 | 150   | 12.9 | 150   | 13.0 | 140   | 13.1 |
|  | 160   | 12.8 | 150   | 13.0 | 160   | 12.7 | 160   | 12.9 | 150   | 12.9 |
|  | 170   | 12.5 | 160   | 12.8 | 170   | 12.5 | 170   | 12.8 | 160   | 12.7 |
|  | 180   | 12.4 | 170   | 12.7 | 180   | 12.3 | 180   | 12.5 | 170   | 12.6 |
|  | 190   | 12.3 | 180   | 12.5 | 190   | 12.2 | 190   | 12.3 | 180   | 12.4 |
|  | 200   | 12.2 | 190   | 12.3 | 200   | 12.1 | 200   | 12.2 | 190   | 12.2 |
|  |       |      | 200   | 12.2 |       |      |       |      | 200   | 12.1 |



| Station N° | 16        |      | 17        |      | 18        |      | 19        |      | 20        |      |
|------------|-----------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| Latitude   | 12°44'0 N |      | 12°44'0 N |      | 12°44'0 N |      | 13°10'0 N |      | 13°40'0 N |      |
| Longitude  | 19°30'0 W |      | 19°00'0 W |      | 18°30'0 W |      | 18°30'0 W |      | 18°30'0 W |      |
| Année      | 1975      |      | 1975      |      | 1975      |      | 1975      |      | 1975      |      |
| Mois       | 11        |      | 11        |      | 11        |      | 11        |      | 11        |      |
| Jour       | 06        |      | 07        |      | 07        |      | 07        |      | 07        |      |
| Heure      | 22.13     |      | 01.38     |      | 05.20     |      | 08.40     |      | 13.10     |      |
| Profondeur | 4500 m    |      | 4400 m    |      | 3800 m    |      | 3700 m    |      | 3400 m    |      |
| S ‰        | 35.102    |      | 35.228    |      | 35.248    |      | 34.866    |      | 34.772    |      |
|            | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   |
|            | 0         | 28.1 | 0         | 28.2 | 0         | 28.1 | 0         | 28.2 | 0         | 28.2 |
|            | 10        | 28.1 | 10        | 28.2 | 10        | 28.1 | 10        | 28.2 | 10        | 28.2 |
|            | 20        | 28.1 | 20        | 27.9 | 20        | 28.1 | 20        | 28.2 | 20        | 28.2 |
|            | 30        | 28.1 | 30        | 27.8 | 30        | 28.1 | 30        | 28.0 | 25        | 28.0 |
|            | 35        | 26.4 | 35        | 27.2 | 40        | 28.1 | 35        | 27.5 | 30        | 24.9 |
|            | 40        | 24.8 | 40        | 24.4 | 45        | 27.8 | 40        | 25.1 | 35        | 21.8 |
|            | 45        | 22.6 | 45        | 23.2 | 50        | 25.2 | 45        | 23.4 | 40        | 19.1 |
|            | 50        | 21.0 | 50        | 21.7 | 55        | 22.4 | 50        | 22.2 | 45        | 18.4 |
|            | 55        | 18.8 | 55        | 19.7 | 60        | 19.4 | 55        | 18.9 | 50        | 17.1 |
|            | 60        | 17.5 | 60        | 18.1 | 65        | 17.8 | 60        | 16.4 | 55        | 16.2 |
|            | 65        | 16.8 | 65        | 17.2 | 70        | 16.8 | 65        | 15.9 | 60        | 15.7 |
|            | 70        | 16.1 | 70        | 15.9 | 75        | 15.9 | 70        | 15.4 | 65        | 15.3 |
|            | 75        | 15.5 | 75        | 15.5 | 80        | 15.2 | 75        | 15.3 | 70        | 15.0 |
|            | 80        | 15.0 | 80        | 15.1 | 85        | 14.7 | 80        | 15.1 | 75        | 14.7 |
|            | 85        | 14.8 | 90        | 14.4 | 90        | 14.5 | 90        | 15.0 | 80        | 14.5 |
|            | 90        | 14.5 | 100       | 14.0 | 100       | 14.1 | 100       | 14.7 | 90        | 14.1 |
|            | 100       | 14.2 | 110       | 13.9 | 110       | 13.7 | 110       | 14.5 | 100       | 14.0 |
|            | 110       | 13.8 | 120       | 13.6 | 120       | 13.7 | 120       | 14.3 | 110       | 13.8 |
|            | 120       | 13.6 | 130       | 13.4 | 130       | 13.4 | 130       | 14.1 | 120       | 13.5 |
|            | 130       | 13.4 | 140       | 13.2 | 140       | 13.1 | 140       | 13.9 | 130       | 13.3 |
|            | 140       | 13.3 | 150       | 13.1 | 150       | 12.8 | 150       | 13.5 | 140       | 13.3 |
|            | 150       | 13.1 | 160       | 13.0 | 160       | 12.6 | 160       | 13.3 | 150       | 13.1 |
|            | 160       | 12.9 | 170       | 12.9 | 170       | 12.4 | 170       | 13.1 | 160       | 13.1 |
|            | 170       | 12.7 | 180       | 12.6 | 180       | 12.3 | 180       | 12.9 | 170       | 12.9 |
|            | 180       | 12.5 | 190       | 12.4 | 190       | 12.3 | 190       | 12.7 | 180       | 12.8 |
|            | 190       | 12.3 | 200       | 12.3 | 200       | 12.3 | 200       | 12.6 | 190       | 12.6 |
|            | 200       | 12.3 |           |      |           |      |           |      | 200       | 12.5 |

|            |           |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|-----------|
| Station N° | 21        | 22        | 23        | 24        | 25        |
| Latitude   | 13°40'0 N | 13°40'0 N | 13°40'0 N | 13°40'0 N | 13°40'0 N |
| Longitude  | 19°00'0 W | 19°30'0 W | 20°00'0 W | 20°30'0 W | 21°00'0 W |
| Année      | 1975      | 1975      | 1975      | 1975      | 1975      |
| Mois       | 11        | 11        | 11        | 11        | 11        |
| Jour       | 07        | 07        | 08        | 08        | 08        |
| Heure      | 17.10     | 20.45     | 00.15     | 03.55     | 08.25     |
| Profondeur | 3600 m    | 4300 m    | 4200 m    | 4500 m    | 4400 m    |
| S ‰        | 35.650    | 35.669    | 35.689    | 35.658    | 35.681    |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 27.7 | 0     | 27.6 | 0     | 27.4 | 0     | 27.6 | 0     | 27.4 |
|  | 10    | 27.7 | 10    | 27.6 | 10    | 27.4 | 10    | 26.6 | 10    | 27.4 |
|  | 20    | 27.7 | 20    | 27.6 | 20    | 27.4 | 20    | 27.6 | 20    | 27.4 |
|  | 25    | 27.6 | 27    | 27.5 | 30    | 27.4 | 30    | 27.6 | 25    | 27.3 |
|  | 30    | 21.9 | 30    | 25.1 | 33    | 27.0 | 35    | 27.6 | 30    | 25.2 |
|  | 35    | 19.5 | 35    | 21.6 | 35    | 22.4 | 40    | 23.4 | 35    | 22.2 |
|  | 40    | 18.0 | 40    | 18.8 | 40    | 20.5 | 45    | 21.4 | 40    | 20.4 |
|  | 45    | 16.2 | 45    | 17.6 | 45    | 19.3 | 50    | 20.9 | 45    | 18.8 |
|  | 50    | 15.2 | 50    | 16.3 | 50    | 18.5 | 55    | 20.3 | 50    | 18.0 |
|  | 55    | 14.7 | 55    | 15.6 | 55    | 17.6 | 60    | 19.5 | 55    | 17.0 |
|  | 60    | 14.5 | 60    | 15.0 | 60    | 16.8 | 65    | 18.4 | 60    | 15.8 |
|  | 65    | 14.3 | 65    | 14.6 | 65    | 15.8 | 70    | 18.0 | 65    | 15.0 |
|  | 70    | 14.0 | 70    | 14.3 | 70    | 15.1 | 75    | 17.6 | 70    | 14.6 |
|  | 75    | 13.8 | 80    | 13.8 | 75    | 14.7 | 80    | 17.1 | 75    | 14.4 |
|  | 80    | 13.7 | 90    | 13.5 | 80    | 14.3 | 90    | 15.7 | 80    | 14.2 |
|  | 90    | 13.5 | 100   | 13.1 | 90    | 13.5 | 100   | 14.6 | 90    | 13.8 |
|  | 100   | 13.3 | 110   | 12.9 | 100   | 12.9 | 110   | 13.9 | 100   | 13.5 |
|  | 110   | 13.2 | 120   | 12.7 | 110   | 12.7 | 120   | 13.4 | 110   | 13.3 |
|  | 120   | 13.1 | 130   | 12.4 | 120   | 12.5 | 130   | 13.1 | 120   | 13.1 |
|  | 130   | 13.3 | 140   | 12.3 | 130   | 12.4 | 140   | 12.6 | 130   | 12.9 |
|  | 140   | 13.2 | 150   | 12.2 | 140   | 12.3 | 150   | 12.1 | 140   | 12.8 |
|  | 150   | 13.1 | 160   | 12.1 | 150   | 12.2 | 160   | 11.7 | 150   | 12.7 |
|  | 160   | 12.7 | 170   | 12.0 | 160   | 12.1 | 170   | 11.5 | 160   | 12.5 |
|  | 170   | 12.5 | 180   | 12.0 | 170   | 12.0 | 180   | 11.3 | 170   | 12.4 |
|  | 180   | 12.2 | 190   | 11.9 | 180   | 12.0 | 190   | 11.3 | 180   | 12.2 |
|  | 190   | 12.0 | 200   | 11.9 | 190   | 11.7 | 200   | 11.2 | 190   | 12.0 |
|  | 200   | 12.0 |       |      | 200   | 11.6 |       |      | 200   | 11.9 |

| Station N° | 26        |      | 27        |      | 28        |      | 29        |      | 30        |      |
|------------|-----------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| Latitude   | 14°10'0 N |      | 14°40'0 N |      | 14°44'0 N |      | 14°40'0 N |      | 14°40'0 N |      |
| Longitude  | 21°00'0 W |      | 21°00'0 W |      | 20°30'0 W |      | 20°00'0 W |      | 19°30'0 W |      |
| Annee      | 1975      |      | 1975      |      | 1975      |      | 1975      |      | 1975      |      |
| Mois       | 11        |      | 11        |      | 11        |      | 11        |      | 11        |      |
| Jour       | 08        |      | 08        |      | 08        |      | 08        |      | 09        |      |
| Heure      | 11.00     |      | 14.18     |      | 18.30     |      | 23.04     |      | 02.58     |      |
| Profondeur | 4400 m    |      | 4225 m    |      | 4100 m    |      | 3750 m    |      | 3600 m    |      |
| S ‰        | 35.713    |      | 35.709    |      | 35.634    |      | 35.837    |      | 35.483    |      |
|            | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   |
|            | 0         | 27.5 | 0         | 27.5 | 0         | 27.5 | 0         | 26.2 | 0         | 27.5 |
|            | 10        | 27.5 | 10        | 27.5 | 10        | 27.5 | 10        | 26.2 | 10        | 27.5 |
|            | 20        | 27.5 | 20        | 27.5 | 20        | 27.5 | 18        | 26.0 | 20        | 27.5 |
|            | 30        | 27.4 | 25        | 27.2 | 23        | 27.5 | 20        | 25.3 | 23        | 27.5 |
|            | 32        | 27.1 | 30        | 21.3 | 25        | 27.5 | 25        | 22.0 | 25        | 25.7 |
|            | 35        | 23.1 | 35        | 19.3 | 30        | 21.0 | 30        | 20.3 | 30        | 21.5 |
|            | 40        | 20.3 | 40        | 17.5 | 35        | 19.2 | 35        | 19.8 | 35        | 19.5 |
|            | 45        | 19.1 | 45        | 16.7 | 40        | 17.7 | 40        | 18.9 | 40        | 17.6 |
|            | 50        | 17.7 | 50        | 15.9 | 45        | 16.7 | 45        | 18.6 | 45        | 17.1 |
|            | 55        | 17.3 | 55        | 15.3 | 50        | 16.1 | 50        | 18.0 | 50        | 16.5 |
|            | 60        | 16.5 | 60        | 15.1 | 55        | 15.8 | 55        | 17.2 | 55        | 15.9 |
|            | 65        | 15.9 | 65        | 14.7 | 60        | 15.4 | 60        | 16.8 | 60        | 15.6 |
|            | 70        | 15.5 | 70        | 14.4 | 65        | 15.1 | 65        | 16.3 | 65        | 15.2 |
|            | 75        | 15.1 | 75        | 14.3 | 70        | 14.8 | 70        | 15.8 | 70        | 14.8 |
|            | 80        | 14.9 | 80        | 14.1 | 75        | 14.5 | 75        | 15.3 | 75        | 14.4 |
|            | 85        | 14.5 | 85        | 13.9 | 80        | 14.3 | 80        | 14.9 | 80        | 14.1 |
|            | 90        | 14.1 | 90        | 13.7 | 90        | 14.0 | 85        | 14.5 | 90        | 13.7 |
|            | 100       | 13.6 | 100       | 13.6 | 100       | 13.8 | 90        | 14.4 | 100       | 13.4 |
|            | 110       | 13.4 | 110       | 13.4 | 110       | 13.6 | 100       | 14.2 | 110       | 13.1 |
|            | 120       | 13.1 | 120       | 13.2 | 120       | 13.4 | 110       | 14.1 | 120       | 13.0 |
|            | 130       | 12.7 | 130       | 13.2 | 130       | 13.4 | 120       | 13.9 | 130       | 12.9 |
|            | 140       | 12.6 | 140       | 13.1 | 140       | 13.5 | 130       | 13.9 | 140       | 12.9 |
|            | 150       | 12.5 | 150       | 13.1 | 150       | 13.2 | 140       | 13.7 | 150       | 12.8 |
|            | 160       | 12.3 | 160       | 13.1 | 160       | 12.8 | 150       | 13.7 | 160       | 12.8 |
|            | 170       | 12.3 | 170       | 12.7 | 170       | 12.7 | 160       | 13.7 | 170       | 12.7 |
|            | 180       | 12.1 | 180       | 12.6 | 180       | 12.7 | 170       | 13.5 | 180       | 12.5 |
|            | 190       | 11.8 | 190       | 12.4 | 190       | 12.5 | 180       | 13.3 | 190       | 12.5 |
|            | 200       | 11.7 | 200       | 12.3 | 200       | 12.4 | 190       | 13.2 | 200       | 12.6 |
|            |           |      |           |      |           |      | 200       | 13.0 |           |      |

| Station N° | 31        |      | 32        |      | 33        |      | 34        |      | 35        |      |
|------------|-----------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| Latitude   | 14°40'0 N |      | 14°44'0 N |      | 14°40'0 N |      | 15°10'0 N |      | 15°40'0 N |      |
| Longitude  | 19°00'0 W |      | 18°30'0 W |      | 18°00'0 W |      | 17°17'5 W |      | 17°00'0 W |      |
| Année      | 1975      |      | 1975      |      | 1975      |      | 1975      |      | 1975      |      |
| Mois       | 11        |      | 11        |      | 11        |      | 11        |      | 11        |      |
| Jour       | 09        |      | 09        |      | 09        |      | 10        |      | 10        |      |
| Heure      | 06.50     |      | 10.15     |      | 13.20     |      | 18.50     |      | 22.50     |      |
| Profondeur | 3300 m    |      | 2900 m    |      | 2000 m    |      | 300 m     |      | 157 m     |      |
| S ‰        | 35.439    |      | 34.373    |      | 34.997    |      | 35.523    |      | 35.217    |      |
|            | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   |
|            | 0         | 27.7 | 0         | 27.6 | 0         | 27.4 | 0         | 25.1 | 0         | 25.2 |
|            | 10        | 27.7 | 10        | 27.6 | 10        | 27.4 | 10        | 25.1 | 10        | 25.2 |
|            | 20        | 27.7 | 20        | 27.7 | 20        | 27.4 | 20        | 24.7 | 20        | 25.0 |
|            | 28        | 27.7 | 23        | 28.1 | 22        | 27.1 | 25        | 23.7 | 25        | 22.2 |
|            | 30        | 26.5 | 30        | 25.3 | 25        | 26.5 | 30        | 22.9 | 30        | 19.4 |
|            | 35        | 23.6 | 35        | 22.4 | 30        | 24.1 | 35        | 21.5 | 35        | 18.8 |
|            | 40        | 21.9 | 40        | 20.3 | 35        | 22.3 | 40        | 20.3 | 40        | 17.4 |
|            | 45        | 20.4 | 45        | 18.8 | 40        | 20.7 | 45        | 19.2 | 45        | 17.1 |
|            | 50        | 19.0 | 50        | 17.1 | 45        | 18.8 | 50        | 17.8 | 50        | 17.0 |
|            | 55        | 18.1 | 55        | 16.7 | 50        | 17.5 | 55        | 17.5 | 55        | 16.9 |
|            | 60        | 17.5 | 60        | 16.2 | 55        | 17.0 | 60        | 16.9 | 60        | 16.5 |
|            | 65        | 16.6 | 65        | 15.4 | 60        | 16.5 | 65        | 16.0 | 65        | 16.1 |
|            | 70        | 16.3 | 70        | 15.2 | 65        | 16.3 | 70        | 15.8 | 70        | 15.8 |
|            | 75        | 16.1 | 75        | 14.9 | 70        | 16.0 | 75        | 15.3 | 75        | 15.8 |
|            | 80        | 15.5 | 80        | 14.6 | 75        | 15.5 | 80        | 14.9 | 80        | 15.7 |
|            | 90        | 14.7 | 90        | 14.4 | 80        | 15.3 | 90        | 14.7 | 85        | 15.7 |
|            | 100       | 14.6 | 100       | 14.0 | 90        | 14.7 | 100       | 14.6 | 90        | 15.3 |
|            | 110       | 14.3 | 110       | 13.7 | 100       | 14.5 | 110       | 14.4 | 100       | 14.9 |
|            | 120       | 14.3 | 120       | 13.5 | 110       | 14.3 | 120       | 14.3 | 110       | 14.5 |
|            | 130       | 13.9 | 130       | 13.3 | 120       | 14.1 | 130       | 14.3 | 120       | 14.1 |
|            | 140       | 13.9 | 140       | 13.1 | 130       | 14.0 | 140       | 14.2 | 130       | 14.0 |
|            | 150       | 13.5 | 150       | 12.7 | 140       | 13.8 | 150       | 14.1 | 140       | 13.9 |
|            | 160       | 13.5 | 160       | 12.5 | 150       | 13.7 | 160       | 14.1 | 150       | 13.9 |
|            | 170       | 13.5 | 170       | 12.5 | 160       | 13.6 | 170       | 14.1 | 160       | 13.9 |
|            | 180       | 13.4 | 180       | 12.3 | 170       | 13.4 | 180       | 14.0 | 170       | -    |
|            | 190       | 13.4 | 190       | 12.2 | 180       | 13.3 | 190       | 13.8 | 180       | -    |
|            | 200       | 13.0 | 200       | 12.0 | 190       | 13.1 | 200       | 13.8 | 190       | -    |
|            |           |      |           |      | 200       | 12.9 |           |      | 200       | -    |

|            |           |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|-----------|
| Station N° | 36        | 37        | 38        | 39        | 40        |
| Latitude   | 15°40'0 N | 15°40'0 N | 15°40'0 N | 15°40'0 N | 15°40'0 N |
| Longitude  | 17°30'0 W | 18°00'0 W | 18°30'0 W | 19°00'0 W | 19°30'0 W |
| Année      | 1975      | 1975      | 1975      | 1975      | 1975      |
| Mois       | 11        | 11        | 11        | 11        | 11        |
| Jour       | 11        | 11        | 11        | 11        | 11        |
| Heure      | 02.20     | 05.45     | 09.30     | 12.16     | 15.20     |
| Profondeur | 1650 m    | 2500 m    | 2900 m    | 3300 m    | 3500 m    |
| S ‰        | 35.149    | 35.377    | 35.571    | 35.822    | 35.749    |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 25.6 | 0     | 27.4 | 0     | 27.2 | 0     | 26.5 | 0     | 26.4 |
|  | 10    | 25.6 | 10    | 27.4 | 10    | 27.2 | 10    | 26.5 | 10    | 26.4 |
|  | 20    | 25.6 | 20    | 27.4 | 20    | 27.2 | 20    | 26.5 | 20    | 26.4 |
|  | 30    | 25.8 | 30    | 27.4 | 30    | 27.2 | 25    | 26.5 | 27    | 26.3 |
|  | 35    | 25.8 | 35    | 27.2 | 35    | 27.2 | 30    | 21.2 | 30    | 22.2 |
|  | 38    | 25.8 | 40    | 22.8 | 40    | 23.1 | 35    | 20.6 | 35    | 21.0 |
|  | 40    | 25.1 | 45    | 21.4 | 45    | 21.2 | 40    | 18.3 | 40    | 19.0 |
|  | 45    | 23.3 | 50    | 19.5 | 50    | 18.9 | 45    | 17.4 | 44    | 17.6 |
|  | 50    | 19.5 | 55    | 18.4 | 55    | 17.8 | 50    | 16.5 | 47    | 17.8 |
|  | 55    | 18.6 | 60    | 17.5 | 60    | 17.1 | 55    | 16.1 | 50    | 17.3 |
|  | 60    | 17.9 | 65    | 16.5 | 65    | 16.5 | 60    | 15.7 | 55    | 16.5 |
|  | 65    | 17.2 | 70    | 15.8 | 70    | 15.4 | 65    | 15.3 | 60    | 16.4 |
|  | 70    | 16.7 | 75    | 15.4 | 75    | 15.0 | 70    | 15.0 | 65    | 16.1 |
|  | 75    | 15.6 | 80    | 15.1 | 80    | 14.6 | 75    | 14.6 | 70    | 15.5 |
|  | 80    | 14.9 | 90    | 14.4 | 90    | 14.3 | 80    | 14.5 | 75    | 15.0 |
|  | 85    | 14.7 | 100   | 13.9 | 100   | 14.1 | 90    | 14.0 | 80    | 14.6 |
|  | 90    | 14.5 | 110   | 13.6 | 110   | 13.9 | 100   | 13.9 | 85    | 14.3 |
|  | 100   | 14.3 | 120   | 13.3 | 120   | 13.6 | 110   | 13.7 | 90    | 14.0 |
|  | 110   | 14.1 | 130   | 13.1 | 130   | 13.4 | 120   | 13.8 | 100   | 13.5 |
|  | 120   | 13.9 | 140   | 13.0 | 140   | 13.1 | 130   | 14.2 | 110   | 13.3 |
|  | 130   | 13.7 | 150   | 12.9 | 150   | 13.0 | 140   | 14.0 | 120   | 13.1 |
|  | 140   | 13.5 | 160   | 12.8 | 160   | 12.9 | 150   | 14.0 | 130   | 12.9 |
|  | 150   | 13.3 | 170   | -    | 170   | 12.9 | 160   | 13.8 | 140   | 12.7 |
|  | 160   | 13.1 | 180   | -    | 180   | 12.7 | 170   | 13.5 | 150   | 12.6 |
|  | 170   | 13.0 | 190   | -    | 190   | 12.1 | 180   | 13.0 | 160   | 12.5 |
|  | 180   | 12.8 | 200   | -    | 200   | 12.1 | 190   | 13.0 | 170   | 12.4 |
|  | 190   | 12.6 |       |      |       |      | 200   | 12.9 | 180   | 12.2 |
|  | 200   | 12.4 |       |      |       |      |       |      | 190   | 12.2 |
|  |       |      |       |      |       |      |       |      | 200   | 12.3 |

|            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|
| Station N° | 41         | 42         | 43         | 44         | 45         |
| Latitude   | 15°40'0" N | 15°40'0" N | 15°40'0" N | 15°10'0" N | 16°40'0" N |
| Longitude  | 20°00'0" W | 20°30'0" W | 21°00'0" W | 21°00'0" W | 21°00'0" W |
| Année      | 1975       | 1975       | 1975       | 1975       | 1975       |
| Mois       | 11         | 11         | 11         | 11         | 11         |
| Jour       | 11         | 11         | 12         | 12         | 12         |
| Heure      | 18.30      | 21.45      | 01.45      | 05.30      | 09.20      |
| Profondeur | 3600 m     | 3700 m     | 4000 m     | 3700 m     | 3500 m     |
| S ‰        | 35.870     | 35.775     | 35.688     | 35.548     | 35.550     |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 25.9 | 0     | 26.1 | 0     | 26.2 | 0     | 26.1 | 0     | 25.9 |
|  | 10    | 25.9 | 10    | 26.1 | 10    | 26.2 | 10    | 26.1 | 10    | 25.9 |
|  | 20    | 25.9 | 20    | 26.1 | 20    | 26.2 | 20    | 26.1 | 20    | 25.9 |
|  | 25    | 25.6 | 28    | 26.0 | 30    | 26.1 | 30    | 26.1 | 28    | 25.7 |
|  | 30    | 22.3 | 30    | 25.0 | 35    | 22.8 | 38    | 26.1 | 30    | 25.3 |
|  | 35    | 20.3 | 35    | 19.9 | 40    | 20.8 | 40    | 23.8 | 35    | 23.4 |
|  | 40    | 18.6 | 40    | 17.7 | 45    | 19.6 | 45    | 20.8 | 40    | 21.0 |
|  | 45    | 17.8 | 45    | 16.8 | 50    | 18.1 | 50    | 20.0 | 45    | 20.1 |
|  | 50    | 16.7 | 50    | 16.0 | 55    | 17.4 | 55    | 19.0 | 50    | 19.7 |
|  | 54    | 15.9 | 55    | 15.4 | 60    | 16.7 | 60    | 18.5 | 55    | 18.8 |
|  | 60    | 15.7 | 60    | 15.3 | 65    | 16.2 | 65    | 17.6 | 60    | 18.5 |
|  | 65    | 15.4 | 65    | 14.9 | 70    | 15.3 | 70    | 17.4 | 65    | 18.0 |
|  | 70    | 15.3 | 70    | 14.8 | 80    | 14.3 | 75    | 16.6 | 70    | 17.1 |
|  | 74    | 15.2 | 80    | 14.5 | 85    | 14.2 | 80    | 15.9 | 75    | 15.3 |
|  | 78    | 15.8 | 90    | 14.3 | 90    | 14.0 | 85    | 15.2 | 80    | 14.5 |
|  | 80    | 15.9 | 100   | 14.1 | 100   | 13.7 | 90    | 15.1 | 85    | 14.3 |
|  | 90    | 15.4 | 110   | 13.9 | 110   | 13.5 | 100   | 14.3 | 90    | 13.9 |
|  | 100   | 15.0 | 120   | 13.7 | 120   | 13.2 | 110   | 13.4 | 100   | 13.7 |
|  | 110   | 14.8 | 130   | 13.5 | 130   | 12.9 | 120   | 13.3 | 110   | 13.4 |
|  | 120   | 14.7 | 140   | 13.4 | 140   | 12.7 | 130   | 13.1 | 120   | 13.4 |
|  | 130   | 14.6 | 150   | 13.3 | 150   | 12.6 | 140   | 13.0 | 130   | 13.2 |
|  | 140   | 14.4 | 160   | 13.2 | 160   | 12.5 | 150   | 12.9 | 140   | 12.9 |
|  | 150   | 14.0 | 170   | 12.1 | 170   | 12.3 | 160   | 12.7 | 150   | 12.6 |
|  | 160   | 13.8 | 180   | 13.1 | 180   | 12.2 | 170   | 12.5 | 160   | 12.5 |
|  | 170   | 13.6 | 190   | 12.9 | 190   | 12.1 | 180   | 12.4 | 170   | 12.3 |
|  | 180   | 13.5 | 200   | 12.8 | 200   | 12.0 | 190   | 12.3 | 180   | 12.2 |
|  | 190   | 13.3 |       |      |       |      | 200   | 12.3 | 190   | 12.2 |
|  | 200   | 13.2 |       |      |       |      |       |      | 200   | 12.1 |

|            |           |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|-----------|
| Station N° | 46        | 47        | 48        | 49        | 50        |
| Latitude   | 16°40'0 N | 16°40'0 N | 16°40'0 N | 16°40'0 N | 16°40'0 N |
| Longitude  | 20°30'0 W | 20°00'0 W | 19°30'0 W | 19°00'0 W | 18°30'0 W |
| Année      | 1975      | 1975      | 1975      | 1975      | 1975      |
| Mois       | 11        | 11        | 11        | 11        | 11        |
| Jour       | 12        | 12        | 12        | 13        | 13        |
| Heure      | 12.55     | 17.00     | 22.15     | 01.50     | 05.50     |
| Profondeur | 3400 m    | 3500 m    | 3400 m    | 3270 m    | 3200 m    |
| S ‰        | 35.866    | 35.929    | 35.768    | 35.797    | 35.624    |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 25.3 | 0     | 25.8 | 0     | 25.9 | 0     | 25.5 | 0     | 26.1 |
|  | 10    | 25.3 | 10    | 25.8 | 10    | 25.9 | 10    | 25.5 | 10    | 26.1 |
|  | 20    | 25.3 | 20    | 25.8 | 20    | 25.9 | 20    | 25.5 | 20    | 26.1 |
|  | 30    | 25.3 | 30    | 25.7 | 30    | 24.8 | 30    | 25.5 | 30    | 26.1 |
|  | 33    | 25.2 | 40    | 25.7 | 35    | 21.4 | 38    | 25.3 | 34    | 25.8 |
|  | 35    | 22.8 | 42    | 22.5 | 40    | 18.0 | 40    | 24.3 | 40    | 22.0 |
|  | 40    | 20.6 | 45    | 22.6 | 45    | 17.4 | 45    | 20.9 | 45    | 20.8 |
|  | 45    | 19.7 | 50    | 17.6 | 50    | 16.3 | 50    | 18.7 | 50    | 19.3 |
|  | 50    | 19.2 | 55    | 17.0 | 55    | 16.2 | 55    | 17.8 | 55    | 18.4 |
|  | 55    | 18.2 | 60    | 16.2 | 60    | 16.0 | 60    | 16.9 | 60    | 17.3 |
|  | 60    | 17.5 | 65    | 15.7 | 65    | 15.6 | 65    | 16.6 | 65    | 16.5 |
|  | 65    | 16.7 | 70    | 15.5 | 70    | 15.4 | 70    | 16.2 | 70    | 15.7 |
|  | 70    | 16.1 | 75    | 15.5 | 75    | 15.3 | 75    | 15.9 | 75    | 15.2 |
|  | 75    | 15.9 | 80    | 15.3 | 80    | 15.2 | 80    | 15.5 | 80    | 14.9 |
|  | 80    | 15.3 | 85    | 15.1 | 90    | 14.6 | 85    | 15.4 | 85    | 14.3 |
|  | 85    | 15.0 | 90    | 14.9 | 100   | 14.4 | 90    | 15.2 | 90    | 14.1 |
|  | 90    | 14.8 | 100   | 14.1 | 110   | 14.2 | 100   | 14.7 |       | .    |
|  | 100   | 14.5 | 110   | 13.7 | 120   | 14.1 | 110   | 13.9 | 100   | 13.9 |
|  | 110   | 14.1 | 120   | 13.5 | 130   | 13.8 | 115   | 13.8 | 110   | 13.7 |
|  | 120   | 14.0 | 130   | 13.2 | 140   | 13.8 | 120   | 13.2 | 120   | 13.5 |
|  | 130   | 13.7 | 140   | 13.0 | 150   | 13.5 | 130   | 13.4 | 130   | 13.4 |
|  | 140   | 13.4 | 150   | 12.9 | 160   | 13.3 | 140   | 13.7 | 140   | 13.2 |
|  | 150   | 13.3 | 160   | 12.6 | 170   | 13.0 | 150   | 12.9 | 150   | 13.0 |
|  | 160   | 13.2 | 170   | 12.5 | 180   | 12.7 | 160   | 12.7 | 160   | 13.0 |
|  | 170   | 13.0 | 180   | 12.5 | 190   | 12.4 | 170   | 12.5 | 170   | 12.7 |
|  | 180   | 12.8 | 190   | 12.3 | 200   | 12.3 | 180   | 12.3 | 180   | 12.6 |
|  | 190   | 12.6 | 200   | 12.1 |       |      | 190   | 12.2 | 190   | 12.5 |
|  | 200   | 12.4 |       |      |       |      | 200   | 12.1 | 200   | 12.4 |





|            |           |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|-----------|
| Station N° | 56        | 57        | 58        | 59        | 60        |
| Latitude   | 17°40'0 N | 17°40'0 N | 17°42'0 N | 17°40'0 N | 17°40'0 N |
| Longitude  | 17°30'0 W | 18°00'0 W | 18°30'0 W | 19°00'0 W | 19°30'0 W |
| Année      | 1975      | 1975      | 1975      | 1975      | 1975      |
| Mois       | 11        | 11        | 11        | 11        | 11        |
| Jour       | 14        | 14        | 14        | 14        | 14        |
| Heure      | 03.56     | 07.35     | 10.30     | 13.45     | 17.07     |
| Profondeur | 2400 m    | 2900 m    | 3100 m    | 3200 m    | 3200 m    |
| S ‰        | 35.680    | 35.730    | 35.758    | 35.803    | 35.885    |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 25.2 | 0     | 25.4 | 0     | 24.9 | 0     | 25.4 | 0     | 25.4 |
|  | 10    | 25.2 | 10    | 25.4 | 10    | 24.9 | 10    | 25.4 | 10    | 25.4 |
|  | 20    | 25.2 | 20    | 25.4 | 20    | 24.9 | 20    | 25.4 | 20    | 25.4 |
|  | 30    | 25.2 | 29    | 25.2 | 30    | 24.8 | 30    | 25.2 | 30    | 25.4 |
|  | 35    | 25.2 | 30    | 22.3 | 35    | 21.4 | 35    | 25.2 | 40    | 25.4 |
|  | 40    | 22.5 | 35    | 20.0 | 40    | 19.7 | 40    | 22.7 | 46    | 25.3 |
|  | 45    | 21.2 | 40    | 18.5 | 45    | 18.4 | 45    | 18.7 | 50    | 22.2 |
|  | 50    | 19.2 | 45    | 18.1 | 50    | 16.5 | 50    | 17.8 | 55    | 20.4 |
|  | 55    | 17.6 | 50    | 17.6 | 55    | 15.8 | 55    | 16.6 | 60    | 18.1 |
|  | 60    | 16.6 | 55    | 17.2 | 60    | 15.4 | 60    | 15.9 | 65    | 17.5 |
|  | 65    | 16.2 | 60    | 16.4 | 65    | 15.7 | 65    | 15.5 | 70    | 17.0 |
|  | 70    | 15.8 | 65    | 16.0 | 70    | 15.8 | 70    | 15.3 | 75    | 16.3 |
|  | 75    | 15.3 | 70    | 15.5 | 75    | 15.5 | 75    | 15.0 | 80    | 15.4 |
|  | 80    | 15.1 | 75    | 15.3 | 80    | 15.1 | 80    | 14.9 | 85    | 15.1 |
|  | 90    | 14.5 | 80    | 15.1 | 90    | 14.7 | 85    | 14.7 | 90    | 14.8 |
|  | 100   | 14.3 | 90    | 14.5 | 100   | 14.1 | 90    | 14.5 | 100   | 14.5 |
|  | 110   | 14.1 | 100   | 14.4 | 110   | 13.6 | 100   | 14.1 | 110   | 14.3 |
|  | 120   | 14.1 | 110   | 14.1 | 120   | 13.5 | 110   | 13.9 | 120   | 14.0 |
|  | 130   | 13.7 | 120   | 13.9 | 130   | 13.3 | 120   | 13.7 | 130   | 13.8 |
|  | 140   | 13.6 | 130   | 13.6 | 140   | 13.2 | 130   | 13.4 | 140   | 13.6 |
|  | 150   | 13.5 | 140   | 13.5 | 150   | 13.2 | 140   | 13.3 | 150   | 13.5 |
|  | 160   | 13.4 | 150   | 13.2 | 160   | 13.1 | 150   | 13.3 | 160   | 13.4 |
|  | 170   | 13.3 | 160   | 13.0 | 170   | 13.1 | 160   | 13.2 | 170   | 13.2 |
|  | 180   | 13.1 | 170   | 13.0 | 180   | 13.0 | 170   | 13.0 | 180   | 13.0 |
|  | 190   | 13.0 | 180   | 12.9 | 190   | 12.7 | 180   | 12.9 | 190   | 12.8 |
|  | 200   | 12.8 | 190   | 12.8 | 200   | 12.7 | 190   | 12.8 | 200   | 12.7 |
|  |       |      | 200   | 12.6 |       |      | 200   | 12.7 |       |      |

|            |           |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|-----------|
| Station N° | 61        | 62        | 63        | 64        | 65        |
| Latitude   | 17°44'0 N | 17°44'0 N | 17°40'0 N | 18°10'0 N | 18°40'0 N |
| Longitude  | 20°00'0 W | 20°30'0 W | 21°00'0 W | 21°00'0 W | 21°00'0 W |
| Année      | 1975      | 1975      | 1975      | 1975      | 1975      |
| Mois       | 11        | 11        | 11        | 11        | 11        |
| Jour       | 14        | 14        | 15        | 15        | 15        |
| Heure      | 20.20     | 23.37     | 03.05     | 06.50     | 10.10     |
| Profondeur | 3050 m    | 3100 m    | 3500 m    | 2950 m    | 3136 m    |
| S ‰        | 35.851    | 35.800    | 35.854    | 35.987    | 35.952    |

|  | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   | Prof. | T°   |
|--|-------|------|-------|------|-------|------|-------|------|-------|------|
|  | 0     | 25.7 | 0     | 25.1 | 0     | 25.2 | 0     | 24.3 | 0     | 24.4 |
|  | 10    | 25.7 | 10    | 25.1 | 10    | 25.2 | 10    | 24.3 | 10    | 24.4 |
|  | 20    | 25.7 | 20    | 25.1 | 20    | 25.2 | 20    | 24.3 | 20    | 24.4 |
|  | 30    | 25.7 | 22    | 25.0 | 26    | 25.2 | 30    | 24.3 | 30    | 24.4 |
|  | 40    | 25.7 | 28    | 24.1 | 30    | 24.7 | 35    | 24.2 | 40    | 24.2 |
|  | 42    | 25.7 | 30    | 24.1 | 35    | 24.2 | 40    | 18.2 | 44    | 23.8 |
|  | 45    | 23.8 | 35    | 24.1 | 40    | 23.7 | 45    | 16.6 | 45    | 23.6 |
|  | 50    | 20.2 | 40    | 24.1 | 45    | 21.7 | 50    | 16.3 | 50    | 19.8 |
|  | 55    | 18.2 | 45    | 24.0 | 50    | 20.1 | 55    | 16.1 | 55    | 18.0 |
|  | 60    | 17.4 | 50    | 23.8 | 55    | 18.2 | 60    | 16.0 | 60    | 17.2 |
|  | 65    | 16.8 | 55    | 23.0 | 60    | 17.7 | 65    | 15.8 | 65    | 16.7 |
|  | 70    | 16.5 | 60    | 20.8 | 65    | 17.2 | 70    | 15.7 | 70    | 16.3 |
|  | 75    | 15.5 | 65    | 20.0 | 70    | 16.5 | 75    | 15.6 | 75    | 16.0 |
|  | 80    | 15.2 | 70    | 19.5 | 75    | 16.0 | 80    | 15.5 | 80    | 15.6 |
|  | 85    | 14.9 | 75    | 18.6 | 80    | 15.6 | 85    | 15.5 | 85    | 15.3 |
|  | 90    | 14.9 | 80    | 18.4 | 85    | 15.3 | 90    | 15.3 | 90    | 15.1 |
|  | 100   | 14.4 | 84    | 17.9 | 90    | 15.2 | 100   | 15.0 | 100   | 14.8 |
|  | 110   | 14.0 | 90    | 18.2 | 100   | 14.8 | 110   | 14.5 | 110   | 14.5 |
|  | 120   | 13.6 | 100   | 18.0 | 110   | 14.5 | 120   | 14.1 | 120   | 14.3 |
|  | 130   | 13.3 | 110   | 17.0 | 120   | 14.3 | 130   | 14.0 | 130   | 14.0 |
|  | 140   | 13.0 | 120   | 16.1 | 130   | 14.2 | 140   | 13.7 | 140   | 13.9 |
|  | 150   | 12.9 | 130   | 15.2 | 140   | 13.8 | 150   | 13.6 | 150   | 13.6 |
|  | 160   | 12.7 | 140   | 15.2 | 150   | 13.7 | 160   | 13.5 | 160   | 13.4 |
|  | 170   | 13.1 | 150   | 15.3 | 160   | 13.7 | 170   | 13.5 | 170   | 13.2 |
|  | 180   | 13.2 | 160   | 15.0 | 170   | 13.5 | 180   | 13.4 | 180   | 13.1 |
|  | 190   | 12.9 | 170   | 14.7 | 180   | 13.5 | 190   | 13.3 | 190   | 13.0 |
|  | 200   | 12.7 | 180   | 14.5 | 190   | 13.3 | 200   | 13.3 | 200   | 13.0 |
|  |       |      | 190   | 14.2 | 200   | 13.1 |       |      |       |      |
|  |       |      | 200   | 13.9 |       |      |       |      |       |      |



| Station N° | 71        |      | 72        |      | 73        |      | 74        |      | 75        |      |
|------------|-----------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| Latitude   | 18°40'0 N |      | 18°40'0 N |      | 18°40'0 N |      | 19°10'0 N |      | 19°40'0 N |      |
| Longitude  | 18°00'0 W |      | 17°30'0 W |      | 17°00'0 W |      | 17°30'0 W |      | 18°00'0 W |      |
| Année      | 1975      |      | 1975      |      | 1975      |      | 1975      |      | 1975      |      |
| Mois       | 11        |      | 11        |      | 11        |      | 11        |      | 11        |      |
| Jour       | 16        |      | 16        |      | 16        |      | 16        |      | 16        |      |
| Heure      | 08.30     |      | 11.45     |      | 14.50     |      | 18.05     |      | 21.50     |      |
| Profondeur | 2600 m    |      | 2200 m    |      | 1400 m    |      | 2000 m    |      | 2150 m    |      |
| S ‰        | 35.990    |      | 36.082    |      | 35.924    |      | 35.979    |      | 36.009    |      |
|            | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   |
|            | 0         | 23.3 | 0         | 23.5 | 0         | 24.5 | 0         | 23.5 | 0         | 23.5 |
|            | 10        | 23.3 | 10        | 23.5 | 10        | 24.5 | 10        | 23.5 | 10        | 23.5 |
|            | 20        | 23.0 | 20        | 23.4 | 20        | 24.5 | 20        | 23.2 | 20        | 22.7 |
|            | 25        | 21.2 | 25        | 23.3 | 30        | 24.0 | 30        | 22.8 | 25        | 22.1 |
|            | 30        | 20.7 | 30        | 20.1 | 35        | 19.8 | 35        | 22.2 | 30        | 21.7 |
|            | 35        | 19.2 | 35        | 18.8 | 40        | 18.7 | 40        | 21.4 | 40        | 20.5 |
|            | 40        | 18.7 | 40        | 18.3 | 45        | 17.9 | 45        | 20.6 | 45        | 20.0 |
|            | 45        | 18.8 | 50        | 17.6 | 50        | 18.0 | 50        | 20.2 | 50        | 19.9 |
|            | 50        | 18.8 | 60        | 16.5 | 55        | 17.8 | 60        | 18.2 | 60        | 18.5 |
|            | 60        | 18.4 | 70        | 16.4 | 60        | 17.0 | 70        | 17.7 | 70        | 17.3 |
|            | 70        | 17.6 | 80        | 16.2 | 70        | 16.3 | 80        | 16.7 | 80        | 17.9 |
|            | 80        | 17.0 | 90        | 16.2 | 80        | 15.5 | 90        | 16.1 | 90        | 17.1 |
|            | 90        | 16.5 | 100       | 15.4 | 90        | 15.2 | 100       | 16.1 | 100       | 16.6 |
|            | 100       | 16.0 | 110       | 15.0 | 100       | 15.0 | 110       | 15.3 | 110       | 16.5 |
|            | 110       | 15.6 | 120       | 14.8 | 110       | 14.7 | 120       | 15.2 | 120       | 16.0 |
|            | 120       | 15.5 | 130       | 14.9 | 120       | 14.6 | 130       | 15.0 | 130       | 15.7 |
|            | 130       | 15.3 | 140       | 14.9 | 130       | 14.3 | 140       | 14.7 | 140       | 15.4 |
|            | 140       | 15.2 | 150       | 14.7 | 140       | 14.4 | 150       | 14.4 | 150       | 14.9 |
|            | 150       | 15.0 | 160       | 14.6 | 150       | 14.3 | 160       | 14.2 | 160       | 14.7 |
|            | 160       | 14.8 | 170       | 14.3 | 160       | 14.1 | 170       | 14.0 | 170       | 14.5 |
|            | 170       | 14.5 | 180       | 14.1 | 170       | 14.0 | 180       | 13.9 | 180       | 14.2 |
|            | 180       | 14.2 | 190       | 13.9 | 180       | 13.7 | 190       | 13.9 | 190       | 14.1 |
|            | 190       | 13.9 | 200       | 13.6 | 190       | 13.7 | 200       | 13.7 | 200       | 13.9 |
|            | 200       | 13.7 |           |      | 200       | 13.3 |           |      |           |      |

| Station N° | 76        |      | 77        |      | 78        |      | 79        |      | 80        |      |
|------------|-----------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| Latitude   | 19°40'0 N |      | 19°40'0 N |      | 19°40'0 N |      | 19°40'0 N |      | 19°40'0 N |      |
| Longitude  | 18°30'0 W |      | 19°00'0 W |      | 19°30'0 W |      | 20°00'0 W |      | 20°30'0 W |      |
| Année      | 1975      |      | 1975      |      | 1975      |      | 1975      |      | 1975      |      |
| Mois       | 11        |      | 11        |      | 11        |      | 11        |      | 11        |      |
| Jour       | 17        |      | 17        |      | 17        |      | 17        |      | 17        |      |
| Heure      | 01.05     |      | 04.30     |      | 07.55     |      | 11.25     |      | 17.35     |      |
| Profondeur | 2600 m    |      | 2900 m    |      | 3200 m    |      | 3300 m    |      | 3600 m    |      |
| S ‰        | 36.012    |      | 36.110    |      | 36.057    |      | 36.031    |      | 36.058    |      |
|            | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   | Prof.     | T°   |
|            | 0         | 22.7 | 0         | 23.3 | 0         | 23.4 | 0         | 23.7 | 0         | 23.8 |
|            | 10        | 22.7 | 10        | 23.3 | 10        | 23.4 | 10        | 23.7 | 10        | 23.8 |
|            | 20        | 22.7 | 20        | 23.3 | 20        | 23.4 | 20        | 23.7 | 20        | 23.8 |
|            | 30        | 22.7 | 25        | 23.1 | 30        | 23.3 | 30        | 23.7 | 30        | 23.8 |
|            | 33        | 22.7 | 30        | 22.2 | 40        | 22.5 | 40        | 23.7 | 40        | 23.8 |
|            | 40        | 21.1 | 35        | 21.4 | 50        | 21.5 | 44        | 23.7 | 45        | 22.8 |
|            | 45        | 19.4 | 40        | 20.5 | 60        | 21.0 | 50        | 23.2 | 50        | 20.6 |
|            | 50        | 18.7 | 50        | 18.2 | 70        | 19.0 | 60        | 20.6 | 55        | 18.4 |
|            | 60        | 17.4 | 60        | 18.1 | 80        | 18.3 | 70        | 18.6 | 60        | 17.9 |
|            | 70        | 17.4 | 70        | 18.0 | 90        | 18.0 | 80        | 17.5 | 70        | 17.4 |
|            | 80        | 16.6 | 80        | 17.4 | 100       | 17.7 | 90        | 16.4 | 80        | 17.0 |
|            | 90        | 16.1 | 90        | 17.0 | 110       | 17.2 | 100       | 16.3 | 90        | 17.1 |
|            | 100       | 16.1 | 100       | 16.8 | 120       | 16.8 | 108       | 16.7 | 100       | 16.7 |
|            | 110       | 16.1 | 110       | 16.4 | 130       | 16.4 | 110       | 16.6 | 110       | 16.3 |
|            | 120       | 15.7 | 120       | 16.2 | 140       | 16.0 | 120       | 16.3 | 120       | 15.9 |
|            | 130       | 15.6 | 130       | 15.8 | 150       | 15.7 | 130       | 15.6 | 130       | 15.6 |
|            | 140       | 15.5 | 140       | 15.1 | 160       | 15.5 | 140       | 15.5 | 140       | 15.4 |
|            | 150       | 15.3 | 150       | -    | 170       | 15.4 | 150       | 14.7 | 150       | 15.4 |
|            | 160       | 15.2 | 160       | -    | 180       | 15.3 | 160       | 14.4 | 160       | 15.4 |
|            | 170       | 15.0 | 170       | -    | 190       | 14.9 | 170       | 14.4 | 170       | 15.1 |
|            | 180       | 14.6 | 180       | -    | 200       | 14.7 | 180       | 14.1 | 180       | 15.0 |
|            | 190       | 14.6 | 190       | -    |           |      | 190       | 13.7 | 190       | 14.9 |
|            | 200       | 14.4 | 200       | -    |           |      | 200       | 13.3 | 200       | 14.5 |

|            |           |      |
|------------|-----------|------|
| Station N° | 81        |      |
| Latitude   | 19°40'0 N |      |
| Longitude  | 21°00'0 W |      |
| Année      | 1975      |      |
| Mois       | 11        |      |
| Jour       | 17        |      |
| Heure      | 17.05     |      |
| Profondeur | 3500 m    |      |
| S ‰        | 36.085    |      |
|            |           |      |
|            | 0         | 23.6 |
|            | 10        | 23.6 |
|            | 20        | 23.5 |
|            | 30        | 23.5 |
|            | 40        | 23.2 |
|            | 50        | 22.4 |
|            | 60        | 21.4 |
|            | 70        | 20.5 |
|            | 80        | 20.0 |
|            | 90        | 18.5 |
|            | 100       | 18.0 |
|            | 110       | 16.0 |
|            | 120       | 15.0 |
|            | 130       | 14.8 |
|            | 140       | 14.5 |
|            | 150       | 14.8 |
|            | 160       | 14.8 |
|            | 170       | 15.0 |
|            | 180       | 15.3 |
|            | 190       | 15.1 |
|            | 200       | 15.0 |

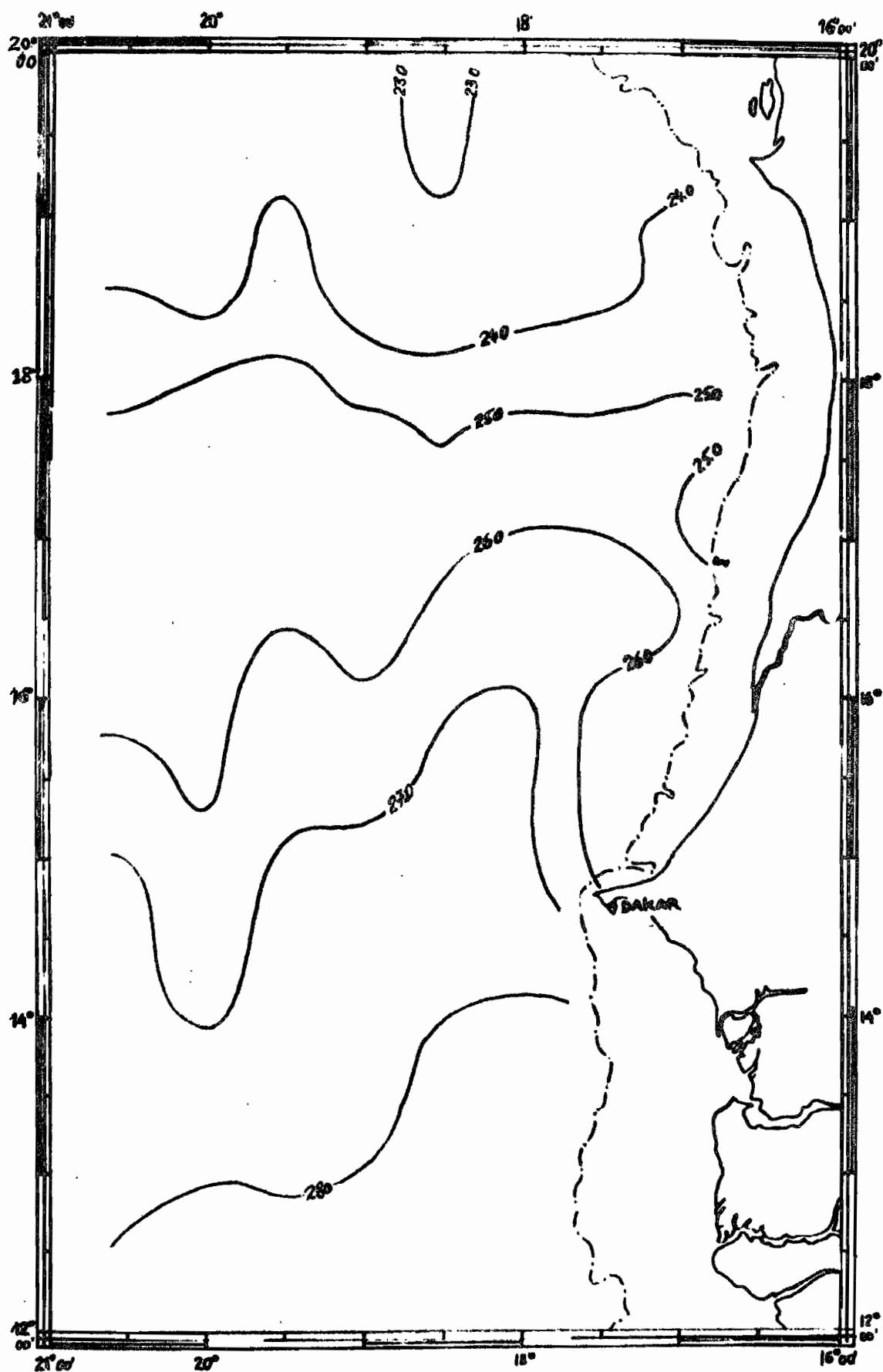


Fig. N°2 - ISOTHERMES DE SURFACE

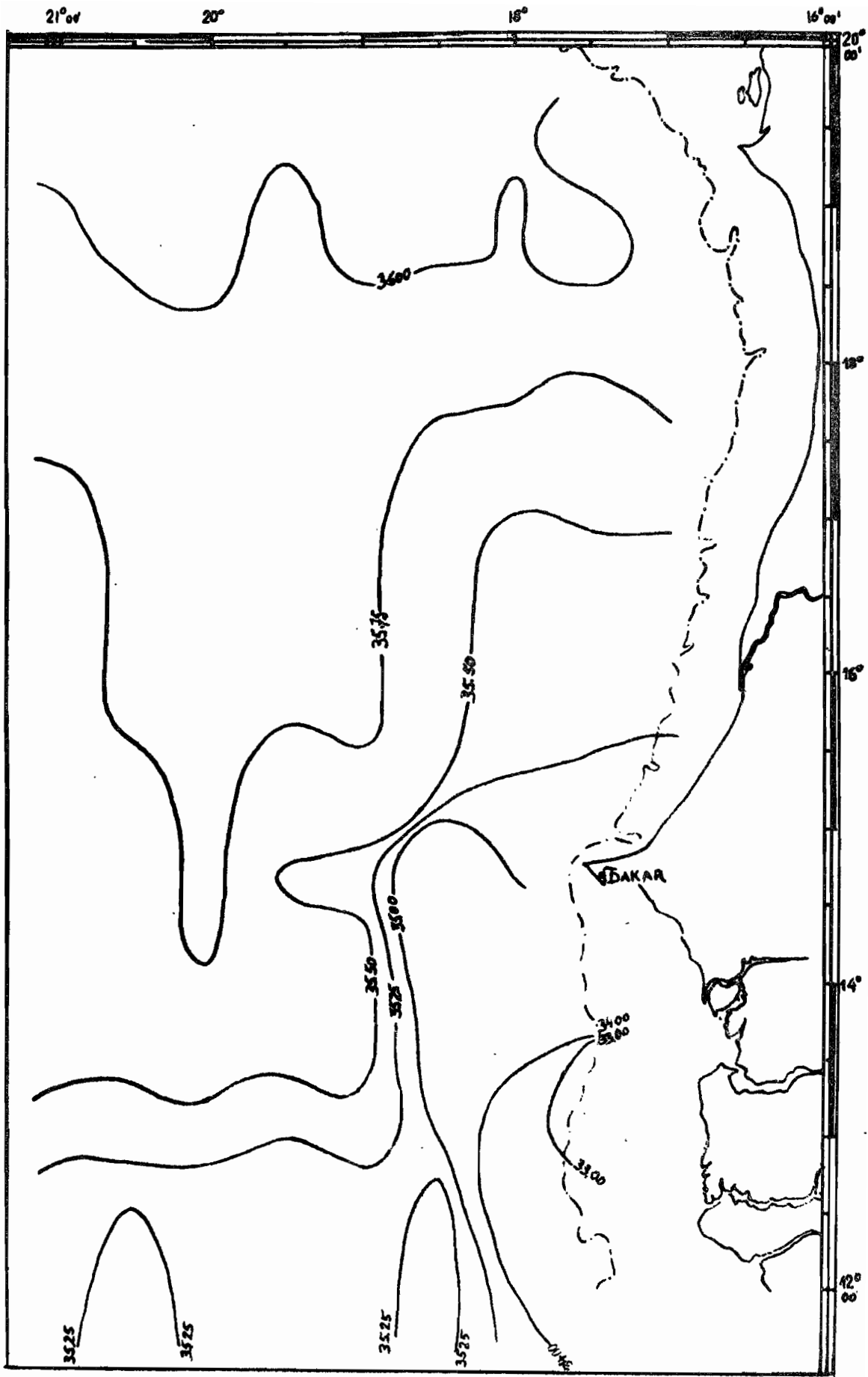


Fig. N°3 - ISOHALINES DE SURFACE



Fig. N°4 - COUPE THERMIQUE NORD-SUD

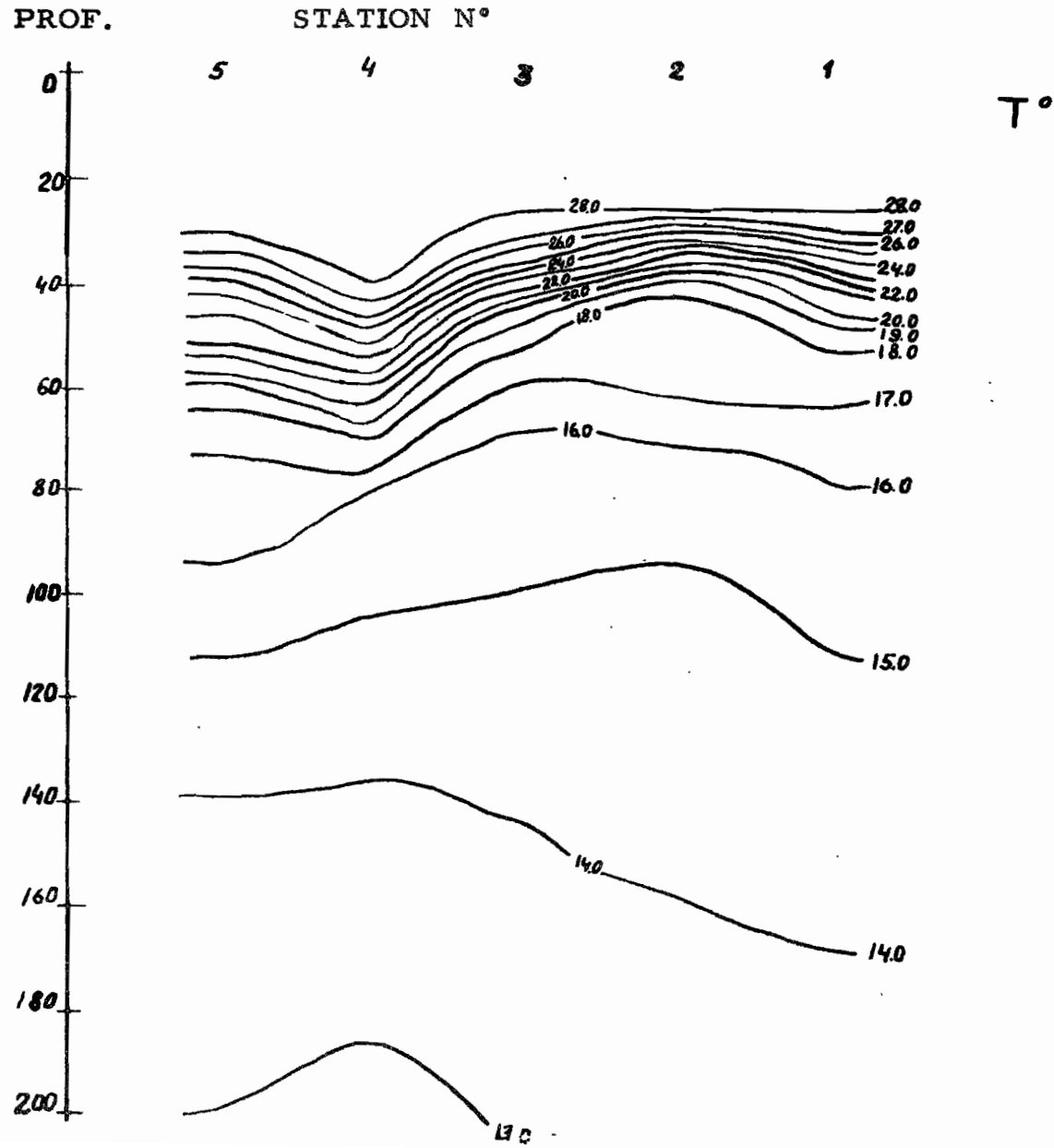
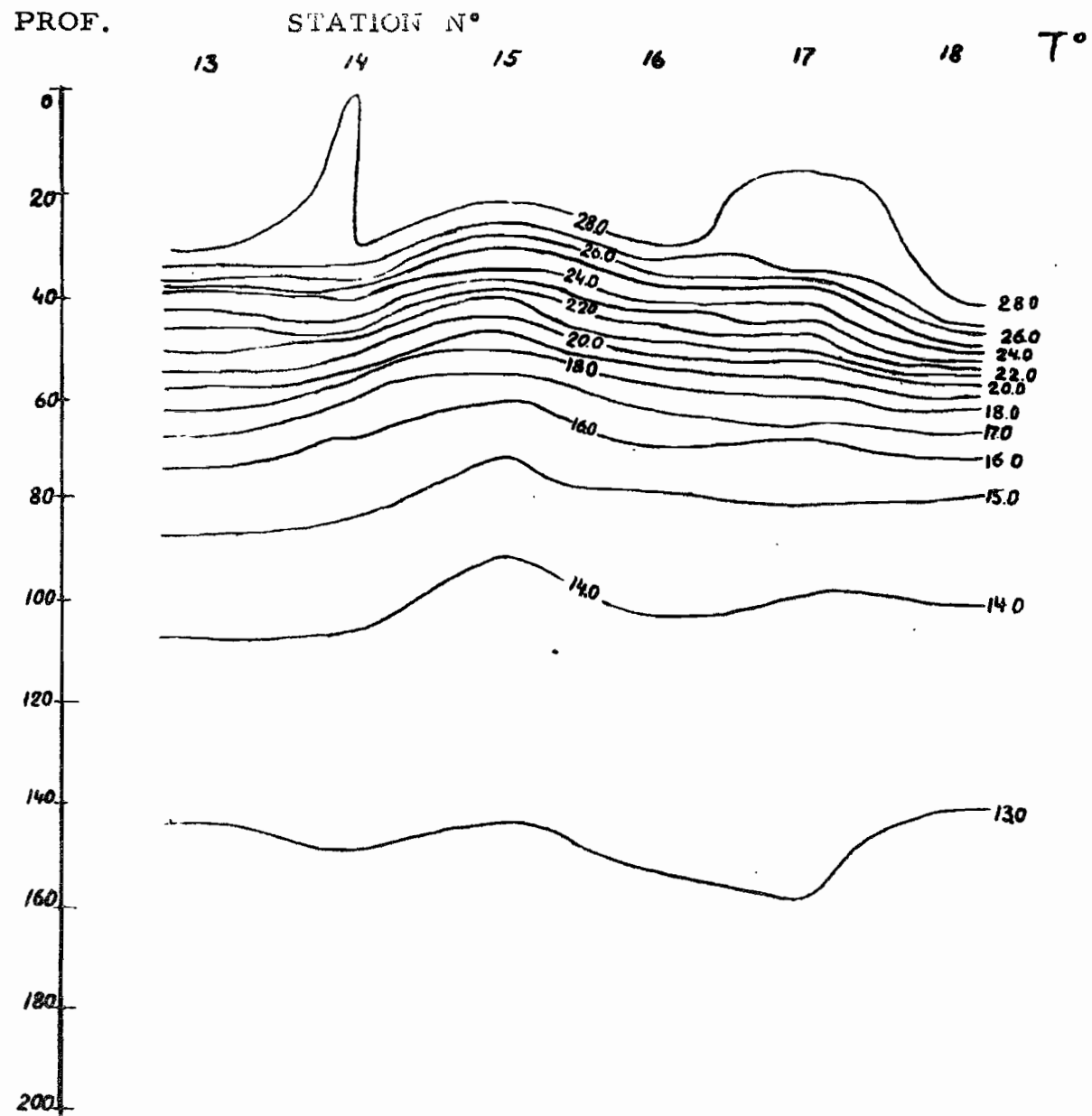




Fig. N° 6 - COUPE THERMIQUE 12°40' NORD



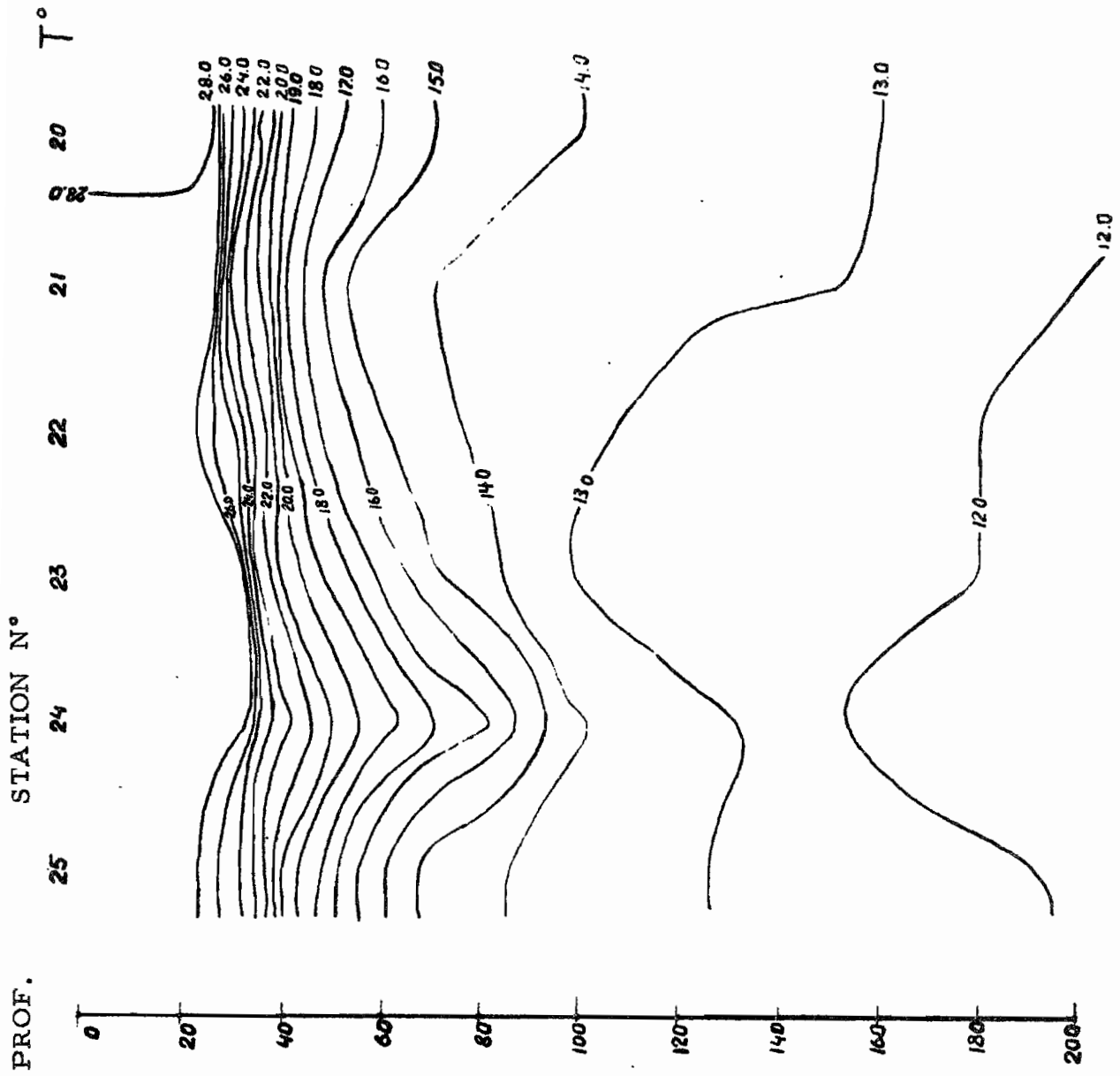


Fig. N°7 - COUPE THERMIQUE 13°40 NORD

Fig. N° 8 - COUPE THERMIQUE 14°40 NORD

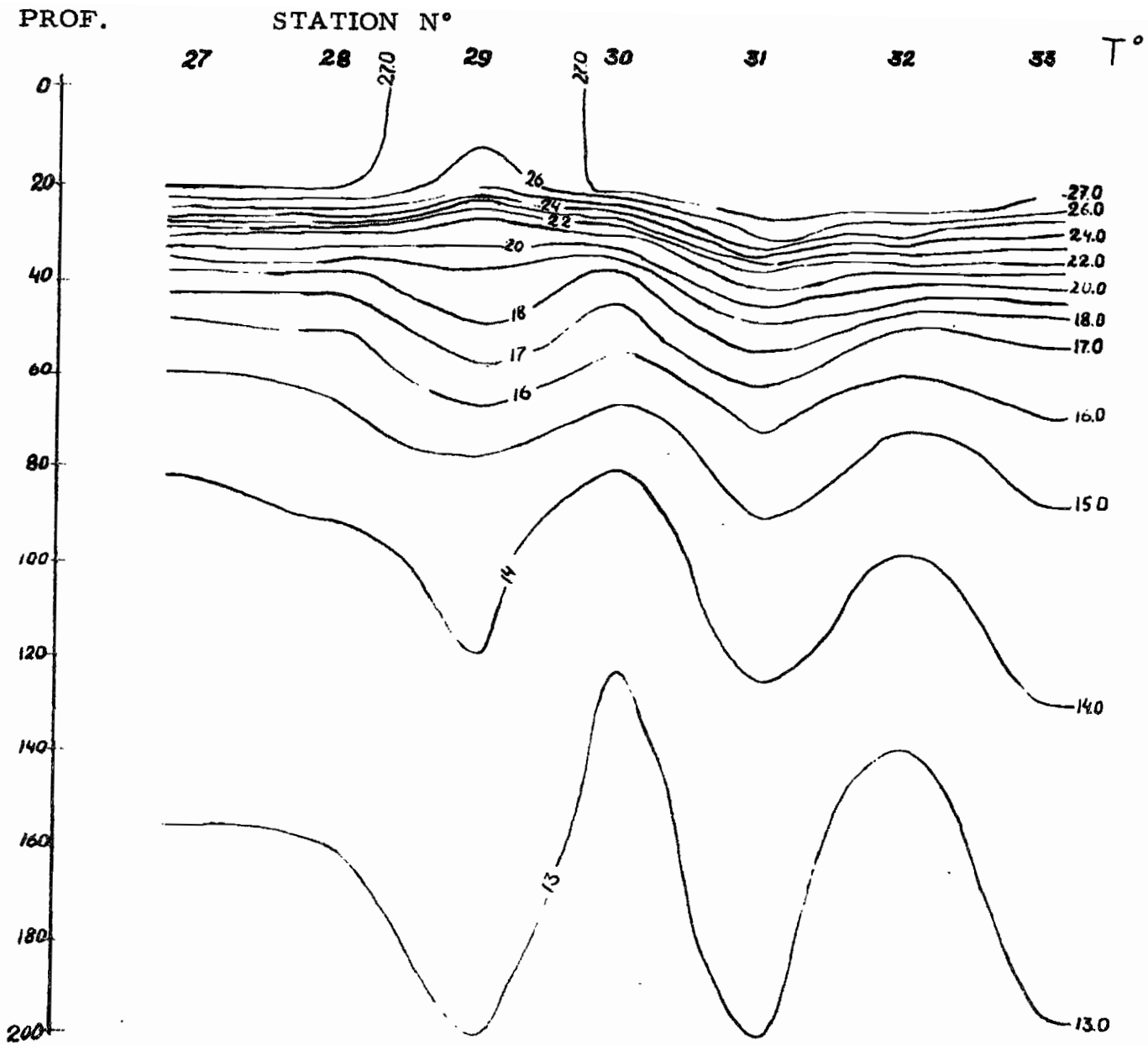


Fig. N°9 - COUPE THERMIQUE 15°40 NORD

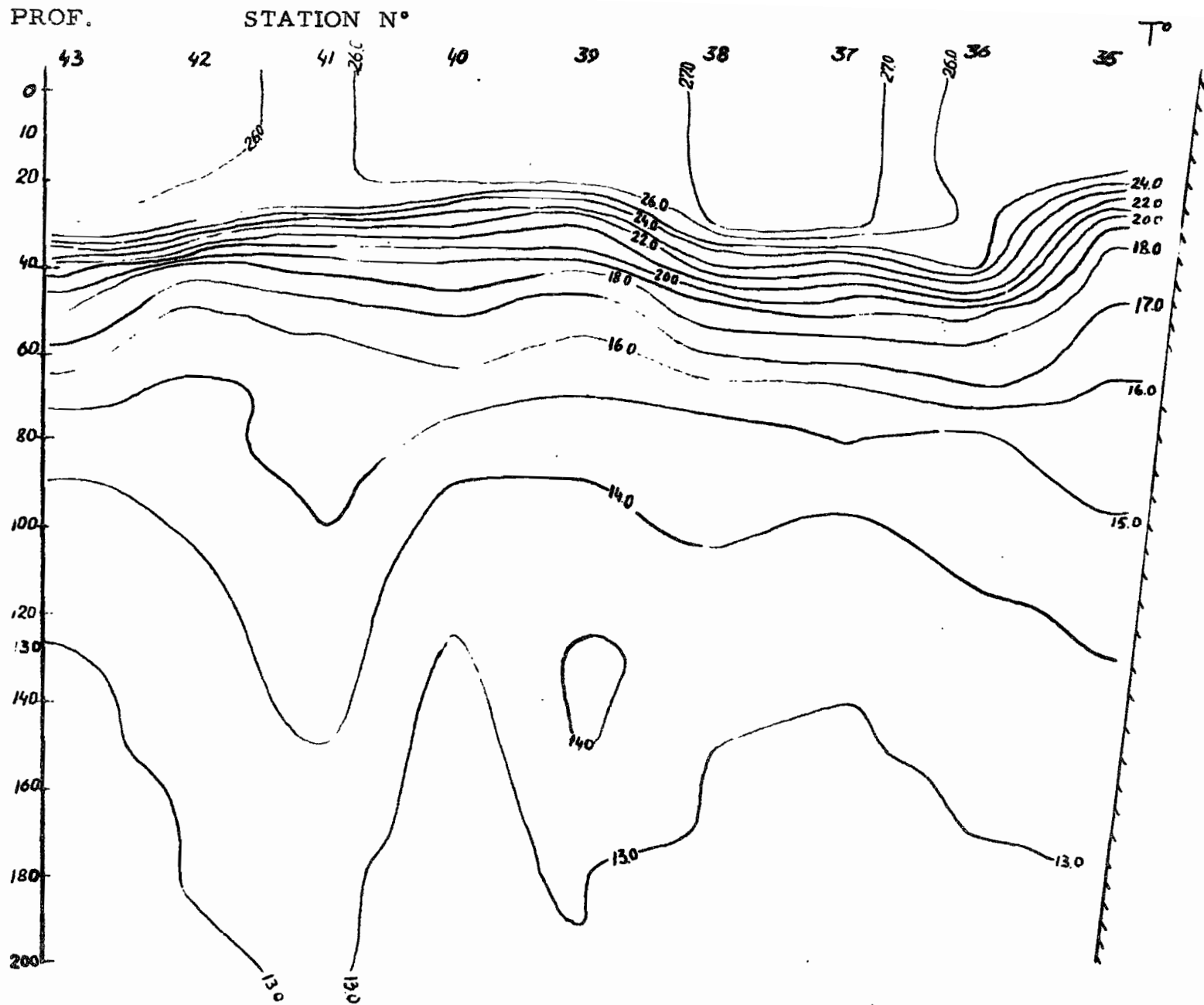




Fig. N°11 - COUPE THERMIQUE 17°40 NORD

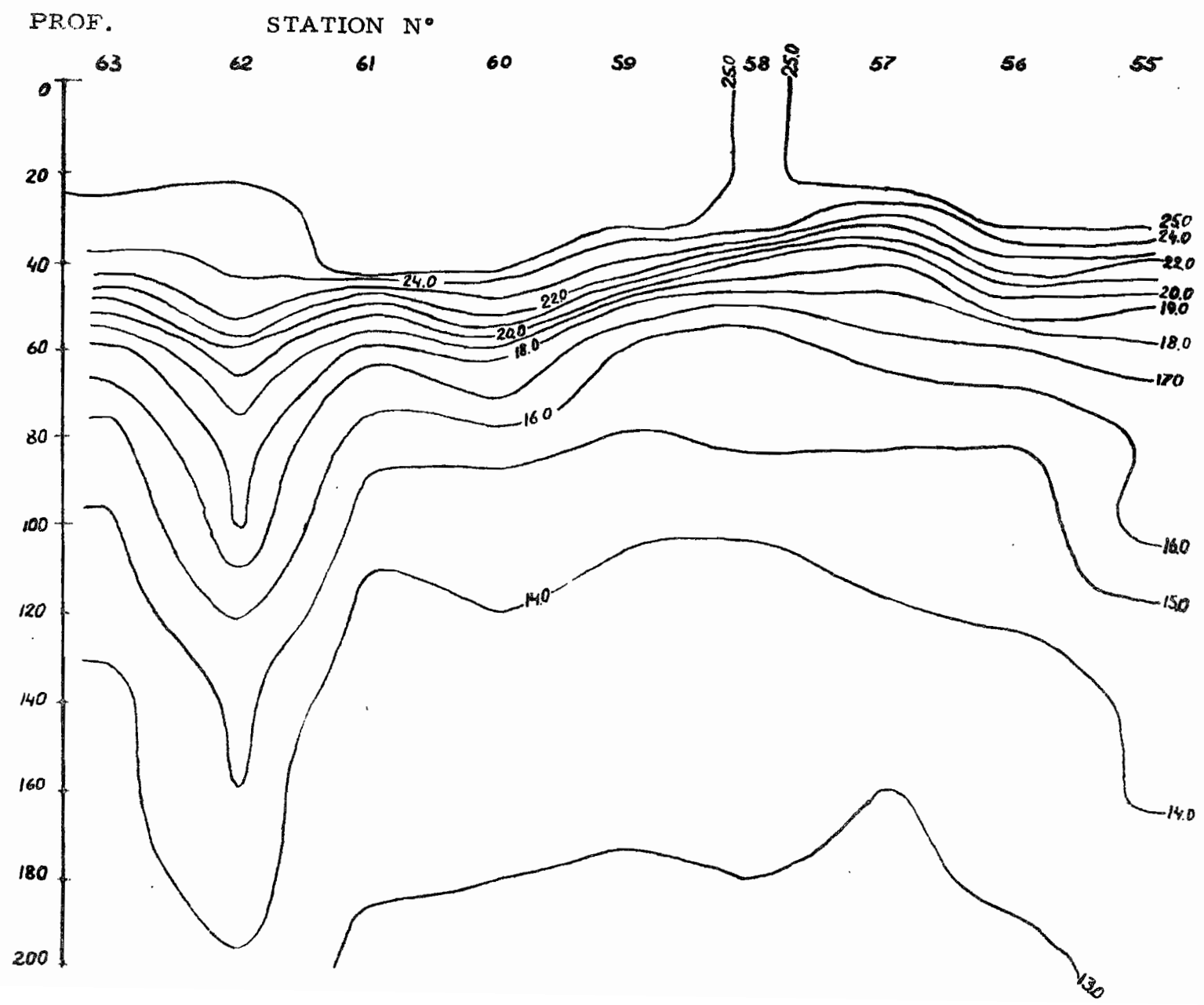
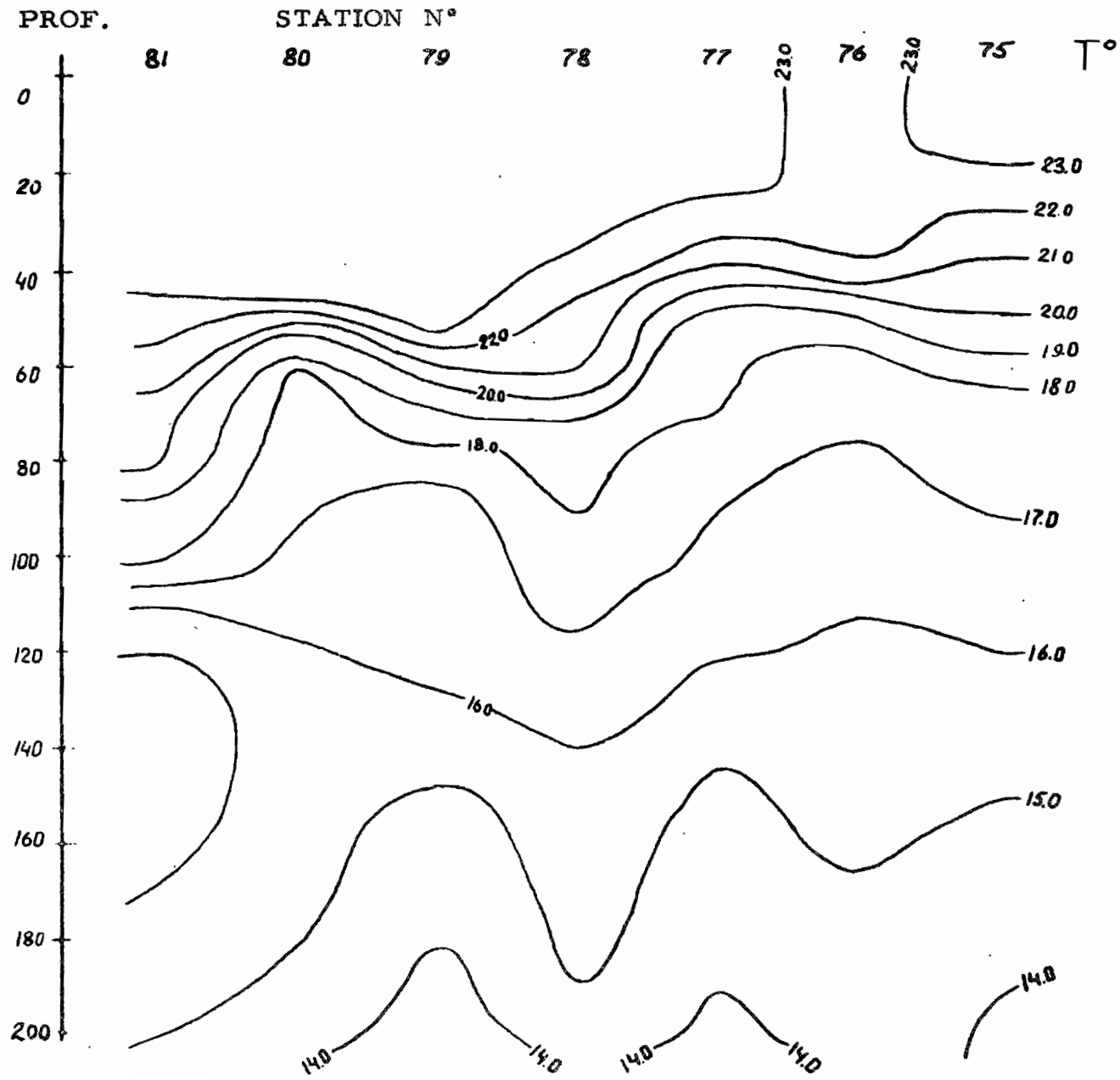






Fig. N°13 - COUPE THERMIQUE 19°40 NORD



## DEUXIEME PARTIE

### PLANCTONOLOGIE

Les récoltes ont été faites avec un filet Bongo de 60 cm de diamètre et 505 microns de vide de maille, muni d'un dépresseur V-fin.

Les pêches, faites en trait oblique, entre la surface et 50 m. de profondeur duraient 15 minutes, la vitesse approximative est de 3,5 noeuds.

Un débitmètre de type T S K placé à l'entrée du filet permet d'évaluer, le volume d'eau filtrée.

Les récoltes fixés à bord avec du formol, ont ensuite été dépouillées au CRODT.

Dans les pages suivantes, les résultats du tri de l'ichthyo-plancton sont présentés. Les larves sont triées et comptées par famille, ou par groupe écologique. Les données sur les larves de Thunnidae sont regroupés sur la figure 14.

Très peu de larves de thons ont été rencontrées au cours de la campagne probablement en raison de sa date trop tardive. Il est probable que les captures auraient été plus nombreuses si cette mission avait eu lieu au mois de septembre comme cela avait été demandé.

| Station                | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heure                  | 18.05 | 21.47 | 01.15 | 04.40 | 08.10 | 11.30 | 14.45 | 17.48 | 21.31 |
| Durée (sec.)           | 640   | 905   | 935   | 965   | 920   | 910   | 900   | 915   | 935   |
| V. filtré (m3)         | 323   | 484   | 571   | 473   | 530   | 535   | 457   | 510   | 567   |
| <u>Bathypélagiques</u> |       |       |       |       |       |       |       |       |       |
| Apodes                 | 4     |       | 37    | 47    | 5     |       |       | 4     | 28    |
| Divers                 | 83    | 118   | 147   | 248   | 383   | 271   | 219   | 154   | 292   |
| <u>Epipélagiques</u>   |       |       |       |       |       |       |       |       |       |
| Belonidae              | 1     | 1     | 4     | 4     | 14    | 1     |       | 2     |       |
| Carangidae             |       | 2     | 13    | 2     | 2     |       | 1     |       |       |
| Coryphaenidae          |       |       |       |       |       |       |       |       |       |
| Engraulidae            |       |       |       |       |       |       |       |       |       |
| Exocoetidae            | 1     |       | 2     |       | 1     |       |       |       |       |
| Gempylidae             |       |       |       |       |       |       |       |       | 2     |
| Mugilidae              |       |       |       |       |       |       |       |       |       |
| Sphyraenidae           |       | 3     | 9     | 1     |       |       |       |       |       |
| Thunnidae              | 1     |       |       |       |       |       |       |       |       |
| <u>Démersaux</u>       |       |       |       |       |       |       |       |       |       |
| Apogonidae             | 1     | 1     |       |       |       |       |       |       |       |
| Balistidae             |       |       |       |       | 1     |       |       |       |       |
| Blennidae              |       |       |       |       |       |       |       |       |       |
| Bothidae               | 8     | 2     | 9     | 7     | 58    | 1     | 1     | 1     | 4     |
| Carapidae              |       |       |       |       |       |       |       |       |       |
| Cynoglossidae          |       |       |       |       |       |       |       |       |       |
| Gobiidae               |       | 2     | 3     | 13    | 3     | 5     | 1     | 1     |       |
| Labridae               |       |       |       |       |       |       |       |       |       |
| Microdesmidae          |       | 3     | 1     | 1     |       |       |       |       |       |
| Scorpaenidae           |       |       |       |       |       | 2     |       |       |       |
| Serranidae             | 1     |       | 1     |       |       |       |       |       |       |
| Syngnathidae           |       |       |       |       |       |       |       |       |       |
| Triglidae              |       |       |       |       |       |       |       |       |       |
| <u>Divers</u>          |       |       |       |       |       |       |       |       |       |
|                        |       | 1     | 5     | 5     | 1     | 1     | 1     | 1     | 1     |
| TOTAL                  | 100   | 133   | 231   | 328   | 468   | 281   | 223   | 163   | 327   |

| Station                | 10         | 11         | 12         | 13         | 14         | 15         | 16         | 17         | 18         |
|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Heure                  | 00.53      | 04.10      | 07.50      | 11.40      | 14.45      | 18.30      | 22.25      | 01.49      | 05.35      |
| Durée (sec.)           | 915        | 923        | 935        | 927        | 890        | 900        | 900        | 887        | 895        |
| V. filtré (m3)         | 444        | 438        | 488        | 549        | 406        | 426        | 506        | 523        | 445        |
| <hr/>                  |            |            |            |            |            |            |            |            |            |
| <u>Bathypélagiques</u> |            |            |            |            |            |            |            |            |            |
| Apodes                 | 10         |            |            |            |            | 3          | 11         | 23         | 8          |
| Divers                 | 204        | 423        | 346        | 290        | 152        | 315        | 324        | 530        | 289        |
| <u>Epipélagiques</u>   |            |            |            |            |            |            |            |            |            |
| Belonidae              |            |            | 3          |            |            |            |            |            | 2          |
| Carangidae             |            |            |            |            |            |            |            |            |            |
| Coryphaenidae          |            |            | 1          | 1          |            |            | 2          |            |            |
| Engraulidae            |            |            |            |            |            |            |            |            |            |
| Exocoetidae            |            |            | 3          |            |            |            |            |            |            |
| Gempylidae             |            | 1          |            |            |            |            | 1          |            |            |
| Mugilidae              |            |            |            |            |            |            |            |            |            |
| Sphyraenidae           |            |            |            |            |            |            |            |            |            |
| Thunnidae              |            | 1          | 1          |            |            |            |            |            |            |
| <u>Démersaux</u>       |            |            |            |            |            |            |            |            |            |
| Apogonidae             |            |            |            |            |            |            |            |            |            |
| Balistidae             |            |            |            | 1          |            |            |            |            |            |
| Blennidae              |            |            |            |            |            |            |            |            |            |
| Bothidae               | 11         | 1          | 1          |            |            |            | 7          | 25         | 10         |
| Carapidae              |            |            |            |            |            |            |            |            |            |
| Cynoglossidae          |            |            |            |            |            |            |            |            |            |
| Gobiidae               | 2          |            | 1          | 2          |            |            | 4          |            | 13         |
| Labridae               |            |            |            |            |            |            |            |            |            |
| Microdesmidae          |            |            |            |            |            |            |            |            |            |
| Scorpaenidae           |            |            | 1          |            |            |            |            |            |            |
| Serranidae             |            |            |            |            |            |            |            |            |            |
| Syngnathidae           |            |            |            |            |            |            |            |            |            |
| Triglidae              |            |            | 1          |            |            |            |            |            |            |
| <u>Divers</u>          |            | 3          | 1          |            |            |            | 1          |            |            |
| <b>TOTAL</b>           | <b>227</b> | <b>429</b> | <b>359</b> | <b>294</b> | <b>152</b> | <b>318</b> | <b>350</b> | <b>578</b> | <b>322</b> |

| Station                | 19    | 20    | 21    | 22    | 23    | 24    | 25    | 26    | 27    |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heure                  | 08.50 | 13.18 | 17.15 | 20.56 | 00.30 | 04.10 | 07.43 | 11.08 | 14.30 |
| Durée (sec.)           | 917   | 893   | 907   | 900   | 896   | 898   | 900   | 880   | 885   |
| V. filtré (m3)         | 443   | 446   | 439   | 414   | 469   | 427   | 465   | 394   | 450   |
| <u>Bathypélagiques</u> |       |       |       |       |       |       |       |       |       |
| Apodes                 | 3     | 1     |       | 35    | 6     | 7     | 19    | 1     |       |
| Divers                 | 347   | 45    | 84    | 246   | 310   | 331   | 111   | 137   | 142   |
| <u>Epipélagiques</u>   |       |       |       |       |       |       |       |       |       |
| Belonidae              | 4     | 1     |       |       |       |       |       | 2     | 1     |
| Carangidae             |       |       |       |       |       |       | 1     |       |       |
| Coryphaenidae          |       |       |       | 1     | 1     | 1     |       |       |       |
| Engraulidae            |       |       |       |       |       |       |       |       |       |
| <del>Excoetidae</del>  | 3     |       |       |       |       |       |       |       |       |
| Gempylidae             |       |       |       |       |       |       |       |       |       |
| Mugilidae              |       |       |       |       |       |       |       |       |       |
| Sphyraenidae           |       |       |       |       |       |       |       |       |       |
| Thunnidae              |       |       |       |       |       |       |       |       | 4     |
| <u>Démersaux</u>       |       |       |       |       |       |       |       |       |       |
| Apogonidae             |       |       |       |       |       |       |       |       |       |
| Balistidae             |       |       |       |       |       |       |       |       |       |
| Blennidae              |       |       |       |       |       |       |       |       |       |
| Bothidae               | 7     | 6     |       | 5     | 1     |       | 2     | 3     |       |
| Carapidae              |       |       |       |       |       |       |       |       |       |
| Cynoglossidae          |       |       |       |       |       |       |       |       |       |
| Gobiidae               | 6     | 17    |       | 1     | 2     | 30    | 10    | 14    | 26    |
| Labridae               |       |       |       |       | 3     |       |       |       |       |
| Microdesmidae          | 1     |       |       |       |       |       |       |       |       |
| Scorpaenidae           |       |       |       |       |       |       |       |       |       |
| Serranidae             |       |       |       |       |       |       |       |       |       |
| Syngnathidae           |       |       |       |       |       |       |       |       |       |
| Triglidae              |       | 1     |       |       |       |       |       |       |       |
| <u>Divers</u>          | 1     | 1     |       | 3     | 1     |       |       | 1     | 1     |
| TOTAL                  | 372   | 71    | 84    | 291   | 324   | 369   | 343   | 158   | 174   |

| Station                | 28    | 29    | 30    | 31    | 32    | 33    | 34    | 35    | 36    |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heure                  | 18.40 | 23.25 | 03.30 | 07.00 | 10.20 | 13.35 | 19.00 | 23.05 | 02.40 |
| Durée (sec.)           | 910   | 891   | 885   | 897   | 902   | 903   | 895   | 905   | 908   |
| V. filtré (m3)         | 487   | 532   | 520   | 439   | 530   | 498   | 464   | 539   | 515   |
| <u>Bathypélagiques</u> |       |       |       |       |       |       |       |       |       |
| Apodes                 | 11    | 125   | 27    | 20    | 3     | 1     |       |       | 26    |
| Divers                 | 167   | 264   | 314   | 494   | 141   | 90    | 66    | 20    | 160   |
| <u>Epipélagiques</u>   |       |       |       |       |       |       |       |       |       |
| Belonidae              |       |       | 2     | 31    |       |       |       |       |       |
| Carangidae             | 1     |       |       |       | 17    | 7     | 6     | 8     | 6     |
| Coryphaenidae          |       |       |       |       | 1     |       |       | 1     |       |
| Engraulidae            |       |       |       |       |       |       | 7     |       |       |
| Exocoetidae            | 1     |       |       | 2     |       |       |       |       | 2     |
| Gempylidae             |       |       | 1     |       |       |       |       |       | 1     |
| Mugilidae              |       |       |       |       |       |       |       |       |       |
| Sphyraenidae           |       |       |       |       |       |       |       | 2     | 1     |
| Thunnidae              |       |       |       |       |       |       | 1     |       | 1     |
| <u>Démersaux</u>       |       |       |       |       |       |       |       |       |       |
| Apogonidae             |       |       |       |       | 1     | 1     |       |       |       |
| Balistidae             |       |       |       |       |       |       |       |       |       |
| Blennidae              |       |       |       |       |       |       |       |       |       |
| Bothidae               | 2     |       | 4     | 3     | 1     | 14    | 19    | 2     | 8     |
| Carapidae              |       |       |       |       |       |       |       |       |       |
| Cynoglossidae          |       |       |       |       |       |       |       |       |       |
| Gobiidae               | 29    | 1     | 38    | 26    | 5     | 42    | 5     | 7     | 48    |
| Labridae               |       |       |       |       | 1     |       |       |       | 2     |
| Microdesmidae          |       |       | 1     |       |       |       |       | 1     | 8     |
| Scorpaenidae           |       |       |       |       |       |       |       |       |       |
| Serranidae             |       |       |       |       |       | 1     |       |       | 2     |
| Syngnathidae           |       |       |       |       |       |       |       |       |       |
| Triglidae              |       |       |       |       |       |       |       |       |       |
| <u>Divers</u>          |       |       |       |       |       |       |       |       |       |
| TOTAL                  | 211   | 390   | 389   | 576   | 170   | 156   | 105   | 43    | 264   |

| Station                | 37    | 38    | 39    | 40    | 41    | 42    | 43    | 44    | 45    |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heure                  | 06.30 | 09.35 | 12.30 | 15.30 | 18.40 | 23.45 | 02.05 | 06.00 | 09.45 |
| Durée (sec.)           | 908   | 905   | 895   | 888   | 901   | 910   | 905   | 905   | 920   |
| V. filtré (m3)         | 509   | 576   | 571   | 566   | 532   | 594   | 572   | 595   | 603   |
| <u>Bathypélagiques</u> |       |       |       |       |       |       |       |       |       |
| Apodes                 | 22    |       | 2     |       | 8     | 93    | 150   | 38    |       |
| Divers                 | 322   | 233   | 153   | 209   | 57    | 300   | 351   | 394   | 219   |
| <u>Epipélagiques</u>   |       |       |       |       |       |       |       |       |       |
| Belonidae              | 1     | 5     | 2     | 2     | 3     |       |       | 2     |       |
| Carangidae             | 6     |       | 4     | 7     | 1     | 1     |       | 10    | 4     |
| Coryphaenidae          |       | 4     | 1     |       |       |       | 1     | 1     |       |
| Engraulidae            |       |       |       |       |       |       |       |       |       |
| Exocoetidae            |       | 4     | 1     |       | 4     |       |       |       | 10    |
| Gempylidae             | 2     |       |       |       |       |       | 1     | 2     | 1     |
| Mugilidae              |       |       |       |       |       |       |       |       |       |
| Sphyraenidae           |       |       |       |       |       |       |       |       |       |
| Thunnidae              |       |       |       |       |       |       |       |       |       |
| <u>Démersaux</u>       |       |       |       |       |       |       |       |       |       |
| Apogonidae             |       |       |       |       |       |       |       |       |       |
| Balistidae             |       |       |       |       |       |       |       |       | 1     |
| Blennidae              |       |       |       |       |       |       |       |       |       |
| Bothidae               | 22    | 1     | 3     | 3     | 6     | 8     | 8     | 8     | 2     |
| Carapidae              |       |       | 1     |       |       |       |       |       |       |
| Cynoglossidae          |       |       |       |       |       |       |       |       |       |
| Gobiidae               | 39    | 12    | 81    | 4     | 6     | 79    | 6     | 8     | 8     |
| Labridae               |       |       | 1     |       |       |       | 2     |       | 2     |
| Microdesmidae          |       |       |       |       |       |       |       |       |       |
| Scorpaenidae           |       |       |       |       |       | 2     |       | 1     | 2     |
| Serranidae             |       | 2     |       |       |       |       |       |       |       |
| Syngnathidae           |       |       |       |       |       |       |       |       |       |
| Triglidae              |       |       |       |       |       |       |       |       |       |
| <u>Divers</u>          |       |       |       |       |       |       |       |       |       |
|                        |       |       | 1     | 1     |       | 1     | 3     |       | 1     |
| TOTAL                  | 414   | 261   | 250   | 226   | 85    | 484   | 522   | 464   | 250   |



| Station                | 46    | 47    | 48    | 49    | 50    | 51    | 52    | 53    | 54    |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heure                  | 13.13 | 17.05 | 22.40 | 02.10 | 06.00 | 09.00 | 14.10 | 17.21 | 21.00 |
| Durée (sec.)           | 891   | 908   | 903   | 896   | 908   | 932   | 905   | 904   | 900   |
| V. filtré (m3)         | 621   | 547   | 514   | 470   | 478   | 492   | 494   | 491   | 449   |
| <hr/>                  |       |       |       |       |       |       |       |       |       |
| <u>Bathypélagiques</u> |       |       |       |       |       |       |       |       |       |
| Apodes                 |       | 16    | 6     | 17    | 13    | 3     | 1     | 4     | 2     |
| Divers                 | 263   | 56    | 256   | 174   | 156   | 84    | 78    | 94    | 39    |
| <u>Epipélagiques</u>   |       |       |       |       |       |       |       |       |       |
| Belontiidae            | 2     |       |       | 1     |       | 3     | 1     | 1     |       |
| Carangidae             | 7     |       | 1     | 1     | 12    | 11    | 2     | 1     |       |
| Coryphaenidae          |       | 2     |       | 1     |       |       |       |       |       |
| Engraulidae            |       |       |       |       |       |       |       |       |       |
| Exocoetidae            | 2     | 1     |       |       |       | 2     |       | 2     | 1     |
| Gempylidae             |       | 1     | 1     | 1     |       |       | 3     | 1     |       |
| Mugilidae              |       |       |       |       |       |       |       |       |       |
| Sphyraenidae           |       |       |       |       |       |       |       |       |       |
| Thunnidae              |       |       |       |       |       |       |       |       |       |
| <u>Démersaux</u>       |       |       |       |       |       |       |       |       |       |
| Apogonidae             |       |       |       |       |       |       | 1     |       |       |
| Balistidae             |       |       |       |       |       |       |       |       |       |
| Blennidae              |       |       |       |       |       |       |       | 1     | 2     |
| Bothidae               |       | 1     | 2     | 1     |       | 3     | 3     |       | 3     |
| Carapidae              |       |       |       |       |       |       |       |       |       |
| Cynoglossidae          |       |       |       |       |       |       | 1     | 1     |       |
| Gobiidae               | 5     | 8     | 4     | 4     | 6     | 34    | 28    | 3     |       |
| Labridae               |       | 2     |       | 1     |       |       | 2     |       |       |
| Microdesmidae          | 1     |       |       |       |       |       |       | 3     |       |
| Scorpaenidae           | 1     |       |       |       |       |       |       |       | 1     |
| Serranidae             |       |       |       |       |       |       |       |       |       |
| Syngnathidae           |       |       |       |       |       |       |       |       |       |
| Triglidae              |       |       |       |       |       |       | 3     |       |       |
| <u>Divers</u>          | 1     | 3     |       |       |       |       |       |       |       |
| <hr/>                  |       |       |       |       |       |       |       |       |       |
| TOTAL                  | 282   | 90    | 270   | 201   | 187   | 144   | 123   | 111   | 48    |

| Station                | 55    | 56    | 57    | 58    | 59    | 60    | 61    | 62    | 63    |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heure                  | 00.35 | 04.00 | 07.55 | 10.50 | 14.00 | 17.20 | 20.35 | 23.55 | 03.45 |
| Durée (sec.)           | 897   | 898   | 899   | 909   | 903   | 905   | 899   | 890   | 910   |
| V. filtré (m3)         | 484   | 477   | 477   | 509   | 492   | 534   | 507   | 554   | 476   |
| <u>Bathypélagiques</u> |       |       |       |       |       |       |       |       |       |
| Apodes                 | 52    | 37    | 38    |       |       | 5     | 49    | 44    | 63    |
| Divers                 | 67    | 105   | 49    | 56    | 179   | 45    | 182   | 60    | 263   |
| <u>Épipélagiques</u>   |       |       |       |       |       |       |       |       |       |
| Belonidae              |       | 1     |       |       | 1     | 1     |       |       |       |
| Carangidae             | 1     | 5     | 2     | 4     | 5     |       | 2     | 1     | 10    |
| Coryphaenidae          |       | 1     |       |       | 2     |       | 2     | 1     |       |
| Engraulidae            | 13    | 22    |       |       |       |       |       |       |       |
| Exocoetidae            | 1     | 2     | 1     |       |       | 2     |       |       | 2     |
| Gempylidae             |       |       |       |       | 1     | 1     | 1     |       | 8     |
| Mugilidae              |       |       |       |       |       |       |       |       |       |
| Sphyraenidae           |       |       |       |       |       |       |       |       |       |
| Thunnidae              |       |       | 1     |       |       |       | 1     |       |       |
| <u>Démersaux</u>       |       |       |       |       |       |       |       |       |       |
| Apogonidae             |       |       |       |       |       |       |       |       |       |
| Balistidae             |       |       |       |       |       |       |       |       |       |
| Blennidae              |       |       |       |       |       |       |       |       |       |
| Bothidae               | 10    | 5     | 4     | 3     | 1     | 11    | 10    | 16    |       |
| Carapidae              |       |       |       |       |       |       |       |       |       |
| Cynoglossidae          |       |       |       |       |       |       |       |       |       |
| Gobiidae               | 2     | 4     | 20    | 5     | 11    | 60    | 208   | 12    | 6     |
| Labridae               |       |       |       |       | 1     | 3     | 1     |       |       |
| Microdesmidae          |       | 1     |       |       |       | 1     |       | 1     |       |
| Scorpaenidae           |       |       | 2     | 2     |       |       | 2     |       |       |
| Serranidae             |       |       |       |       |       |       |       |       |       |
| Syngnathidae           | 2     |       |       |       |       |       |       |       |       |
| Triglidae              |       |       |       |       |       |       |       |       |       |
| <u>Divers</u>          |       |       |       |       |       |       |       |       |       |
| TOTAL                  | 148   | 183   | 117   | 70    | 201   | 129   | 458   | 135   | 352   |

| Station                       | 64         | 65         | 66        | 67         | 68         | 69        | 70        | 71         | 72        |
|-------------------------------|------------|------------|-----------|------------|------------|-----------|-----------|------------|-----------|
| Heure                         | 07.05      | 10.30      | 15.40     | 19.15      | 22.50      | 02.07     | 05.35     | 08.55      | 11.55     |
| Durée (sec.)                  | 909        | 927        | 886       | 900        | 897        | 896       | 910       | 920        | 896       |
| V. filtré (m3)                | 509        | 528        | 549       | 539        | 580        | 501       | 693       | 563        | 511       |
| <b><u>Bathypélagiques</u></b> |            |            |           |            |            |           |           |            |           |
| Apodes                        | 6          |            | 1         | 50         | 188        | 25        | 46        | 7          | 6         |
| Divers                        | 207        | 194        | 58        | 61         | 28         | 50        | 10        | 15         | 30        |
| <b><u>Epipélagiques</u></b>   |            |            |           |            |            |           |           |            |           |
| Belonidae                     | 1          | 6          |           |            |            | 1         |           |            | 1         |
| Carangidae                    |            | 1          | 1         |            | 1          |           | 2         | 47         | 3         |
| Coryphaenidae                 |            |            |           |            |            |           |           |            |           |
| Engraulidae                   |            |            |           |            |            |           |           |            |           |
| Exocoetidae                   | 1          |            |           |            |            |           |           | 1          | 4         |
| Gempylidae                    |            |            |           |            |            |           |           |            |           |
| Mugilidae                     |            |            |           |            | 2          |           |           |            |           |
| Sphyraenidae                  |            |            |           |            |            |           |           |            |           |
| Thunnidae                     |            |            |           |            |            |           |           |            |           |
| <b><u>Démersaux</u></b>       |            |            |           |            |            |           |           |            |           |
| Apogonidae                    |            |            |           |            |            |           |           |            |           |
| Balistidae                    |            |            |           |            |            |           |           |            |           |
| Blennidae                     |            |            |           |            |            |           |           |            |           |
| Bothidae                      | 3          | 1          | 4         | 3          | 5          | 9         | 8         | 24         | 1         |
| Carapidae                     |            |            |           |            | 2          |           |           |            |           |
| Cynoglossidae                 |            |            |           |            |            |           |           |            |           |
| Gobiidae                      |            |            | 1         | 4          | 3          | 2         | 4         | 2          |           |
| Labridae                      |            |            |           | 1          |            |           |           |            |           |
| Microdesmidae                 |            |            | 1         |            | 8          |           |           | 2          | 1         |
| Scorpaenidae                  |            |            |           |            |            |           |           |            |           |
| Serranidae                    | 1          |            | 2         |            |            |           |           |            |           |
| Syngnathidae                  |            |            |           |            |            |           |           |            |           |
| Triglidae                     |            |            |           |            |            |           |           |            |           |
| <b><u>Divers</u></b>          |            |            |           |            |            |           |           |            |           |
|                               |            |            |           |            |            |           |           | 2          |           |
| <b>TOTAL</b>                  | <b>219</b> | <b>202</b> | <b>68</b> | <b>119</b> | <b>237</b> | <b>87</b> | <b>70</b> | <b>100</b> | <b>46</b> |

| Station        | 73    | 74    | 75    | 76    | 77    | 78    | 79    | 80    | 81    |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Heure          | 15.15 | 18.15 | 22.05 | 01.25 | 04.45 | 08.10 | 11.40 | 14.45 | 17.30 |
| Durée (sec.)   | 897   | 902   | 908   | 904   | 902   | 925   | 885   | 904   | 907   |
| V. filtré (m3) | 583   | 469   | 517   | 543   | 458   | 561   | 402   | 549   | 441   |

Bathypélagiques

|        |    |    |     |    |     |    |    |    |    |
|--------|----|----|-----|----|-----|----|----|----|----|
| Apodes | 4  | 2  | 289 | 17 | 122 | 11 | 4  |    | 8  |
| Divers | 34 | 27 | 21  | 20 | 16  | 14 | 22 | 82 | 49 |

Epipélagiques

|               |  |   |    |    |  |   |    |  |  |
|---------------|--|---|----|----|--|---|----|--|--|
| Belonidae     |  |   |    |    |  |   |    |  |  |
| Carangidae    |  | 4 | 12 | 9  |  |   |    |  |  |
| Coryphaenidae |  |   |    |    |  |   |    |  |  |
| Engraulidae   |  | 7 | 3  |    |  |   |    |  |  |
| Exocoetidae   |  |   |    |    |  |   |    |  |  |
| Gempylidae    |  |   |    |    |  | 1 |    |  |  |
| Mugilidae     |  |   |    | 25 |  | 5 | 20 |  |  |
| Sphyraenidae  |  |   |    |    |  |   |    |  |  |
| Thunnidae     |  |   |    |    |  |   |    |  |  |

Démersaux

|               |   |   |    |   |    |   |   |  |   |
|---------------|---|---|----|---|----|---|---|--|---|
| Apogonidae    |   |   |    |   |    |   |   |  |   |
| Balistidae    |   | 1 |    |   |    |   |   |  |   |
| Blennidae     |   |   |    | 2 |    |   |   |  |   |
| Bothidae      |   |   | 24 | 6 | 11 | 2 | 5 |  | 4 |
| Carapidae     |   |   |    | 2 |    |   |   |  |   |
| Cynoglossidae |   |   |    | 1 |    |   |   |  |   |
| Gobiidae      | 1 |   |    | 2 |    | 3 |   |  | 3 |
| Labridae      |   |   |    |   |    |   |   |  | 1 |
| Microdesmidae |   |   |    | 2 |    |   |   |  |   |
| Scorpaenidae  |   |   |    |   |    |   |   |  | 1 |
| Serranidae    |   |   |    | 4 |    |   | 1 |  |   |
| Syngnathidae  |   |   |    | 1 | 2  |   |   |  |   |
| Triglidae     |   |   | 1  |   |    |   |   |  |   |

Divers

|        |  |  |  |  |  |  |  |   |  |
|--------|--|--|--|--|--|--|--|---|--|
| Divers |  |  |  |  |  |  |  | 1 |  |
|--------|--|--|--|--|--|--|--|---|--|

|       |    |    |     |    |     |    |    |    |    |
|-------|----|----|-----|----|-----|----|----|----|----|
| TOTAL | 39 | 41 | 350 | 91 | 151 | 36 | 52 | 83 | 66 |
|-------|----|----|-----|----|-----|----|----|----|----|

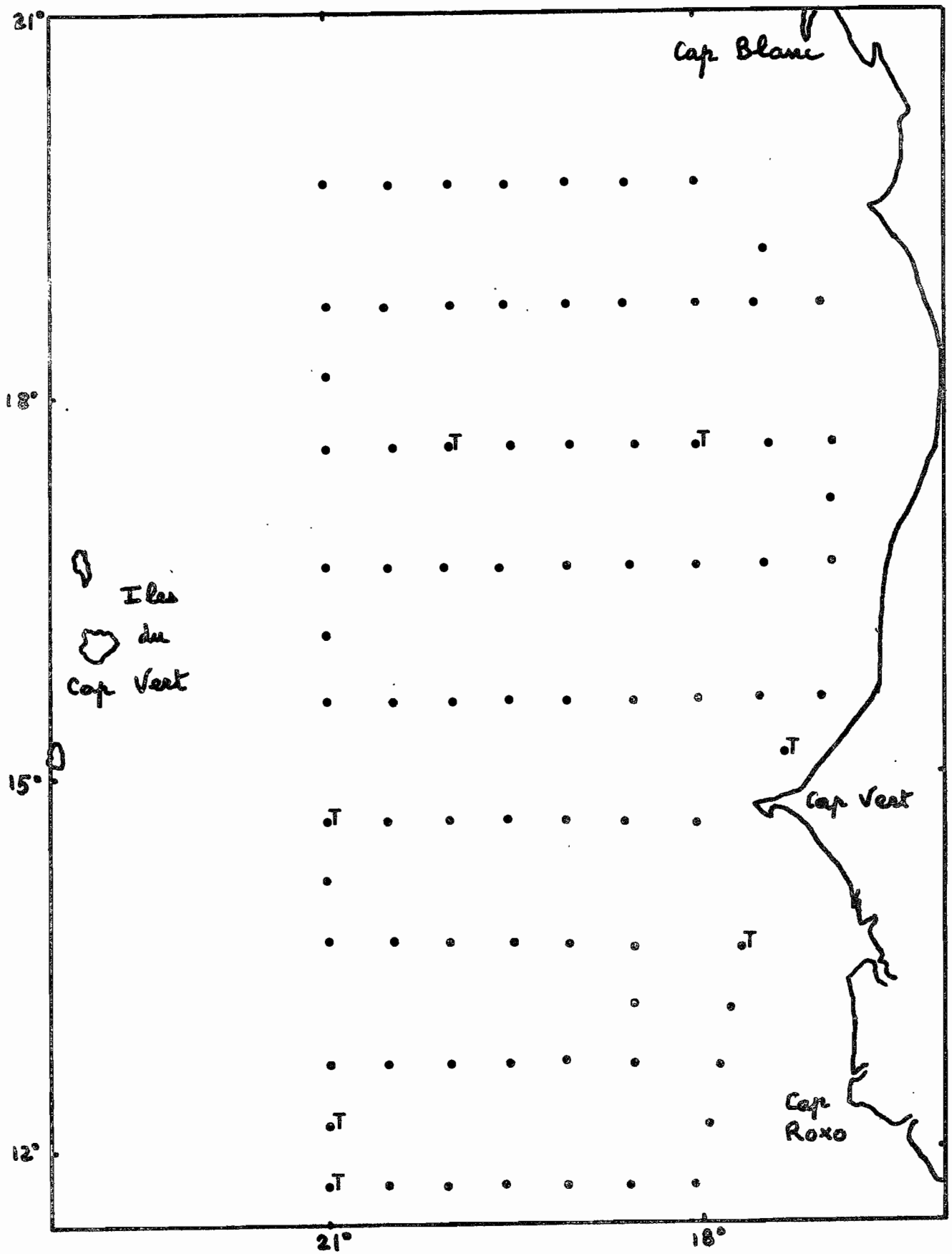


Fig. N° 14 - Distribution des larves de thunidae récoltées au cours de la campagne. (T: presence de larves)