

J. J. WAGNER

**CAMPAGNE CAPRICORNE-ECHOLES**

**RESULTATS DES MESURES PHYSIQUES**

**(16 septembre - 5 octobre 1977)**



**CENTRE DE RECHERCHES OcéANOGRAPHIQUES DE DAKAR - THIAROYE**

**INSTITUT SENÉGALEIS DE RECHERCHES AGRICOLES \***

**ARCHIVE**

**N° 67**

**NOVEMBRE 1978**

REPUBLIQUE DU SENEGAL  
INSTITUT SENEGALAIS DE RECHERCHES AGRICOLES

CAMPAGNE CAPRICORNE-ECHOLES  
du 10 septembre au 15 octobre 1977  
Résultats des mesures physiques

par

J.J. WAGNER

CENTRE DE RECHERCHES  
OCEANOGRAPHIQUES DE DAKAR-THIAOYE

Archive N° 67  
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**CAMPAGNE ECHOLES**  
**RESULTATS D'OBSERVATIONS-BATHYTHERMOGRAMMES**

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Au cours de la campagne CAPRICORNE-ECHOLES, qui s'est déroulée du 10 septembre au 5 octobre 1977, diverses observations, dont les résultats sont présentés ici, ont été effectuées.

- La zone couverte s'étend du Cap Timiris ( $19^{\circ}20N$ ) au Cap Roxo ( $12^{\circ} 20N$ ). (fig. 1).

- Les stations couvrent le plateau continental dans son ensemble, et deux zones concentrées au large de la ligne des 200 m (fig. 2-3-4).

- Les isothermes sont données pour la surface (fig. 5-6-7), et pour les profondeurs 3 mètres (fig. 8-9) et 20 mètres (fig. 10-11).

- Les bathythermogrammes ont été réalisés à l'aide de l'appareil T.S.K. N° 2231 (0 à 125 m), appartenant au C.R.O. d'Abidjan (fig. 18).

- Les cartes d'immersion de la thermocline sont tracées à partir des 149 bathythermogrammes obtenus.

La 2e méthode (WYRTKI) a été retenue. (fig. 12-13-14).

- Les salinités ont été mesurées au salinomètre à induction BISSET et BERMAN. (fig. 15-16-17).

## CAP. ECHOLES

BATHYTHERMOGRAMMES EFFECTUES A L'AIDE DU BATHYTHERMOGRAPHE N° 2231

- NORD-PREMIERE PARTIE -

| DATE    | HEURE | POSITION |          | FOND  | N°<br>BT | TEMP.<br>SURFACE | PROF.<br>THERMO-<br>CLINE | SALIN. |
|---------|-------|----------|----------|-------|----------|------------------|---------------------------|--------|
|         |       | LAT. N.  | LONG. W. |       |          |                  |                           |        |
| 14.9.77 | 10.10 | 16.03    | 17.32    | 2 000 | 2        | 27.8             | 38                        | 36.01  |
| "       | 14.30 | 16.36    | 17.23    | 2 000 | 4        | 28.6             | 32                        | 36.00  |
| "       | 16.00 | 16.48    | 17.18    | 2 000 | 5        | 28.2             | 32                        | 36.00  |
| "       | 17.30 | 17.05    | 17.14    | 2 000 | 6        | 27.8             | 35                        | 36.03  |
| 15.9.77 | 10.15 | 18.04    | 16.42    | 300   | 7        | 27.2             | 27                        | 36.12  |
| "       | 10.45 | 18.07    | 16.41    | 300   | 8        | 27.2             | 25                        | 36.12  |
| "       | 13.15 | 18.13    | 16.31    | 250   | 9        | 27.2             | 24                        | 36.14  |
| "       | 16.45 | 18.13    | 16.47    | 2 000 | 10       | 27.7             | 26                        | 36.17  |
| "       | 17.30 | 18.08    | 16.41    | 2 000 | 11       | 27.9             | 25                        | 36.16  |
| "       | 20.00 | 18.00    | 16.30    | 2 000 | 12       | 27.2             | 22                        | 36.13  |
| 16.9.77 | 9.30  | 18.00    | 16.36    | 2 000 | 13       | 27.2             | 28                        | 36.27  |
| "       | 11.50 | 17.59    | 16.49    | 2 000 | 14       | 27.6             | 26                        | 36.18  |
| "       | 14.45 | 17.45    | 16.50    | 1 000 | 15       | 27.5             | 23                        | 36.04  |
| "       | 17.15 | 17.45    | 16.37    | 320   | 16       | 28.0             | 18                        | 36.20  |
| "       | 18.20 | 17.53    | 16.36    | 500   | 17       | 27.8             | 18                        | 36.17  |
| "       | 19.40 | 17.58    | 16.37    | 500   | 18       | 27.6             | 20                        | 36.16  |
| 17.9.77 | 9.15  | 17.55    | 16.47    | 2 000 | 19       | 27.2             | 24                        | 36.06  |
| "       | 11.15 | 17.56    | 16.56    | 2 000 | 20       | 27.4             | 24                        | 36.05  |
| "       | 14.00 | 18.06    | 16.56    | 2 000 | 21       | 27.4             | 30                        | 36.07  |
| "       | 16.15 | 18.19    | 16.52    | 1 200 | 22       | 27.1             | 25                        | 36.16  |
| "       | 17.45 | 18.29    | 16.46    | 2 000 | 23       | 25.5             | 25                        | 36.09  |
| "       | 19.10 | 18.40    | 16.41    | 1 000 | 24       | 24.2             | 20                        | 36.11  |
| "       | 21.35 | 18.40    | 16.24    | 40    | 25       | 23.8             | 10                        | 36.09  |

- NORD - PREMIERE PARTIE (suite) -

| DATE    | HEURE | POSITION |          | FOND | N°<br>BT | TEMP.<br>SURFACE | PROF.<br>THERMO-<br>CLINE | SALIN. |
|---------|-------|----------|----------|------|----------|------------------|---------------------------|--------|
|         |       | LAT. N.  | LONG. W. |      |          |                  |                           |        |
| 18.9.77 | 0.00  | 18.50    | 16.23    | 26   | 26       | 24.3             | 10                        | 36.06  |
| "       | 2.15  | 18.50    | 16.46    | 250  | 27       | 24.1             | 20                        | 36.12  |
| "       | 3.35  | 19.00    | 16.43    | 115  | 28       | 23.5             | 16                        | 36.08  |
| "       | 4.50  | 19.00    | 16.34    | 555  | 29       | 23.4             | 13                        | 36.05  |
| "       | 8.00  | 19.07    | 16.39    | 126  | 30       | 22.3             | 26                        | 36.06  |
| "       | 9.00  | 19.09    | 16.45    | 250  | 31       | 23.5             | 22                        | 36.10  |
| "       | 10.15 | 19.02    | 16.55    | 300  | 32       | 23.9             | 32                        | 36.14  |
| "       | 11.15 | 18.57    | 17.03    | 2000 | 33       | 25.2             | 35                        | 36.12  |
| "       | 12.50 | 18.50    | 17.08    | 3300 | 34       | 25.8             | 26                        | 36.13  |
| "       | 14.00 | 18.45    | 17.16    | 300  | 35       | 26.0             | 30                        | 36.13  |
| "       | 15.00 | 18.40    | 17.06    | 1000 | 36       | 25.9             | 37                        | 36.12  |
| "       | 18.00 | 18.34    | 16.47    | 1000 | 37       | 25.8             | 34                        | 36.10  |
| "       | 19.30 | 18.30    | 16.34    | 190  | 38       | 26.3             | 17                        | 36.08  |
| "       | 21.00 | 18.30    | 16.23    | 45   | 39       | 24.3             | 6                         | 36.07  |
| 19.9.77 | 2.10  | 18.20    | 16.22    | 50   | 40       | 24.9             | 8                         | 36.09  |
| "       | 3.25  | 18.20    | 16.31    | 250  | 41       | 26.4             | 23                        | 36.13  |
| "       | 4.35  | 18.10    | 16.32    | 250  | 42       | 26.4             | 25                        | 36.16  |
| "       | 5.40  | 18.10    | 16.20    | 53   | 43       | 24.8             | 11                        | 36.09  |
| "       | 10.50 | 18.10    | 16.43    | 500  | 44       | 27.2             | 24                        | 36.17  |
| "       | 12.00 | 18.10    | 16.53    | 500  | 45       | 27.7             | 25                        | 36.05  |
| "       | 13.15 | 18.10    | 17.03    | 1000 | 46       | 27.5             | 21                        | 36.09  |
| "       | 14.30 | 18.10    | 17.13    | 1000 | 47       | 27.6             | 30                        | 36.12  |
| "       | 17.15 | 18.06    | 16.58    | 1000 | 48       | 28.3             | 23                        | 36.08  |
| "       | 18.30 | 18.04    | 16.48    | 1000 | 49       | 28.2             | 25                        | 36.08  |
| "       | 19.40 | 18.02    | 16.36    | 1000 | 50       | 27.6             | 25                        | 36.21  |

- NORD - PREMIERE PARTIE (suite) -

| DATE    | HEURE | POSITION |          | FOND  | N°<br>BT | TEMP.   | PROF.            | SALIN. |
|---------|-------|----------|----------|-------|----------|---------|------------------|--------|
|         |       | LAT. N.  | LONG. W. |       |          | SURFACE | THERMO-<br>CLINE |        |
| 19.9.77 | 21.50 | 17.59    | 16.21    | 78    | 51       | 27.3    | 8                | 36.16  |
| 20.9.77 | 0.15  | 17.50    | 16.12    | 35    | 52       | 26.7    | 12               | 36.19  |
| "       | 2.30  | 17.43    | 16.21    | 84    | 53       | 26.9    | 19               | 36.16  |
| "       | 4.15  | 17.41    | 16.33    | 205   | 54       | 27.3    | 15               | 36.19  |
| "       | 5.20  | 17.45    | 16.38    | 1 500 | 55       | 27.1    | 20               | 36.10  |
| "       | 6.15  | 17.45    | 16.50    | 1 000 | 56       | 27.4    | 25               | 36.01  |
| "       | 7.20  | 17.45    | 17.01    | 1 000 | 57       | 27.3    | 28               | 36.06  |
| "       | 8.30  | 17.45    | 17.10    | 1 000 | 58       | 27.4    | 24               | 36.03  |
| "       | 10.00 | 17.45    | 17.20    | 1 000 | 59       | 26.9    | 25               | 36.19  |
| "       | 11.45 | 17.55    | 17.21    | 1 000 | 60       | 27.8    | 20               | 36.17  |
| "       | 13.12 | 17.55    | 17.07    | 250   | 61       | 28.1    | 26               | 36.10  |
| "       | 14.25 | 17.55    | 16.59    | 500   | 62       | 28.6    | 26               | 36.03  |
| "       | 17.00 | 18.00    | 16.46    | 500   | 63       | 28.6    | 21               | 36.06  |
| "       | 19.15 | 18.00    | 16.29    | 1 000 | 64       | 27.7    | 25               | 36.16  |
| "       | 21.00 | 18.05    | 16.34    | 1 000 | 65       | 27.6    | 25               | 36.19  |
| "       | 22.45 | 17.55    | 16.41    | 1 000 | 66       | 27.6    | 25               | 36.08  |
| 21.9.77 | 1.30  | 17.55    | 16.49    | 1 000 | 67       | 27.4    | 24               | 36.07  |
| "       | 3.25  | 18.05    | 16.55    | 250   | 68       | 27.6    | 28               | 36.03  |
| "       | 5.00  | 17.55    | 17.00    | 500   | 69       | 27.4    | 24               | 36.05  |
| "       | 7.00  | 18.07    | 17.85    | 500   | 70       | 27.1    | 27               | 36.06  |
| "       | 8.00  | 18.16    | 17.05    | 500   | 71       | 27.3    | 26               | 36.09  |
| "       | 9.20  | 18.15    | 16.53    | 500   | 72       | 27.3    | 30               | 36.05  |
| "       | 10.50 | 18.15    | 16.41    | 500   | 73       | 27.0    | 25               | 36.19  |
| "       | 12.00 | 18.15    | 16.33    | 500   | 74       | 26.8    | 25               | 36.14  |
| "       | 17.10 | 18.05    | 17.05    | 500   | 75       | 27.7    | 32               | 36.03  |

- NORD - PREMIERE PARTIE (suite)

| DATE    | HEURE | POSITION |          | FOND | N°<br>BT | TEMP.<br>SURFACE | PROF.<br>THERMO-<br>CLINE | SALIN. |
|---------|-------|----------|----------|------|----------|------------------|---------------------------|--------|
|         |       | LAT. N.  | LONG. W. |      |          |                  |                           |        |
| 21.9.77 | 20.00 | 17.41    | 17.10    | 500  | 76       | 27.5             | 25                        | 36.07  |
| "-      | 23.10 | 17.09    | 17.14    | 500  | 77       | 27.7             | 31                        | 36.07  |
| 22.9.77 | 2.10  | 16.37    | 17.19    | 2000 | 78       | 27.6             | 32                        | 36.08  |
| "-      | 5.15  | 16.08    | 17.18    | 500  | 79       | 27.7             | 33                        | 36.02  |
| "-      | 9.12  | 15.37    | 17.29    | 500  | 80       | 27.8             | 22                        | 35.84  |
| "-      | 12.00 | 15.11    | 17.33    | 500  | 81       | 28.6             | 15                        | 35.77  |

- NORD - DEUXIEME PARTIE -

| DATE    | HEURE | POSITION |          | FOND | N°<br>BT | TEMP.<br>SURFACE | PROF.<br>THERMO-<br>CLINE | SALIN. |
|---------|-------|----------|----------|------|----------|------------------|---------------------------|--------|
|         |       | LAT. N.  | LONG. W. |      |          |                  |                           |        |
| 2.10.77 | 10.40 | 14.51    | 17.25    | 100  | 82       | 28.4             | 17                        | 35.77  |
| "-      | 12.00 | 14.54    | 17.12    | 50   | 83       | 28.7             | 8                         | 35.77  |
| "-      | 14.00 | 15.09    | 17.15    | 220  | 84       | 29.0             | 12                        | 35.86  |
| "-      | 16.35 | 15.10    | 17.02    | 70   | 85       | 28.8             | 16                        | 35.74  |
| "-      | 17.10 | 15.16    | 16.54    | 23   | 86       | 30.4             | 5                         | 35.73  |
| "-      | 19.00 | 15.24    | 16.56    | 50   | 87       | 28.3             | 18                        | 35.78  |
| "-      | 20.30 | 15.26    | 17.06    | 173  | 88       | 28.4             | 20                        | 35.85  |
| "-      | 21.20 | 15.33    | 17.01    | 126  | 89       | 27.3             | 15                        | 35.85  |
| "-      | 22.05 | 15.40    | 17.01    | 140  | 90       | 28.3             | 15                        | 35.83  |
| "-      | 23.00 | 15.40    | 16.52    | 566  | 91       | 28.6             | 20                        | 35.53  |
| "-      | 23.55 | 15.40    | 16.49    | 25   | 92       | 28.5             | 17                        | 34.60  |
| 3.10.77 | 7.00  | 15.55    | 16.59    | 98   | 93       | 28.2             | 16                        | 35.22  |
| "-      | 8.10  | 15.55    | 16.50    | 84   | 94       | 28.1             | 17                        | 35.09  |
| "-      | 9.25  | 15.44    | 16.39    | 33   | 95       | 28.4             | 12                        | 34.08  |
| "-      | 11.00 | 15.47    | 16.36    | 16   | 96       | 28.5             | 7                         | 25.64  |
| 4.10.77 | 05.45 | 14.48    | 17.38    | 220  | 97       | 28.4             | 23                        | 35.39  |

- SUD -

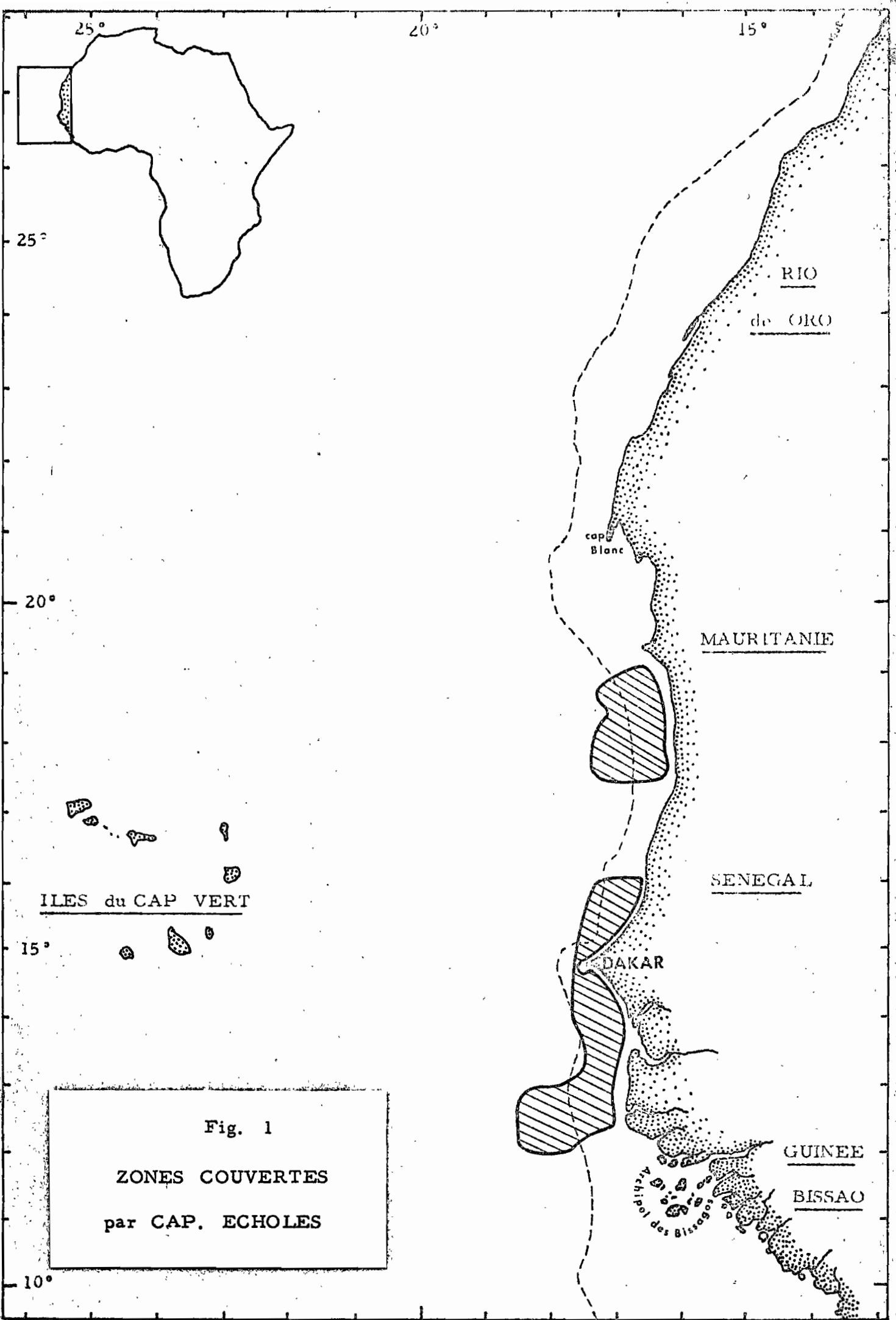
| DATE    | HEURE | POSITION |          | FOND  | N°<br>BT | TEMP.<br>SURFACE | PROF.<br>THERMO-<br>CLINE | SALIN. |
|---------|-------|----------|----------|-------|----------|------------------|---------------------------|--------|
|         |       | LAT. N.  | LONG. W. |       |          |                  |                           |        |
| 25.9.77 | 13.20 | 12.28    | 17.58    | 3 000 | 98       | 28.9             | 19                        | 35.59  |
| "       | 19.50 | 12.37    | 18.03    | 3 000 | 99       | 28.6             | 17                        | 35.39  |
| "       | 23.00 | 12.41    | 18.08    | 3 000 | 100      | 28.4             | 17                        | 35.37  |
| 26.9.77 | 01.00 | 12.38    | 18.20    | 3 000 | 101      | 28.5             | 25                        | 35.54  |
| "       | 03.25 | 12.19    | 18.20    | 1 000 | 102      | 28.6             | 15                        | 35.30  |
| "       | 06.30 | 12.19    | 18.00    | 1 000 | 103      | 28.3             | 17                        | 35.56  |
| "       | 11.00 | 12.46    | 18.08    | 1 000 | 104      | 29.2             | 13                        | 35.36  |
| "       | 13.05 | 12.31    | 18.08    | 1 000 | 105      | 29.3             | 14                        | 35.35  |
| "       | 18.30 | 12.10    | 17.54    | 1 000 | 106      | 28.5             | 20                        | 35.75  |
| 27.9.77 | 09.20 | 15.54    | 17.48    | 1 000 | 107      | 28.4             | 20                        | 35.73  |
| "       | 18.30 | 12.17    | 17.42    | 500   | 108      | 29.2             | 20                        | 35.65  |
| "       | 20.45 | 12.20    | 17.22    | 200   | 109      | 28.6             | 17                        | 35.47  |
| "       | 22.00 | 12.20    | 17.13    | 25    | 110      | 28.3             | 10                        | 33.00  |
| "       | 23.00 | 12.20    | 17.05    | 19    | 111      | 28.7             | 5                         | 34.10  |
| 28.9.77 | 03.40 | 12.35    | 17.16    | 25    | 112      | 28.1             | 16                        | 34.34  |
| "       | 04.50 | 12.35    | 17.27    | 50    | 113      | 28.2             | 8                         | 35.12  |
| "       | 05.30 | 12.35    | 17.38    | 300   | 114      | 28.4             | 13                        | 35.56  |
| "       | 13.20 | 12.49    | 17.10    | 25    | 115      | 29.7             | 8                         | 34.38  |
| "       | 14.25 | 12.49    | 17.20    | 3 37  | 116      | 30.4             | 14                        | 34.94  |
| "       | 15.30 | 12.49    | 17.30    | 40    | 117      | 30.0             | 14                        | 35.62  |
| "       | 16.35 | 12.50    | 17.41    | 500   | 118      | 30.2             | 12                        | 35.73  |
| "       | 18.15 | 12.50    | 17.48    | 1 000 | 119      | 29.4             | 15                        | 35.87  |
| 29.9.77 | 07.15 | 13.05    | 17.37    | 100   | 120      | 28.6             | 16                        | 35.73  |
| "       | 08.15 | 13.05    | 17.27    | 55    | 121      | 28.2             | 12                        | 35.61  |
| "       | 09.45 | 13.05    | 17.10    | 39    | 122      | 28.3             | 12                        | 34.99  |
| "       | 12.00 | 13.06    | 17.03    | 20    | 123      | 28.8             | C.H.                      | 34.68  |



## - SUD - (suite)

| DATE     | HEURE | POSITION |          | FOND  | N°<br>BT | TEMP.<br>SURFACE | PROF.<br>THERMO-<br>CLINE | SALIN. |
|----------|-------|----------|----------|-------|----------|------------------|---------------------------|--------|
|          |       | LAT. N.  | LONG. W. |       |          |                  |                           |        |
| 28.9.77  | 16.10 | 13.20    | 17.12    | 40    | 124      | 28.4             | 14                        | 35.04  |
| "        | 17.15 | 13.20    | 17.22    | 58    | 125      | 28.4             | 7                         | 35.03  |
| "        | 18.30 | 13.20    | 17.32    | 240   | 126      | 28.8             | 17                        | 35.29  |
| "        | 23.30 | 13.18    | 17.02    | 18    | 127      | 28.5             | C.H.                      | 34.73  |
| 30.9.77  | 06.00 | 13.35    | 17.28    | 250   | 128      | 28.6             | 12                        | 35.80  |
| "        | 08.10 | 13.35    | 17.17    | 80    | 129      | 28.6             | 19                        | 35.52  |
| "        | 09.15 | 13.35    | 17.07    | 34    | 130      | 28.0             | 12                        | 35.00  |
| "        | 10.20 | 13.35    | 16.56    | 16    | 131      | 28.8             | C.H.                      | 34.95  |
| "        | 14.00 | 13.50    | 17.05    | 30    | 132      | 30.2             | 17                        | 35.06  |
| "        | 15.10 | 13.51    | 17.15    | 50    | 133      | 31.2             | 15                        | 35.71  |
| "        | 16.15 | 13.50    | 17.26    | 300   | 134      | 30.4             | 9                         | 35.35  |
| 1.10.77  | 07.45 | 13.58    | 17.36    | 1 200 | 135      | 28.5             | 16                        | 35.41  |
| "        | 09.35 | 13.58    | 17.27    | 200   | 136      | 28.9             | 11                        | 35.40  |
| "        | 11.35 | 13.59    | 17.19    | 60    | 137      | 29.0             | 12                        | 35.53  |
| "        | 16.00 | 13.58    | 17.10    | 35    | 138      | 29.0             | 13                        | 35.26  |
| "        | 17.45 | 13.58    | 17.02    | 20    | 139      | 29.4             | 8                         | 35.28  |
| "        | 19.30 | 13.58    | 16.56    | 10    | 140      | 29.4             | C.H.                      | 35.48  |
| "        | 22.55 | 14.16    | 17.11    | 30    | 141      | 29.3             | 16                        | 35.36  |
| "        | 23.55 | 14.14    | 17.22    | 58    | 142      | 28.6             | 7                         | 35.26  |
| 02.10.77 | 01.05 | 14.17    | 17.31    | 350   | 143      | 28.9             | 10                        | 35.20  |
| "        | 01.40 | 14.23    | 17.32    | 250   | 144      | 29.2             | 10                        | 35.24  |
| "        | 02.30 | 14.30    | 17.36    | 238   | 145      | 29.1             | 17                        | 35.20  |
| "        | 03.40 | 14.30    | 17.25    | 70    | 146      | 28.9             | 10                        | 35.27  |
| "        | 04.50 | 14.30    | 17.15    | 34    | 147      | 28.9             | 15                        | 35.48  |
| "        | 06.50 | 14.37    | 17.17    | 25    | 148      | 28.9             | 10                        | 35.34  |
| "        | 7.50  | 14.37    | 17.27    | 33    | 149      |                  |                           |        |

C.H. : Couche homogène (de moins de un degré).



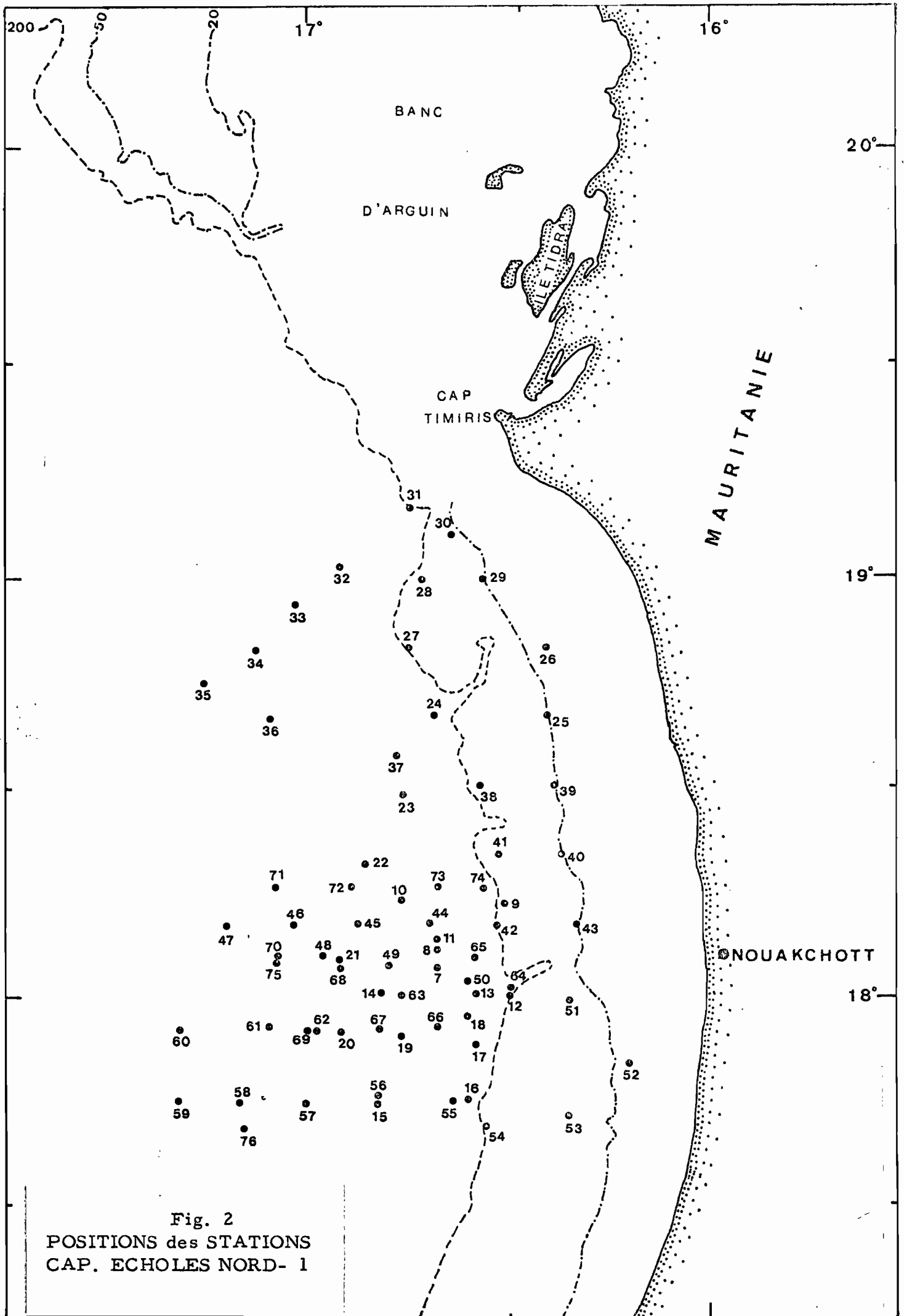


Fig. 2  
 POSITIONS des STATIONS  
 CAP. ECHOLES NORD- 1

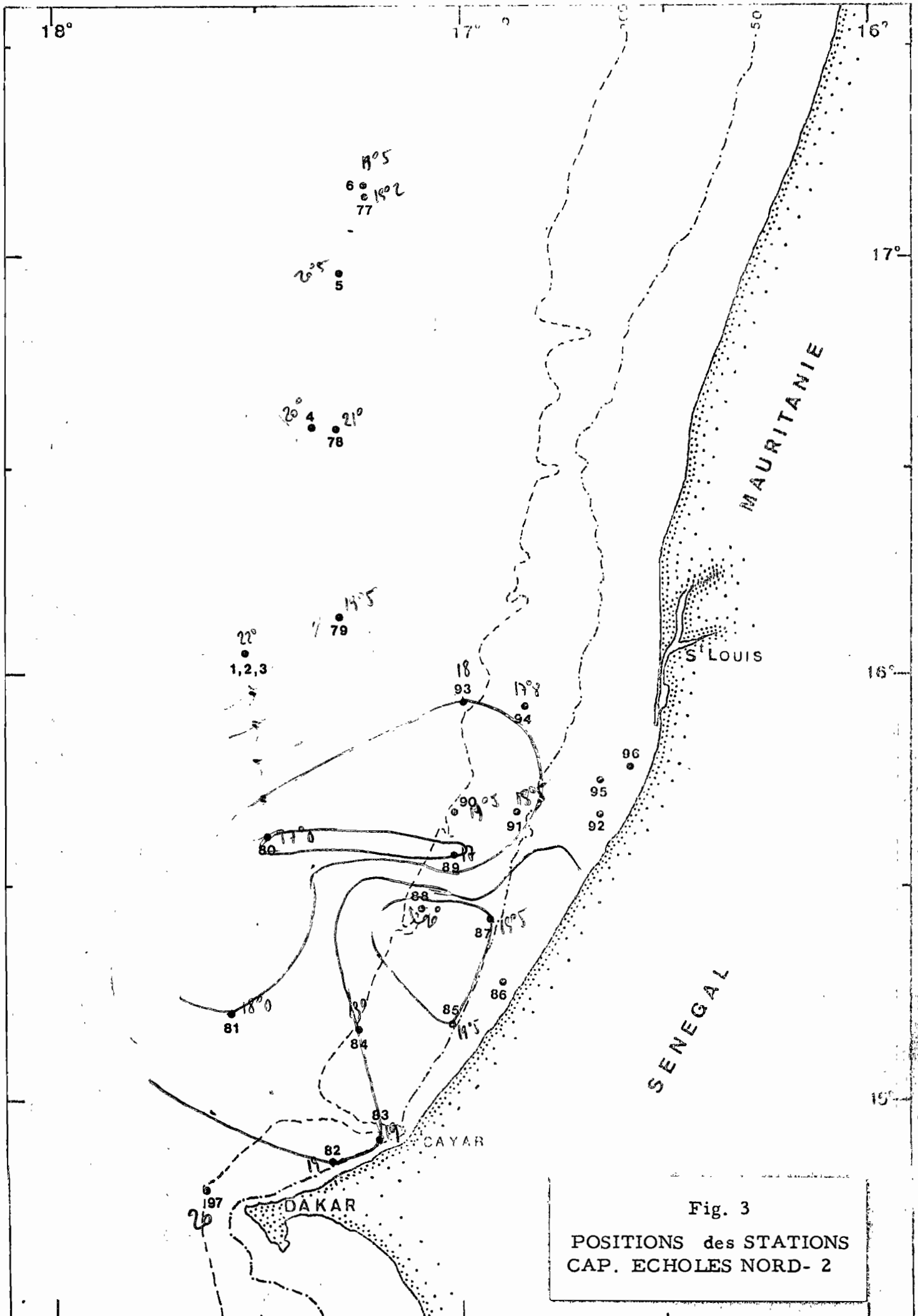


Fig. 3  
 POSITIONS des STATIONS  
 CAP. ECHOLES NORD- 2

9 250m

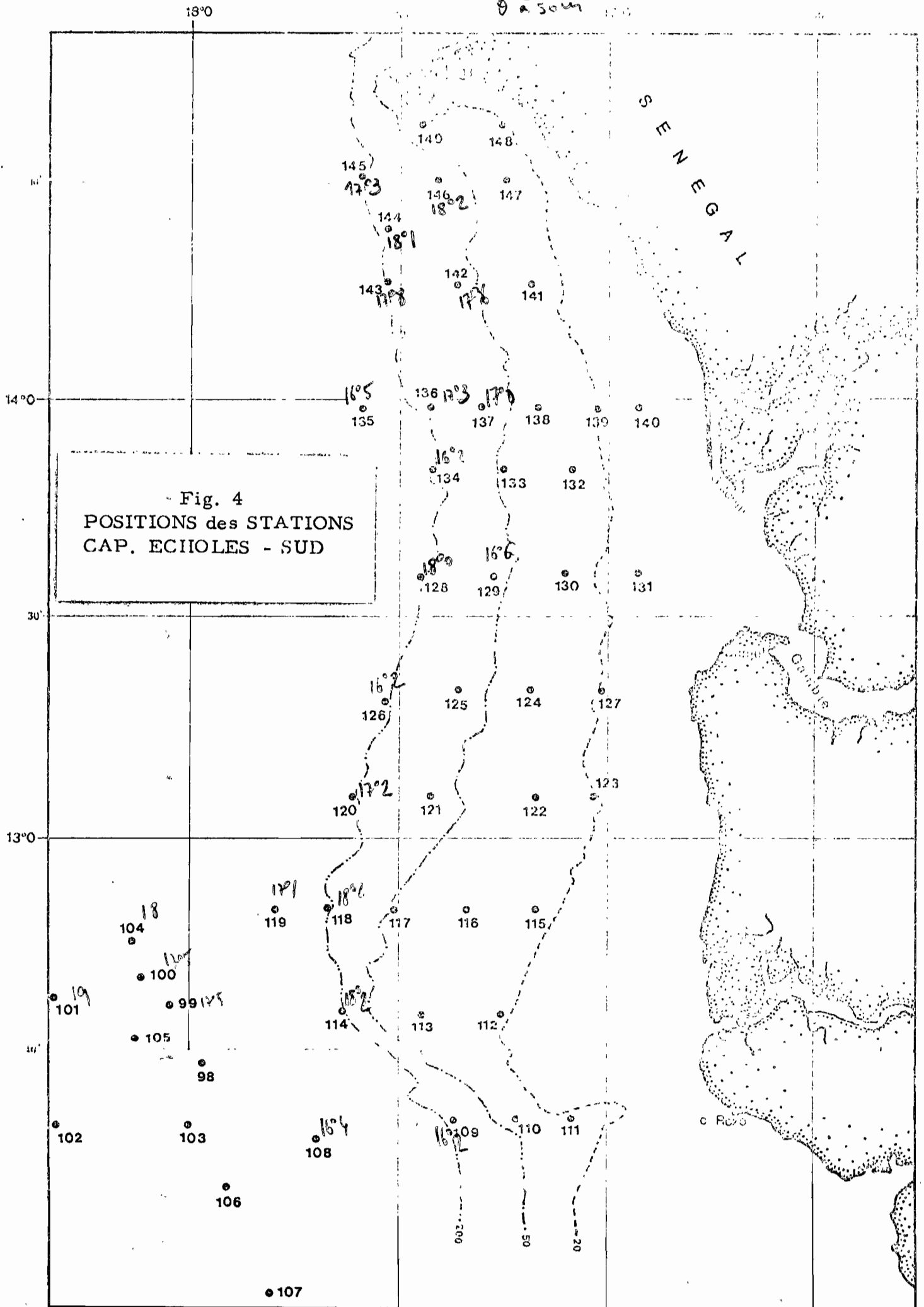


Fig. 4  
 POSITIONS des STATIONS  
 CAP. ECHOLES - SUD

● 107

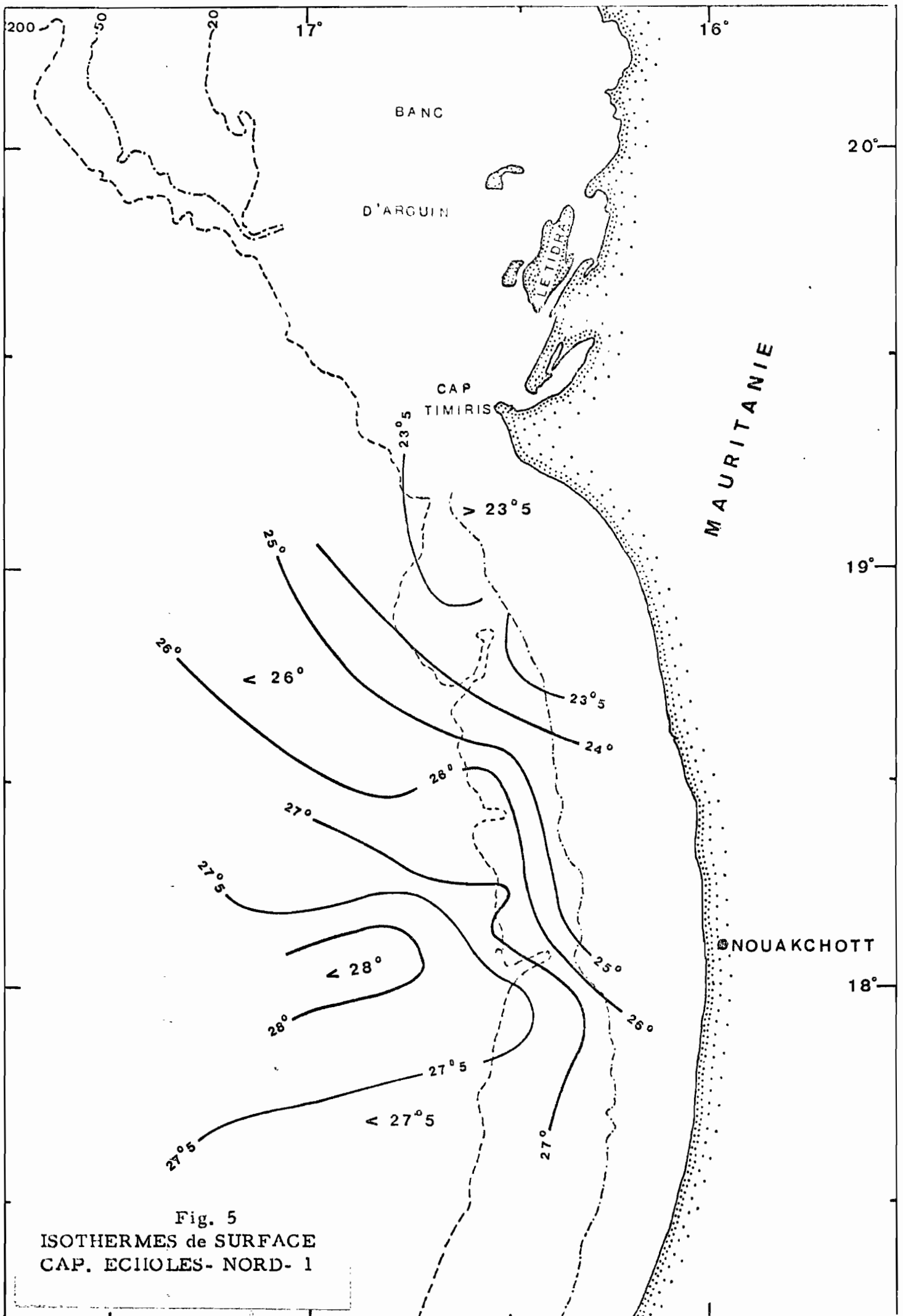
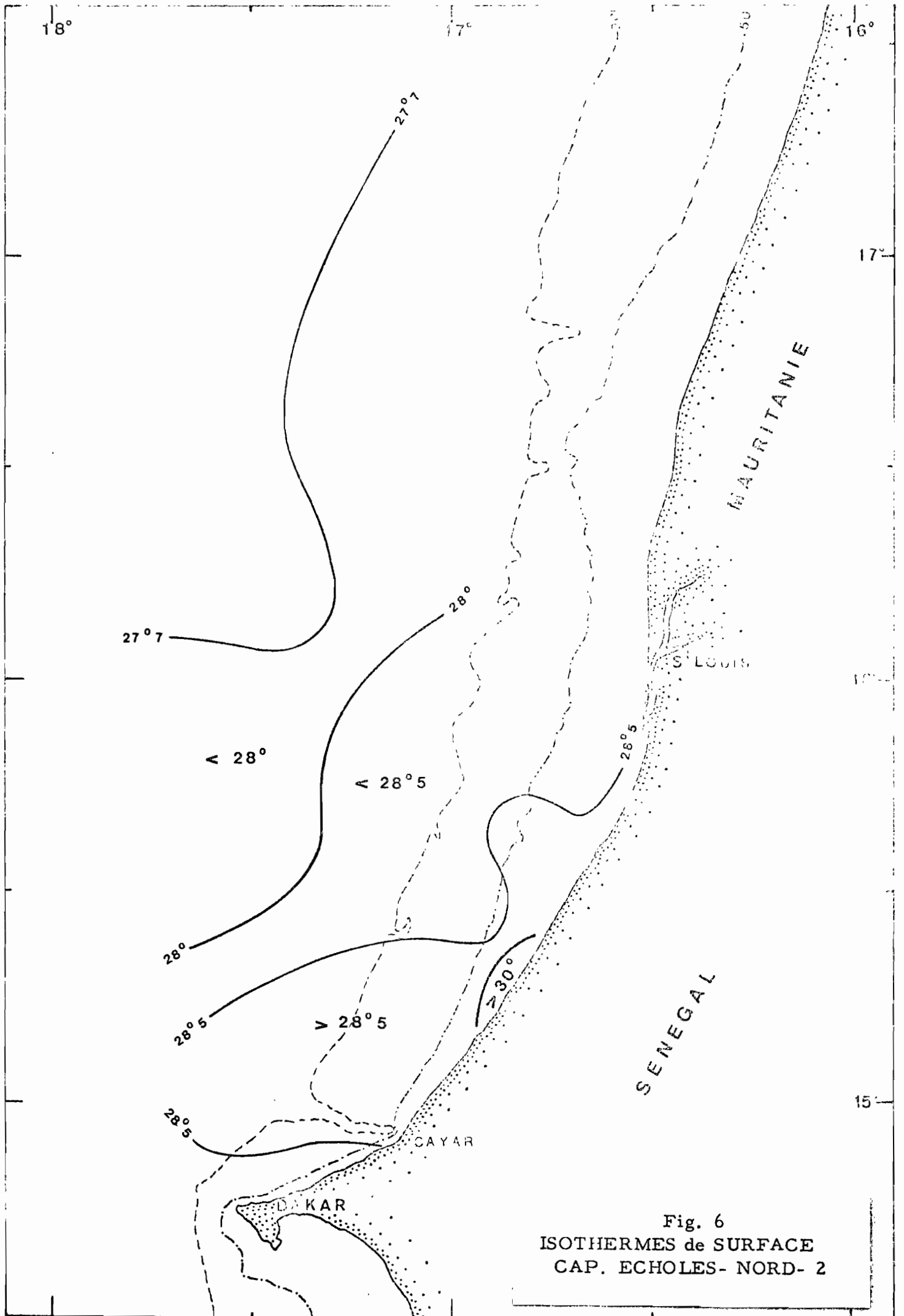


Fig. 5  
 ISOTHERMES de SURFACE  
 CAP. ECHOLES- NORD- 1



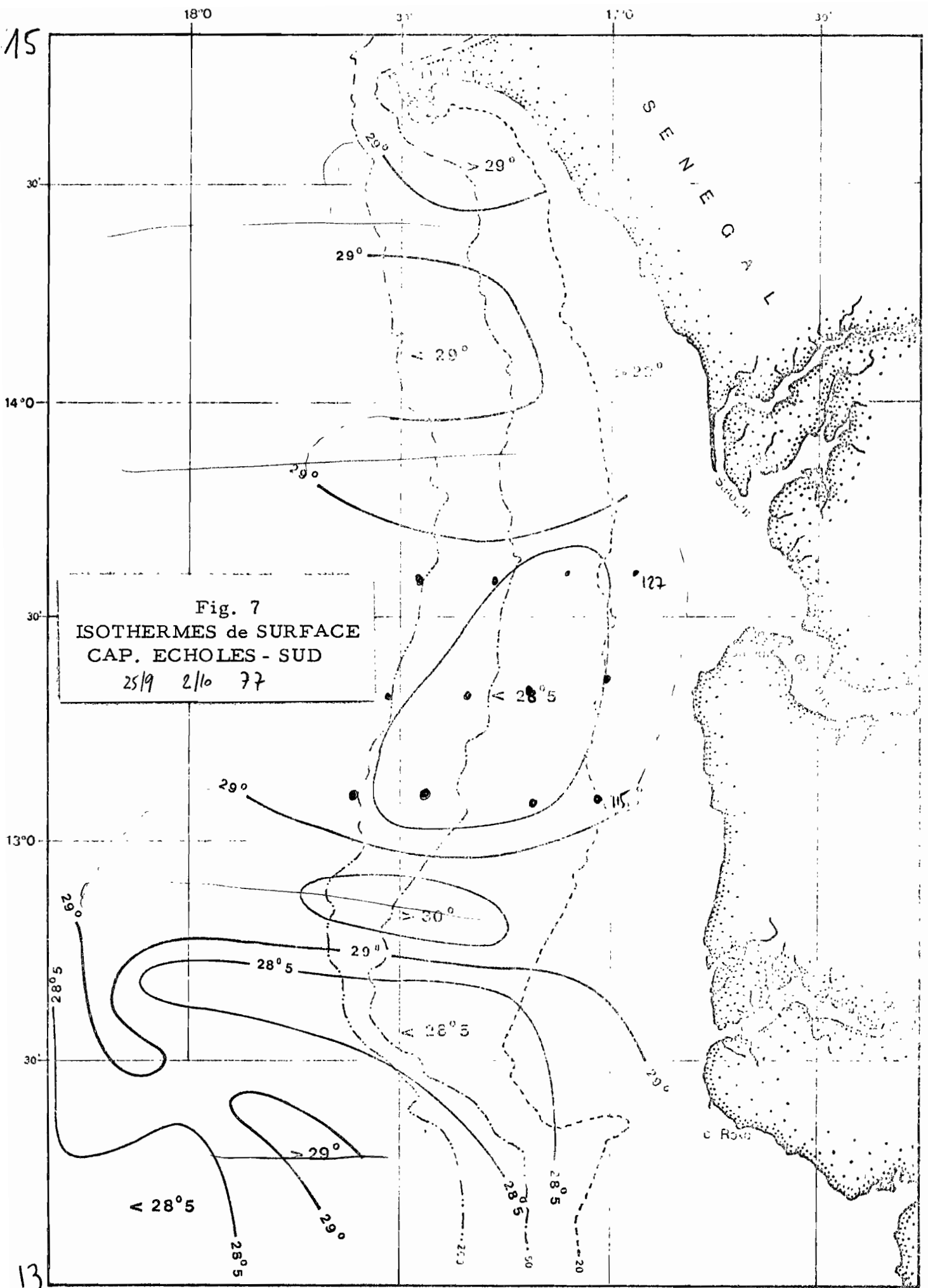


Fig. 7  
 ISOTHERMES de SURFACE  
 CAP. ECHOLES - SUD  
 25/9 2/10 77

S E N E G A L

C. ROUSSEAU

< 28°5

< 28°5

< 28°5

> 29°

29°

28°5

250

50

20

127

115

29°

28°5

28°5

29°

28°5

28°2

29°

28°5

29°

15

14°0

13°0

30'

13

18°0

31'

17°0

30'



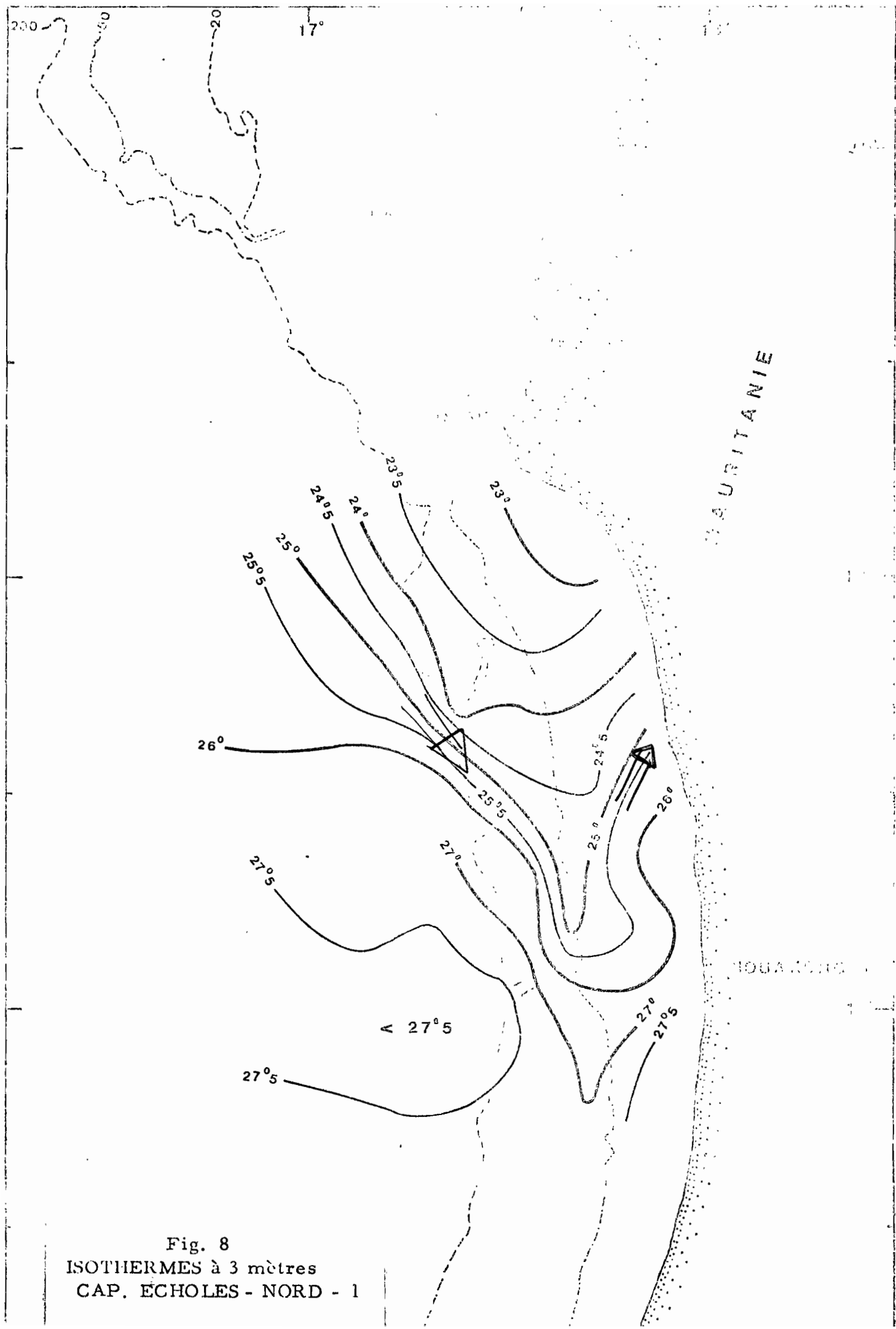
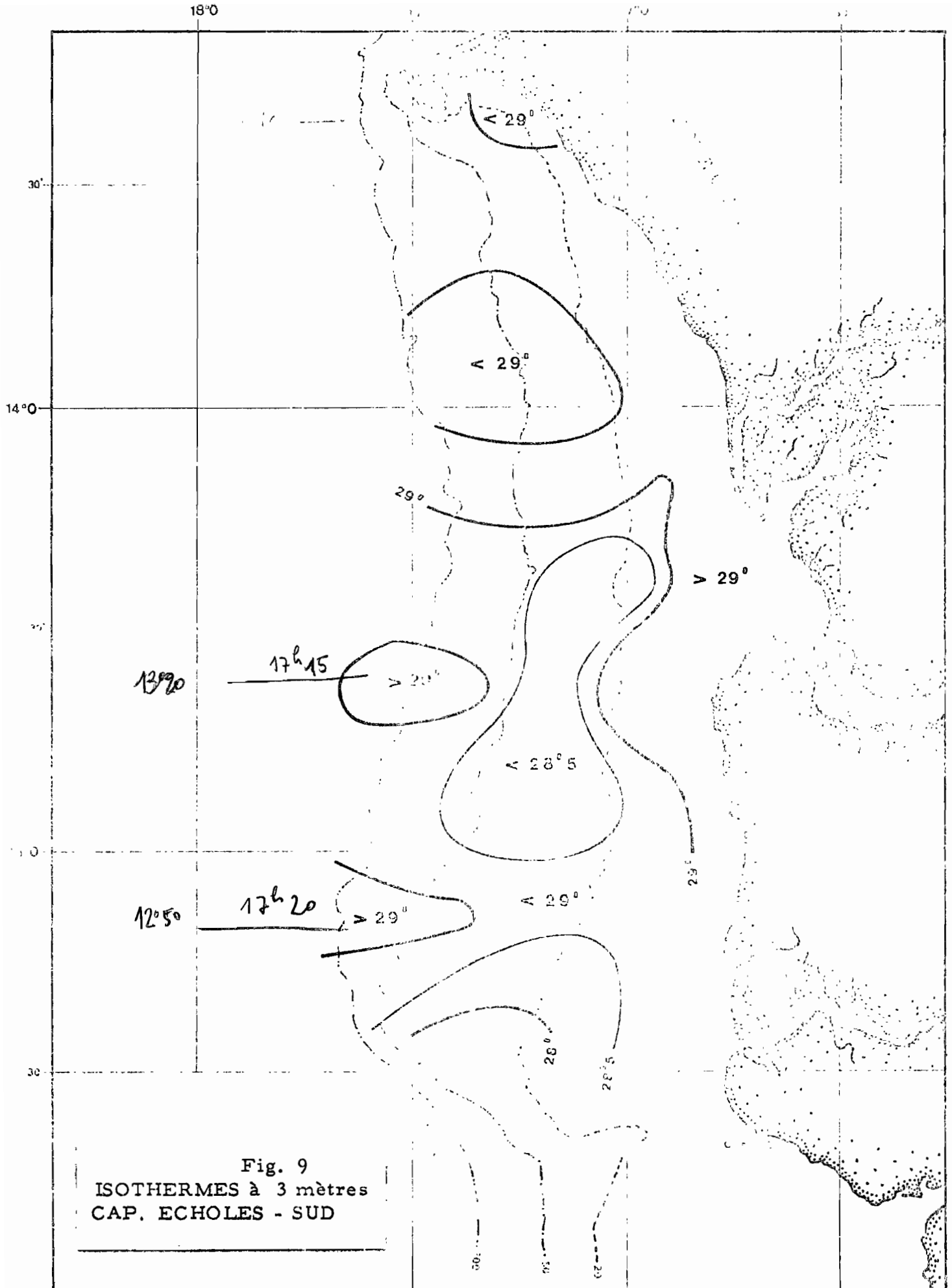


Fig. 8  
 ISOTHERMES à 3 mètres  
 CAP. ÉCHOLES - NORD - 1



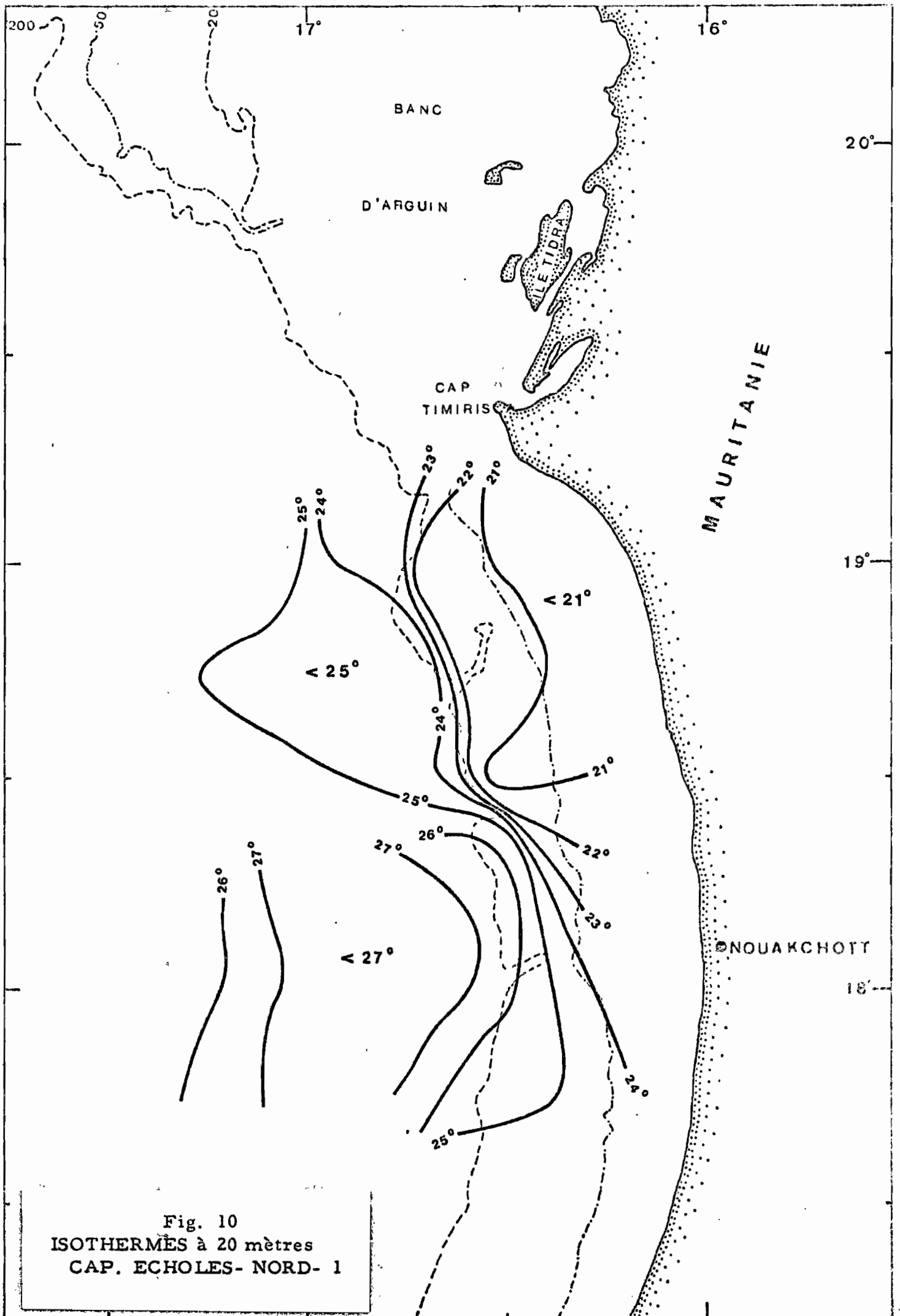


Fig. 10  
 ISOTHERMES à 20 mètres  
 CAP. ECHOLES- NORD- 1

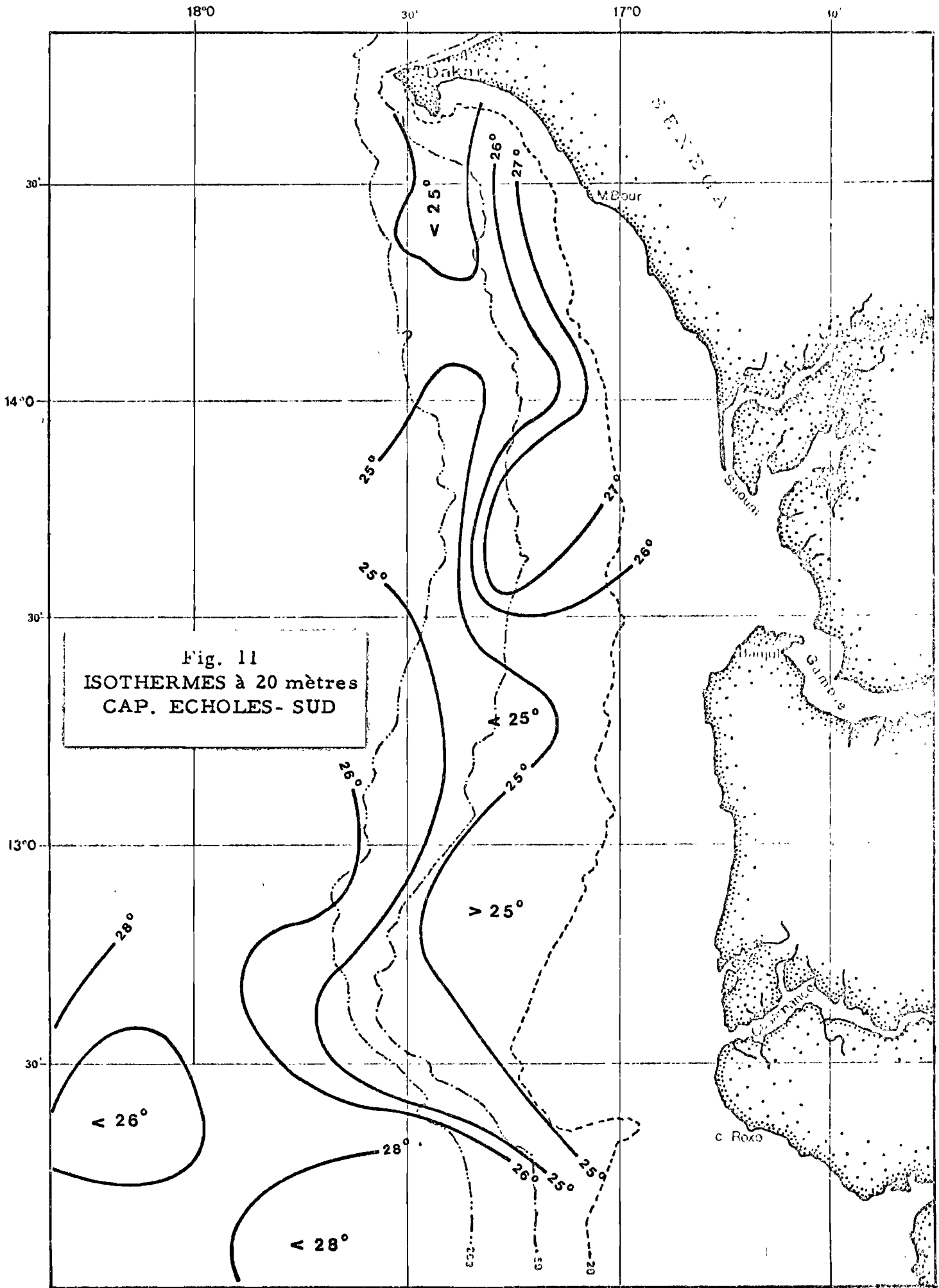


Fig. 11  
 ISOTHERMES à 20 mètres  
 CAP. ECHOLES- SUD

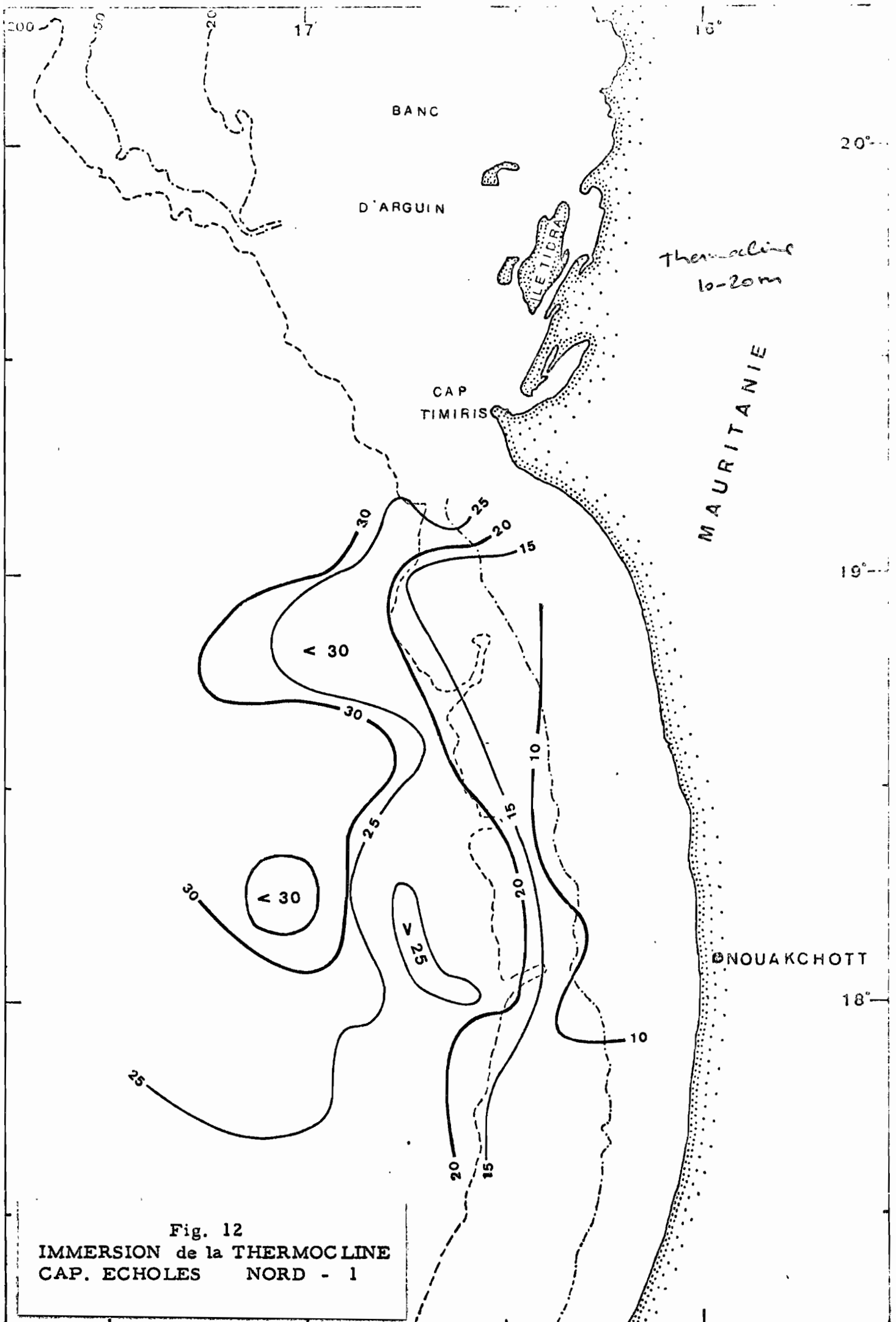


Fig. 12  
 IMMERSION de la THERMOCLINE  
 CAP. ECHOLES NORD - 1

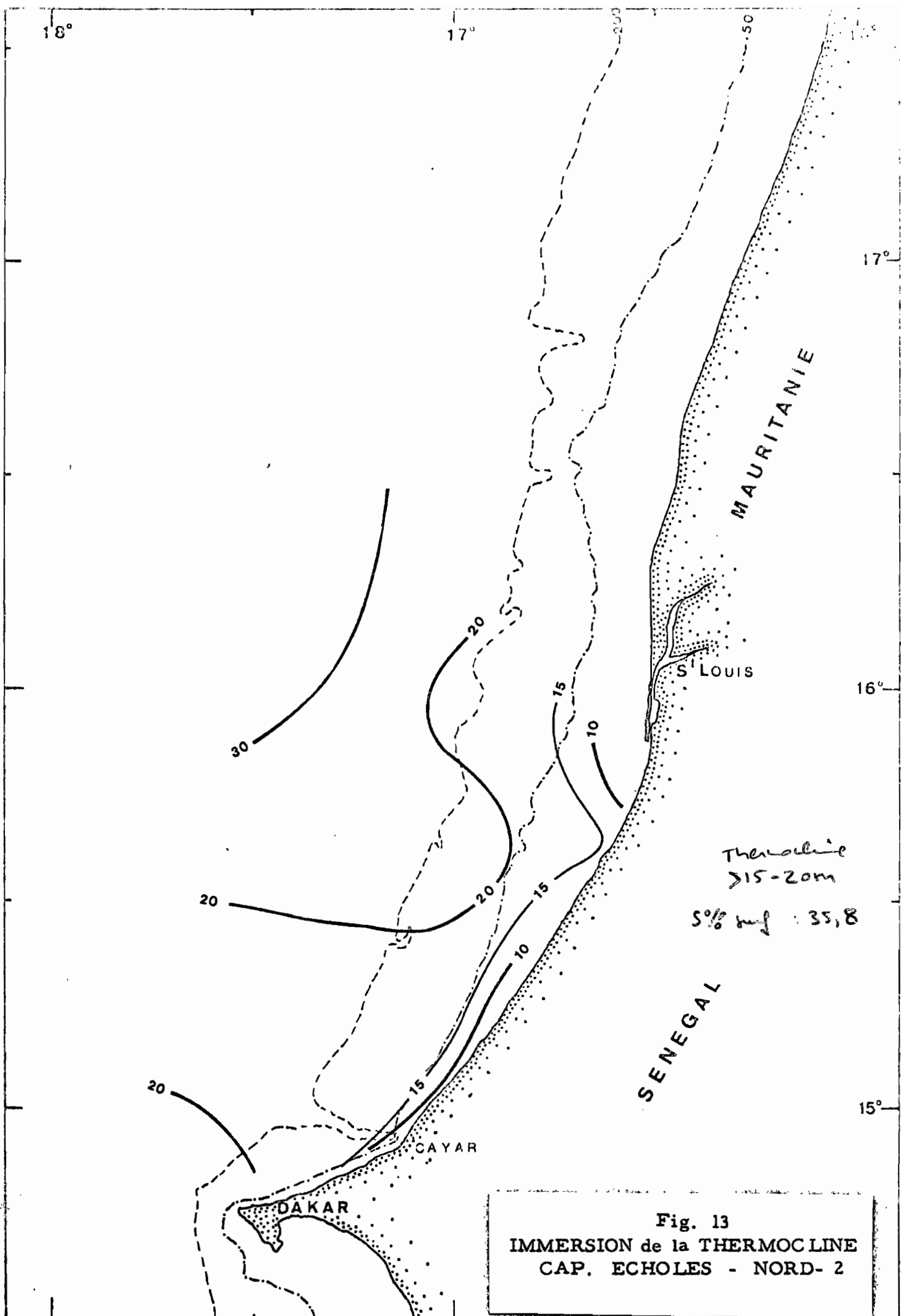
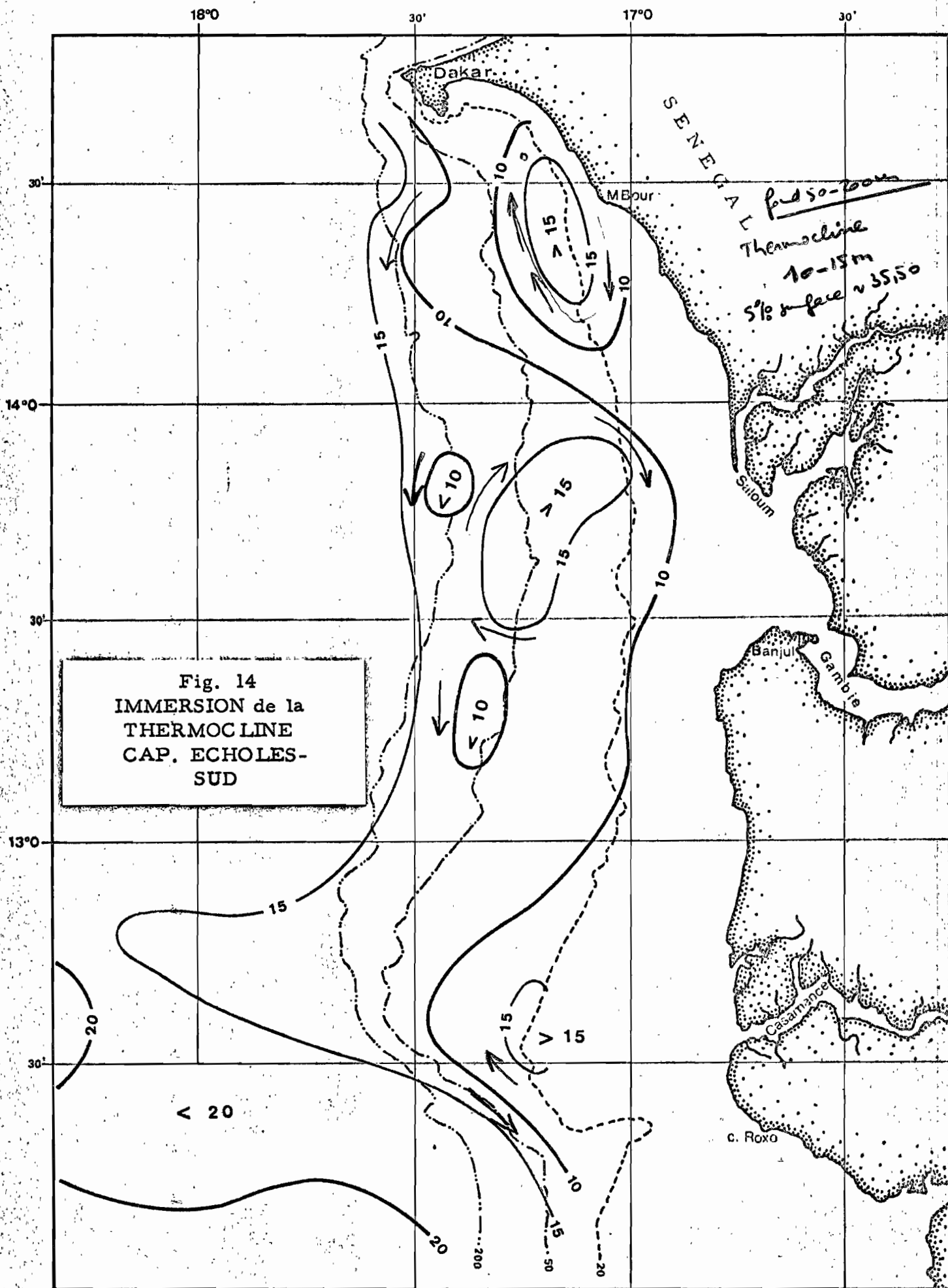


Fig. 13  
 IMMERSION de la THERMOCLINE  
 CAP. ECHOLES - NORD- 2

D'après réduction carte N° 1114

la Thermocline est moins profonde sur le côté sud 10-15m



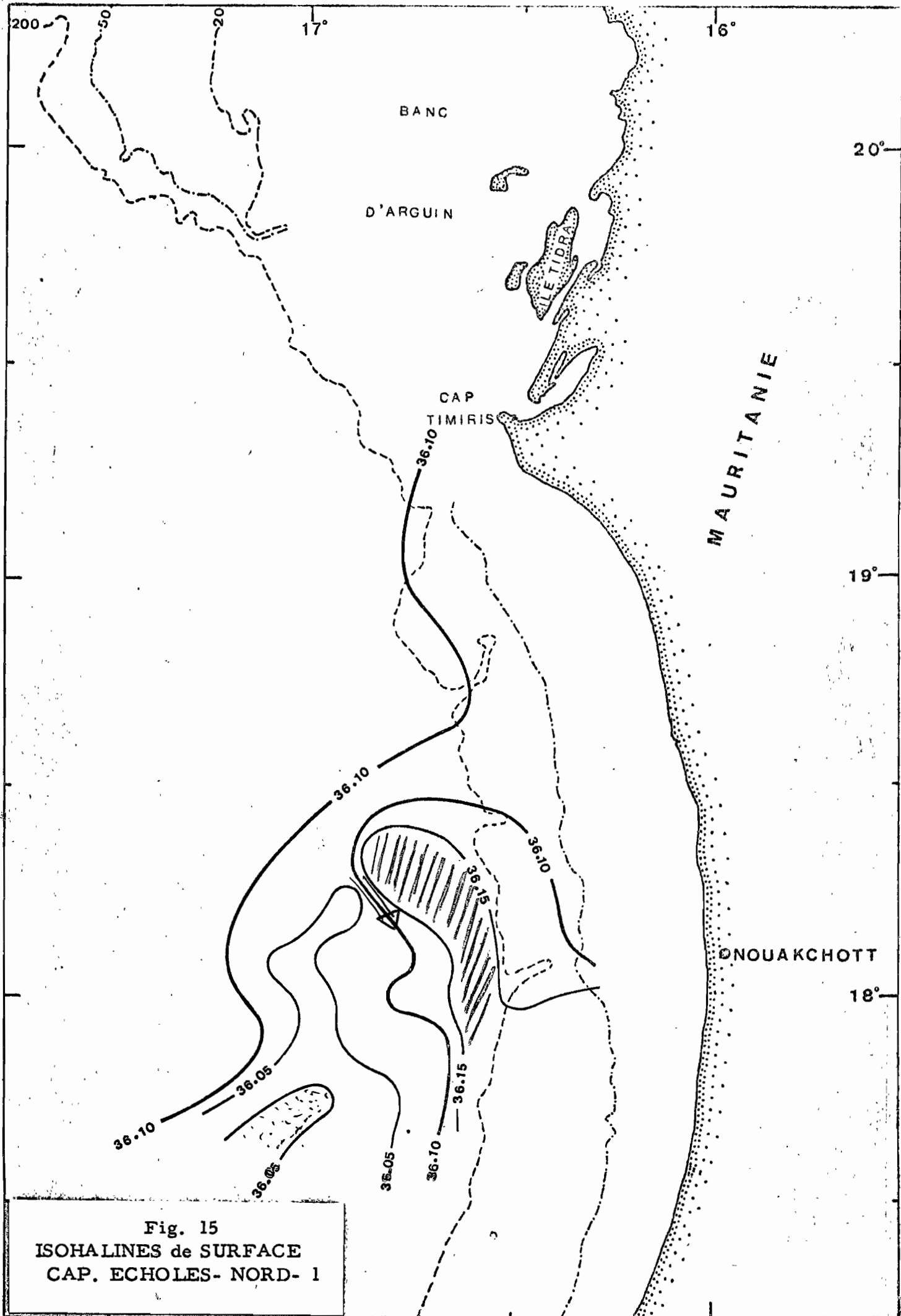


Fig. 15  
 ISOHALINES de SURFACE  
 CAP. ECHOLES- NORD- 1



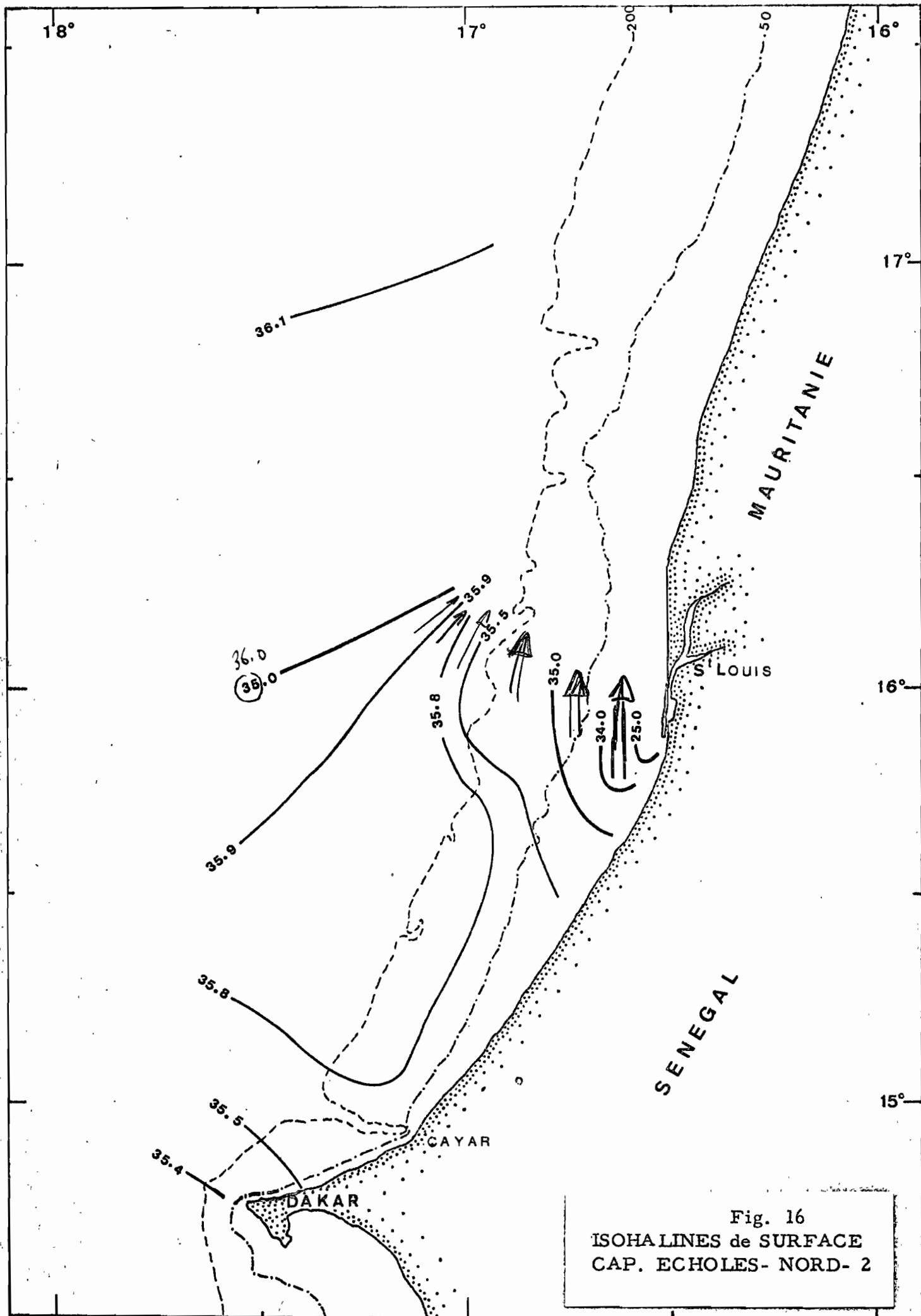
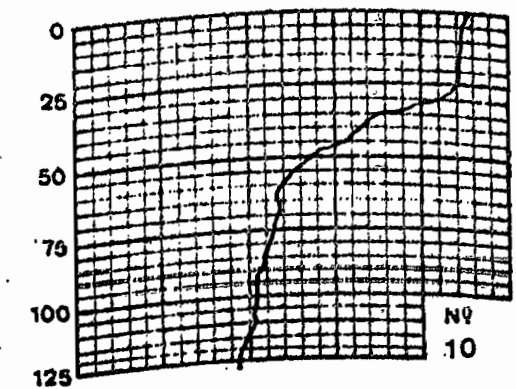
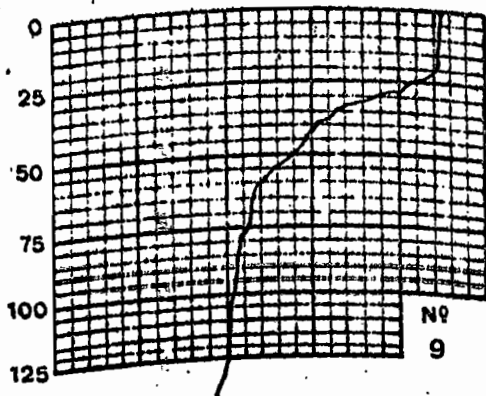
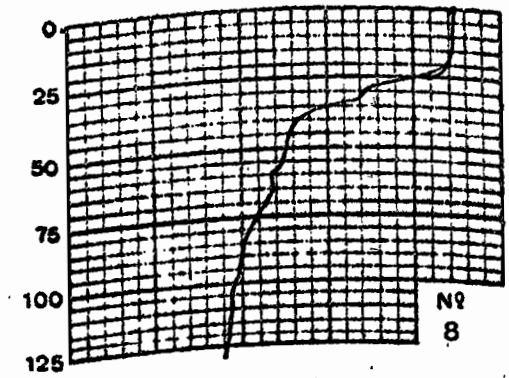
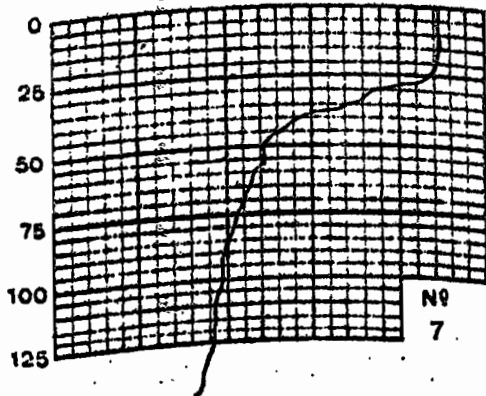
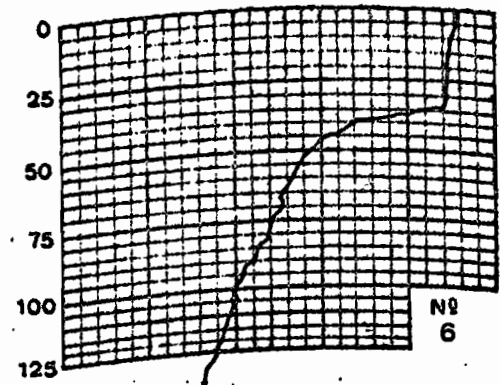
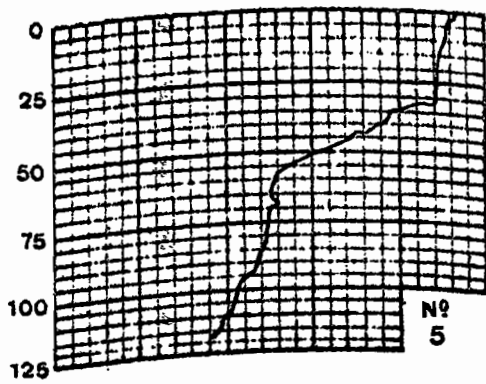
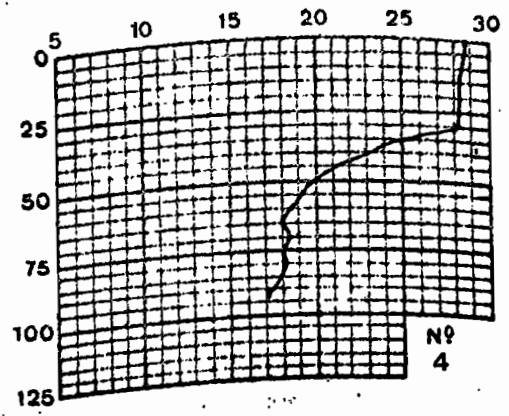
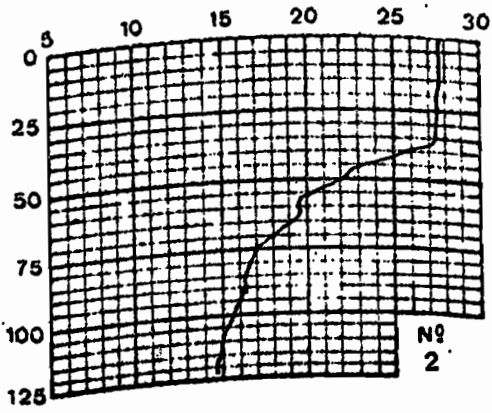
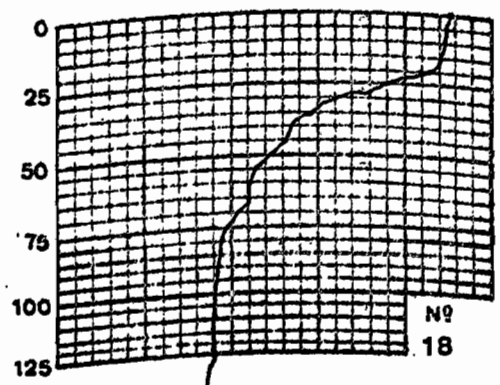
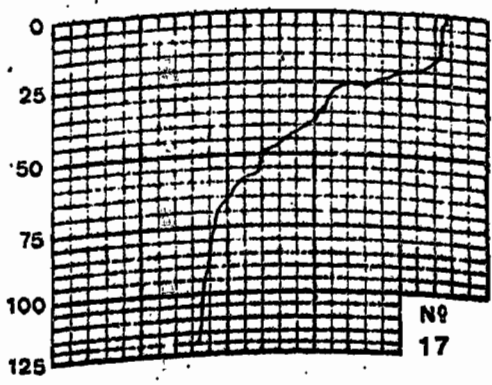
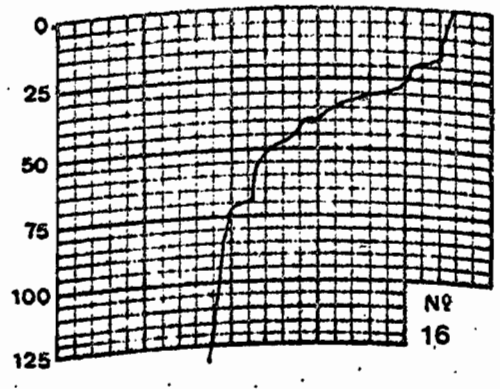
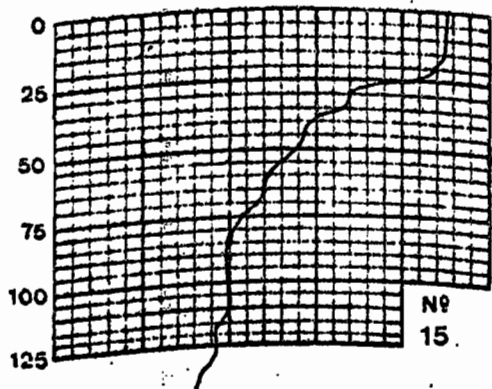
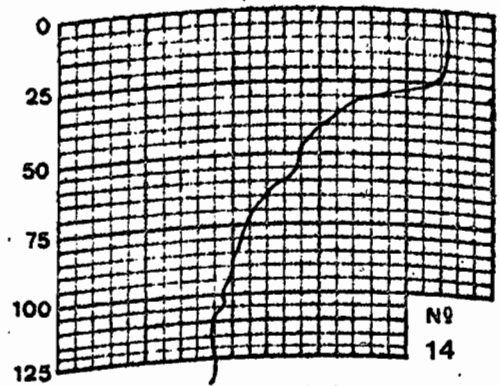
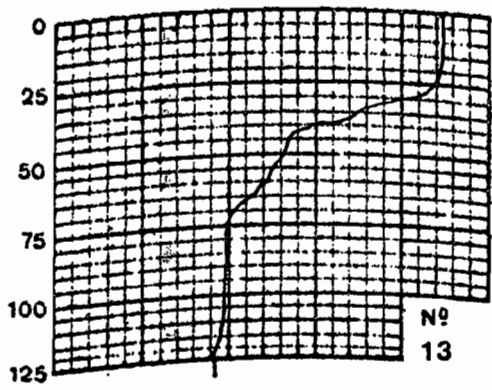
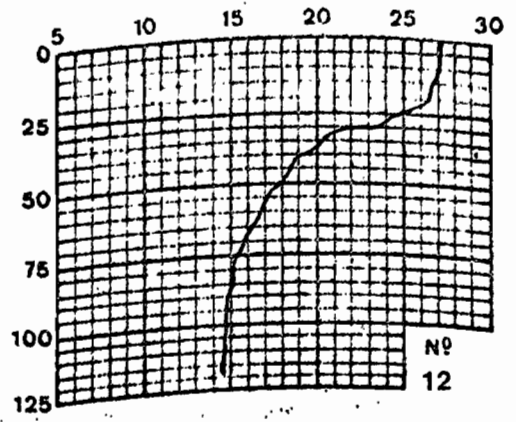
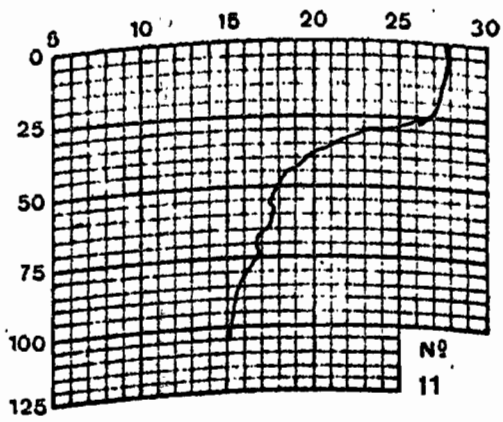


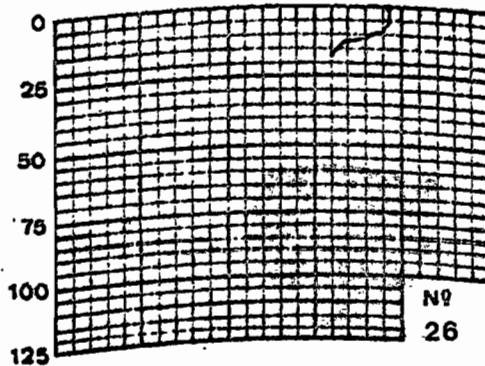
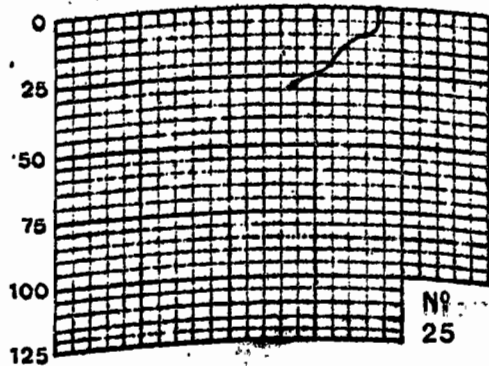
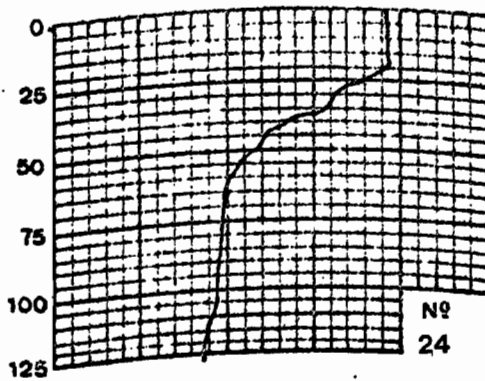
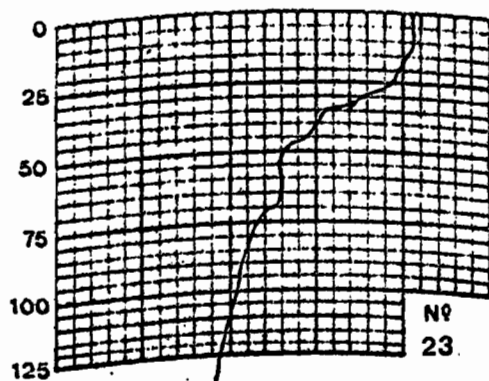
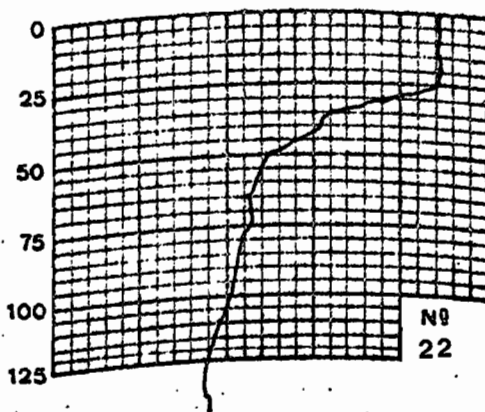
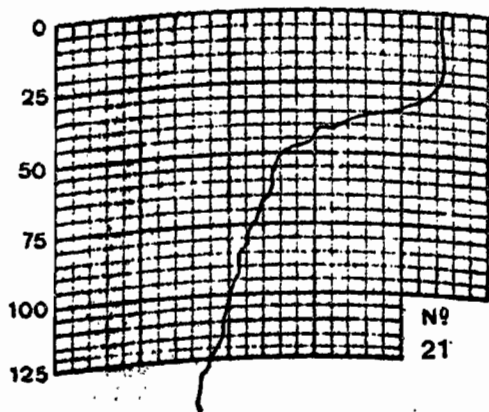
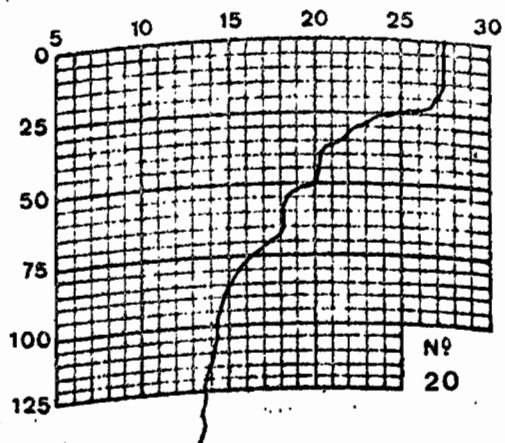
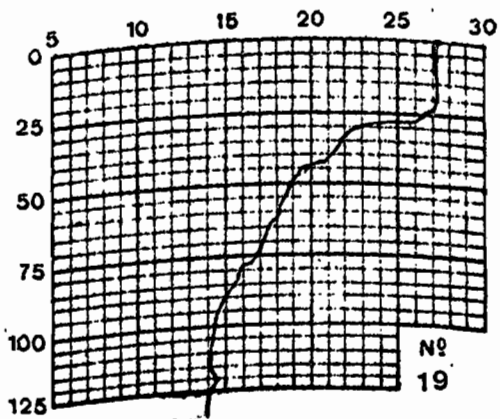
Fig. 16  
 ISOHALINES de SURFACE  
 CAP. ECHOLES- NORD- 2

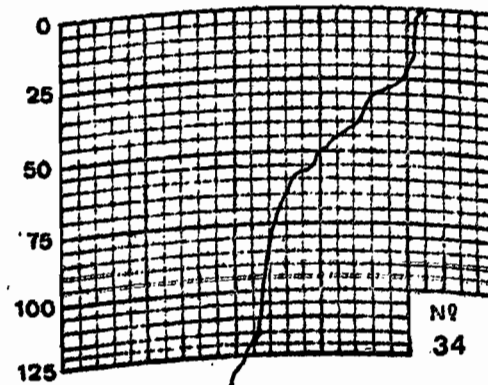
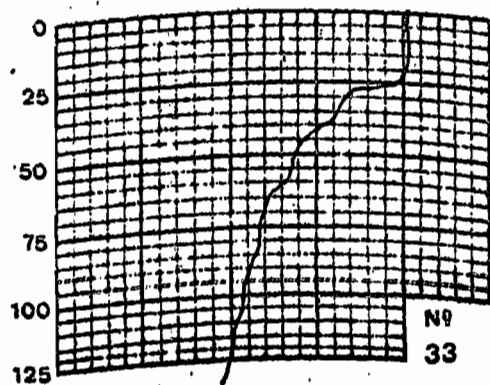
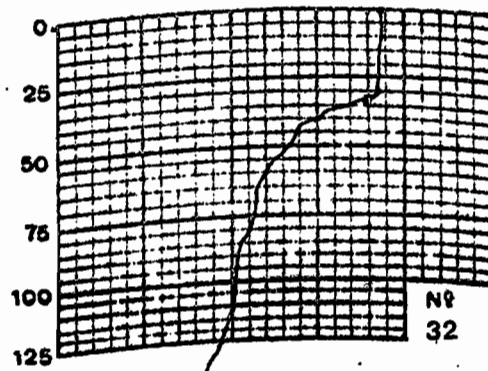
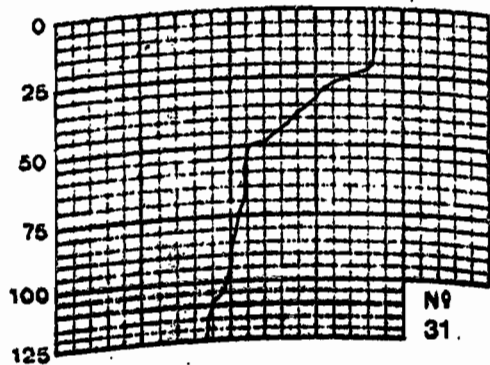
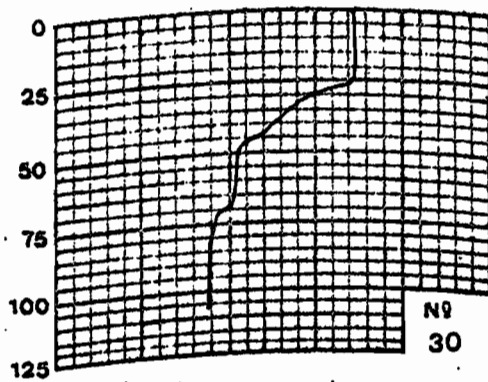
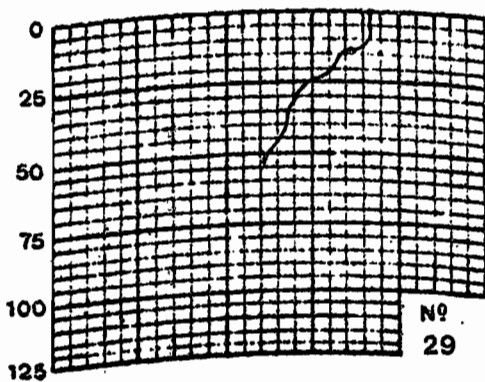
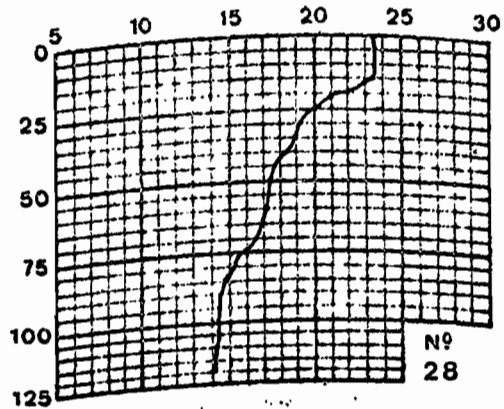
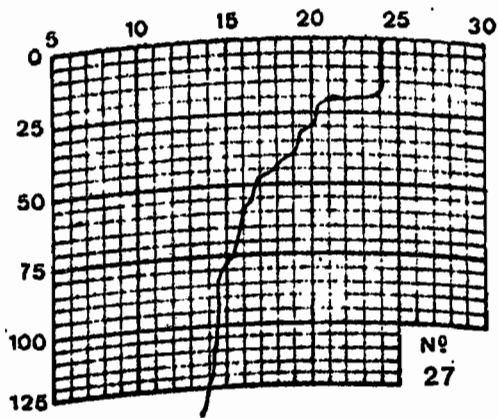




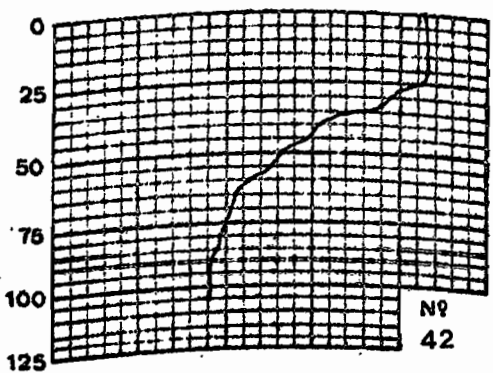
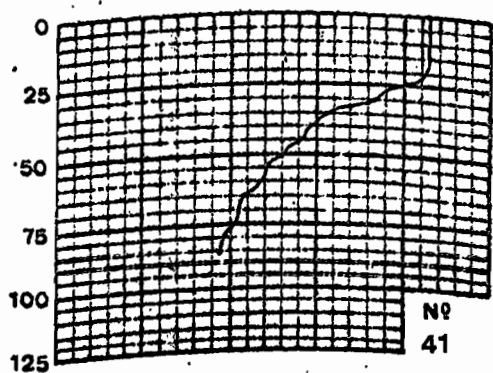
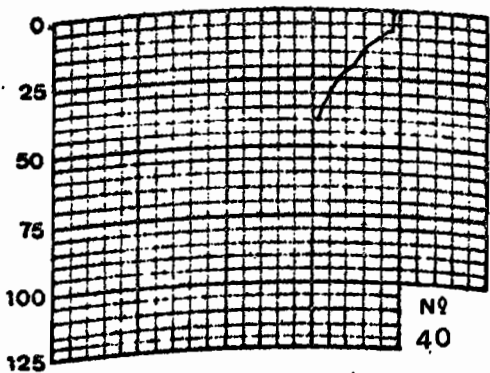
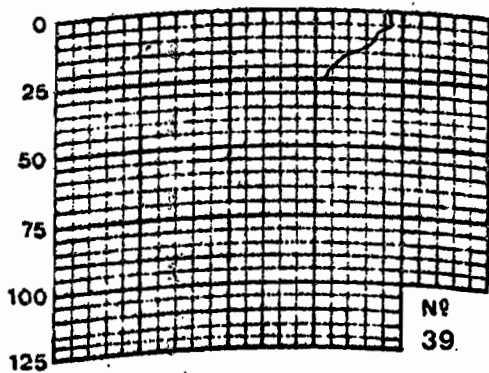
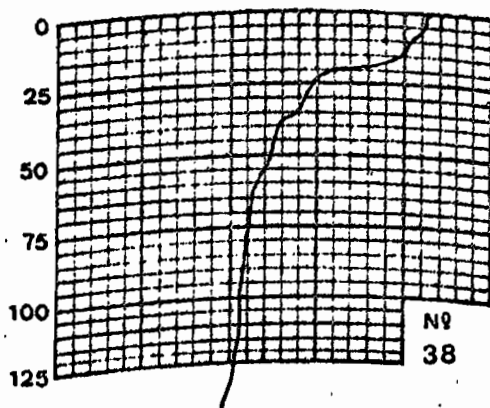
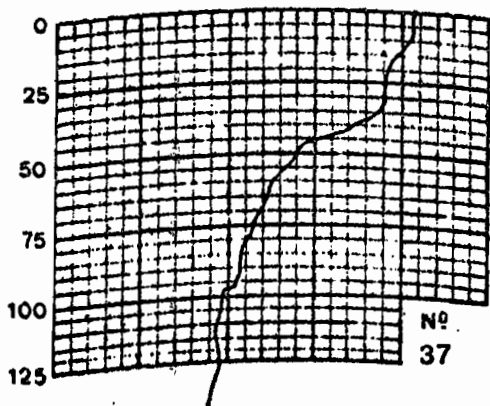
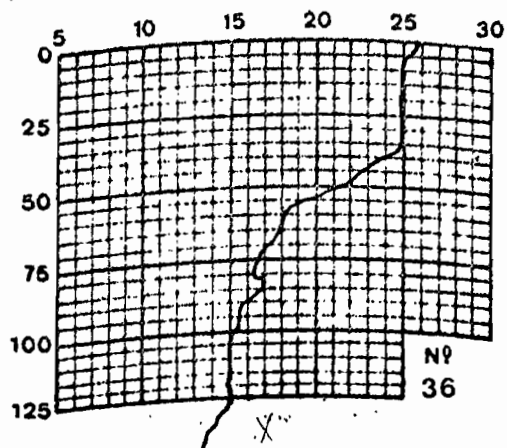
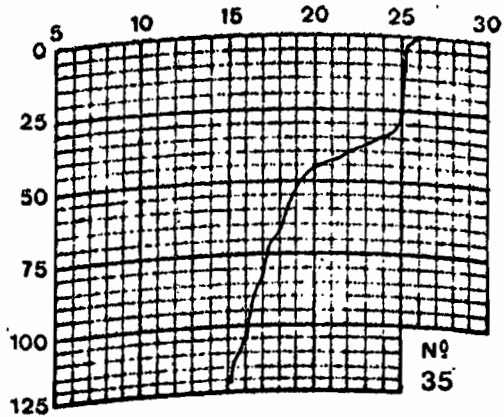
2231 - Fig. 18- BATHYTHERMOGRAMMES CAPRICORNE- ECHOLES -

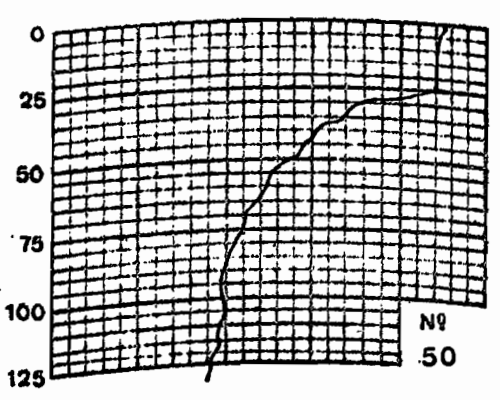
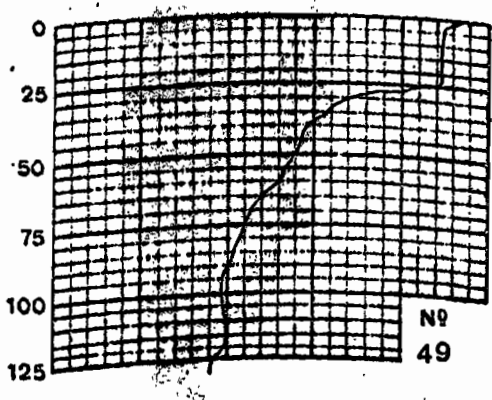
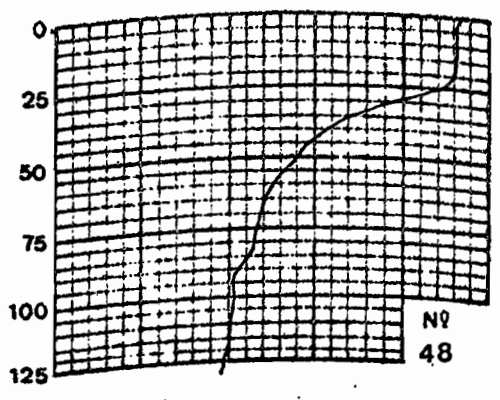
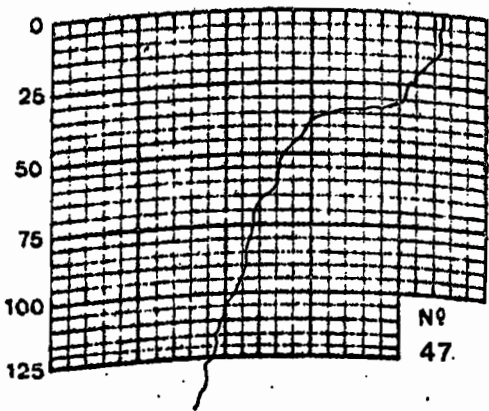
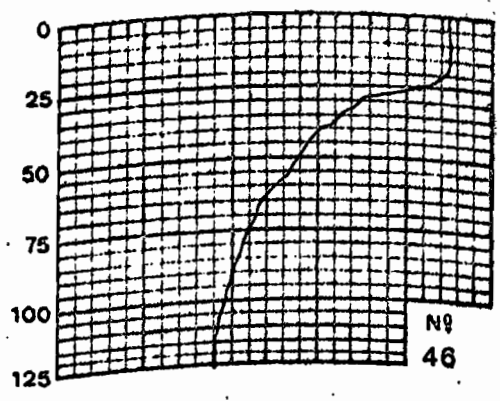
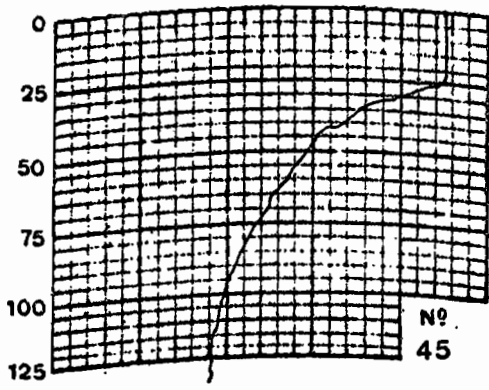
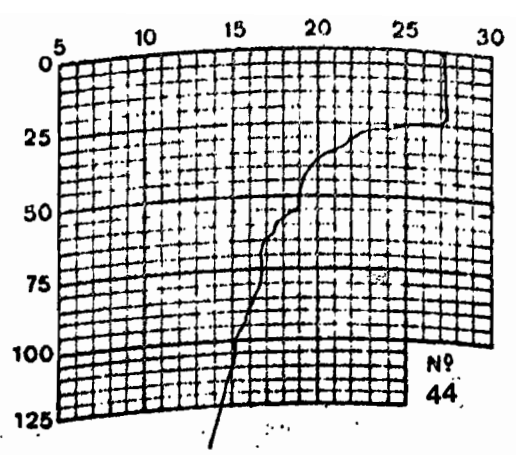
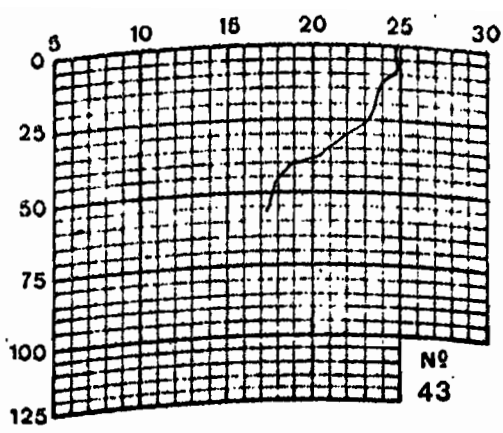




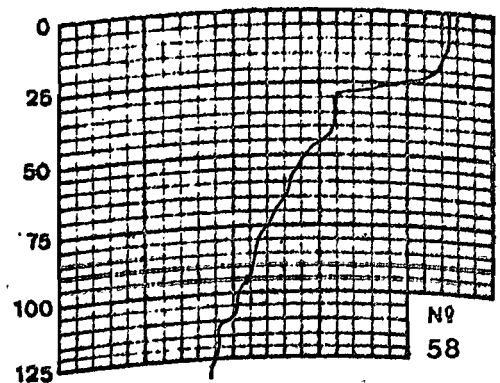
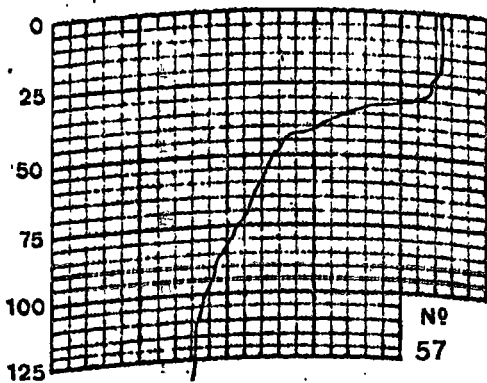
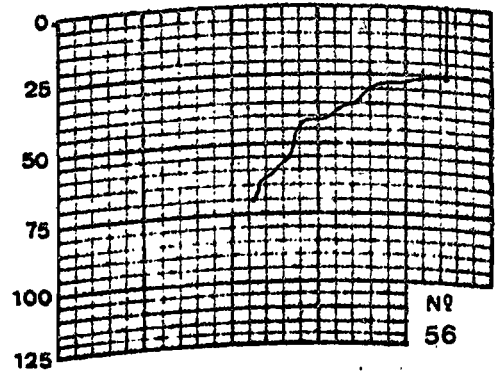
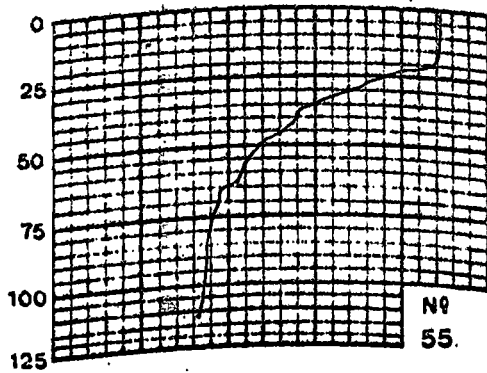
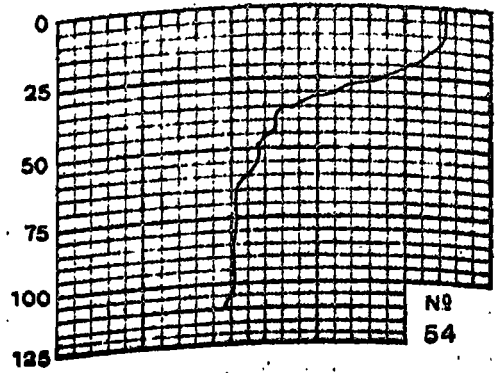
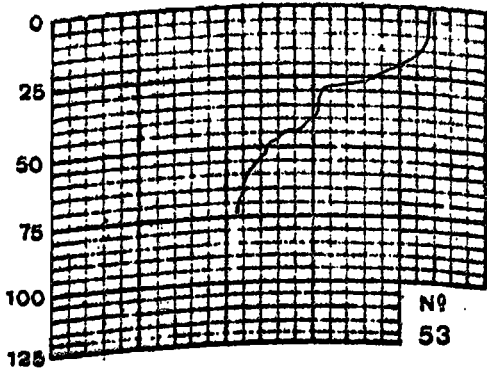
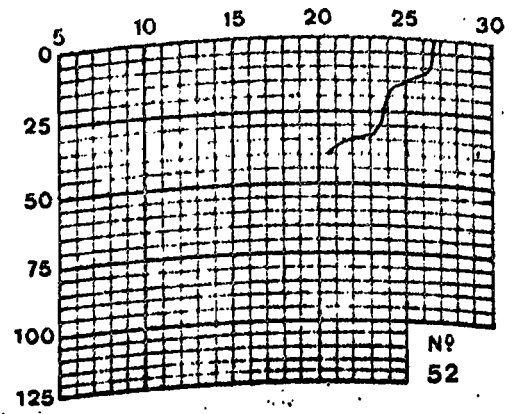
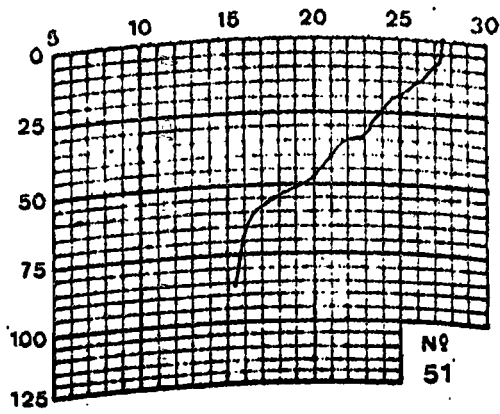


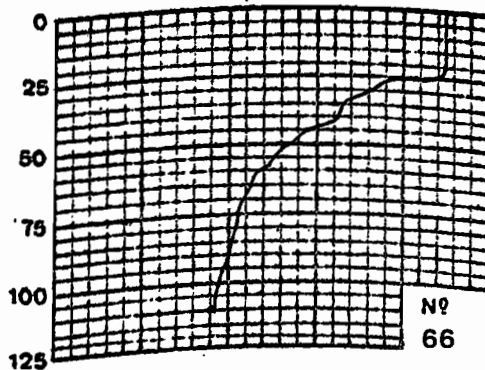
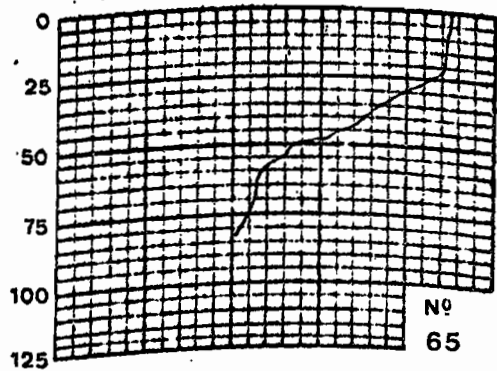
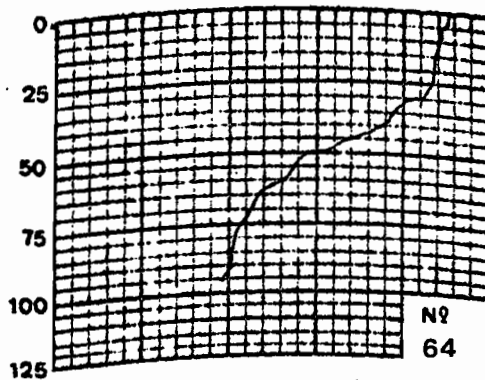
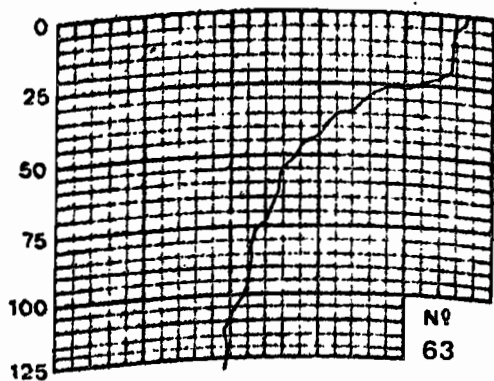
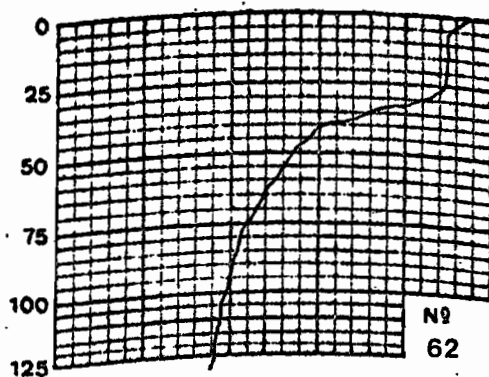
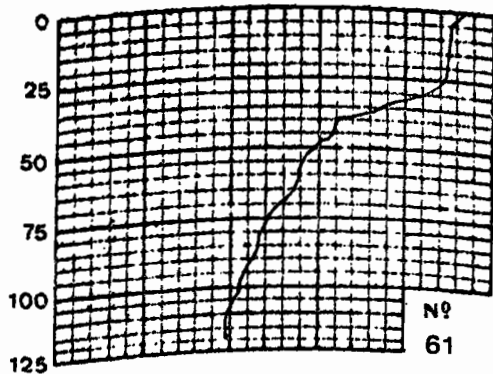
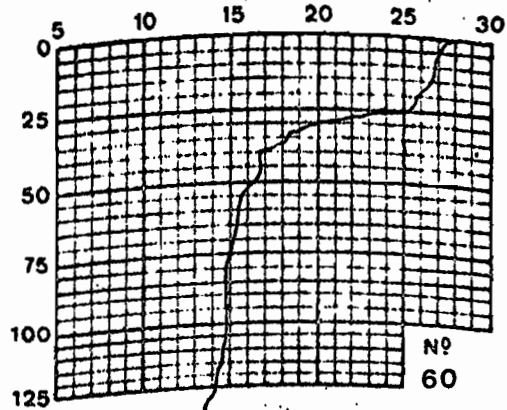
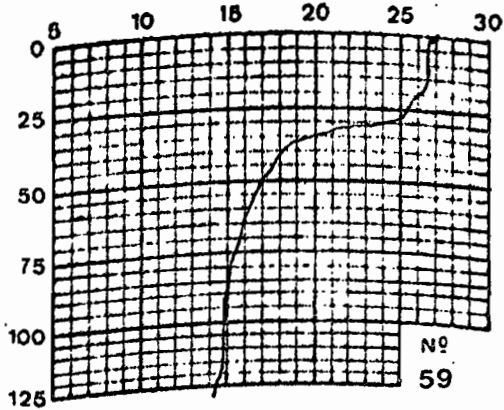


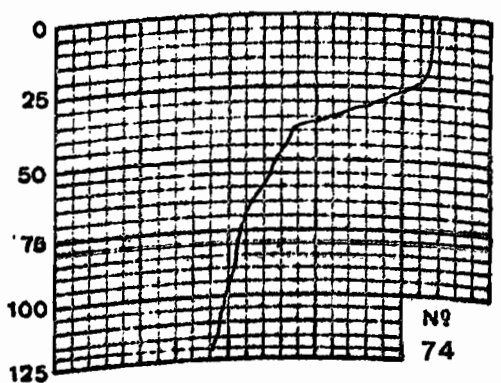
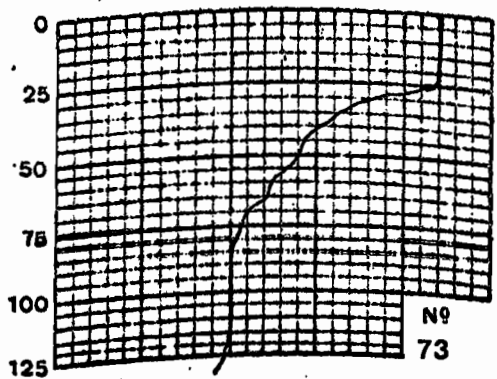
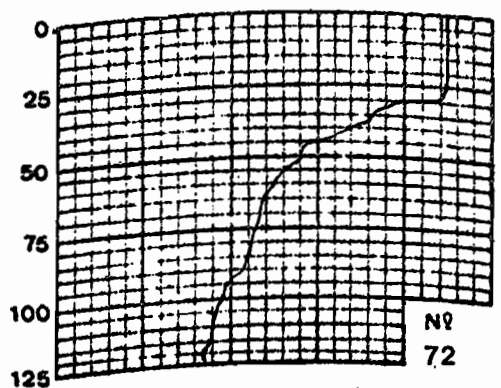
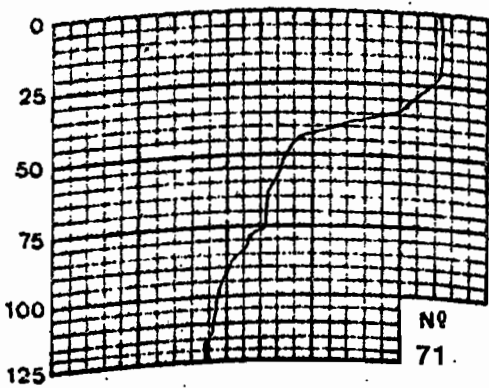
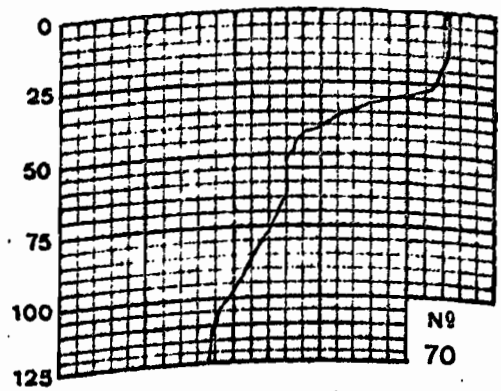
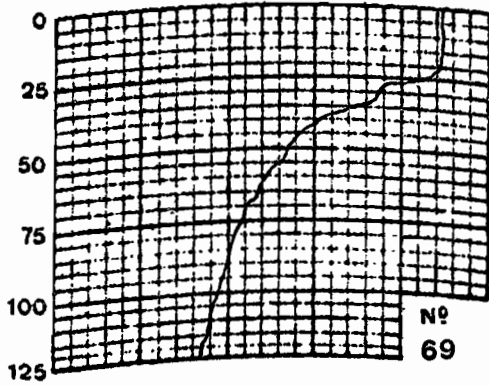
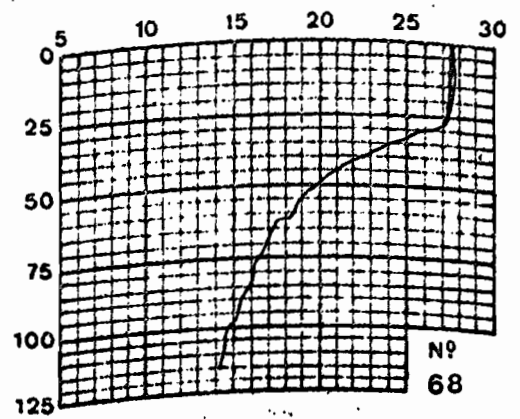
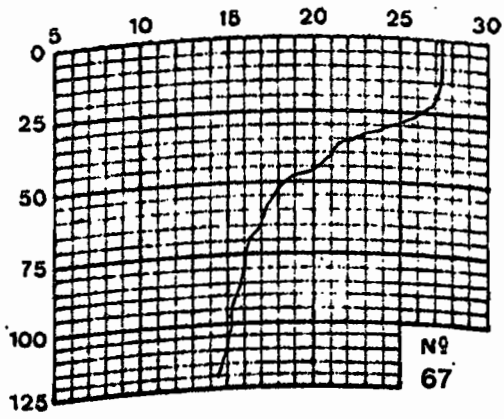


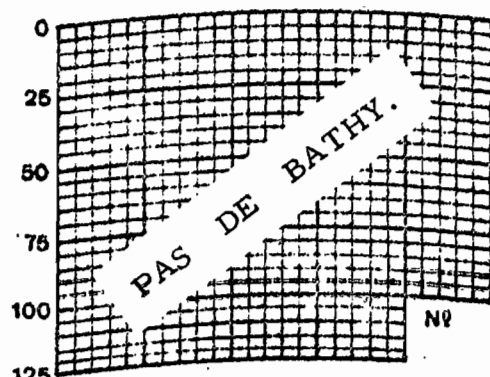
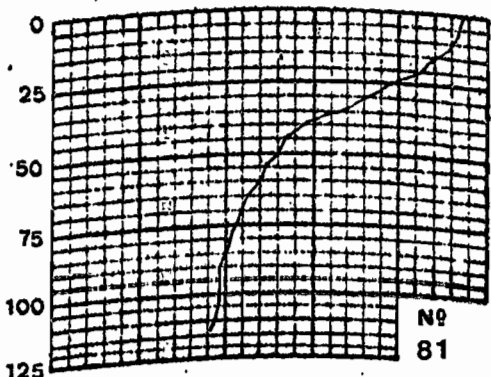
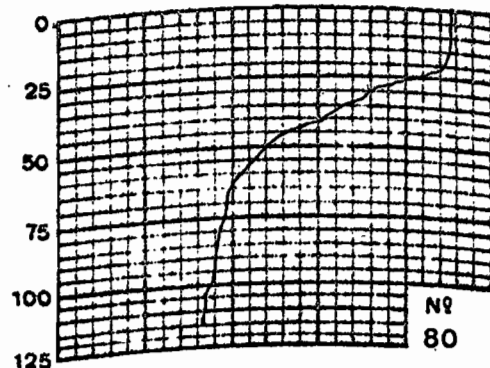
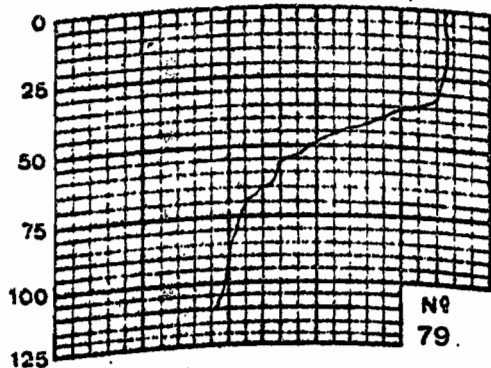
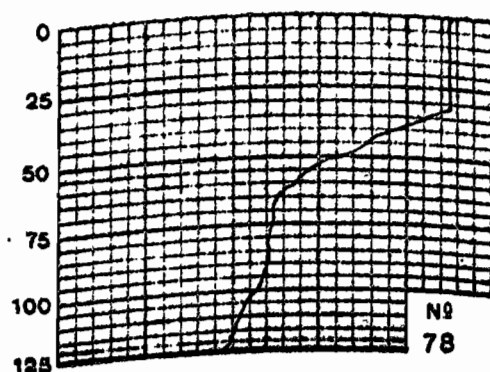
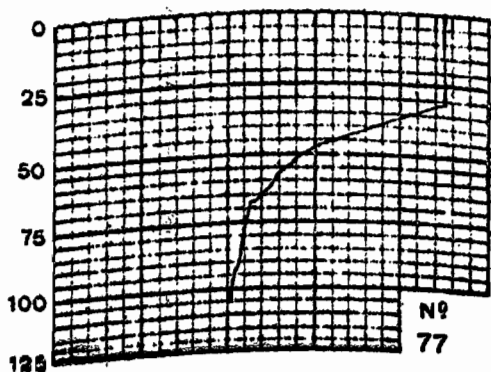
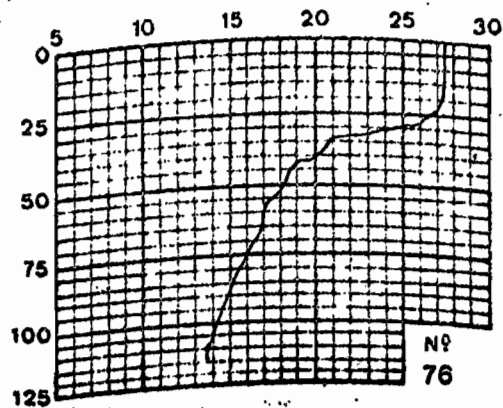
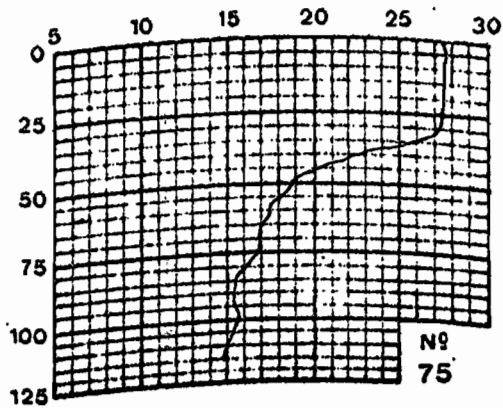


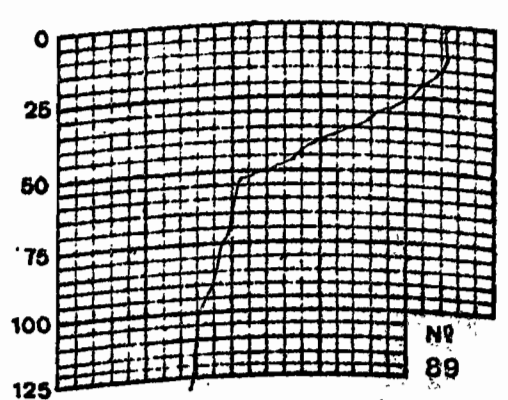
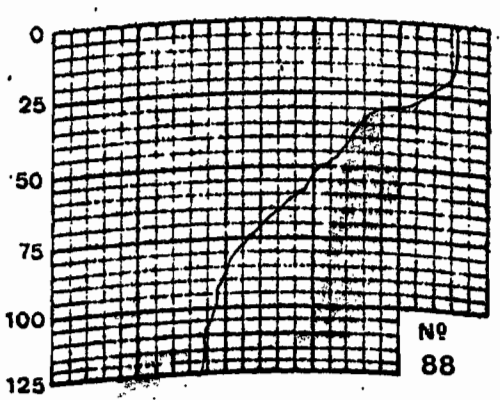
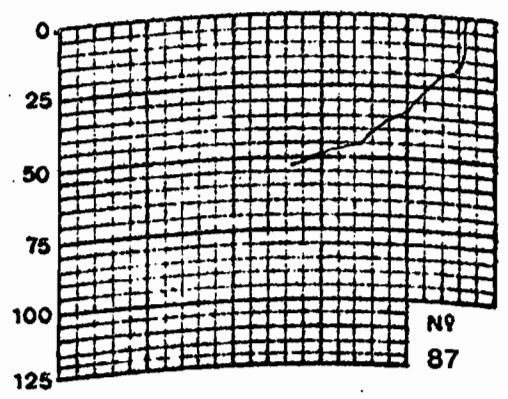
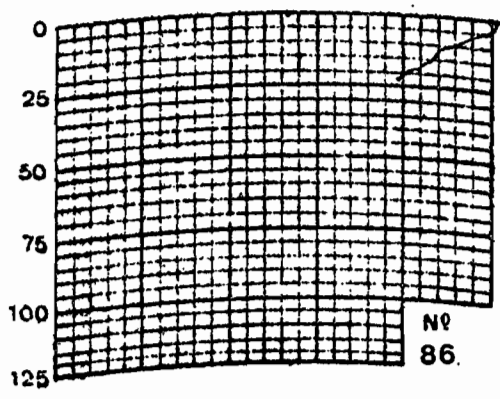
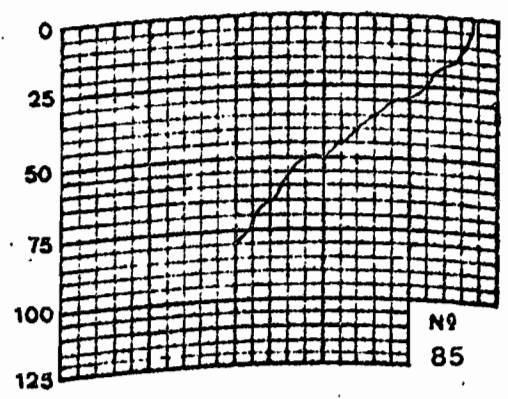
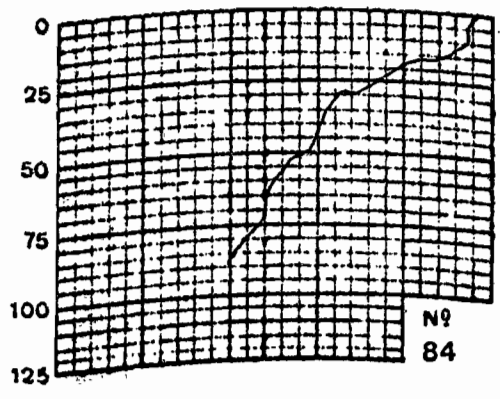
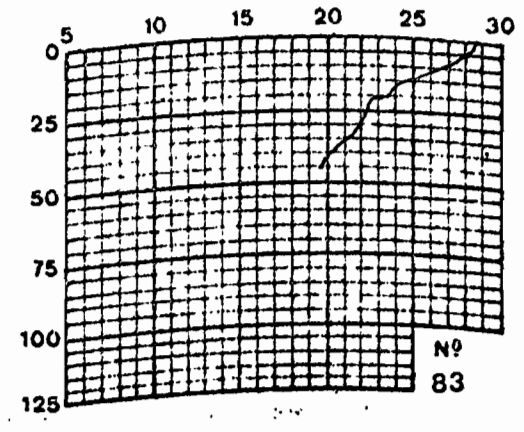
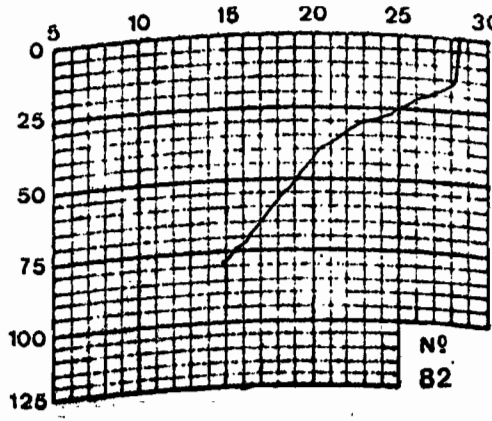


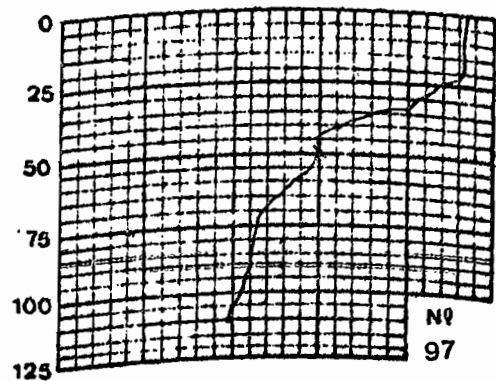
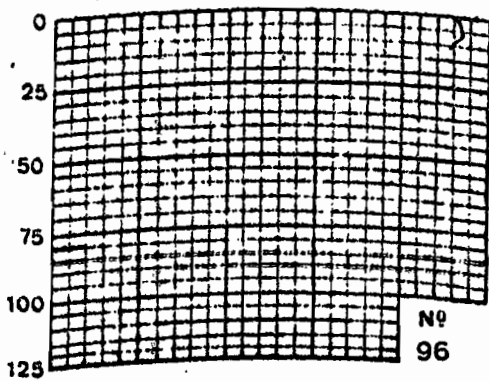
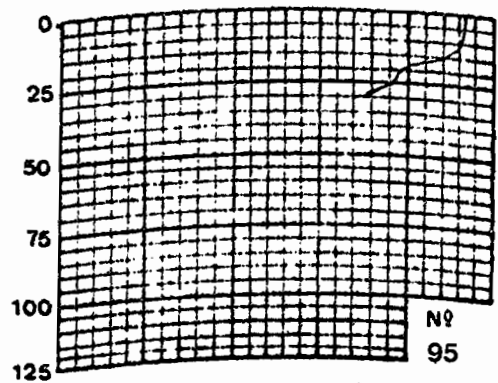
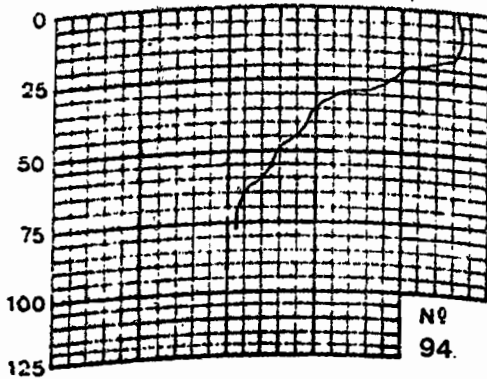
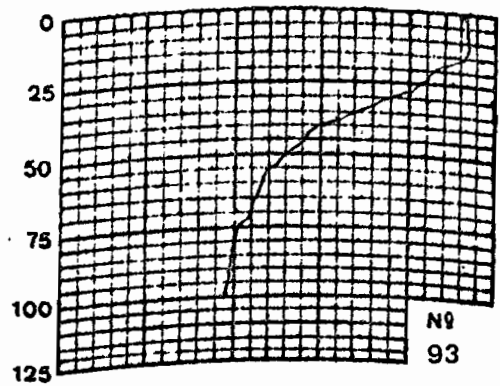
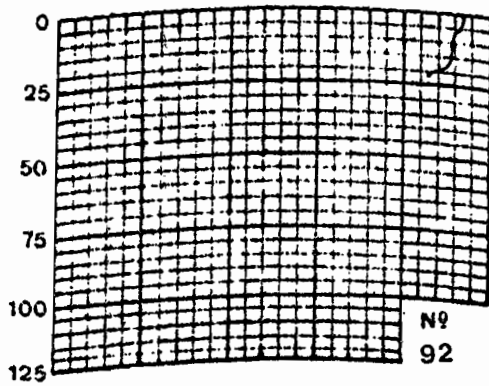
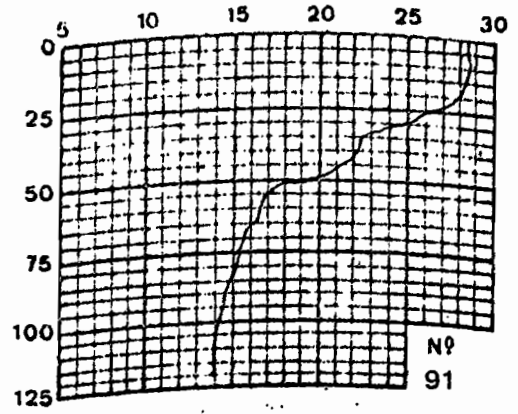
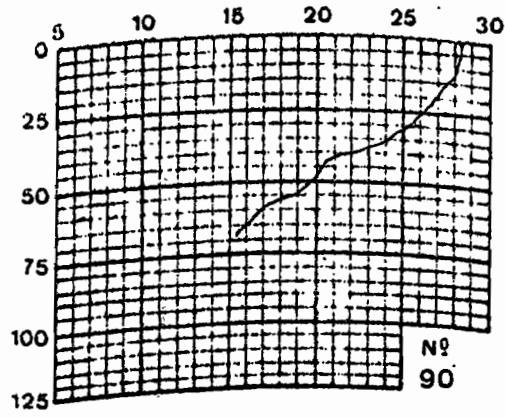




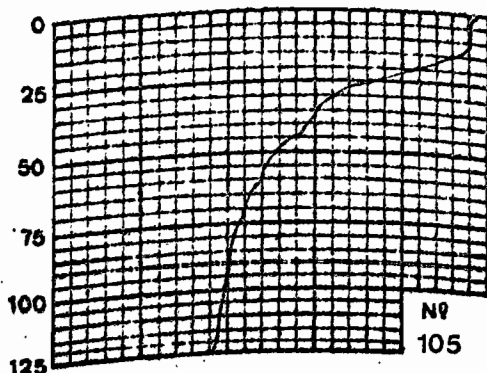
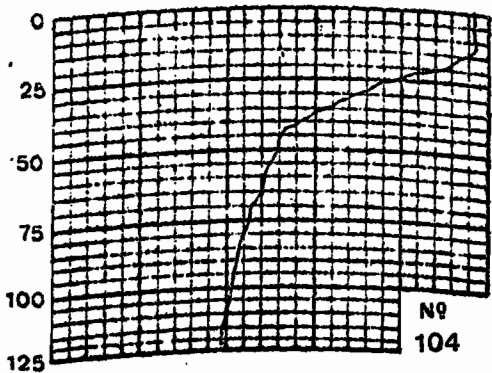
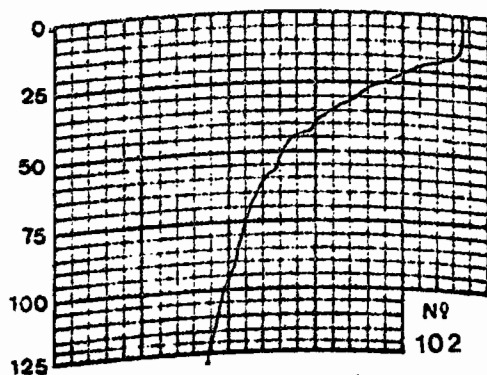
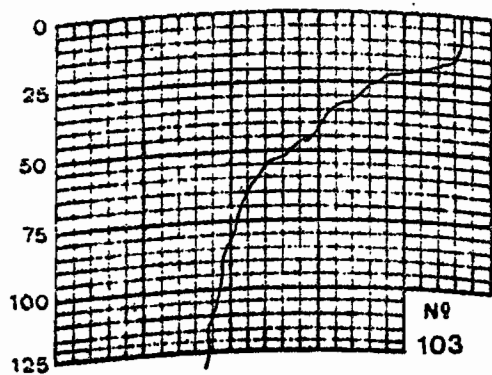
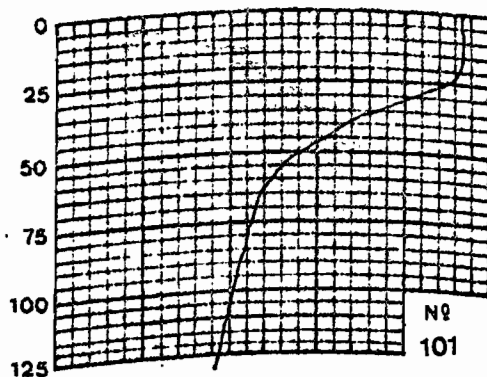
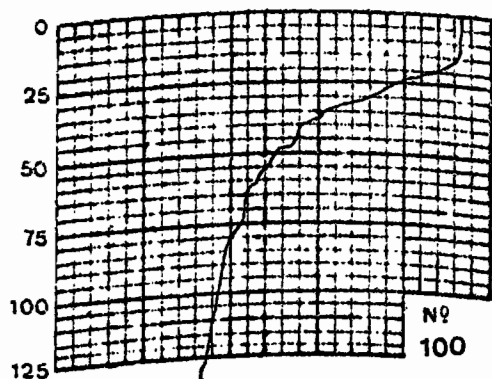
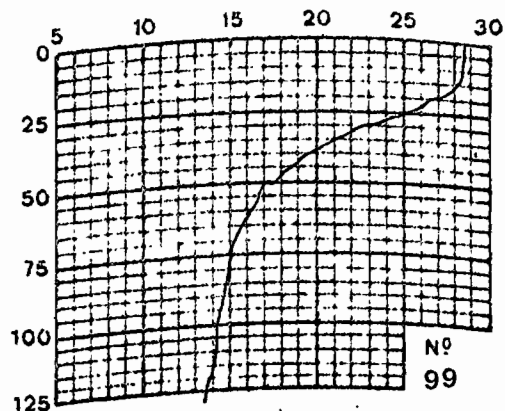
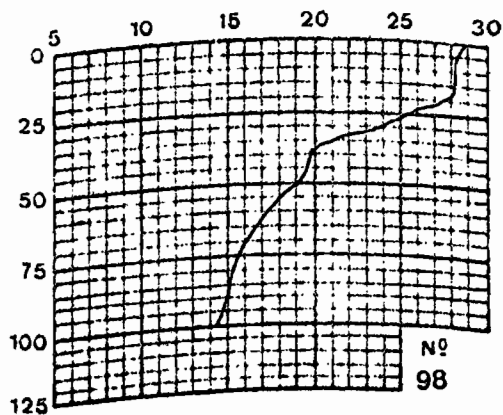


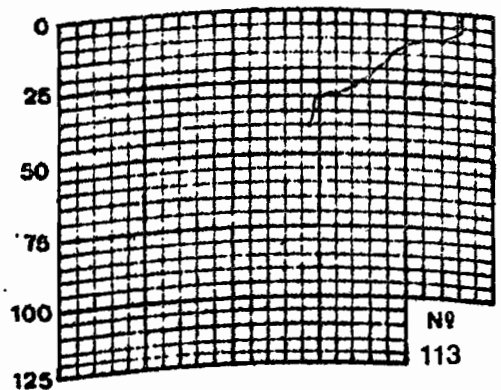
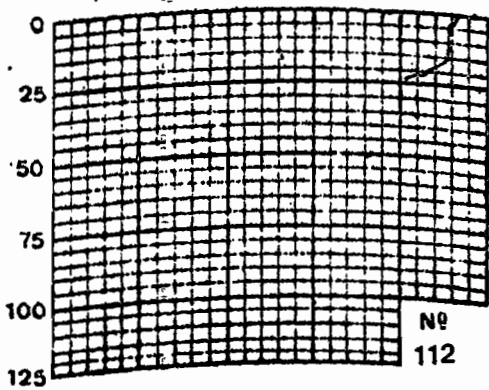
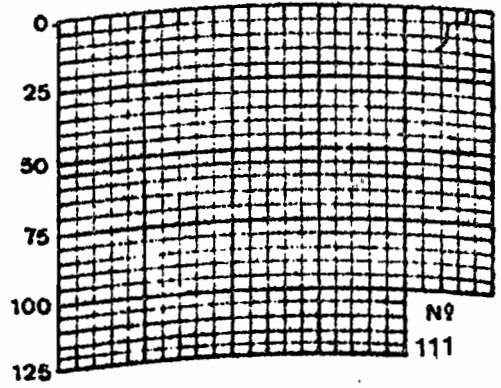
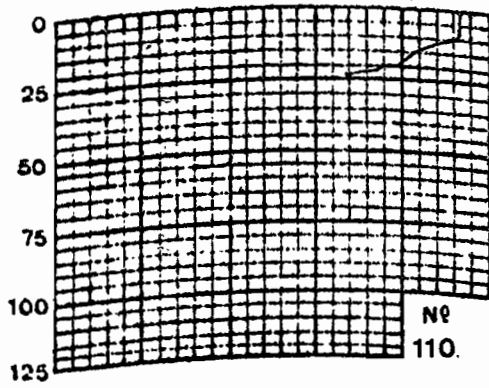
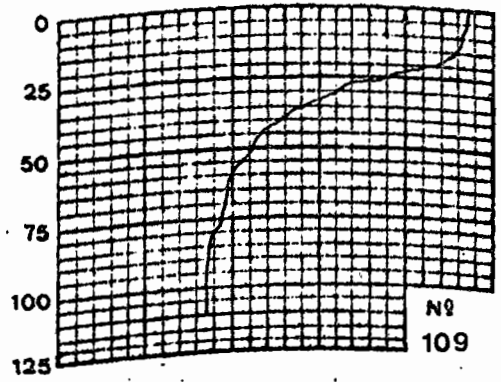
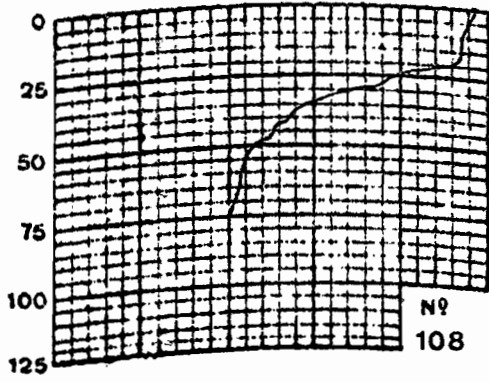
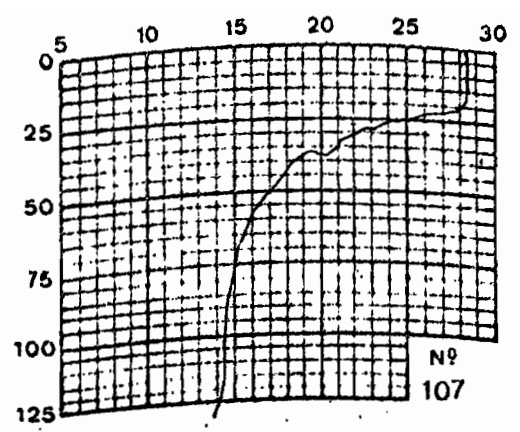
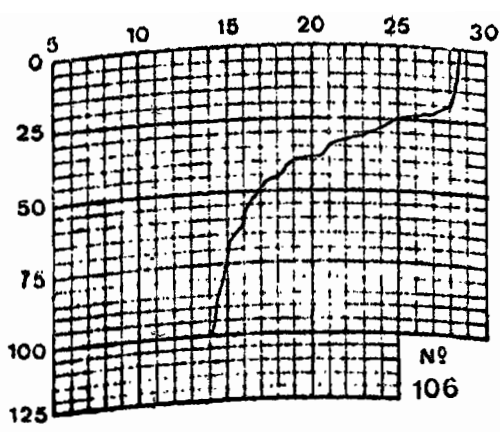




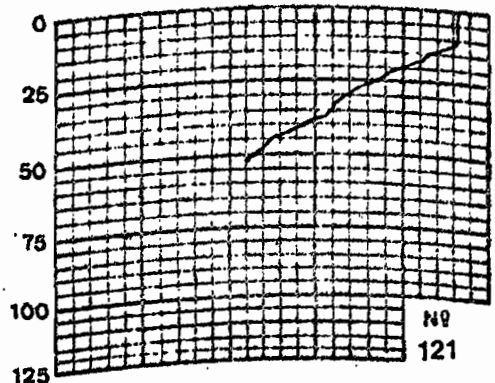
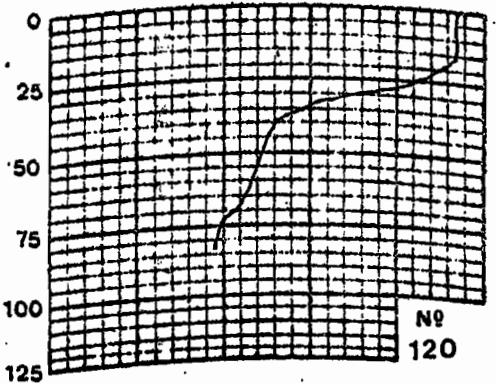
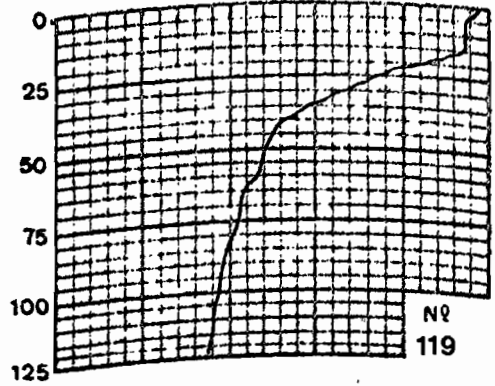
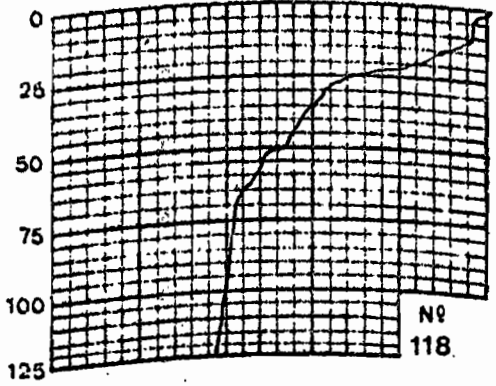
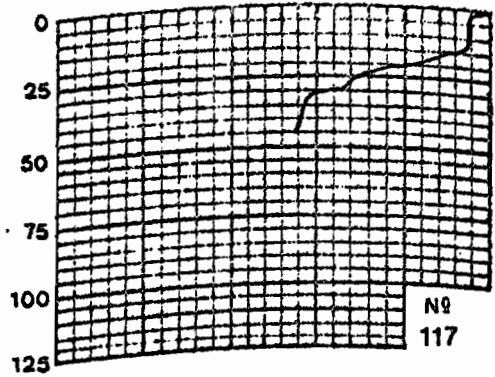
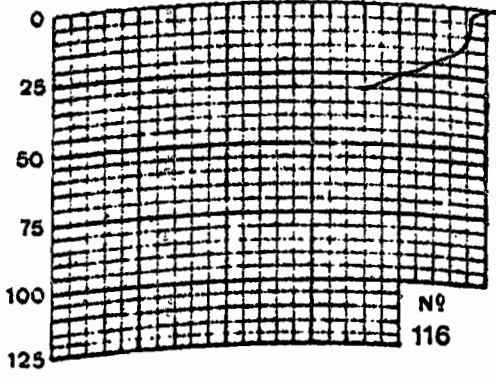
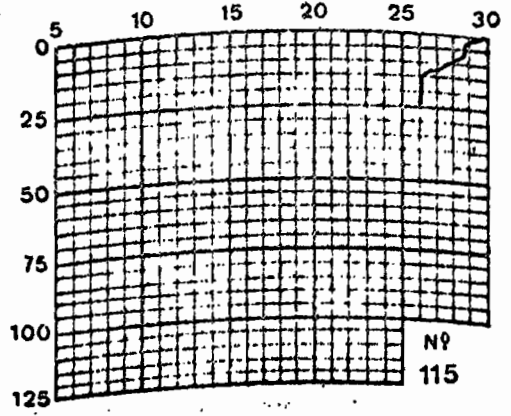
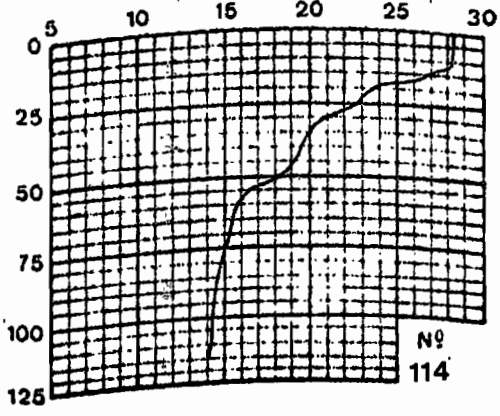


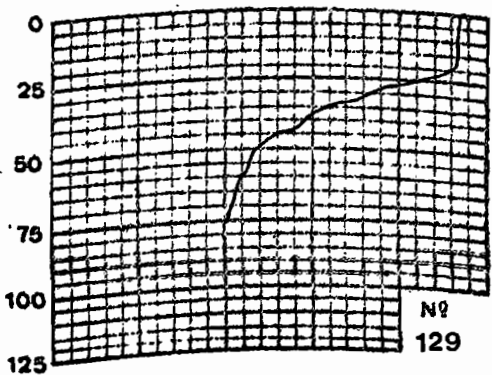
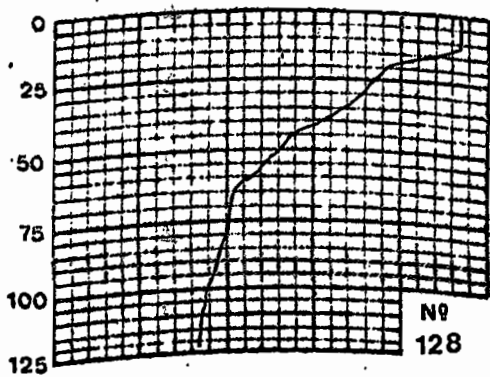
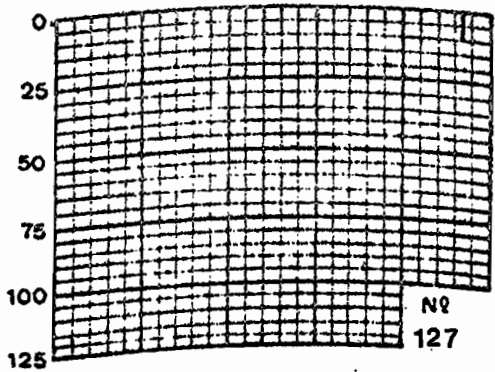
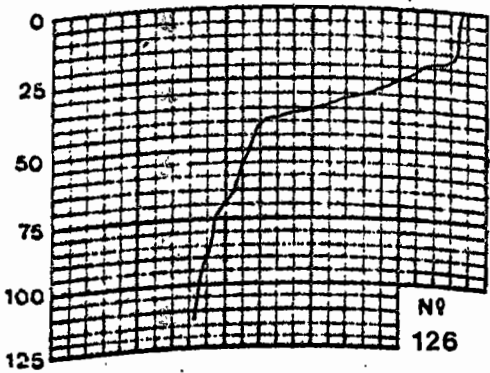
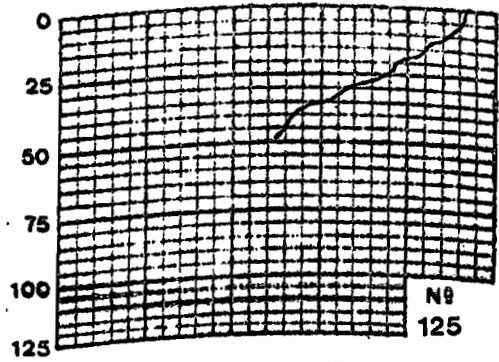
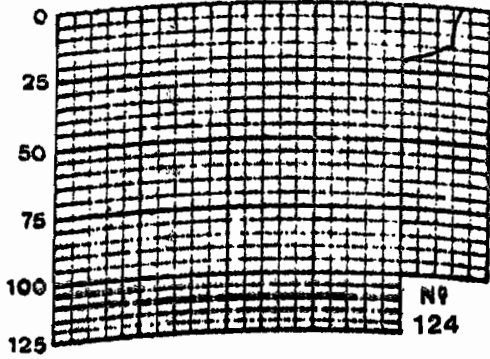
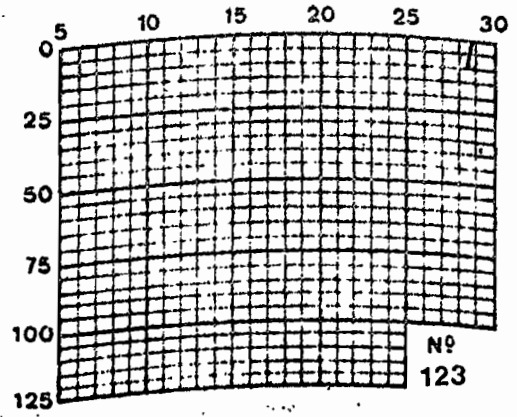
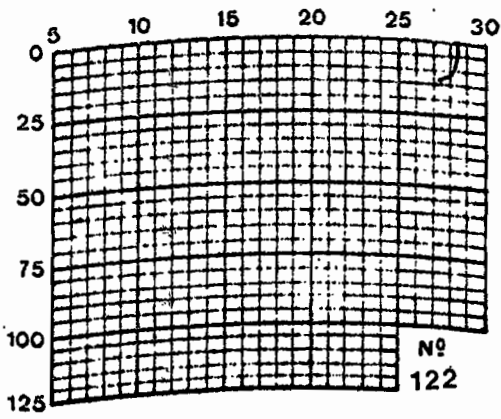


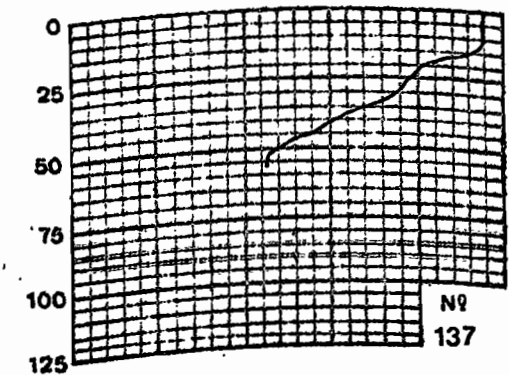
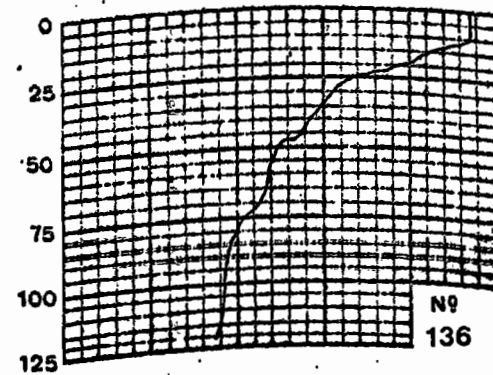
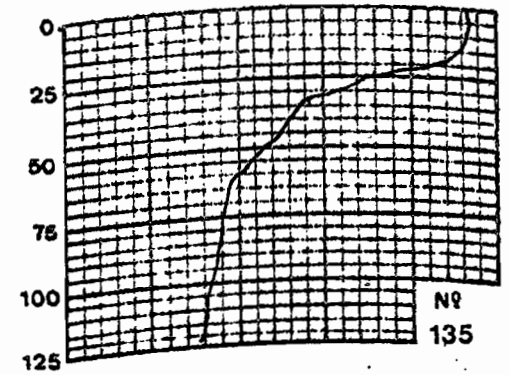
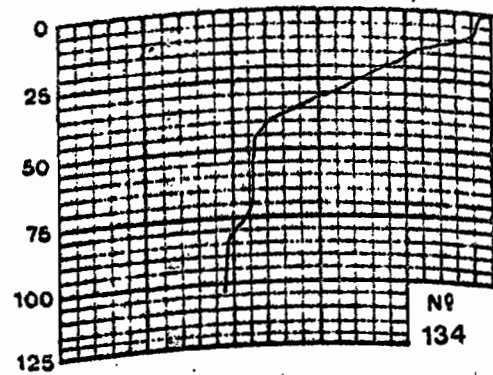
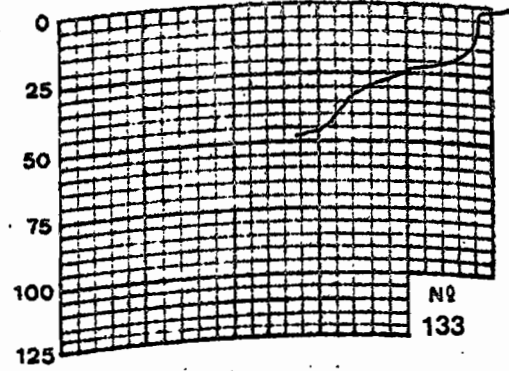
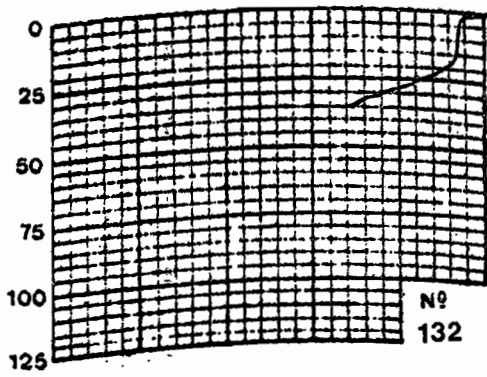
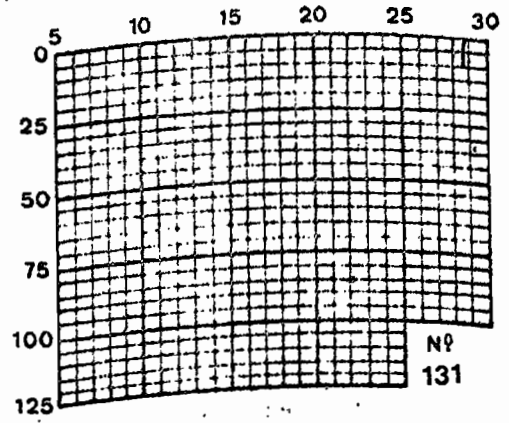
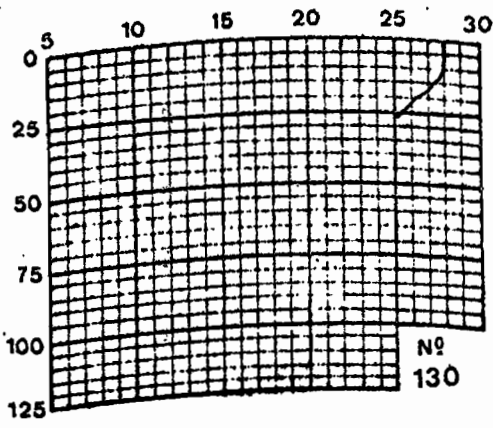


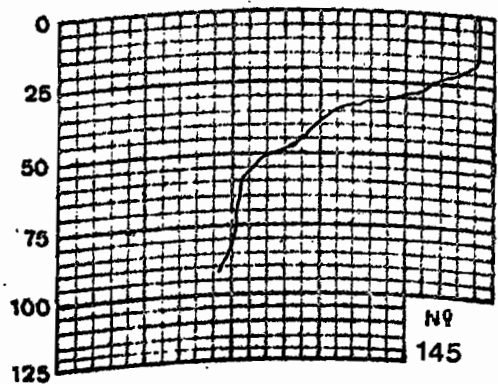
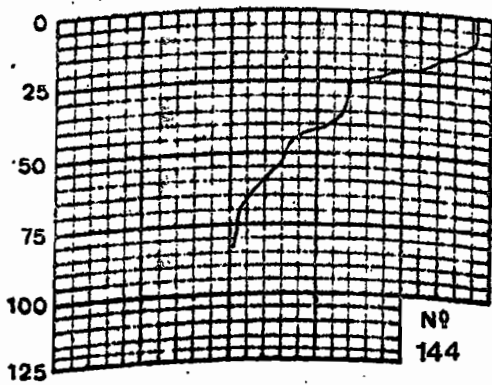
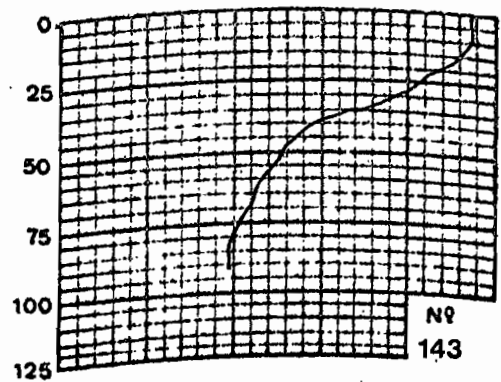
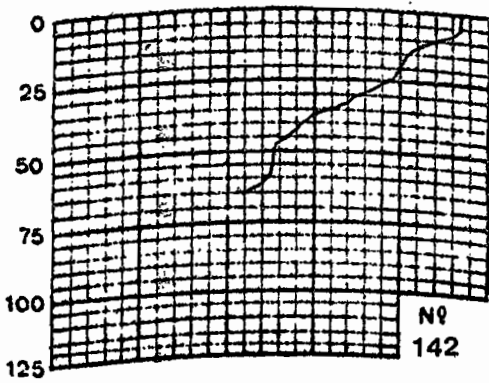
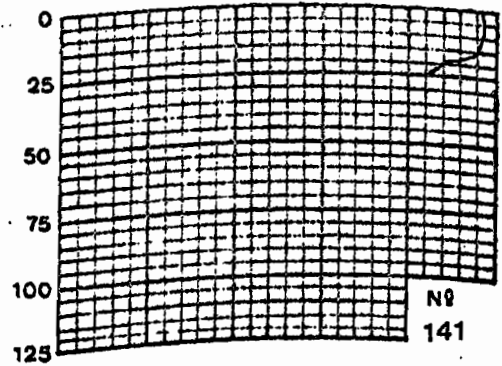
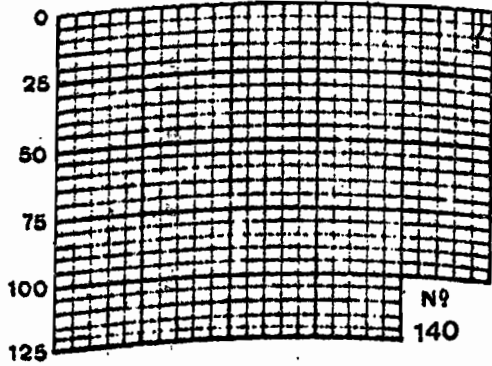
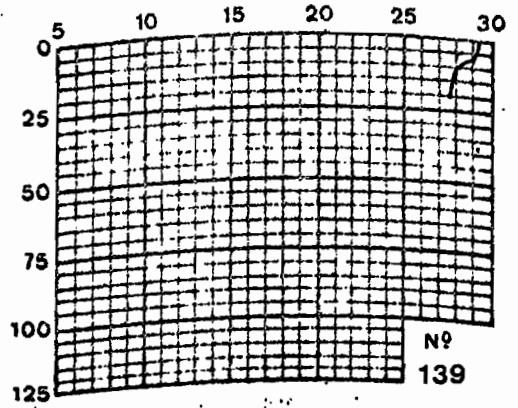
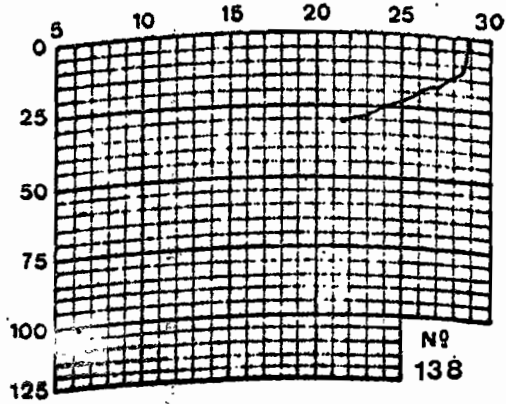


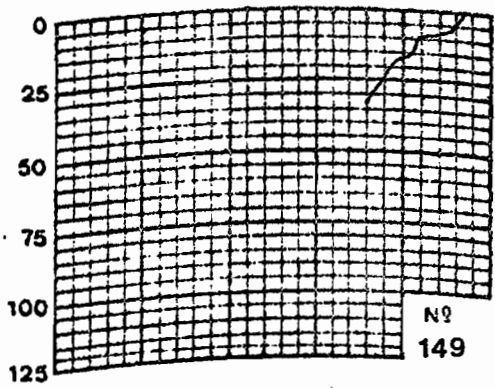
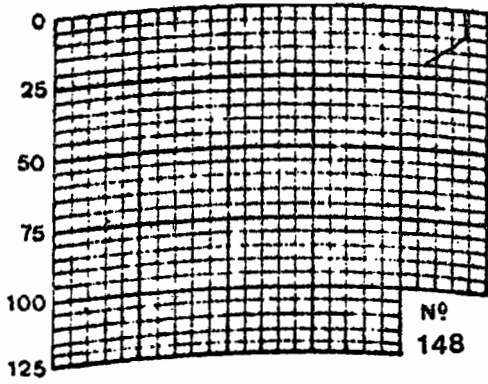
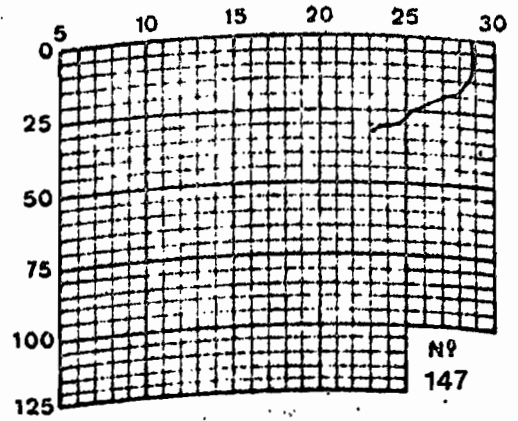
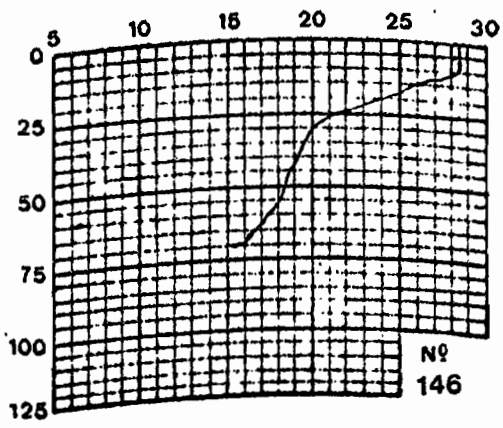












2231 - BATHYTHERMOGRAMMES CAPRICORNE - ECHOLES -