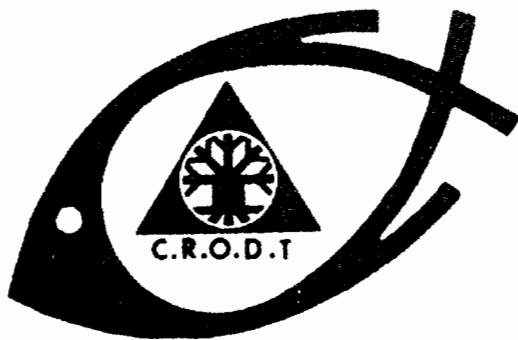


M. PRIVE
J.J. WAGNER

CROISIERE CAPRICORNE 77.03
RESULTATS D'OBSERVATIONS
BATHYTHERMOGRAMMES
(16 AVRIL - 10 MAI 1977)



CENTRE DE RECHERCHES OCEANOGRAPHIQUES DE DAKAR - THIAROYE

INSTITUT SENEGALAIS DE RECHERCHES AGRICOLES *

ARCHIVE

N° 50

JUIN 1977

INSTITUT SENEGALAIS DE
RECHERCHES. AGRICOLES

Croisière CAPRICORNE 77.03 - Avril - Mai 77
Résultats d'Observations - bathythermogrammes

par

M. PRIVE et J.J. WAGNER

Centre de Recherches Océanographiques
de DAKAR-THIAROYE
(Sénégal)

Archive

N° 50

JUIN 1977

CROISIERE CAPRICORNE 77.03
RESULTATS D'OBSERVATIONS - BATHYTHERMOGRAMMES

La campagne Cap. 77.03, missions d'échoprospection a eu lieu du 16 avril au 10 mai 1977. Elle a couvert l'ensemble du plateau continental ouest-africain compris entre les parallèles 10°30 et 18°45 nord. (fig.1).

- Au cours de cette mission, 168 bathythermogrammes(B.T.) espacés de 8 à 12 miles, ont été réalisés. L'appareil utilisé était le B.T. T.S.K. N° 2231, de 0 à 125 mètres, appartenant au CRO d'Abidjan.

- La série de Tableaux (partie nord et partie sud) représente :

- Les numéros et les positions des différents B.T.

- La température de surface

- La thermocline déduite des bathythermogrammes.

- La profondeur relevée sur le sondeur du Capricorne (y ajouter 4 mètres pour la profondeur réelle).

- La série de planches (figs 2A à 2D) représente la position des B.T.

- La série de planches (figs 3A à 3D) représente les isothermes de surface.

- La série de planches (figs 41 à 4D) représente la situation de la thermocline(2e méthode adoptée d'après WYRTKI).

- La dernière série de planches représente tous les bathythermogrammes du N° 1 au N° 168 (plaque B.T. agrandis 2 fois et demie).

- On trouvera tous les résultats d'échoprospection dans l'archive N° 51.

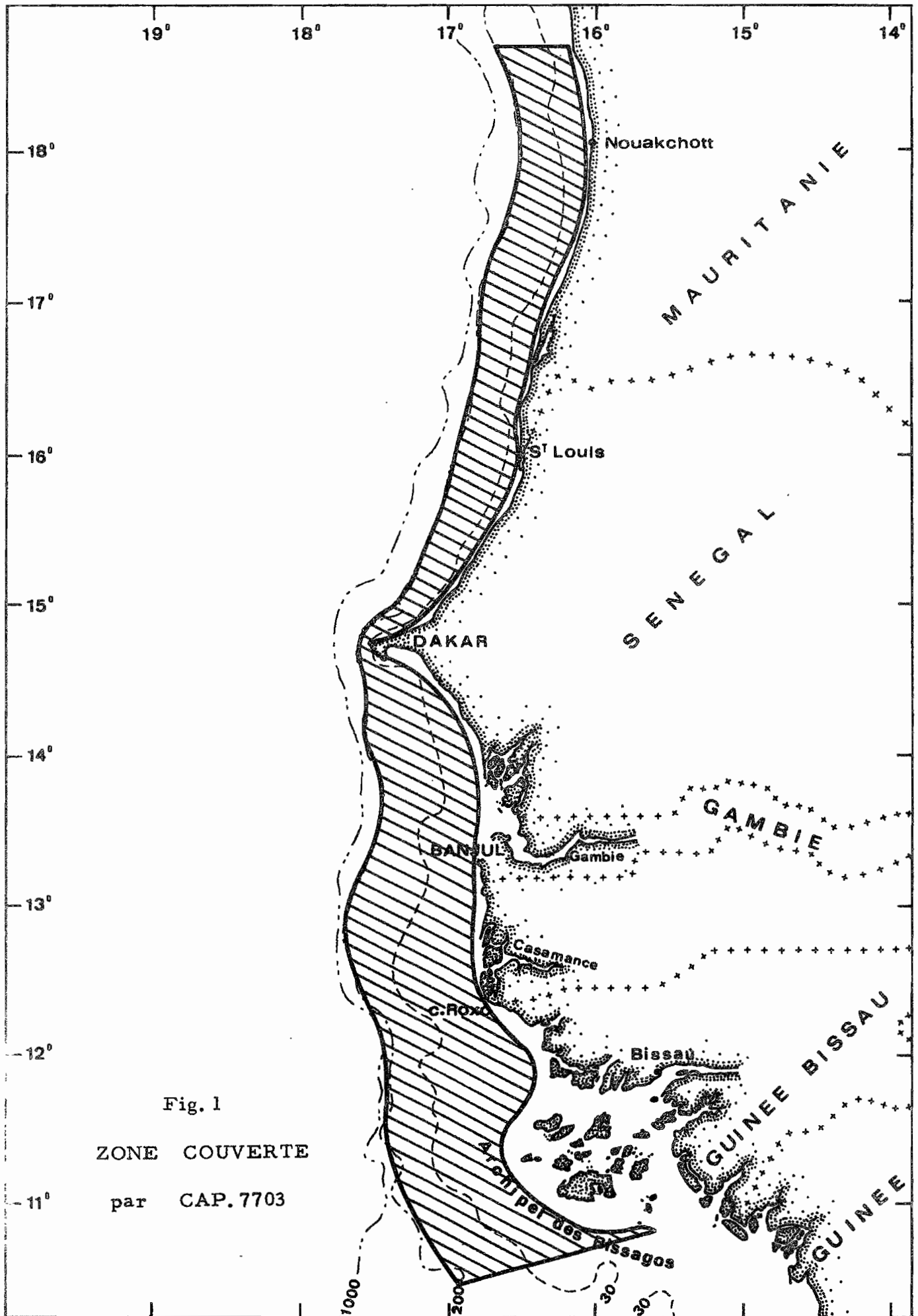


Fig. 1
 ZONE COUVERTE
 par CAP. 7703

CAP. 77.03

BATHYTHERMOGRAPHES N° 2231

DATE	HEURE	POSITIONS		FOND	PROF. THERMO- CLINE	PLAQUE BT N°	T° SURFACE
		LAT.	LONG.				
17.4.77	7.50	12.12	16.53	8	CH 6*	1	22.7
"	8.30	12.12	17.02	11	7	2	21.8
"	9.30	12.11	17.11	41	12	3	21.2
"	10.35	12.10	17.23	200	20	4	22.9
"	11.35	12.00	17.23	200	10	5	22.5
"	12.50	12.00	17.10 5	50	7	6	22.8
"	13.50	12.00	16.59	12	8	7	24.2
"	14.55	12.00	16.50	10	15	8	25.3
"	16.20	11.59	16.37	9	CH10	9	25.9
"	17.40	11.50	16.44	8	CH10	10	25.6
"	19.00	11.50	16.56	11	CH10	11	23.7
"	20.15	11.50	17.08	27	12	12	22.3
18.4.77	07.20	11.40	16.44	15	CH 7	13	24.7
"	08.30	11.37	16.50	20	CH14	14	23.0
"	09.40	11.30	17.01	22	10	15	21.9
"	10.40	11.30	17.11	46	20	16	22.6
"	11.45	11.30	17.22	200	20	17	23.5
"	12.45	11.20	17.20	140	20	18	24.2
"	13.45	11.19	17.11	50	25	19	23.6
"	14.35	11.18	17.03	22	12	20	22.0
"	15.05	11.18	16.58	10	-	PS*	21.4
"	16.25	11.07	16.51	18	-	PS	21.4
"	16.45	11.08	16.56	22	CH 12	21	21.7
"	17.50	11.08	17.07	50	17	22	23.8
"	18.55	11.10	17.18	145	31	23	24.5

OBSERVATIONS :

*P.S. = Prélèvement de surface seulement.

*C.H. = Couche homogène de moins d'un degré.

BATHYTHERMOGRAPHES (Suite)

DATE	HEURE	POSITIONS		FOND	PROF. THERMO- CLINE	PLAQUE BT N°	T° SURFACE
		LAT.	LONG.				
19.4.77	07.10	10.17	16.47	200	27	24	23.3
"	08.40	10.06	16.38	175	12	25	22.6
"	09.50	10.06	16.38	171	16	26	23.0
"	10.50	10.27	16.42	97	23	27	23.0
"	12.35	10.35	16.43	59	17	28	21.8
"	13.35	10.41	16.42	36	16	29	21.7
"	15.15	10.32	16.28	45	17	30	22.0
"	17.50	10.22	16.29	53	15	31	22.0
"	18.55	10.07	16.29	57	17	32	22.5
"	19.55	10.09	16.23	52	15	33	22.0
20.4.77	07.15	10.37	15.42	18	CH19	34	25.1
"	09.40	10.31	15.46	46	12	35	24.2
"	10.40	10.26	15.56	35	9	36	23.9
"	11.40	10.19	16.04	36	6	37	22.5
"	12.40	10.12	16.12	36	10	38	22.0
"	14.00	10.21	16.11	33	7	39	23.2
"	18.00	10.11	16.20	45	11	40	22.5
"	19.05	10.13	16.28	55	-	PS	24.4
"	19.55	10.20	16.27	52	-	PS	22.0
21.4.77	09.35	10.25	15.44	32	14	41	24.2
"	17.20	10.36	16.15	24	10	42	22.7
"	19.10	10.39	16.25	31	12	43	22.5
"	20.05	10.31	16.24	39	7	44	23.0
22.4.77	02.30	10.28	16.48	181	18	45	22.5
"	04.10	10.40	16.53	143	21	46	22.4
"	05.05	10.39	17.00	200	25	47	23.1
"	06.20	10.48	17.06	188	29	48	22.8
"	07.10	10.48	16.57	124	36	49	21.6
"	08.10	10.50	16.48	56	25	50	22.3
"	11.00	10.49	16.35	19	8	51	22.9
"	12.25	11.00	16.47	19	6	52	22.8
"	13.25	11.00	16.56	43	CH12	53	22.0

BATHYTHERMOGRAPHES (Suite)

DATE	HEURE	POSITIONS		FOND	PROF. THERMO-CLINE	PLAQUE BT N°	T° SURFACE
		LAT.	LONG.				
22.4.77	14.25	11.00	17.06	78	38	54	23.1
"	17.40	11.00	17.16	200	27	55	23.5
23.4.77	06.50	11.46	16.38	9	-	PS	25.2
"	07.50	11.44	16.47	12	CH12	56	24.8
"	09.50	11.41	16.58	20	CH14	57	23.0
"	10.40	10.40	17.05	22	12	58	21.9
"	11.10	11.41	17.13	60	11	59	20.9
"	12.30	11.40	17.20	200	22	60	21.2
"	13.30	11.50	17.22	200	18	61	20.3
24.4.77	05.00	12.13	16.52	7	-	PS	22.2
"	06.00	12.21	16.49	9.5	CH11	62	22.3
"	07.00	12.21	17.00	20.0	CH15	63	20.5
"	08.00	12.21	17.11	22.0	16	64	19.6
"	10.55	12.21	17.24	158	19	65	19.3
"	12.00	12.30	17.34	200	25	66	20.0
"	13.20	12.30	17.19	24	5	67	20.2
"	15.25	12.30	17.09	14	5	68	21.0
"	17.00	12.31	16.55	9	-	PS	24.0
"	18.25	12.40	17.03	11	5	69	21.5
"	19.30	12.40	17.15	20	7	70	20.5
"	20.45	12.40	17.27	35	6	71	20.5
"	22.05	12.40	17.41	200	13	72	21.6
"	23.20	12.50	17.42	200	32	73	20.4
25.4.77	00.25	12.50	17.30	45	18	74	20.5
"	01.25	12.50	17.19	32	15	75	19.9
"	02.30	12.51	17.07	17	10	76	20.2
"	03.55	12.50	16.55	10	10	77	21.5
"	05.00	13.00	16.59	14	8	78	20.9
"	05.45	13.00	17.06	20	8	79	20.2
"	06.45	13.00	17.16	34	11	80	19.2

BATHYTHERMOGRAPHES (Suite)

DATE	HEURE	POSITIONS		FOND	PROF. THERMO- CLINE	PLAQUE BT N°	T° SURFACE
		LAT.	LONG.				
25.4.77	07.50	13.01	17.21	50	15	81	19.6
"	09.05	12.59	17.38	200	16	82	20.1
"	10.20	13.10	17.37	200	9	83	20.8
"	11.30	13.10	17.27	67	15	84	20.3
"	12.30	13.10	17.16	46	11	85	19.8
"	13.40	13.11	17.05	25	7	86	20.7
"	14.50	13.11	16.55	11	7	87	22.5
"	16.40	13.20	16.57	13	8	88	22.2
"	17.50	13.20	17.09	35	5	89	20.6
"	19.00	13.20	17.21	54	5	90	20.6
"	20.00	13.19	17.30	100	19	91	21.0
"	21.20	13.30	17.30	200	9	92	22.2
"	22.35	13.30	17.14	55	10	93	18.9
"	23.45	13.29	17.04	26	10	94	19.5
26.4.77	00.45	13.30	16.53	10	CH 5	95	21.2
"	01.50	13.40	16.50	10	CH 5	96	20.8
"	03.00	13.40	17.01	18	9	97	19.5
"	04.15	13.41	17.13	43	13	98	18.5
"	05.20	13.40	17.26	150	9	99	22.2
"	06.25	13.50	17.27	190	17	100	22.8
"	07.25	13.50	17.16	51	12	101	19.5
"	08.30	13.50	17.04	29	12	102	18.0
"	09.40	13.51	16.54	11	9	103	20.0
"	12.00	14.00	16.54	8	-	PS	20.3
"	13.10	13.59	17.06	26	4	104	20.0
"	14.35	14.00	17.18	61	3	105	21.5
"	17.15	14.00	17.30	200	9	106	24.1
"	18.15	14.11	17.30	100	13	107	23.9
"	19.20	14.10	17.20	73	22	108	20.5
"	20.35	14.10	17.07	20	10	109	18.5
"	21.30	14.10	17.00	11	8	110	18.5
"	22.50	14.20	17.08	19	10	111	18.2

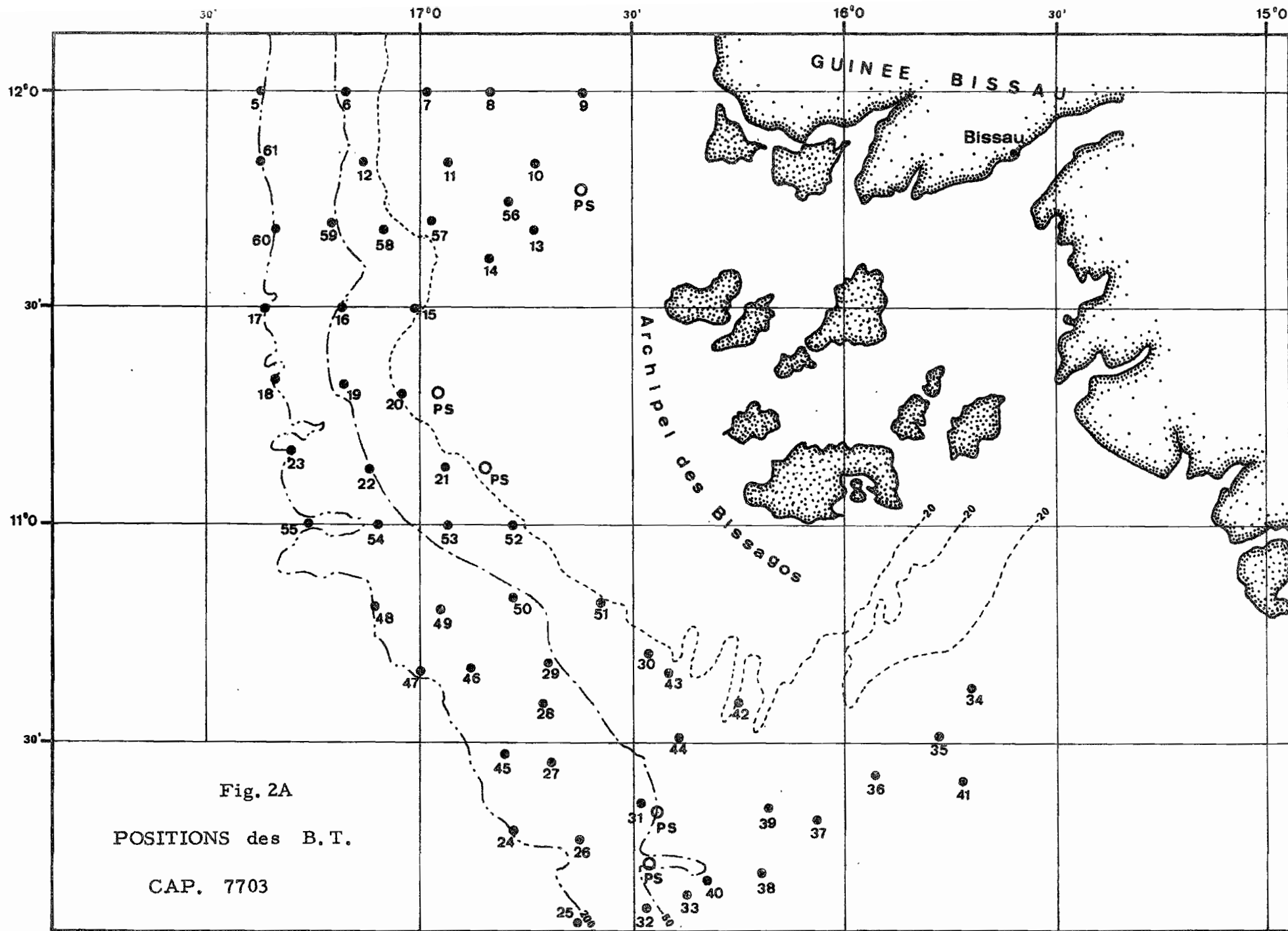
BATHYTHERMOGRAPHES (Suite)

DATE	HEURE	POSITIONS		FOND	PROF. THERMO- CLINE	PLAQUE BT N°	T° SURFACE
		LAT.	LONG.				
27.4.77	00.10	14.19	17.20	55	24	112	20.5
"	01.30	14.20	17.33	24	-	113	22.5
"	02.35	14.30	17.35	200	-	114	22.6
"	03.25	14.30	17.26	78	12	115	20.0
"	04.15	14.30	17.17	38	11	116	19.1
"	05.00	14.37	17.18	27	5	117	18.9
FIN 1e Partie SUD							
2e Partie NORD							
5.5.77	09.00	large Madeleines			CH19	118	20.2
"	10.45	14.51	17.33	180	12	119	20.0
"	12.10	14.51	17.20	87	15	120	23.0
"	13.50	15.00	17.06	54	14	121	20.1
"	13.10	15.00	17.20	150	15	122	21.3
"	16.25	15.11	17.16	200	27	123	22.6
"	17.20	15.11	17.07	97	18	124	24.8
"	18.15	15.11	16.58	32	13	125	19.6
"	21.20	15.20	16.53	33	13	126	19.2
6.5.77	07.10	15.49	17.01	148	20	127	18.4
"	08.20	15.50	16.47	60	21	128	17.7
"	09.30	15.50	16.36	16	17	129	16.9
"	10.30	16.00	16.34	20	14	130	16.4
"	11.30	16.00	16.45	65	25	131	17.4
"	13.50	16.04	16.59	94	19	132	18.3
"	14.30	16.09	16.47	93	32	133	17.8
"	15.45	16.20	16.39	56	13	134	17.4
"	17.00	16.27	16.33	22	16	135	17.0
"	17.45	16.34	16.38	33	20	136	17.4
"	18.50	16.42	16.41	77	13	137	17.5

BATHYTHERMOGRAPHES (Suite et fin)

DATE	HEURE	POSITIONS		FOND	PROF THERMO- CLINE	PLAQUE BT N°	T° SURFACE
		LAT.	LONG.				
6.5.77	19.45	16.50	16.47	193	25	138	17.4
"	20.35	16.53	16.38	80	26	139	16.9
"	21.45	16.58	16.28	33	19	140	16.2
7.5.77	07.35	17.55	16.22	90	32	141	16.4
"	09.00	18.02	16.29	200	45	142	16.4
"	10.25	18.09	16.18	45	23	143	15.6
"	11.40	18.15	16.07	10	14	144	17.0
"	12.50	18.19	16.17	26	CH19	145	15.4
"	13.50	18.24	16.26	53	21	146	16.9
"	16.40	18.30	16.36	200	13	147	17.5
"	18.15	18.41	16.24	62	37	148	15.7
"	18.55	18.45	16.19	22	CH16	149	15.2
8.5.77	06.15	17.54	16.21	80	28	150	16.1
"	07.15	17.47	16.14	41	28	151	15.7
"	08.25	17.40	16.06	11	CH19	152	16.4
"	09.35	17.36	16.16	51	47	153	16.2
"	10.30	17.31	16.27	99	35	154	17.1
"	11.45	17.27	16.38	190	26	155	17.4
"	12.35	17.19	16.32	105	32	156	17.4
"	13.25	17.11	16.26	66	29	157	16.8
"	14.35	17.03	16.20	16	CH10	158	16.4
9.5.77	07.00	15.50	17.02	200	21	159	19.6
"	08.10	15.40	17.02	150	25	160	19.9
"	09.10	15.40	16.50	58	40	161	18.5
"	10.30	15.40	16.38	13	CH17	162	17.2
"	11.30	15.30	16.44	14	CH10	163	17.9
"	12.35	15.30	16.56	72	20	164	19.8
"	13.50	15.30	17.07	200	15	165	21.4
"	14.45	15.20	17.01	146	14	166	21.6
"	15.50	15.20	17.01	96	18	167	24.4
"	16.45	15.20	16.51	20	7	168	19.7

FIN 2e Partie NORD



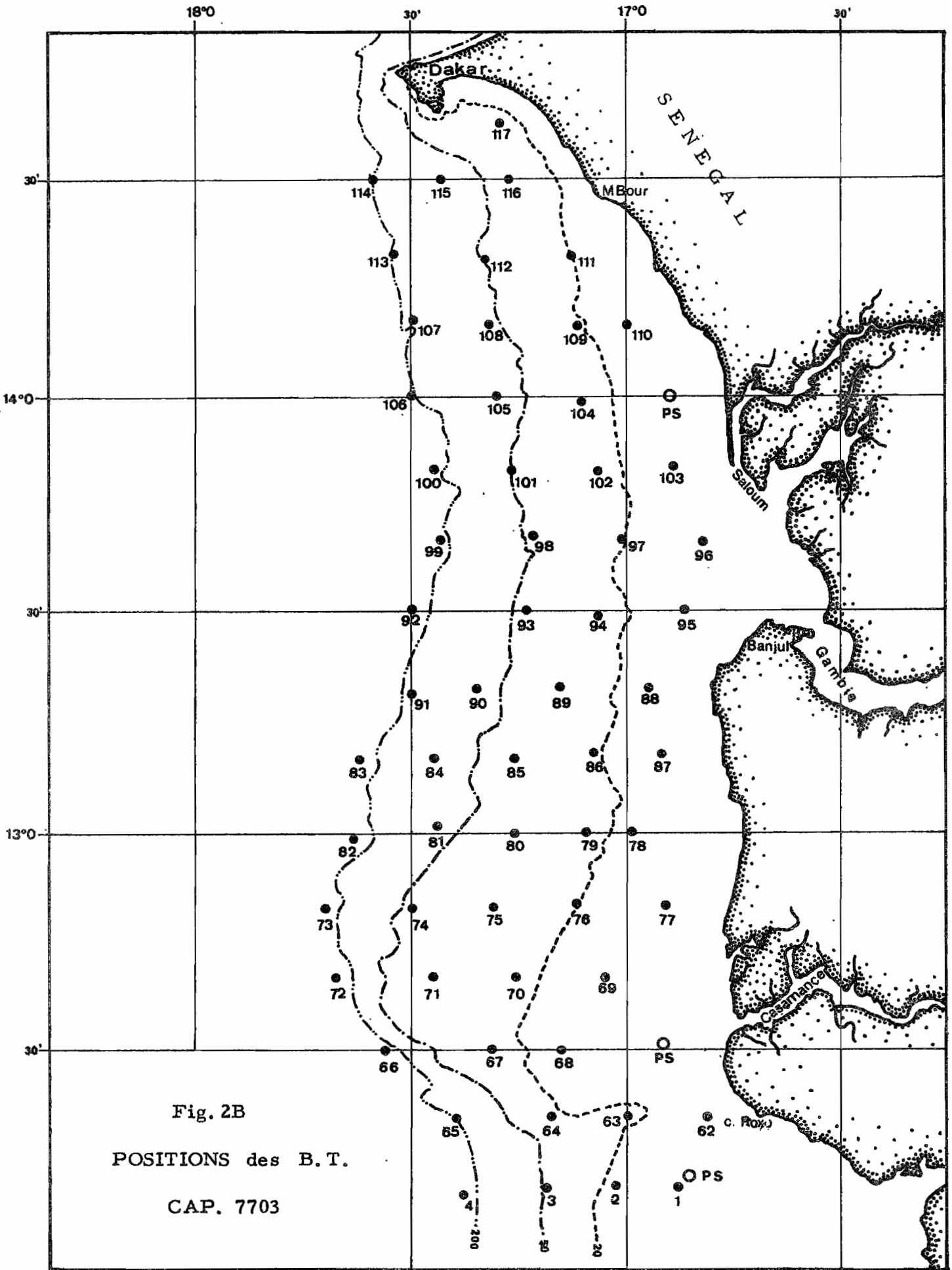


Fig. 2B
 POSITIONS des B. T.
 CAP. 7703

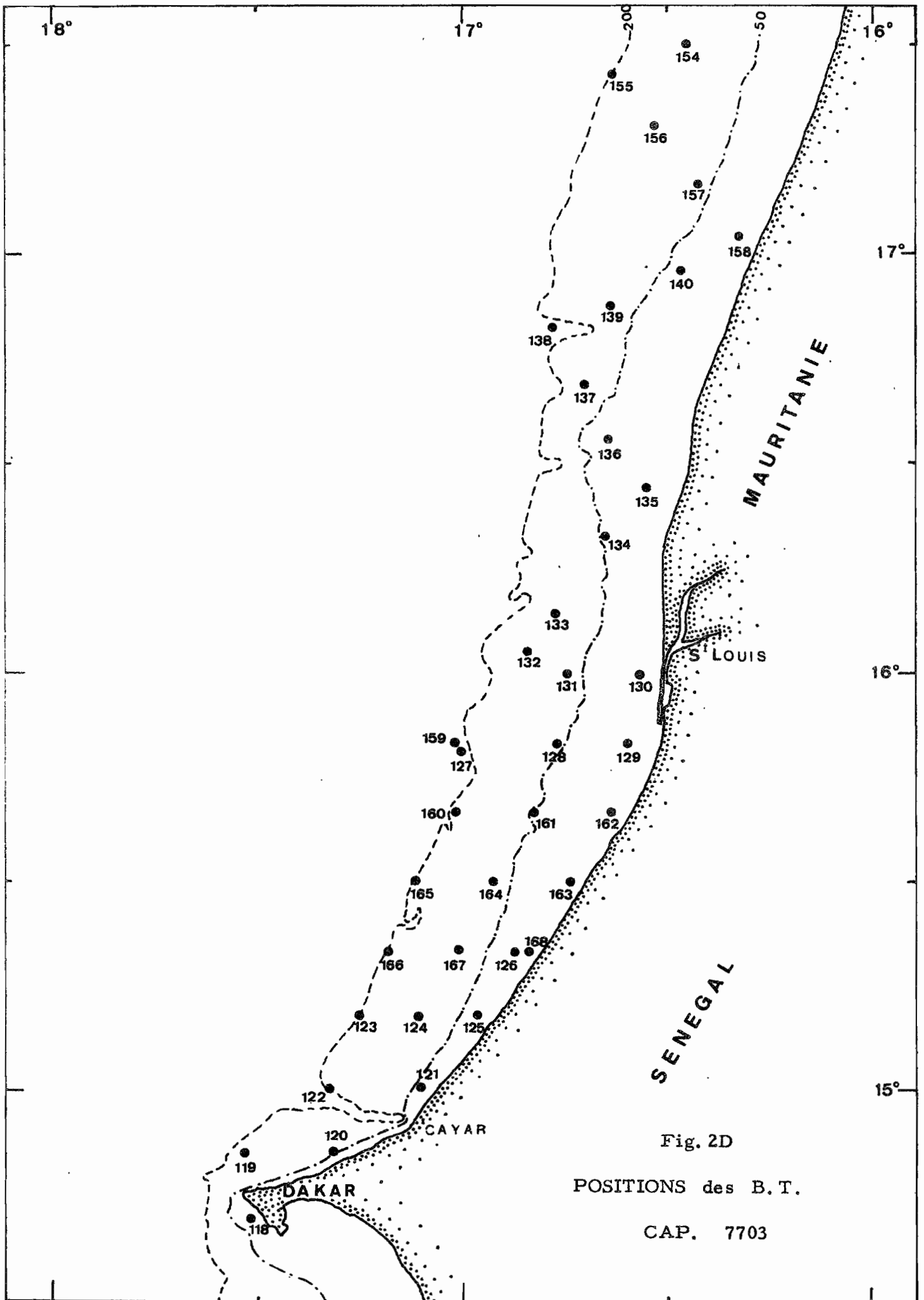


Fig. 2D

POSITIONS des B. T.

CAP. 7703

D'après reduction carte N° 6113

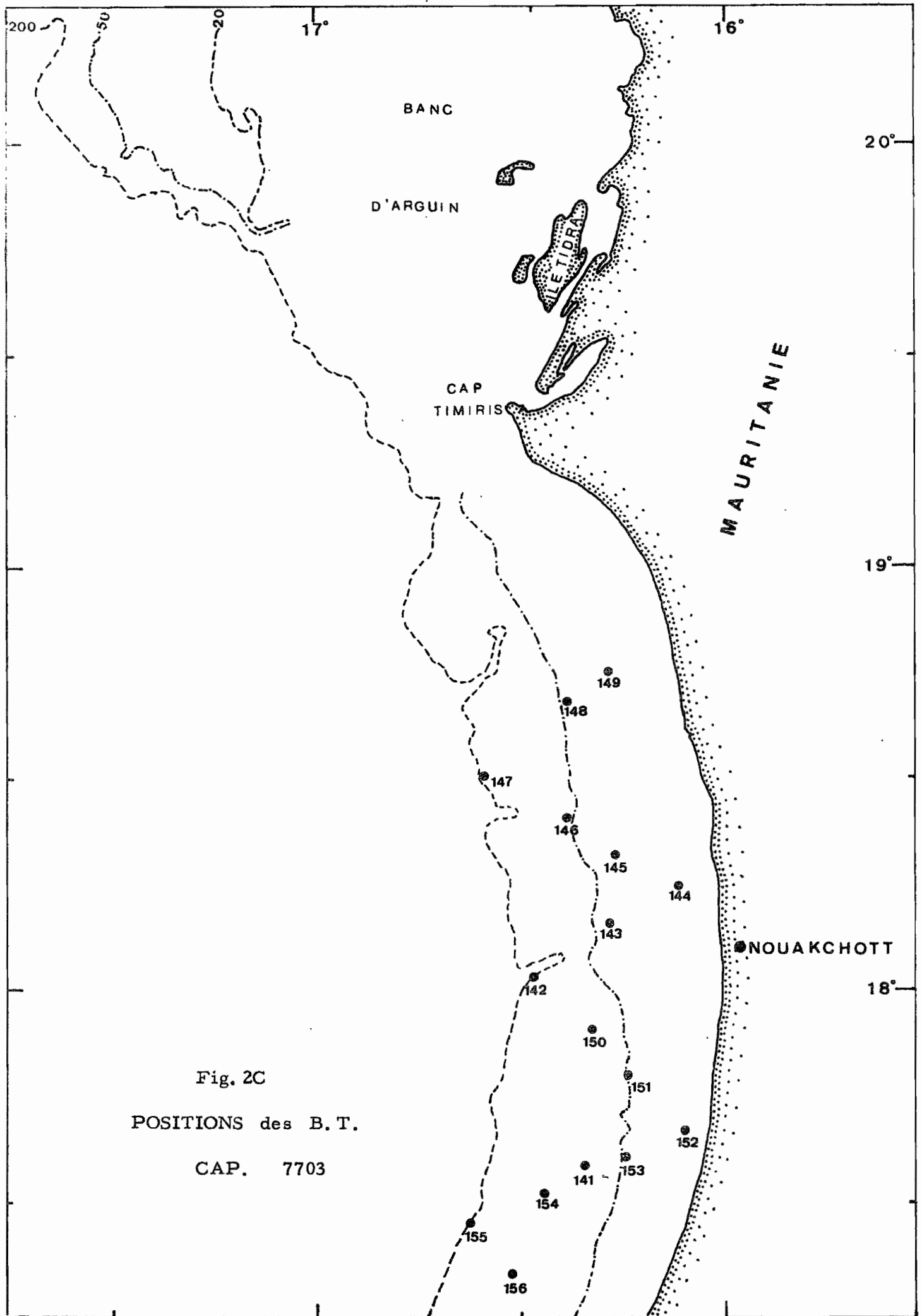
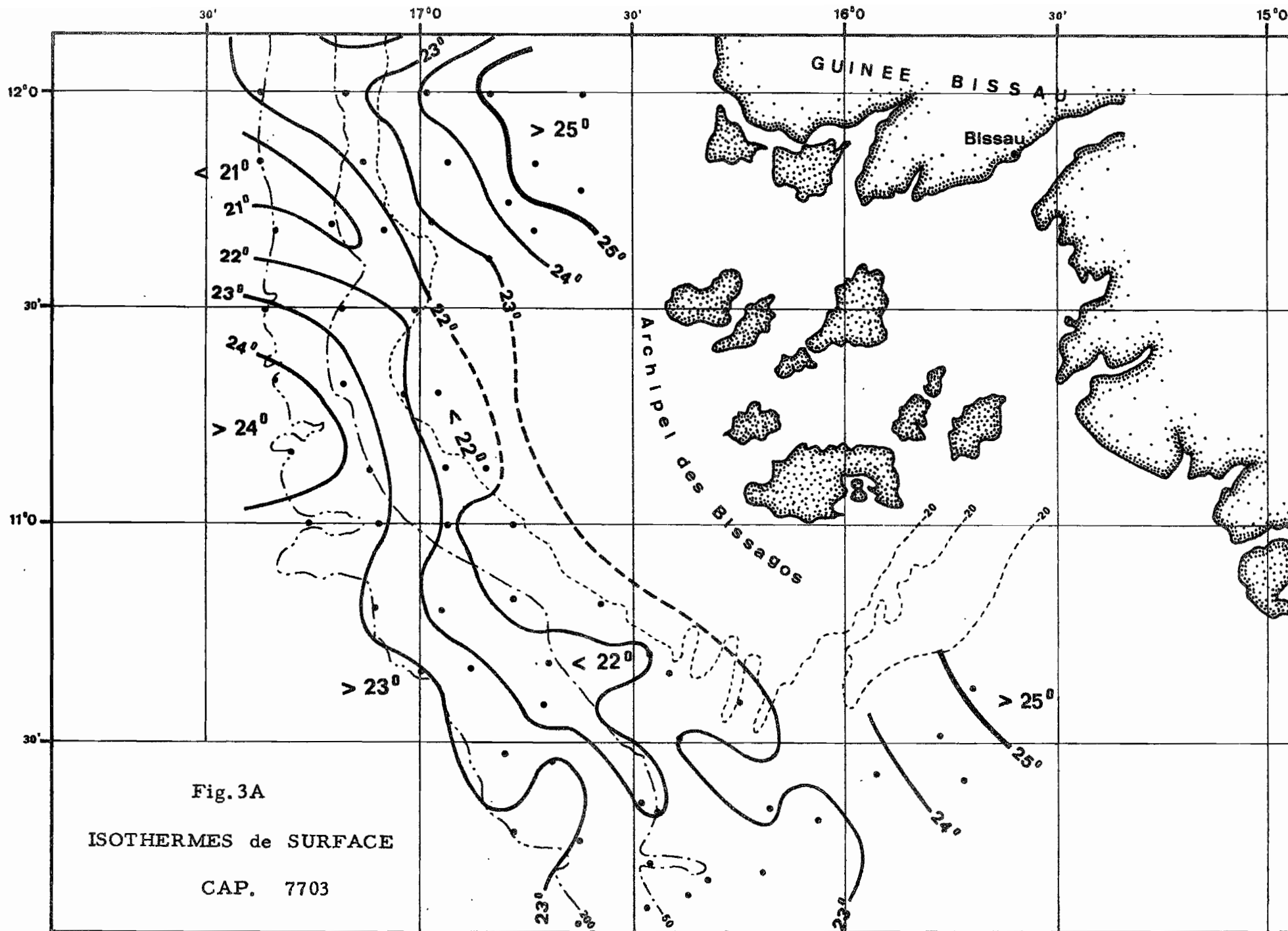


Fig. 2C
POSITIONS des B. T.
CAP. 7703



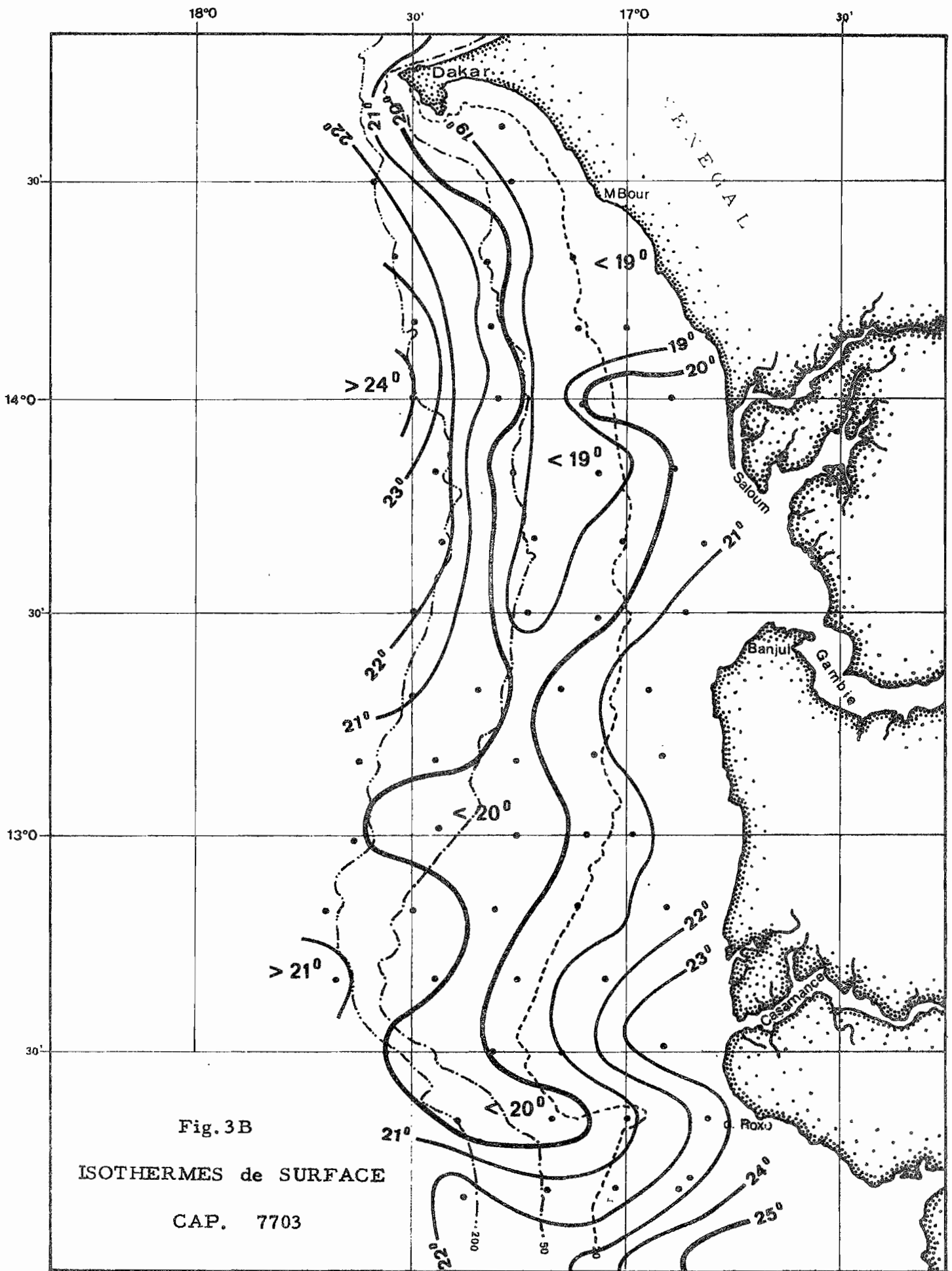
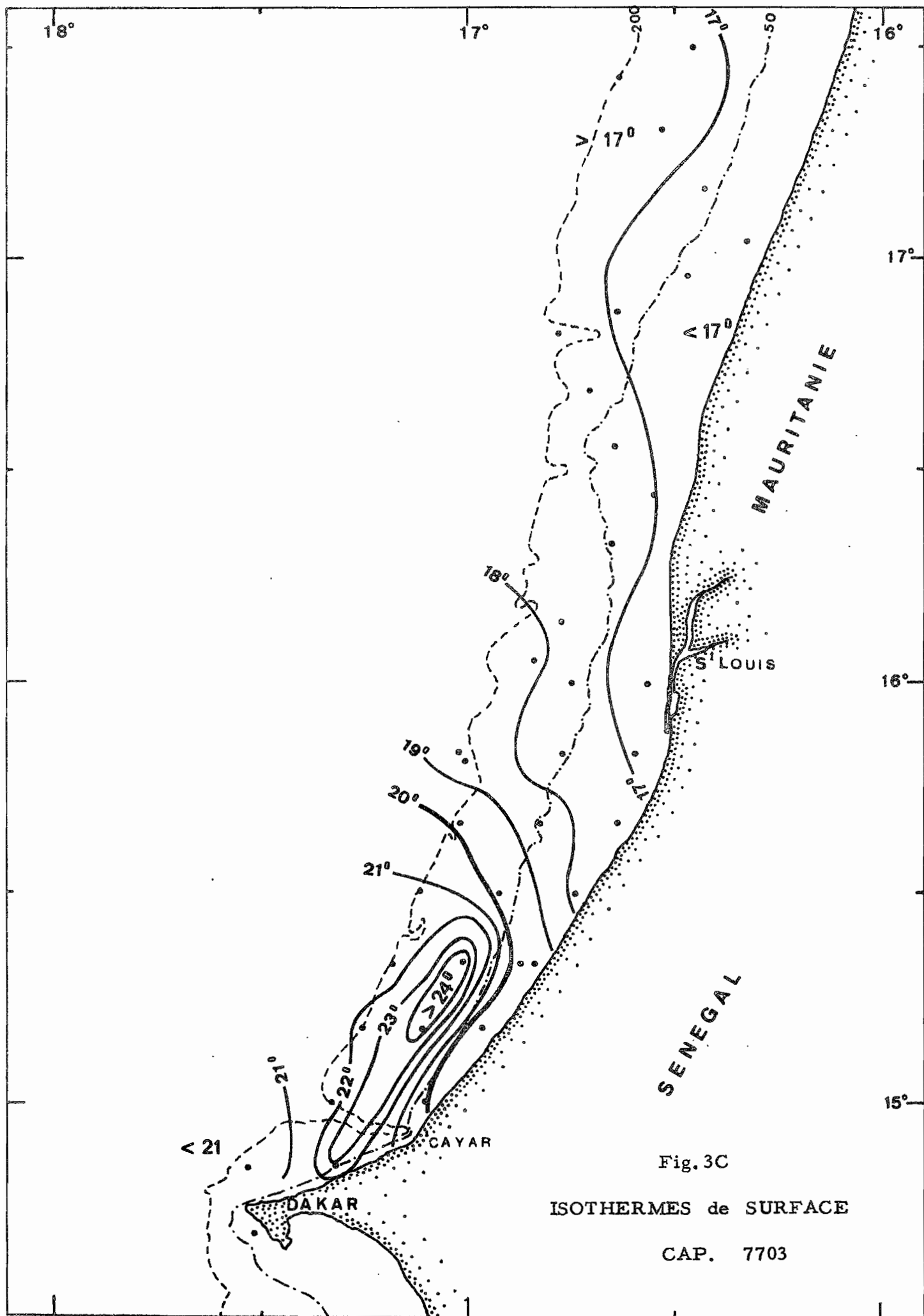


Fig. 3B

ISOTHERMES de SURFACE

CAP. 7703



D'apres reduction carte N° 6113

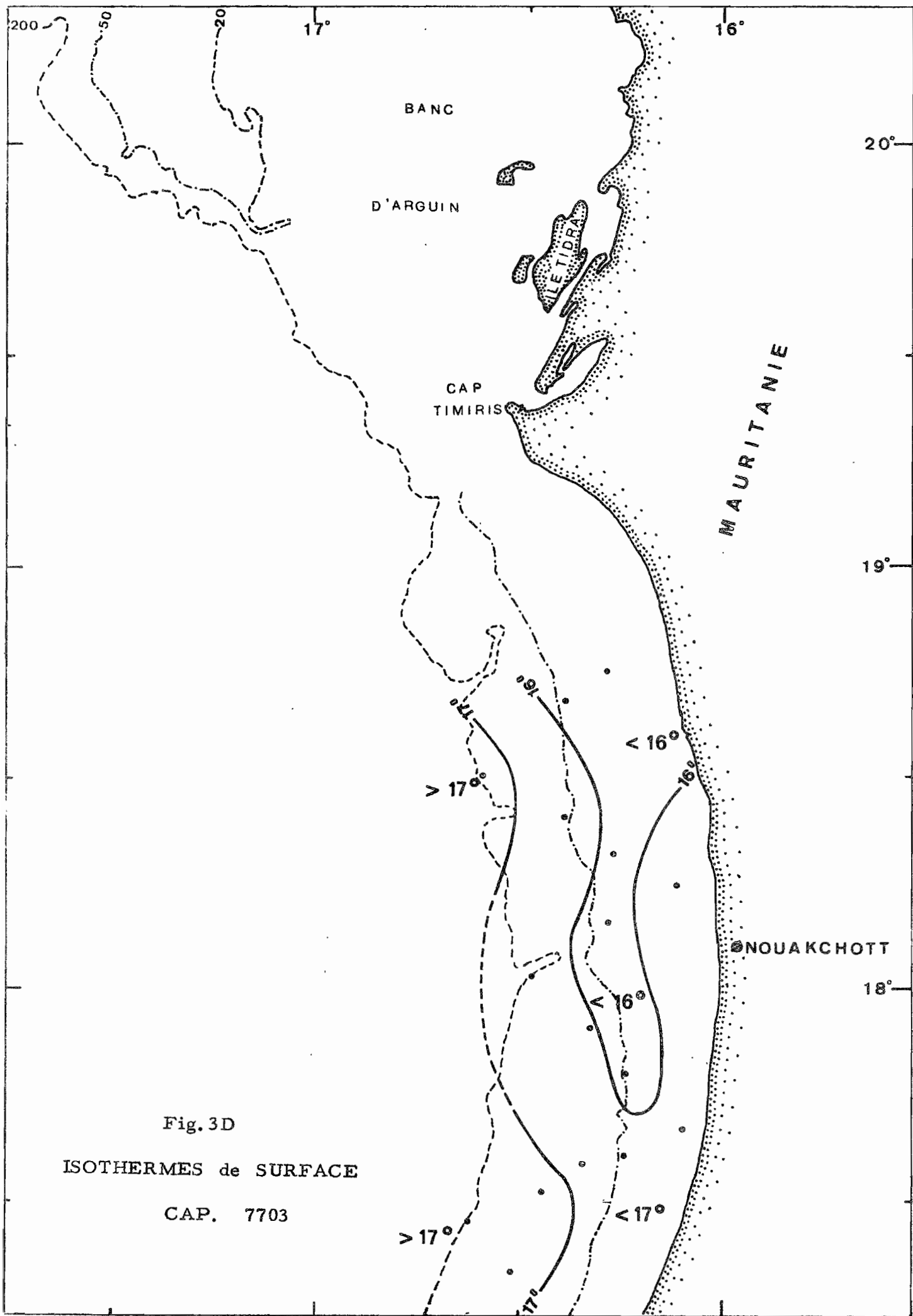
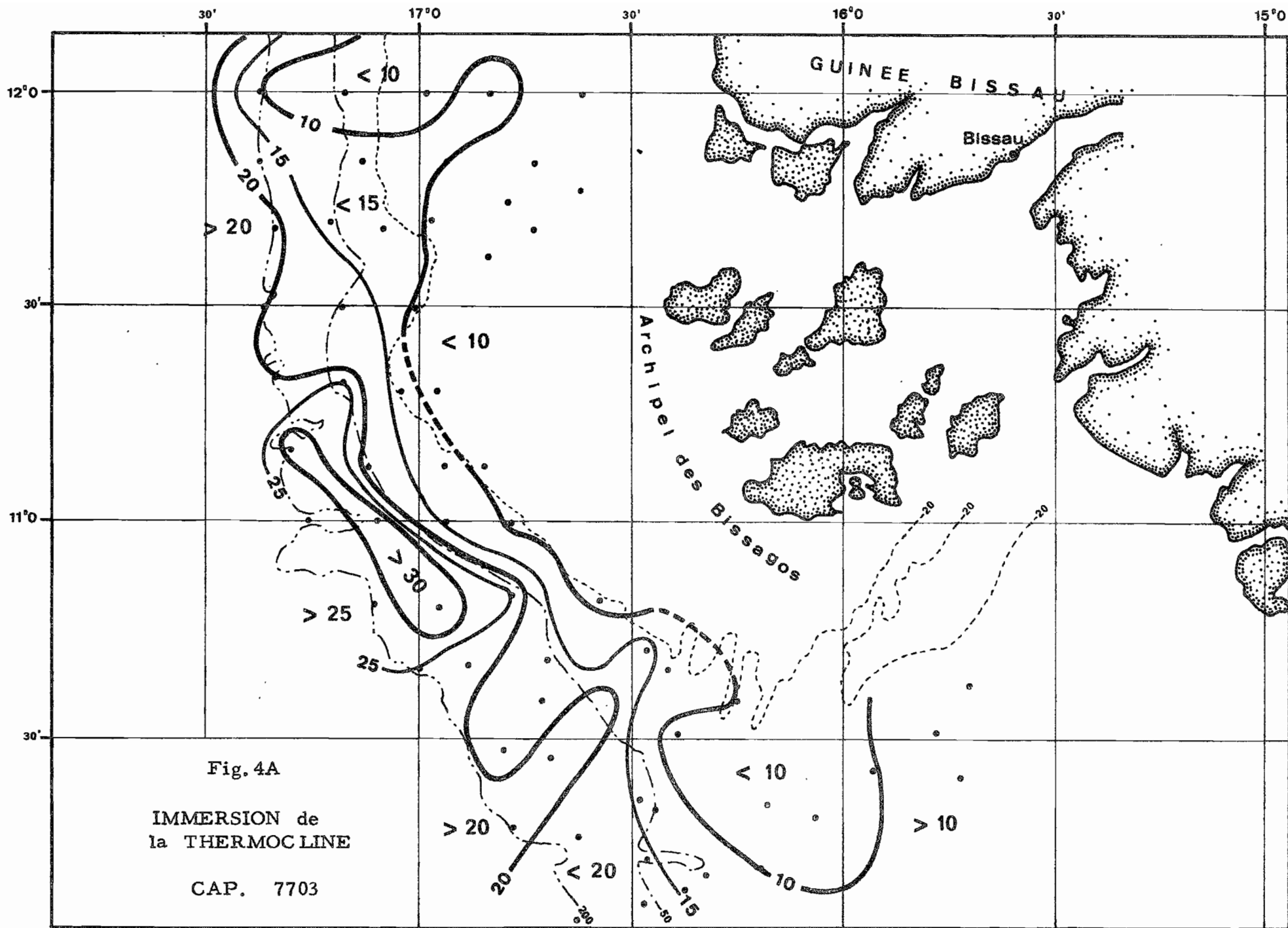


Fig. 3D

ISOTHERMES de SURFACE

CAP. 7703



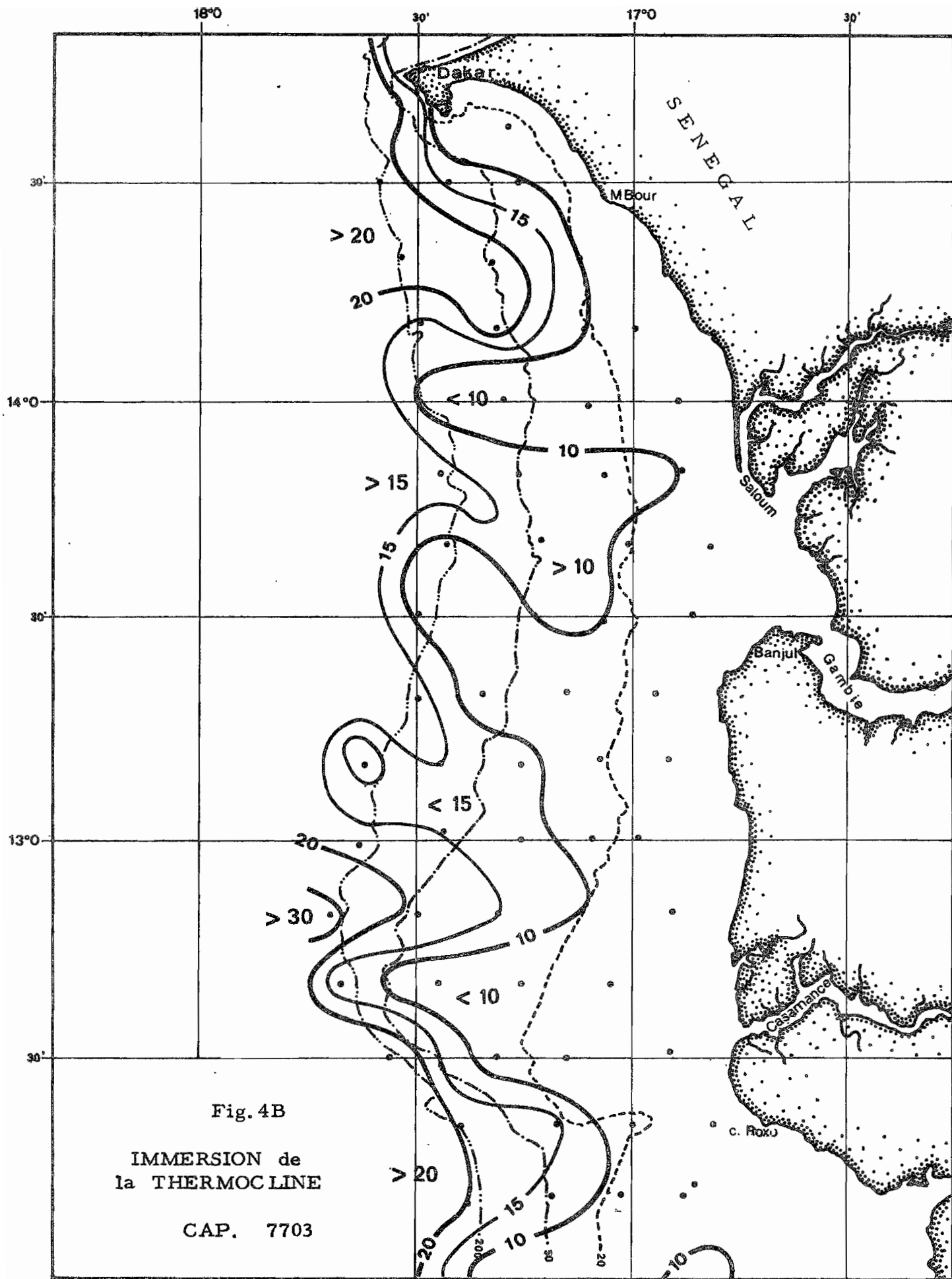


Fig. 4B

IMMERSION de
la THERMOCLINE

CAP. 7703

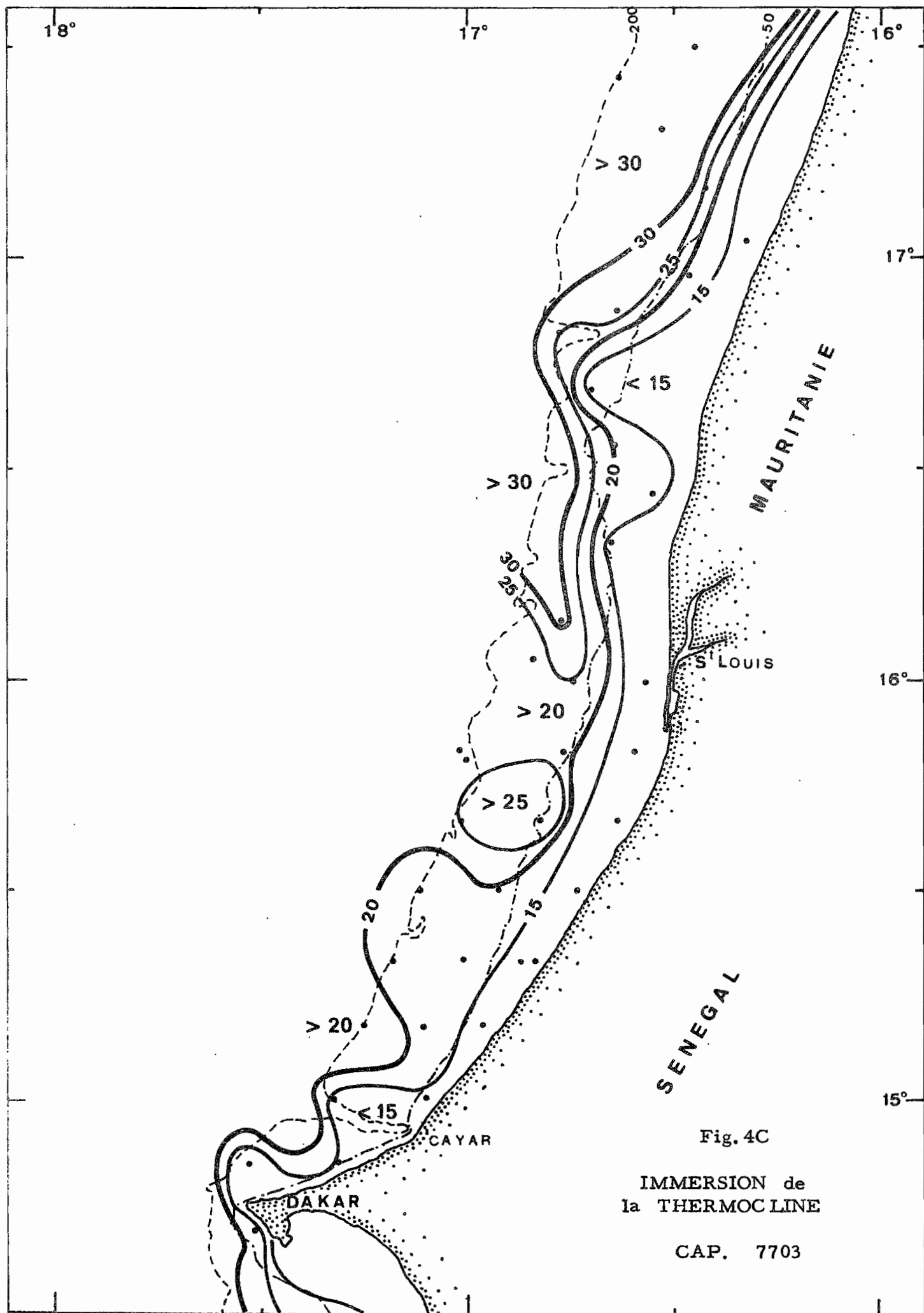


Fig. 4C

IMMERSION de
la THERMOCLINE

CAP. 7703

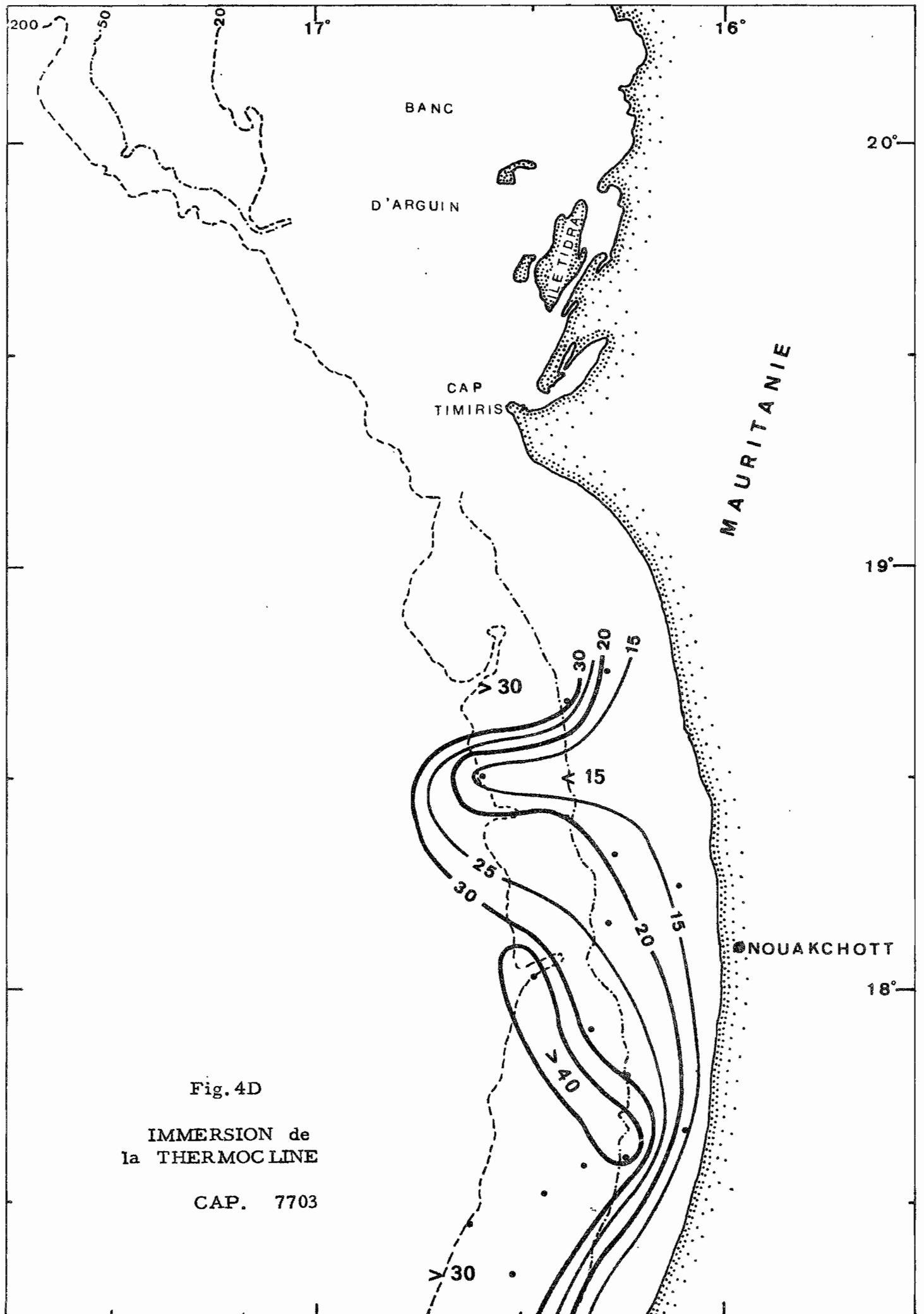
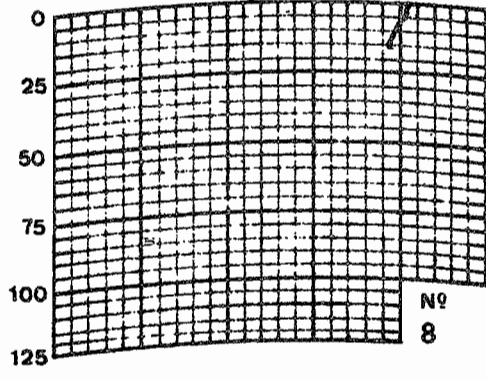
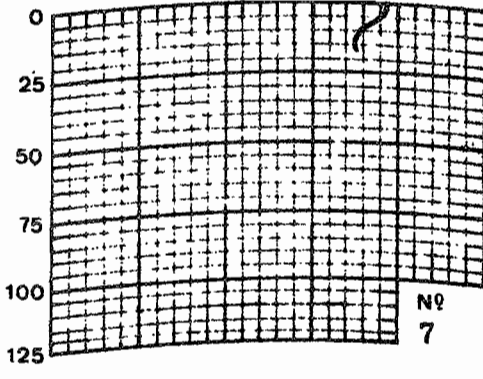
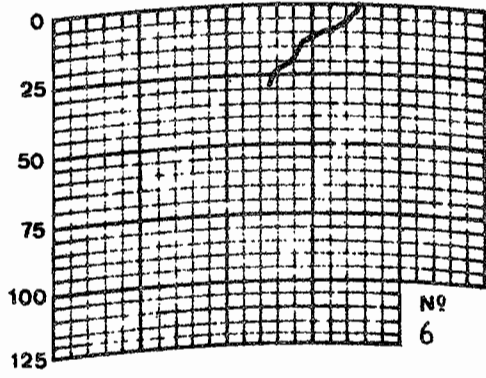
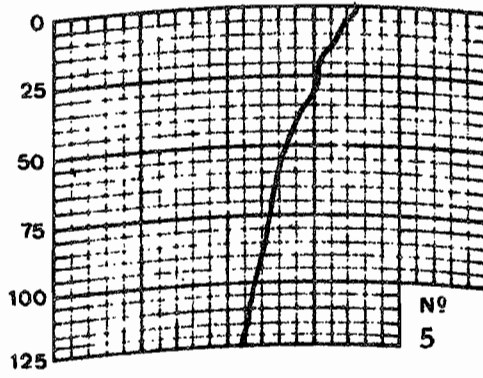
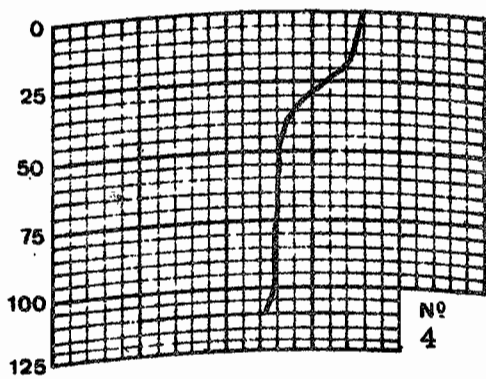
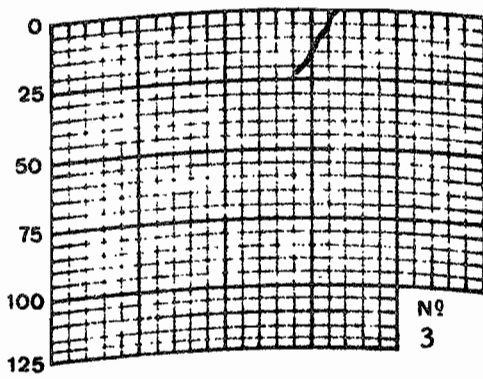
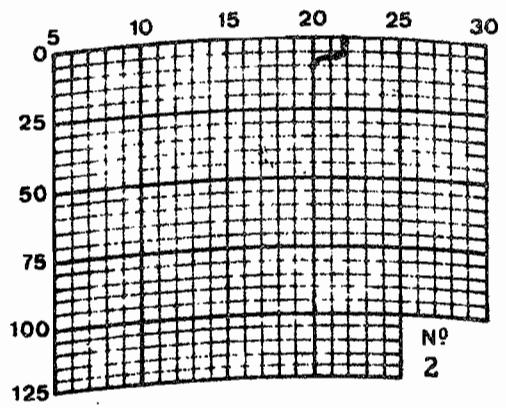
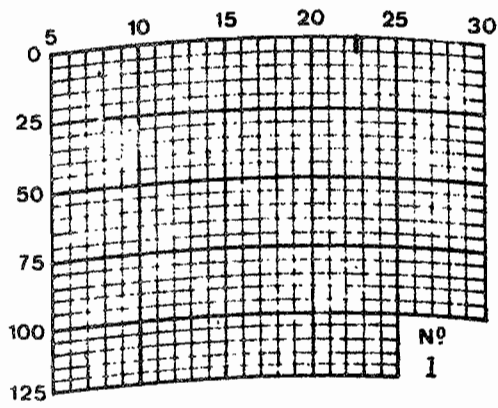
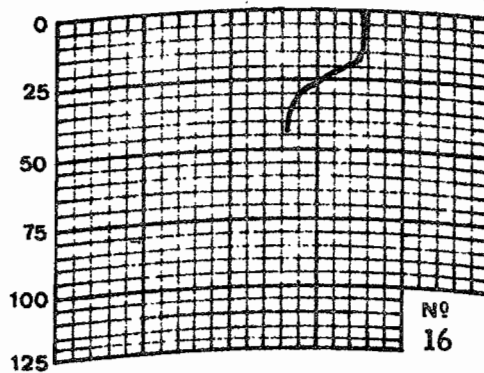
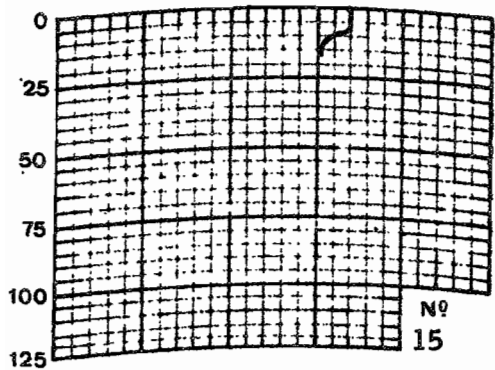
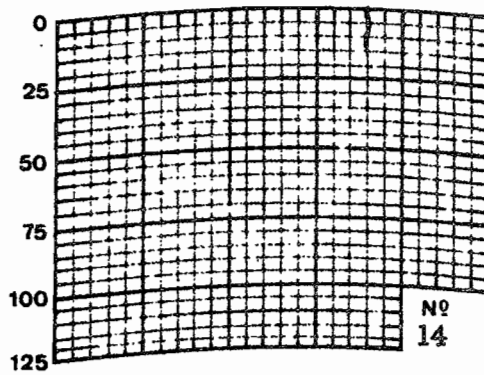
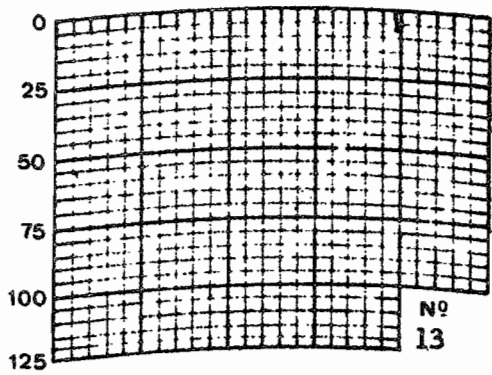
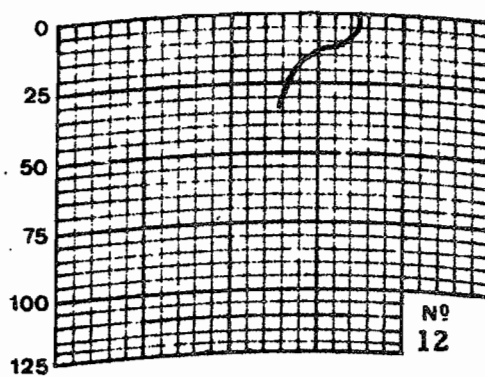
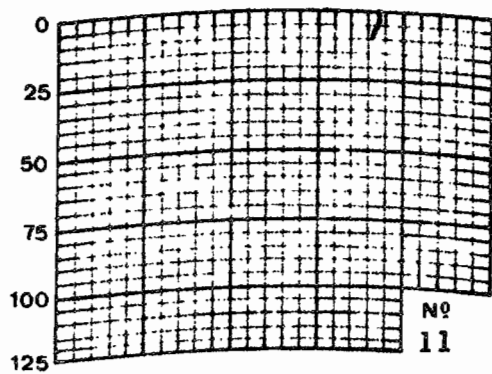
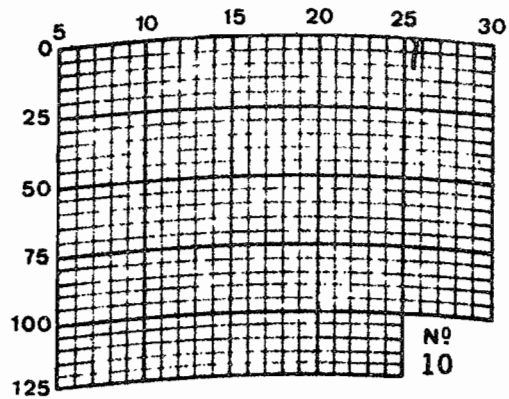
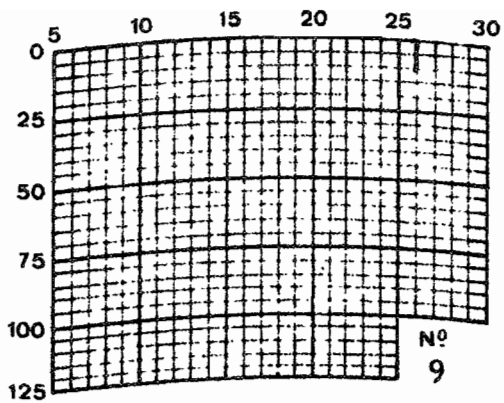


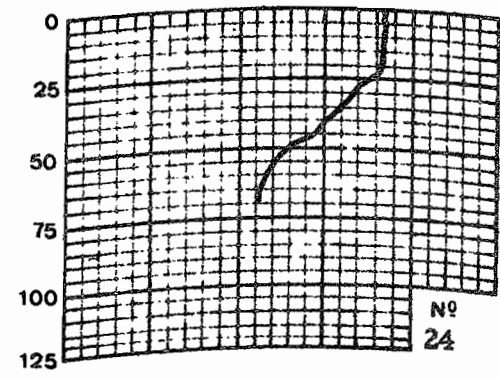
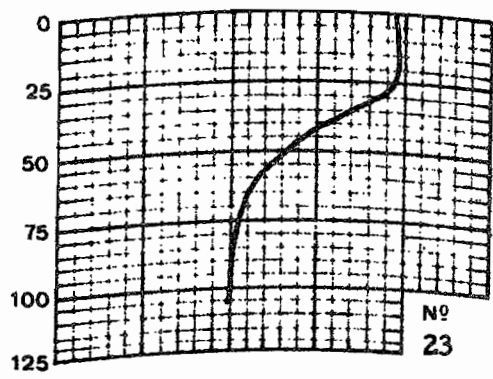
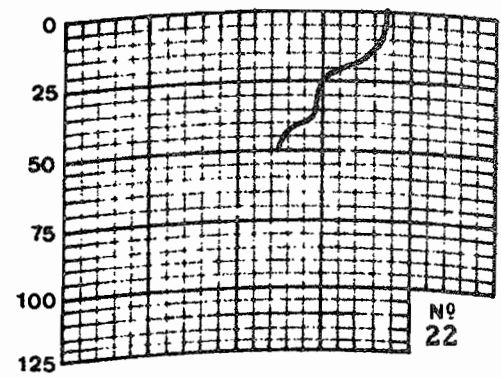
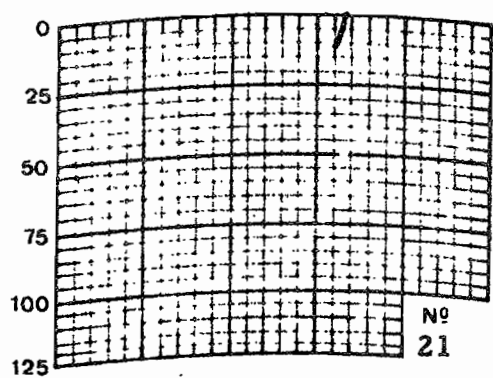
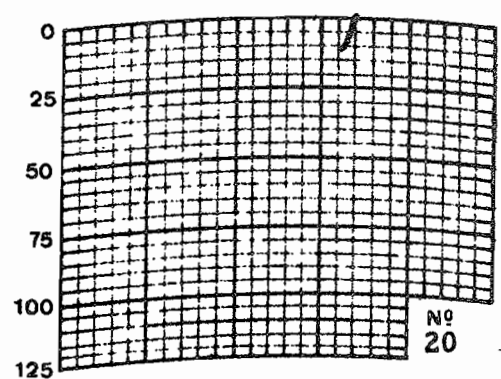
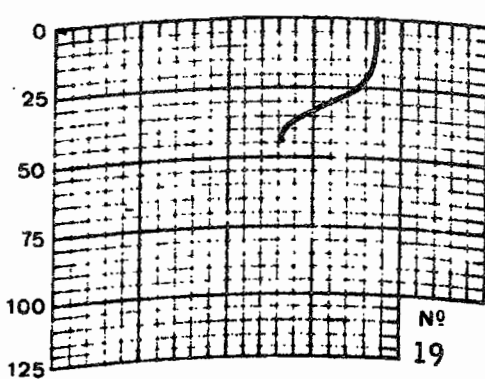
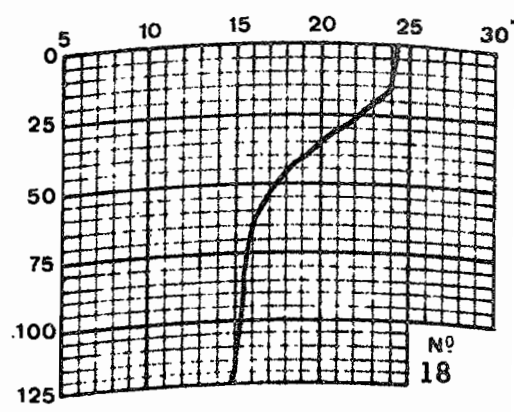
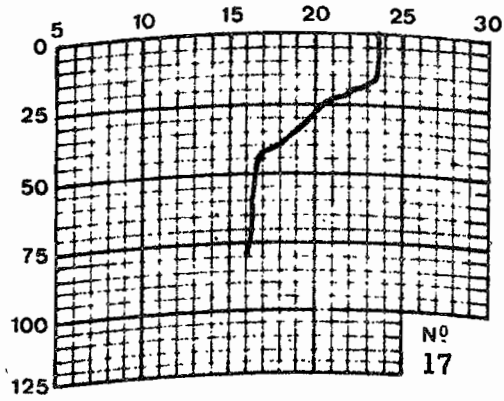
Fig. 4D

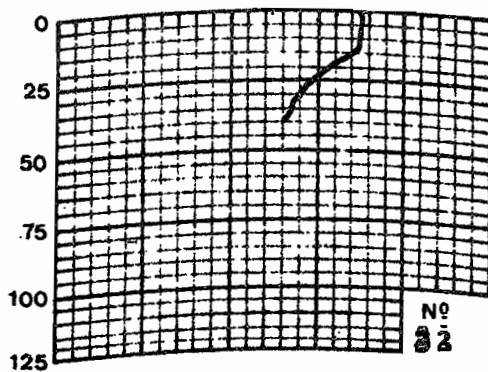
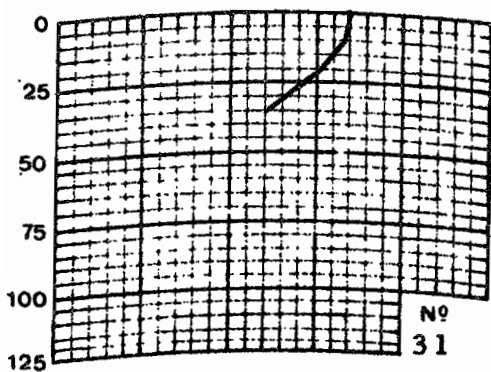
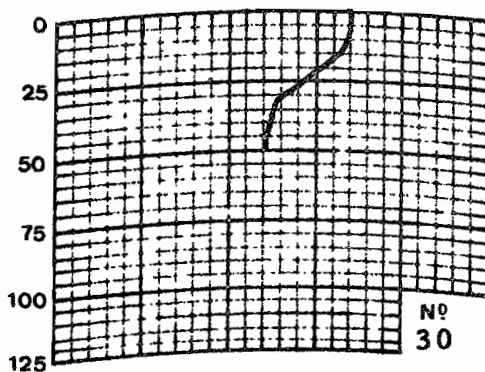
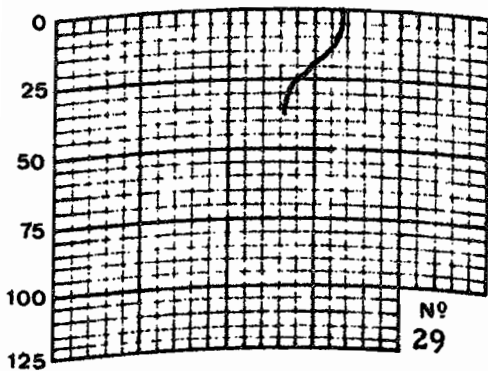
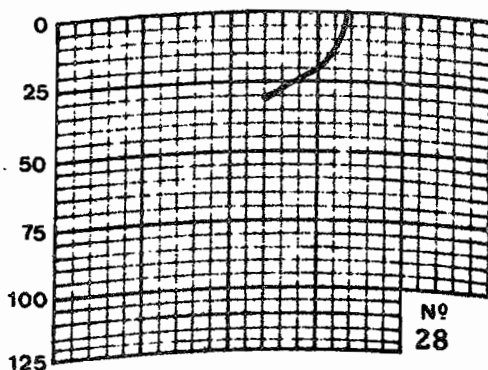
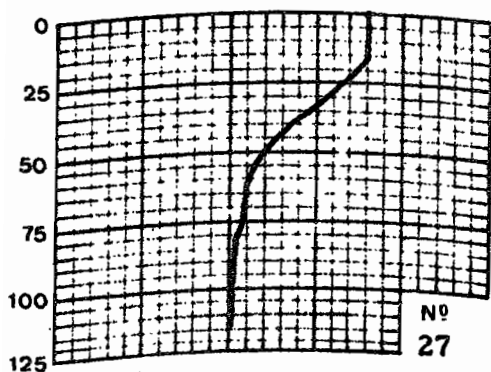
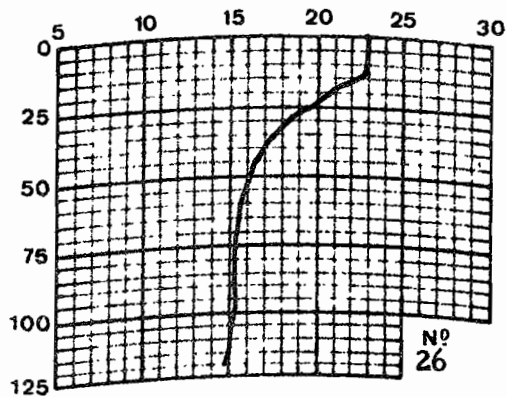
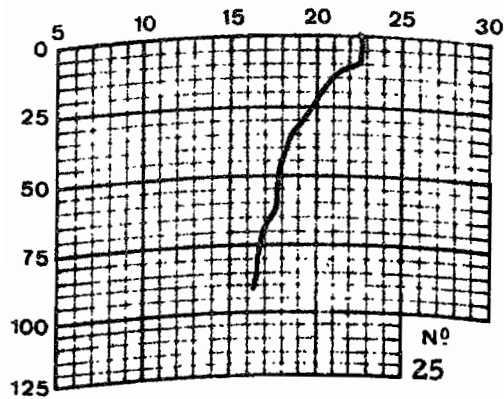
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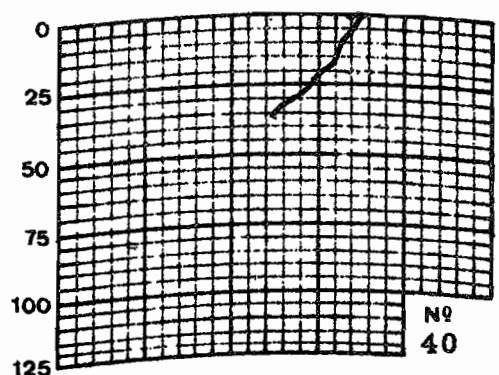
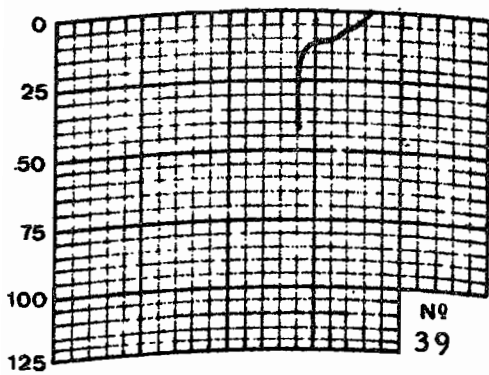
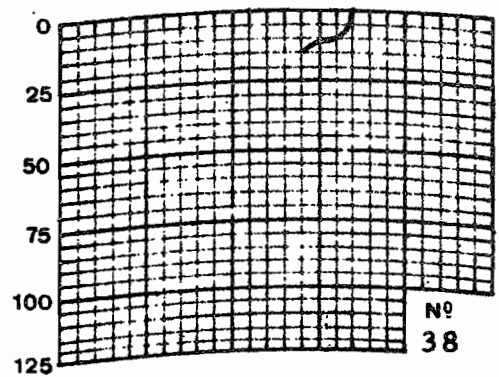
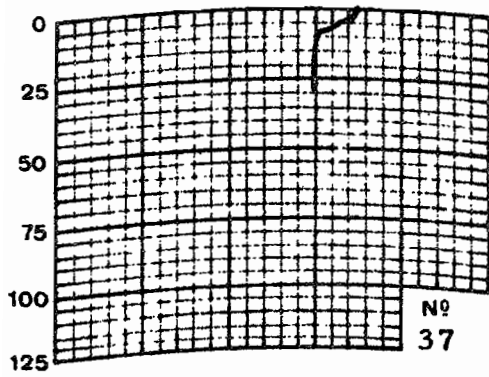
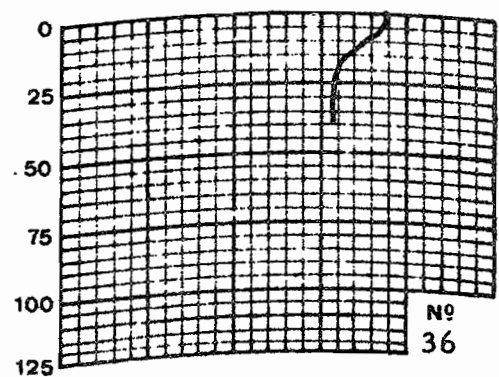
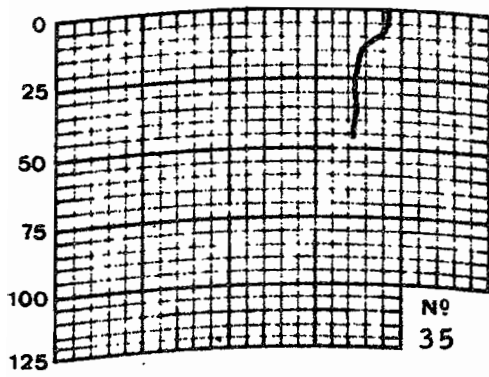
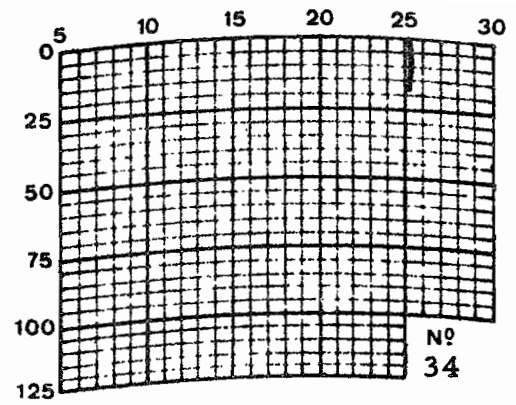
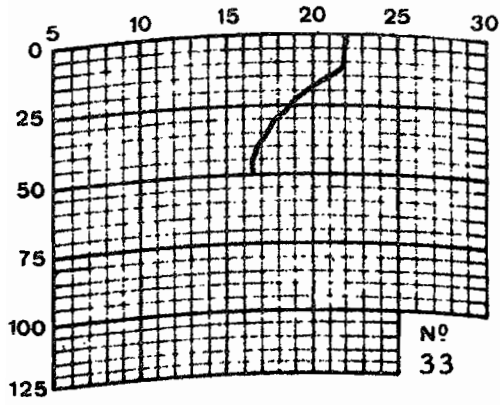
CAP. 7703

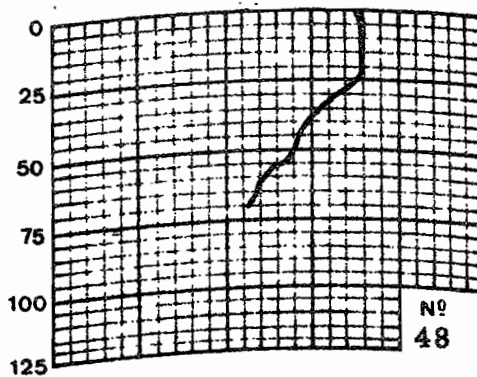
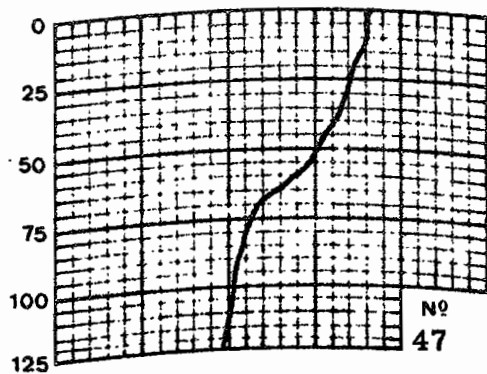
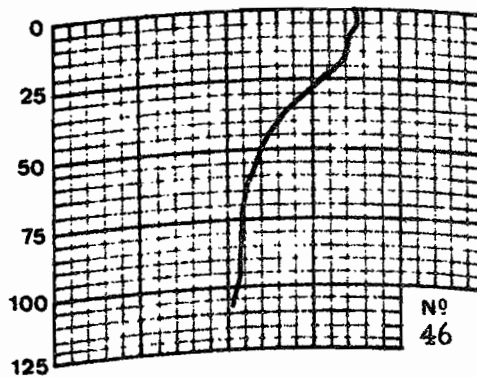
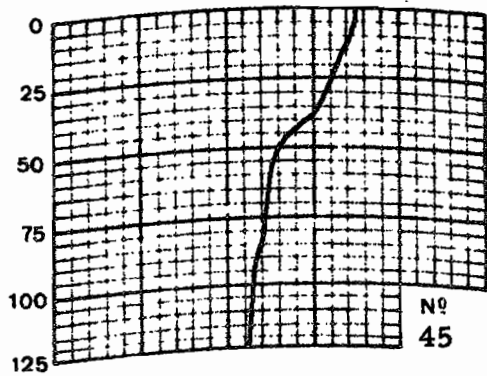
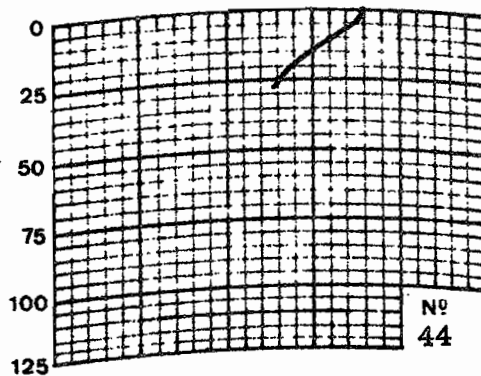
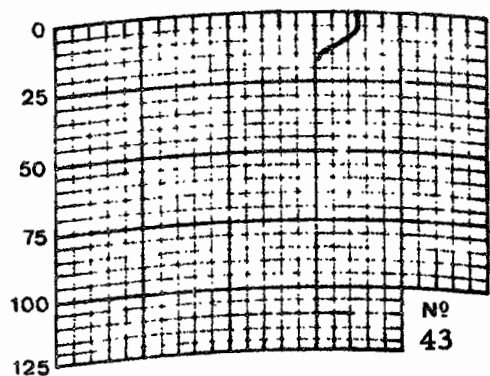
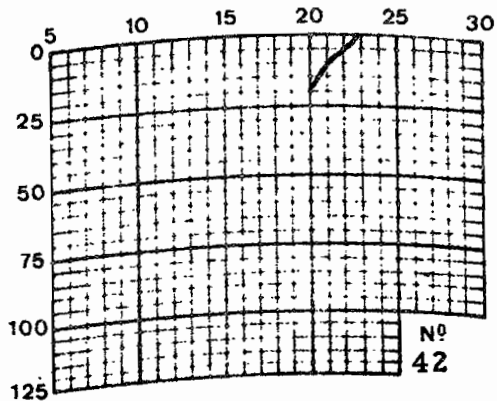
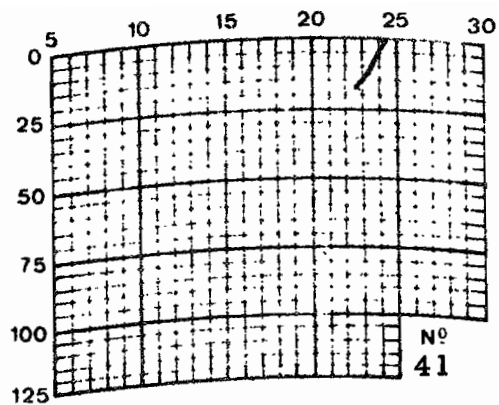


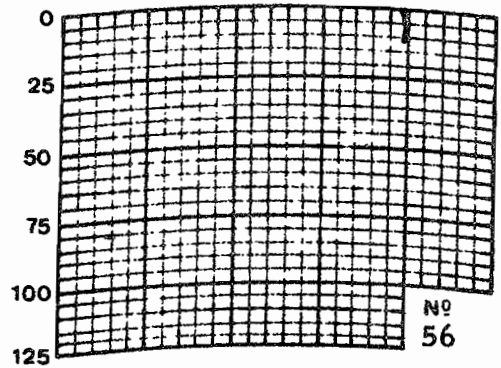
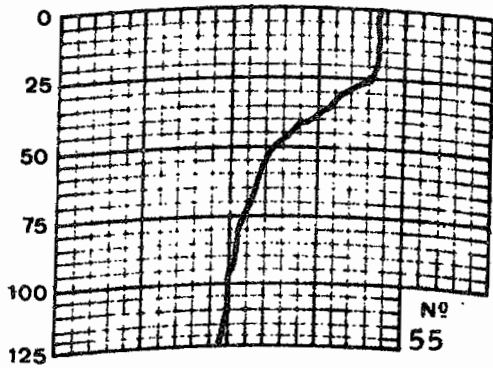
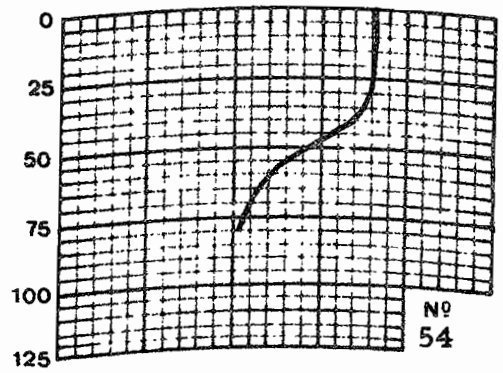
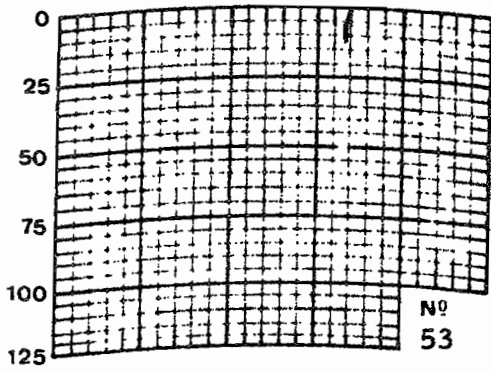
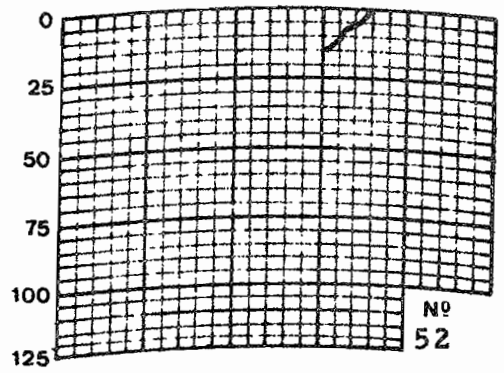
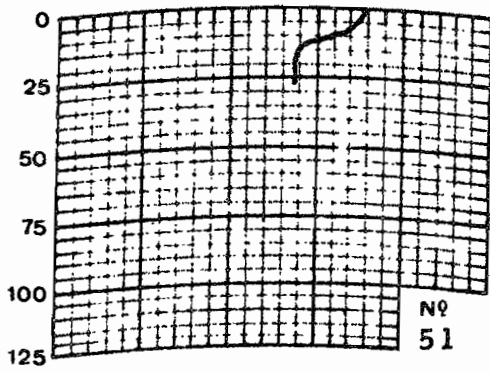
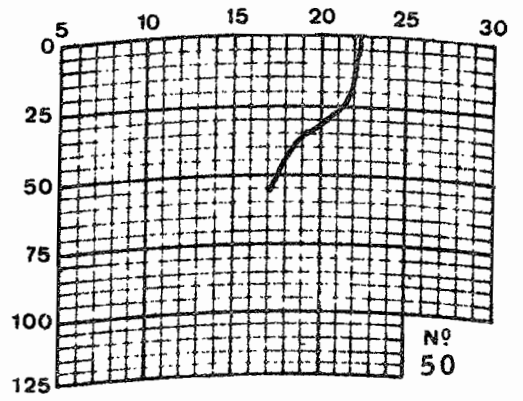
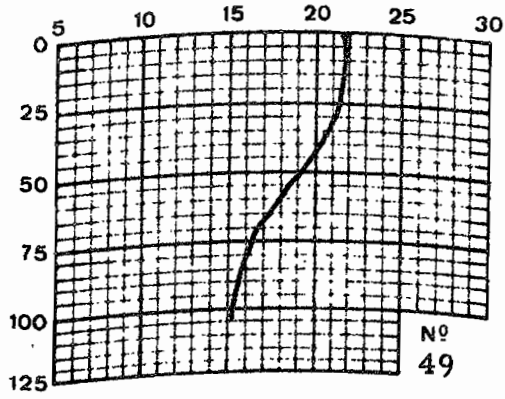


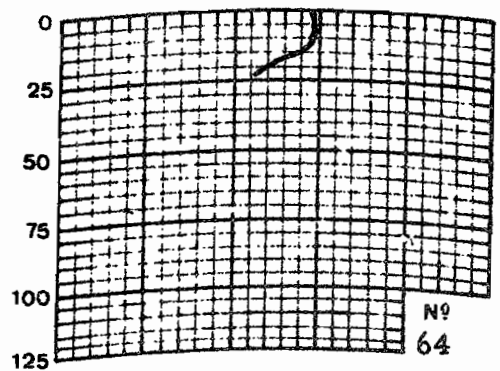
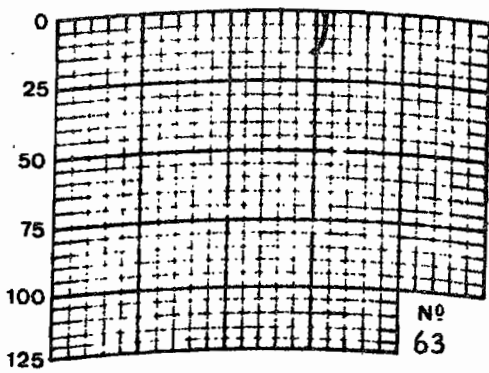
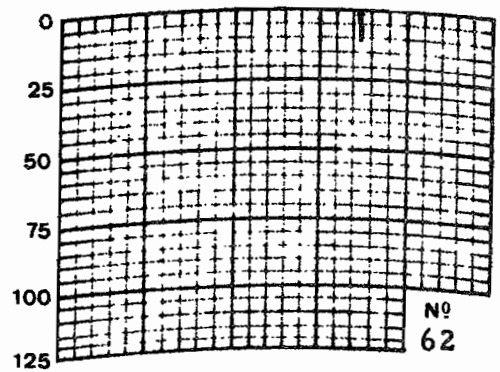
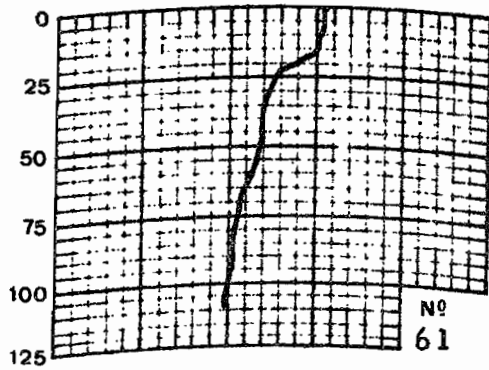
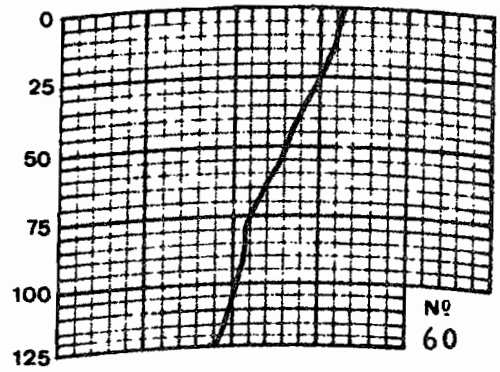
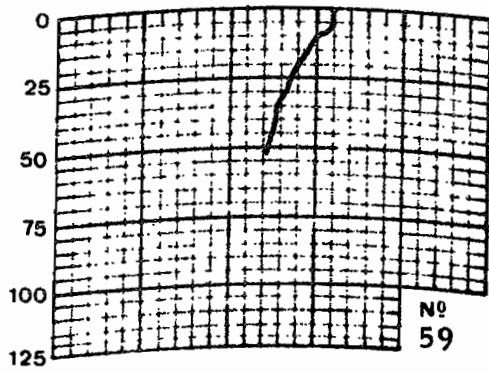
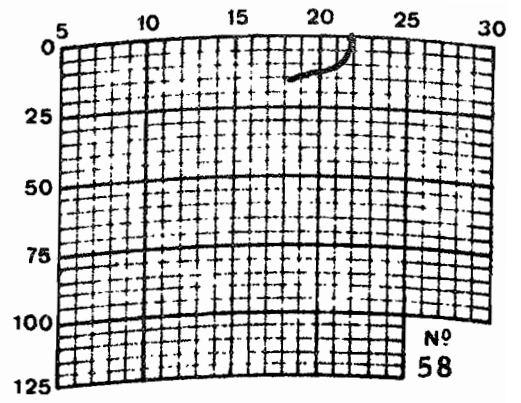
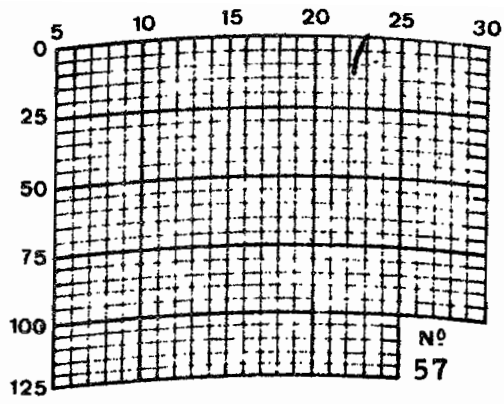


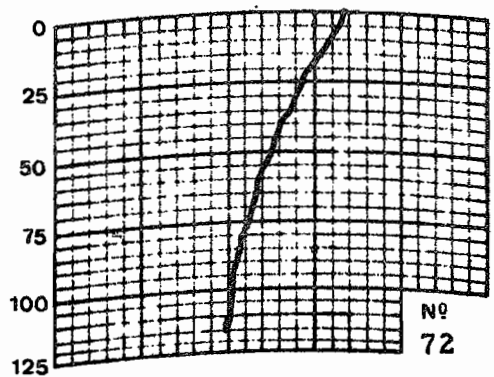
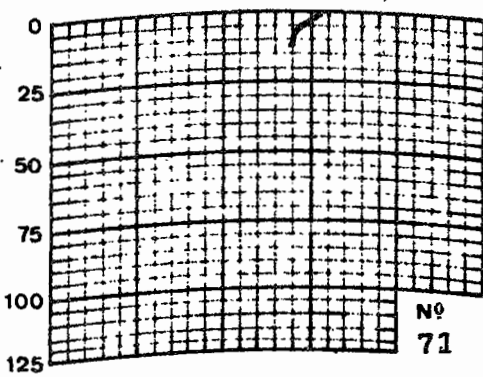
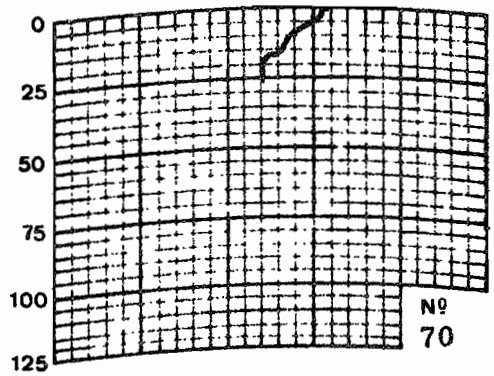
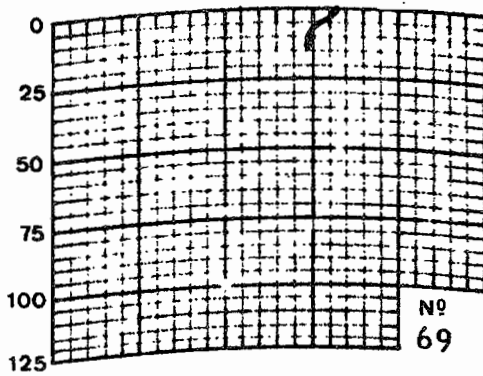
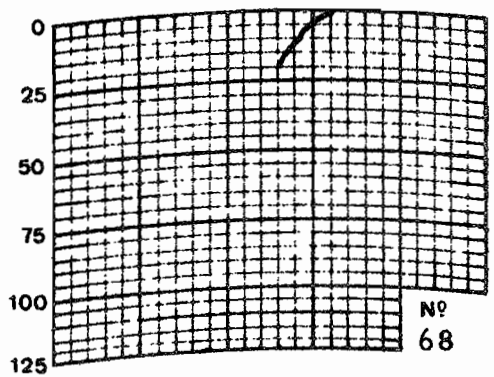
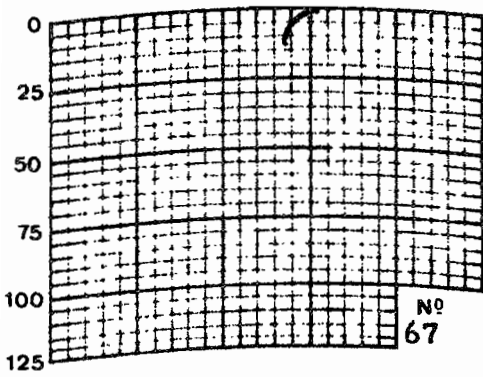
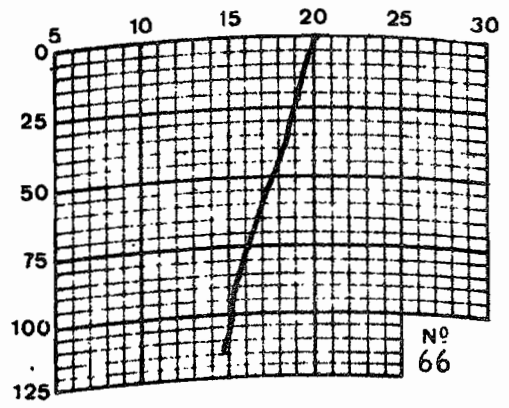
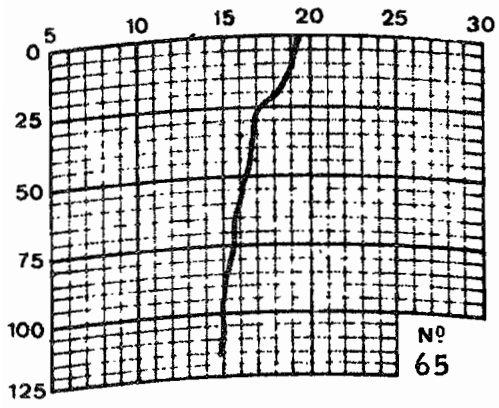


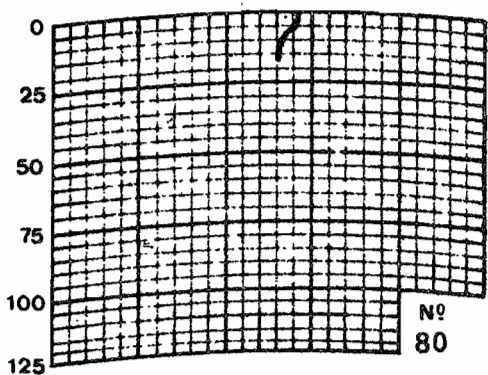
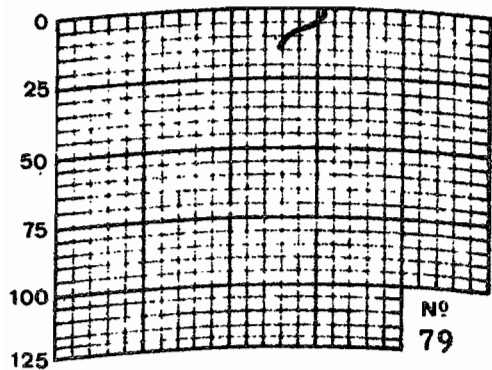
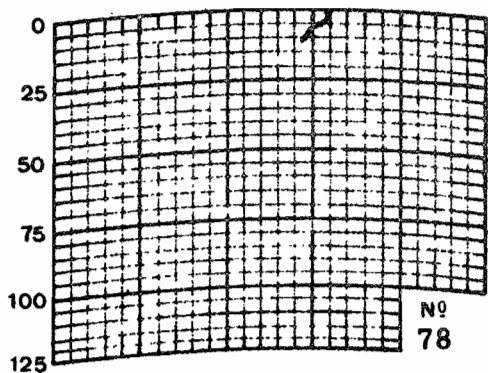
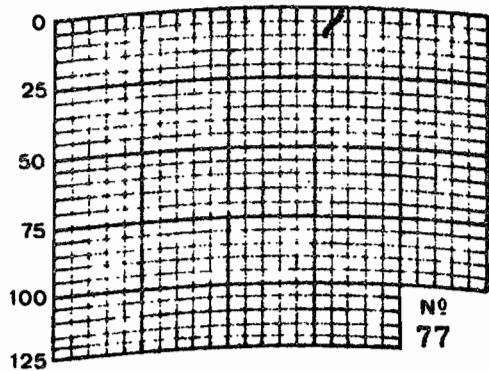
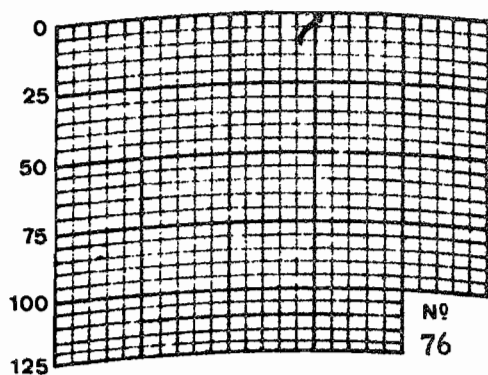
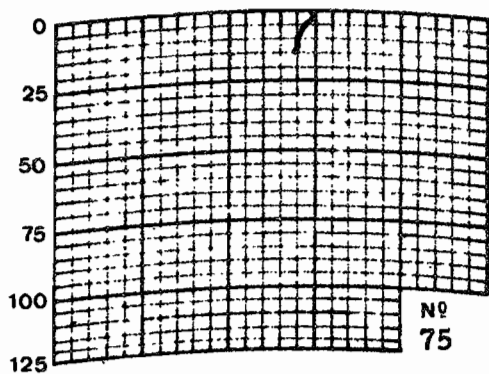
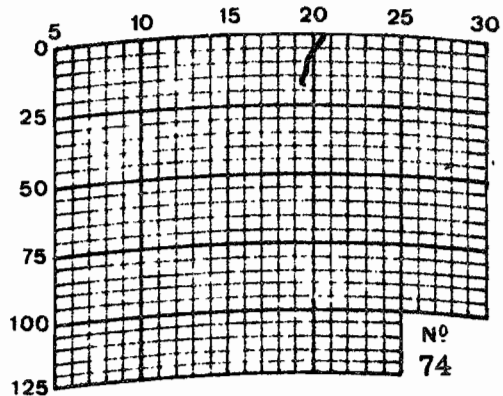
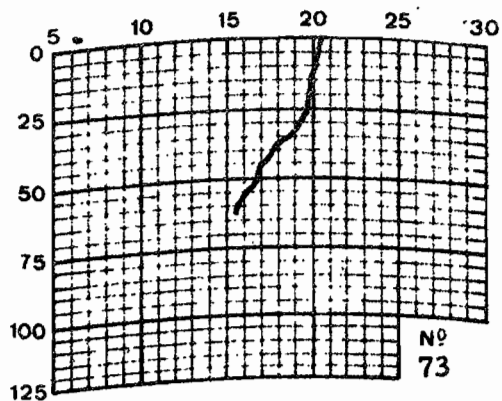


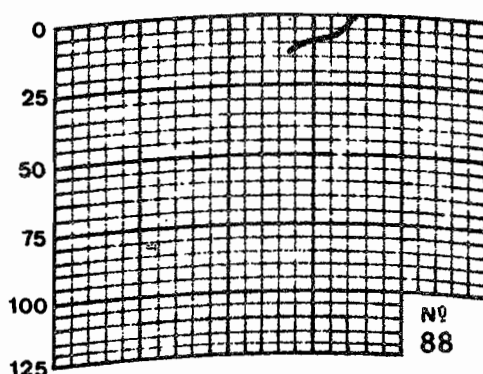
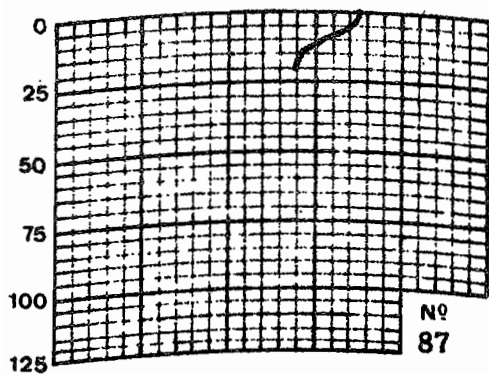
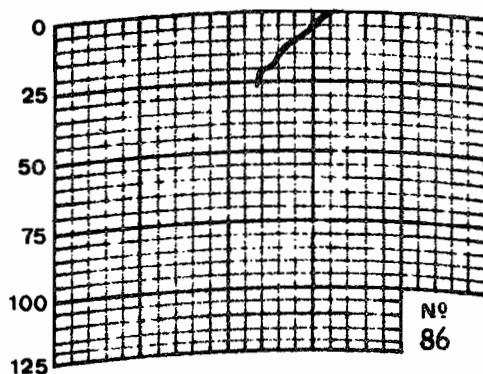
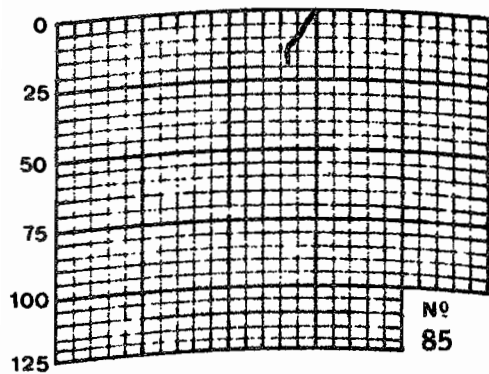
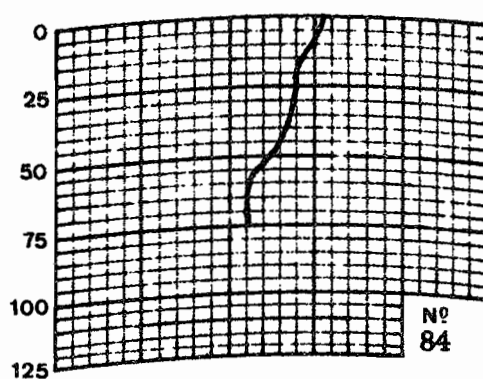
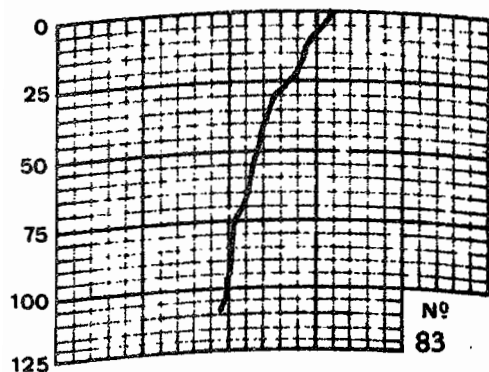
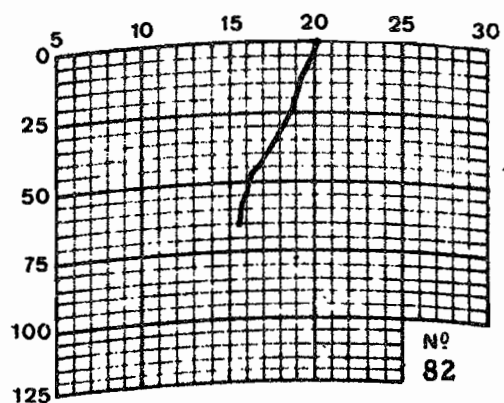
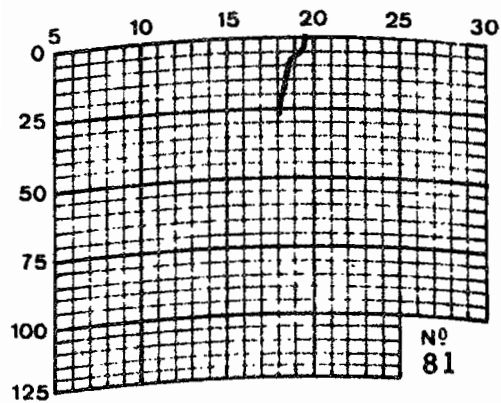


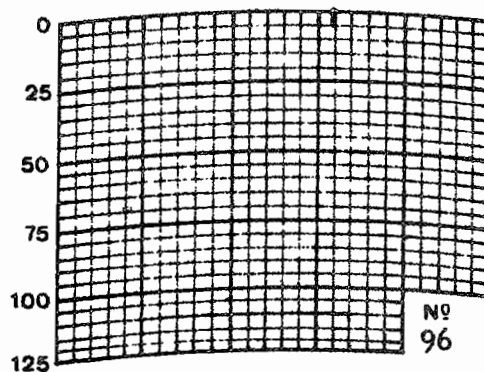
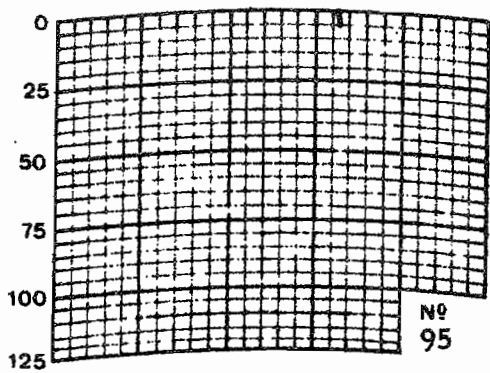
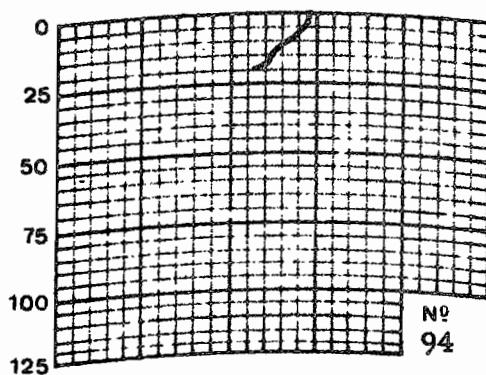
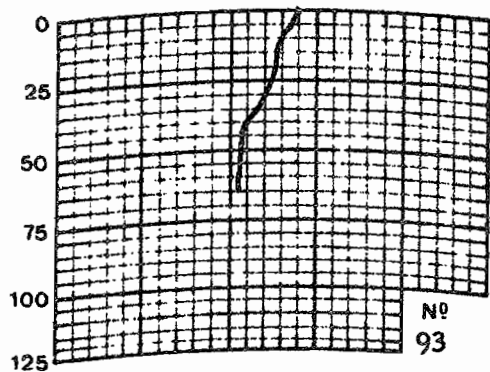
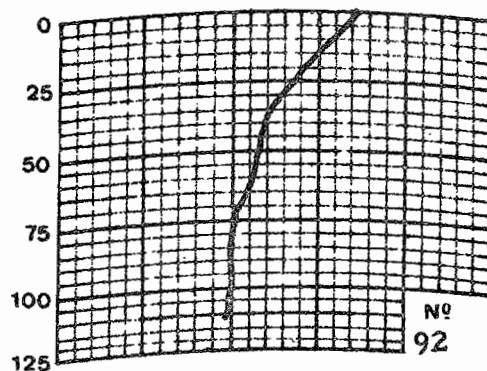
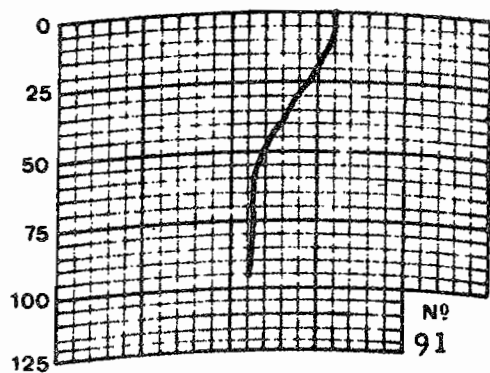
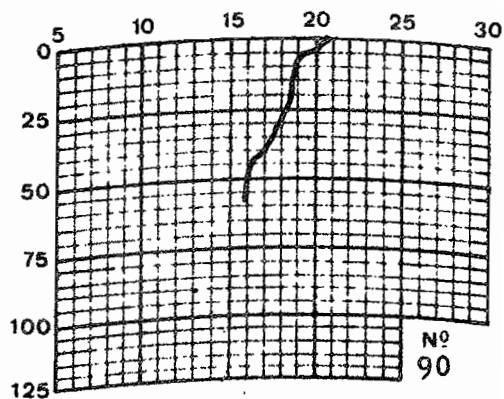
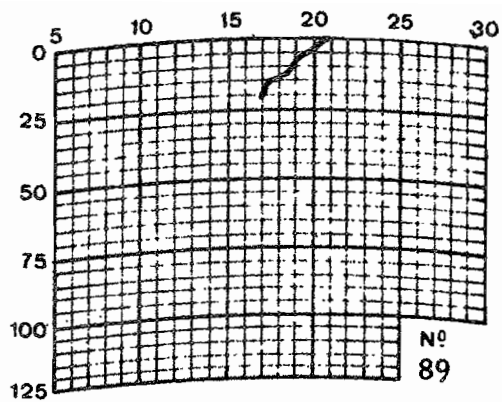


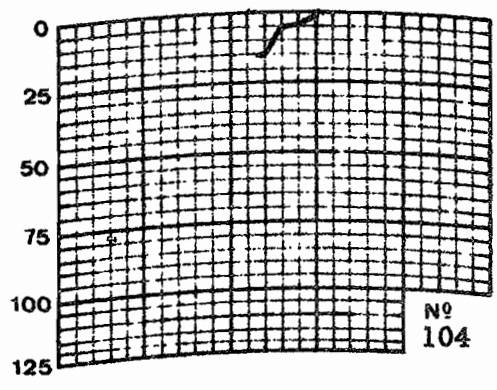
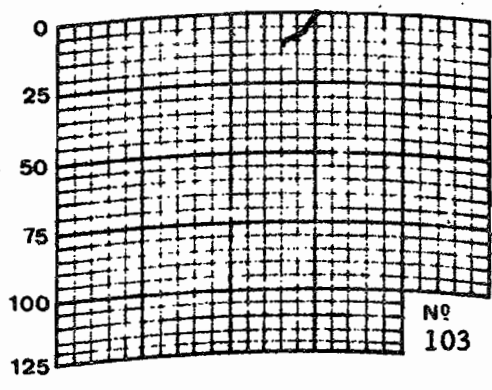
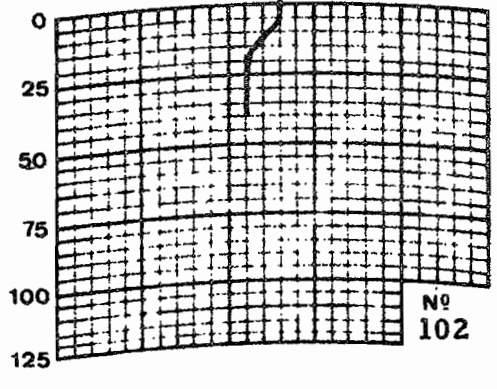
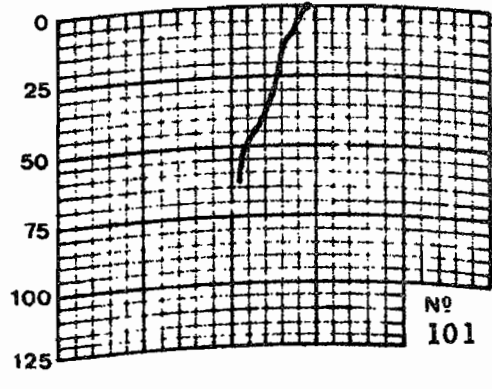
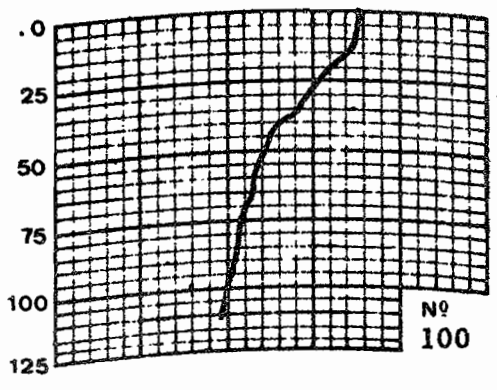
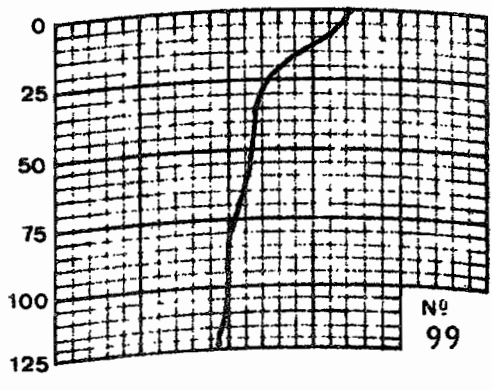
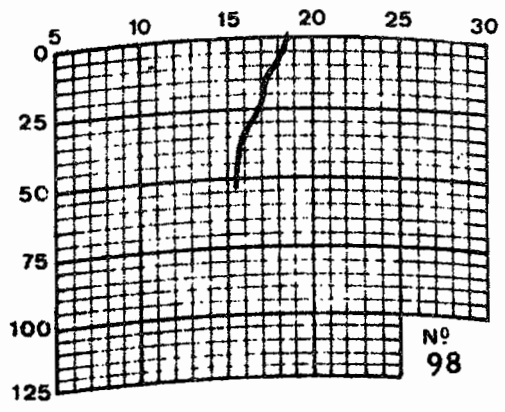
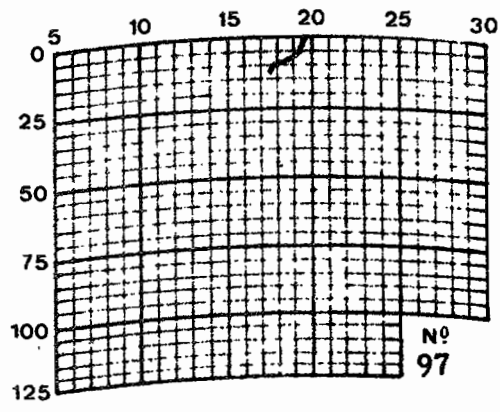


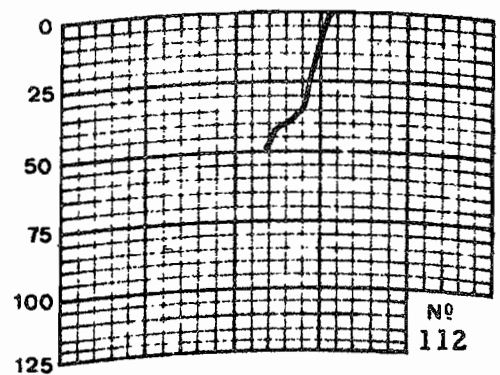
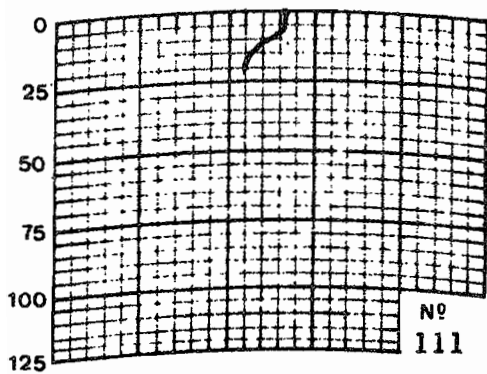
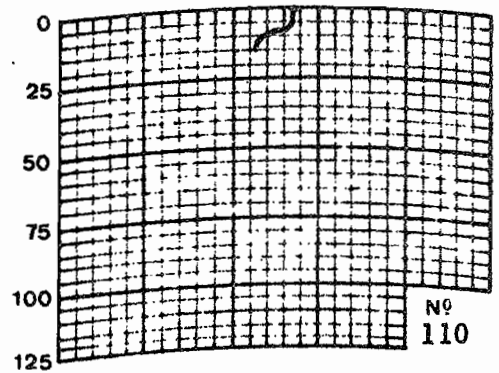
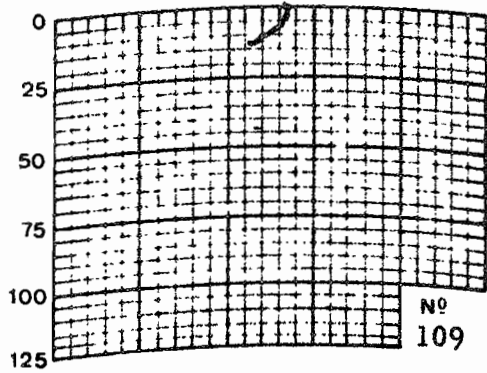
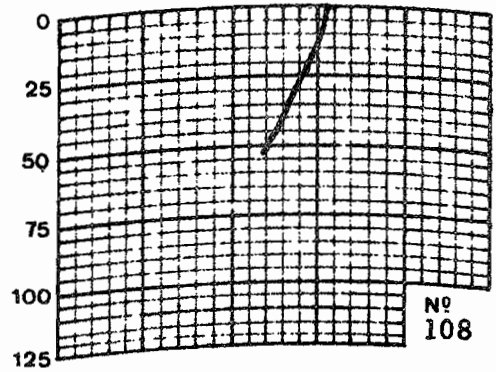
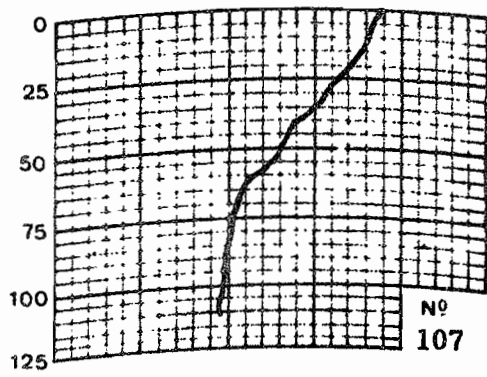
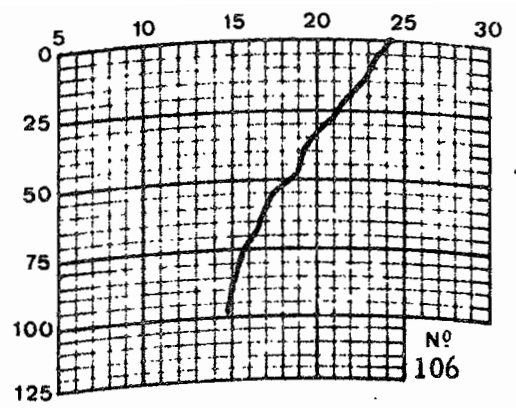
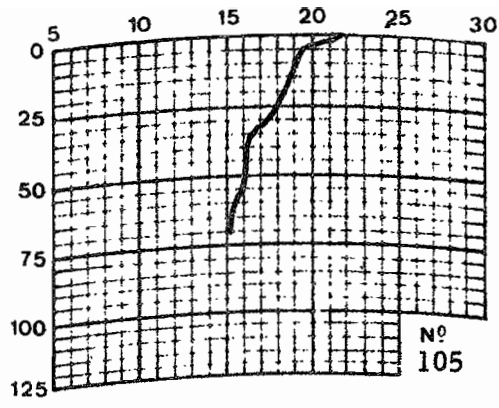


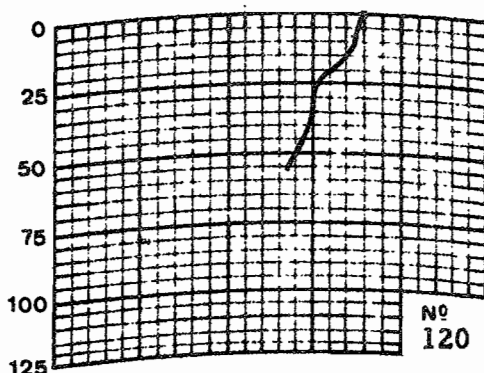
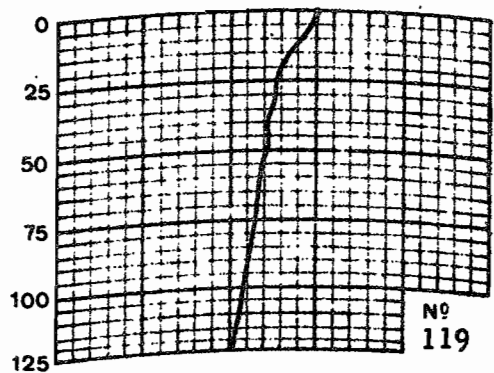
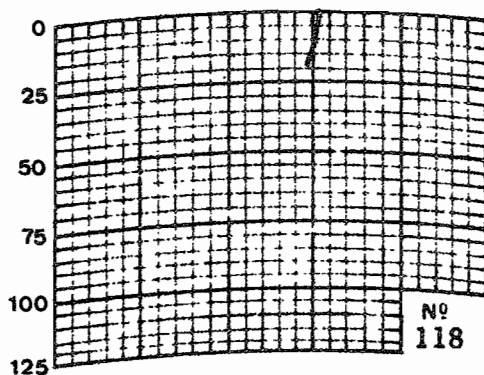
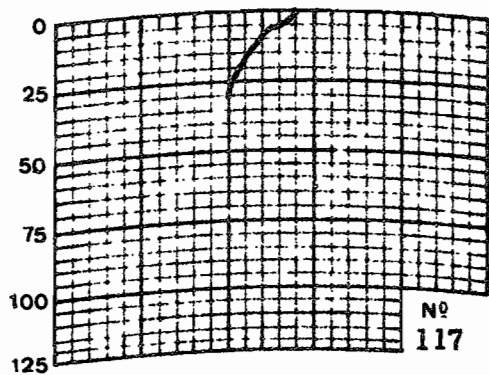
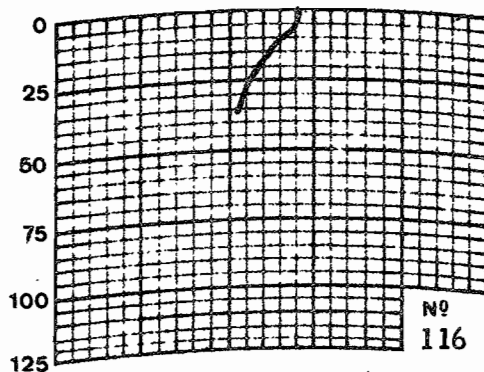
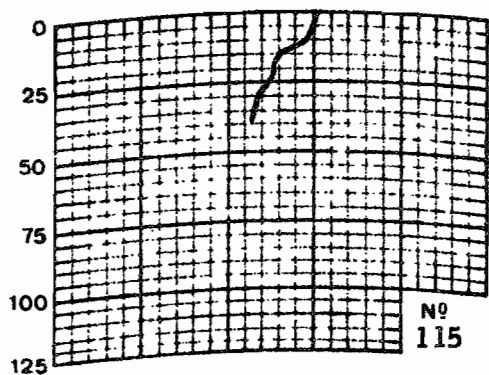
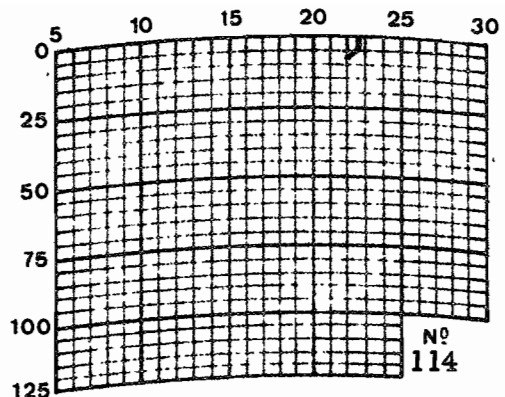
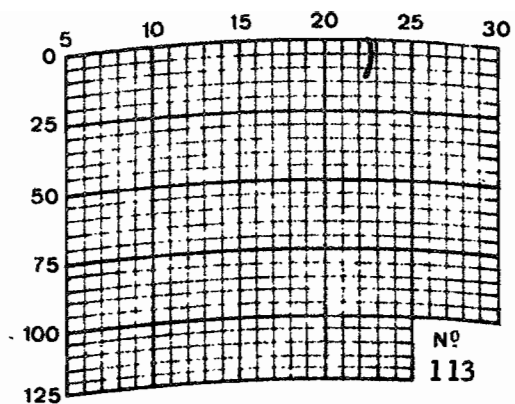


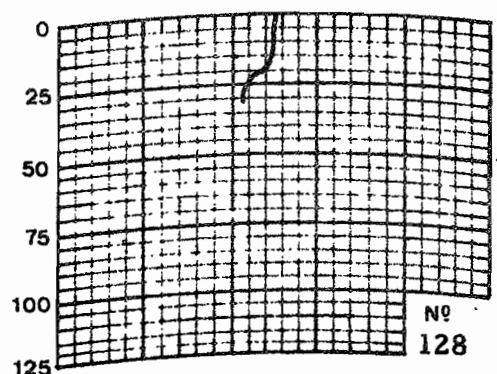
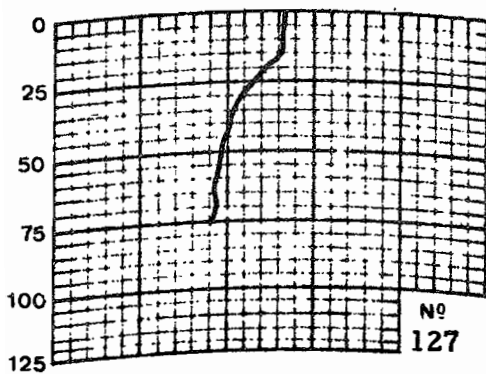
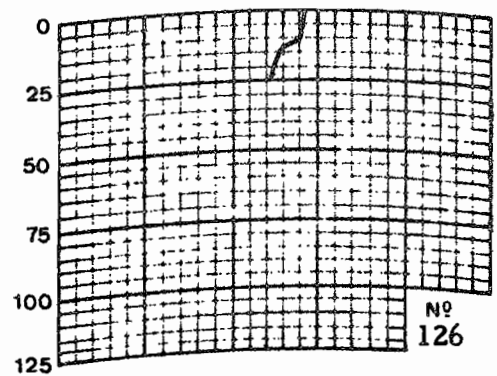
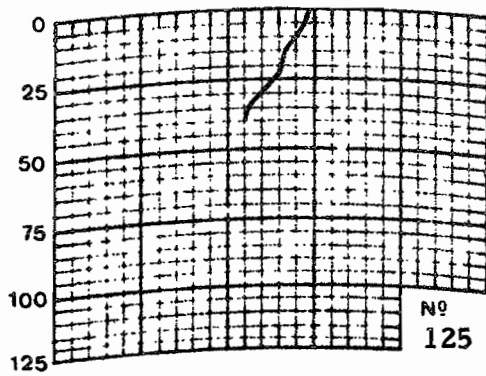
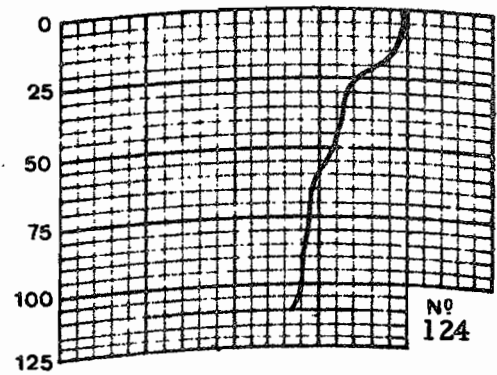
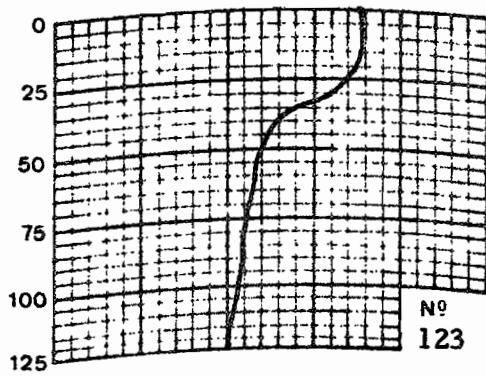
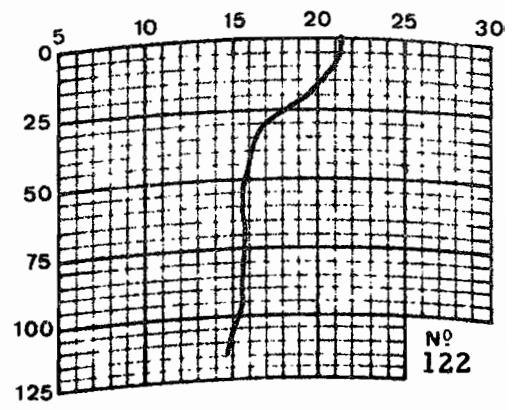
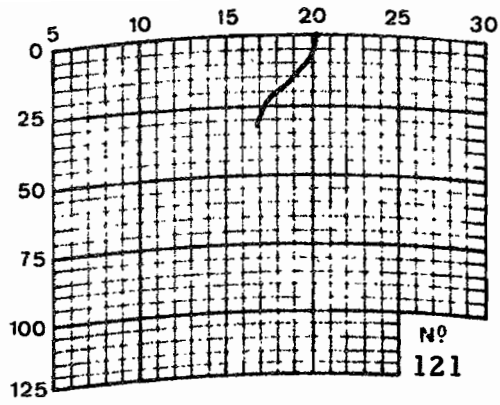


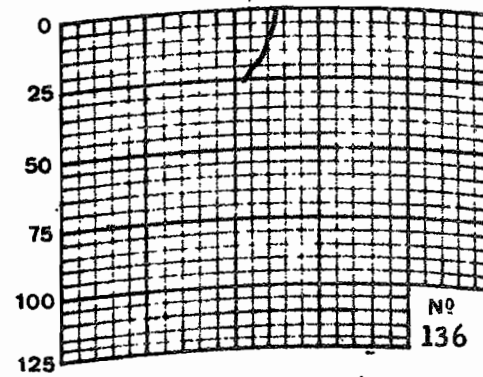
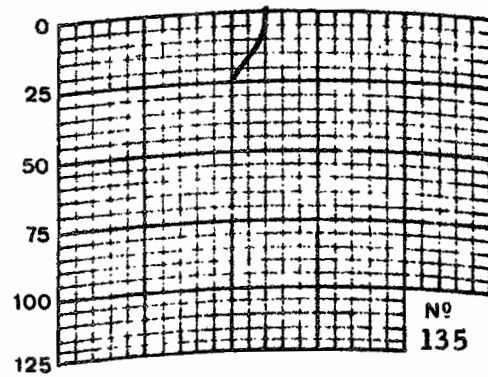
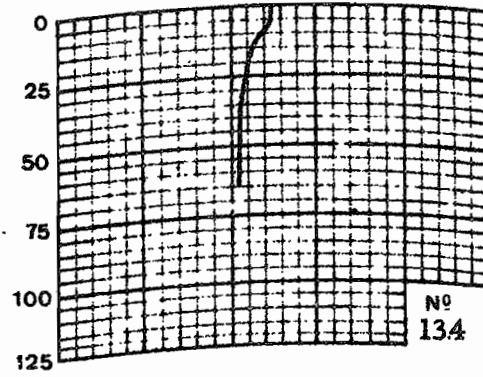
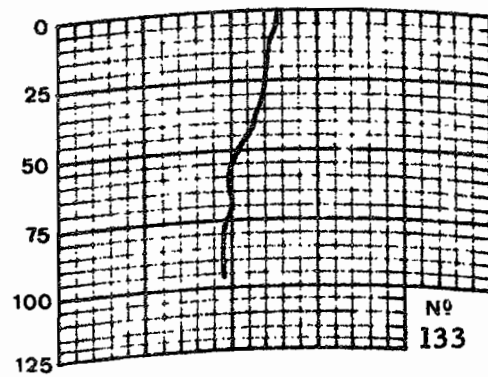
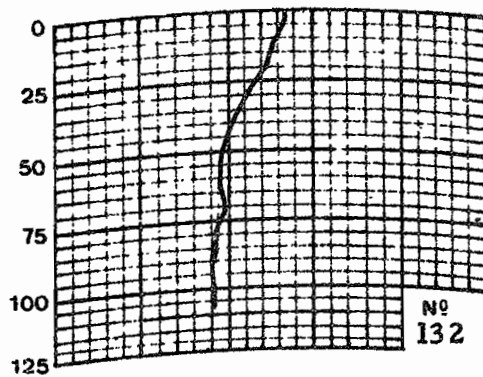
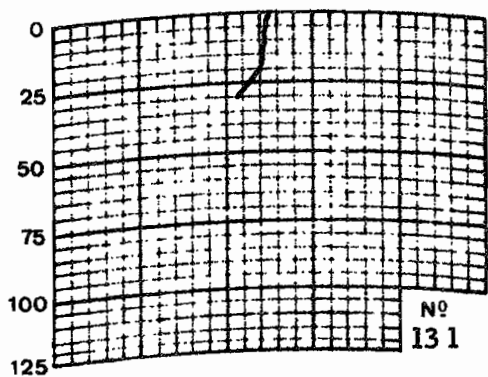
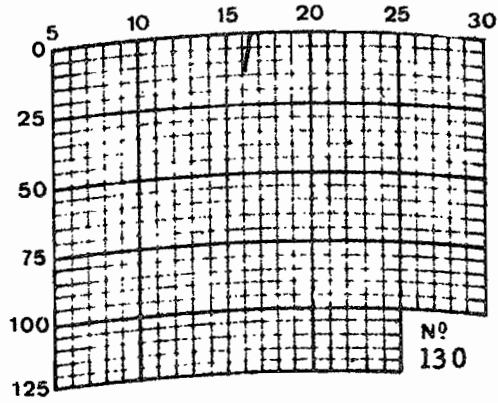
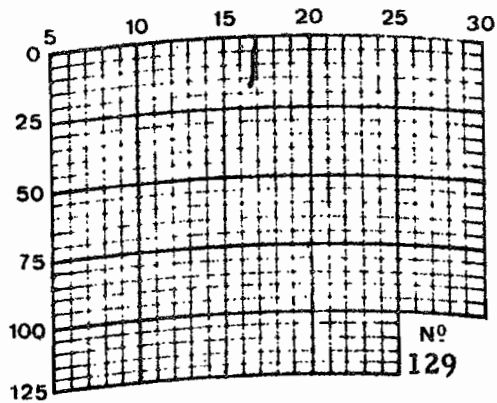


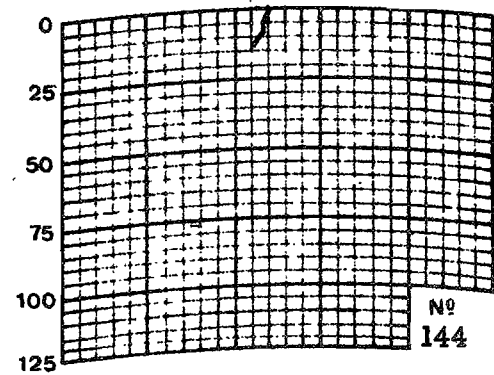
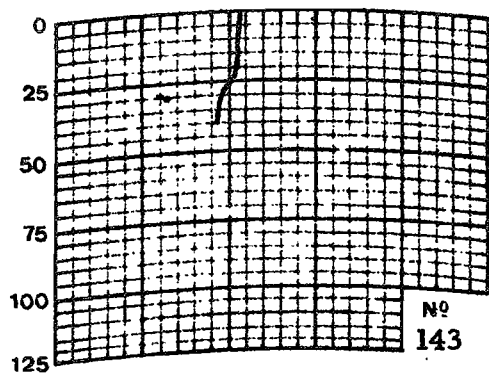
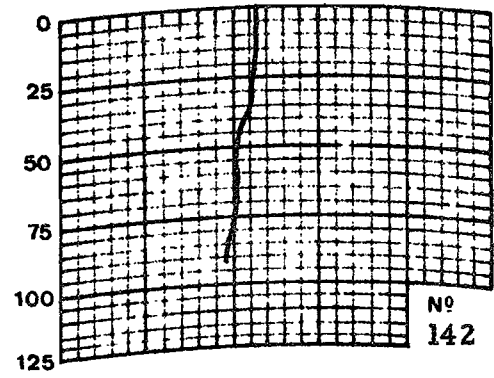
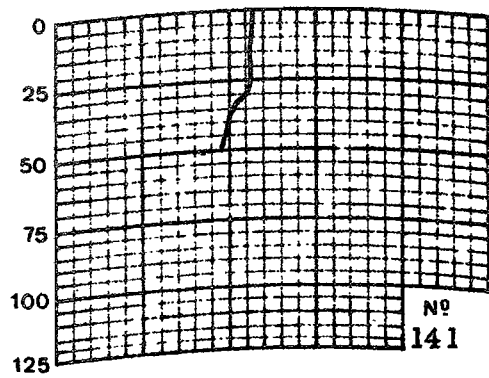
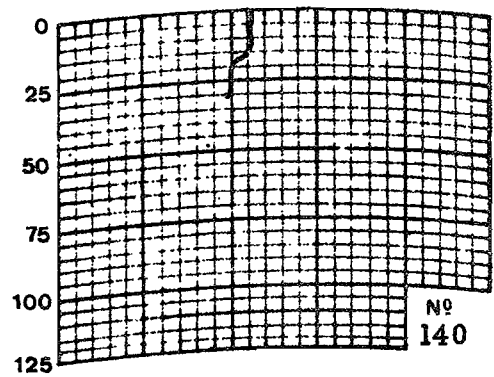
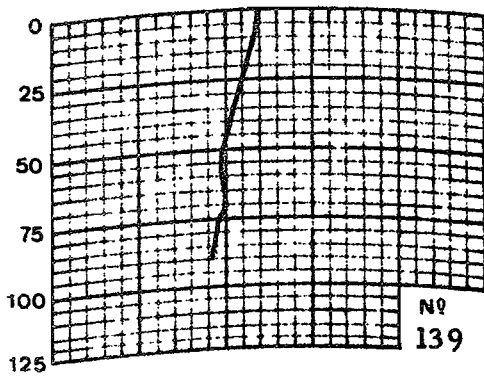
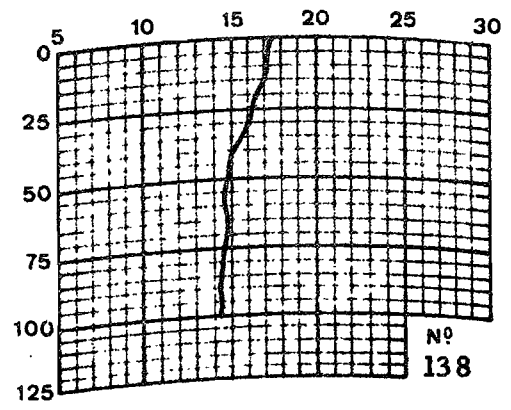
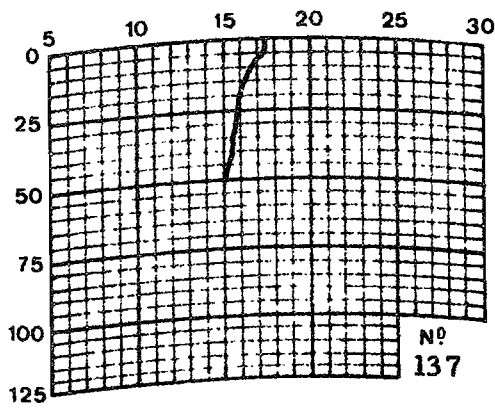


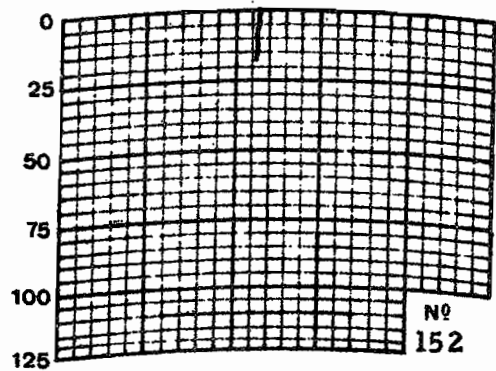
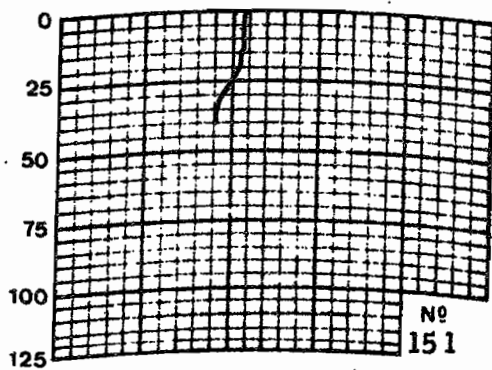
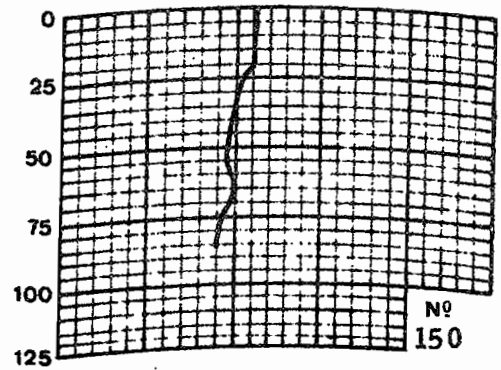
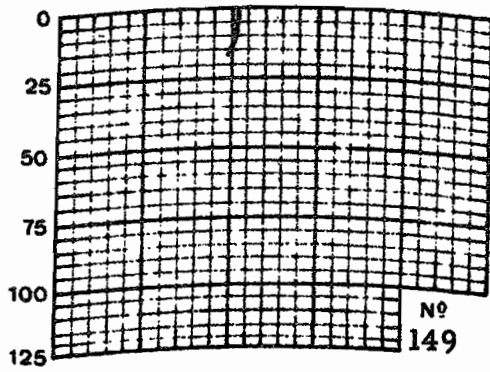
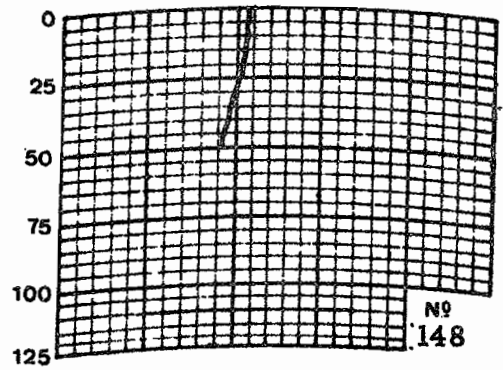
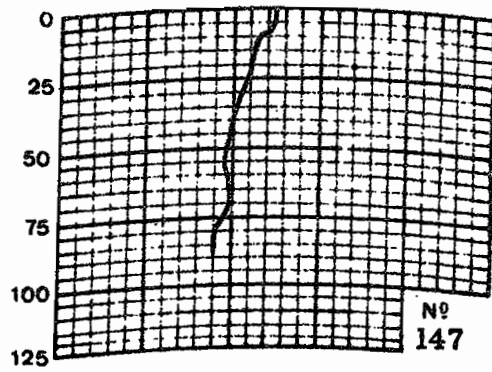
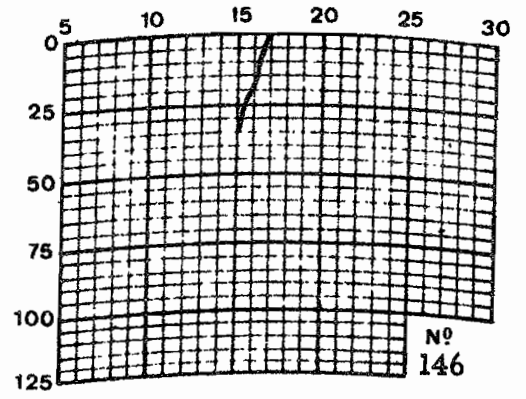
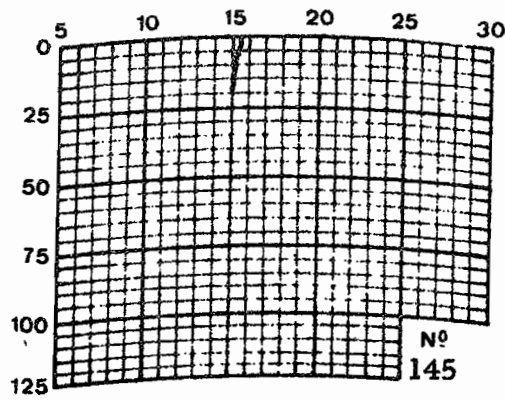


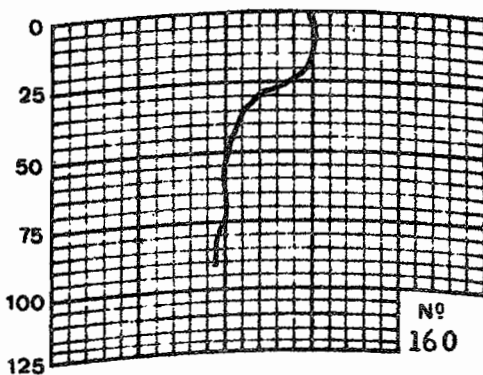
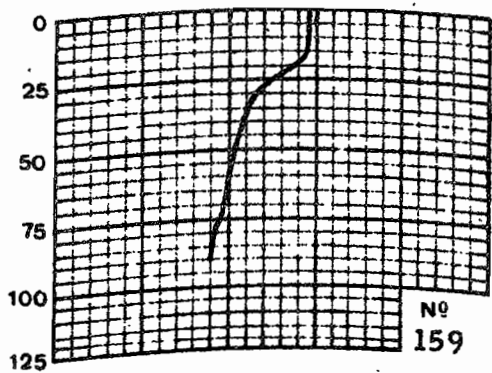
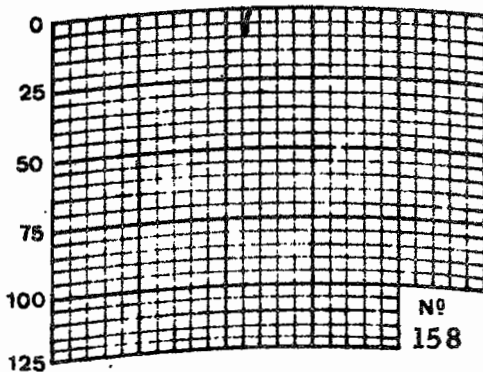
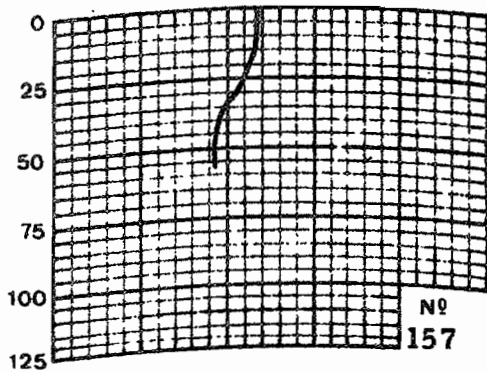
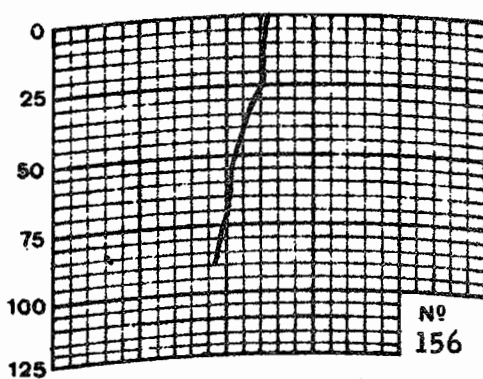
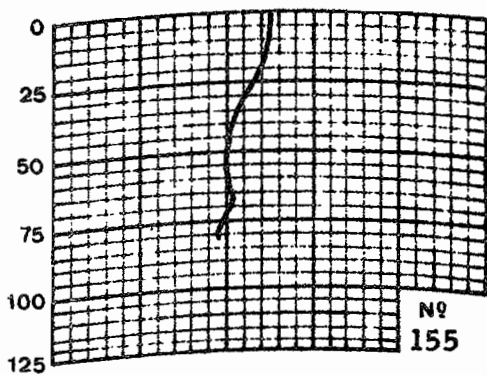
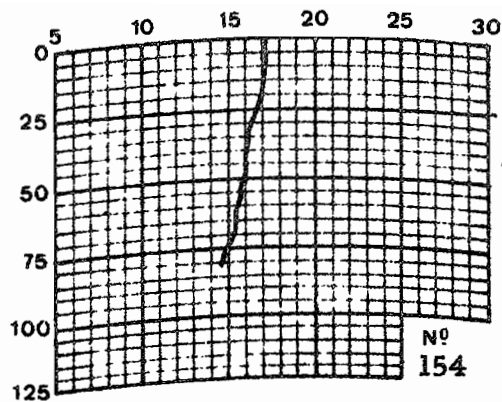
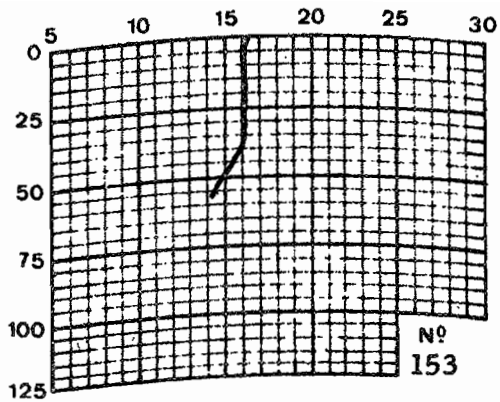


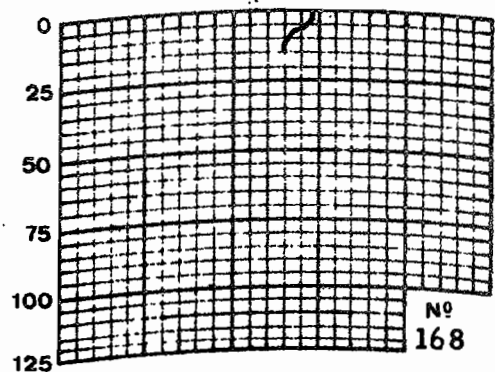
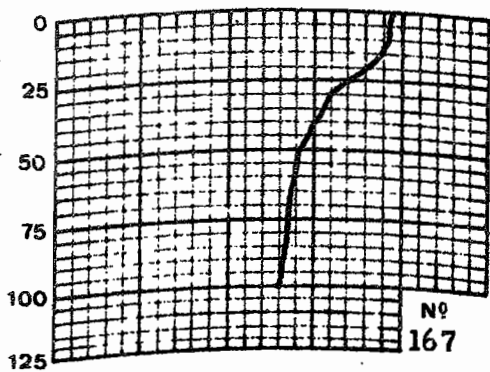
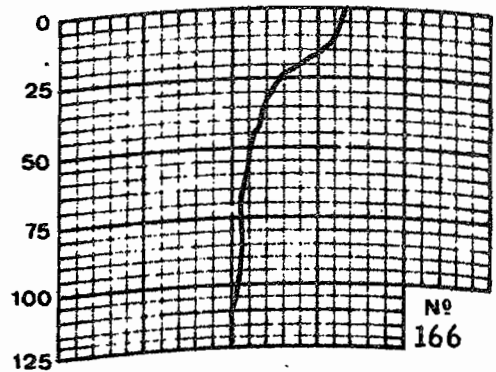
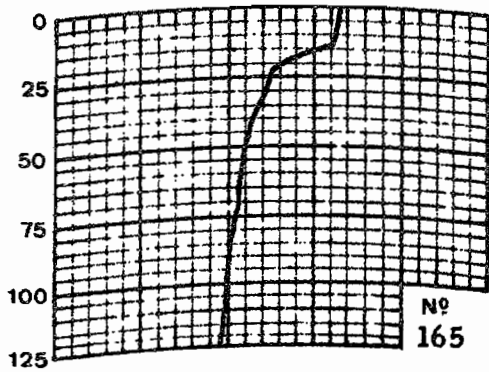
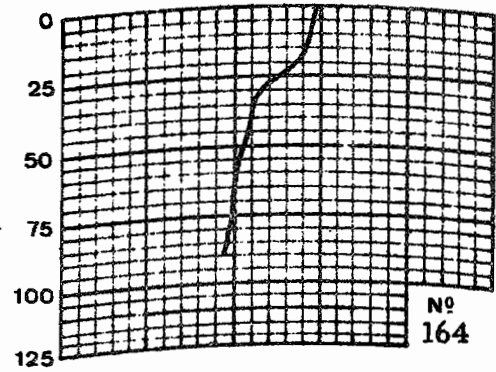
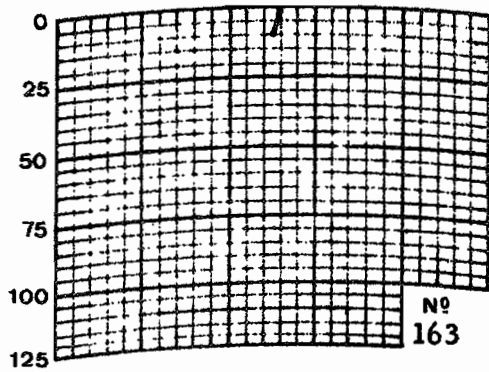
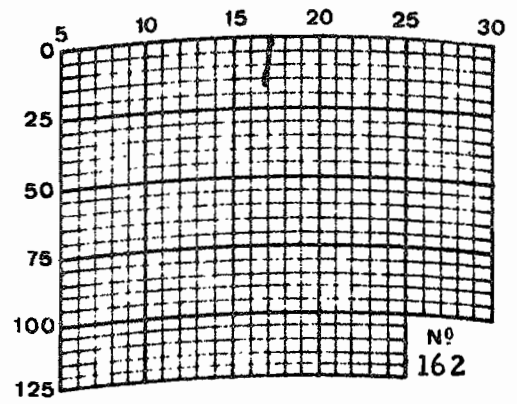
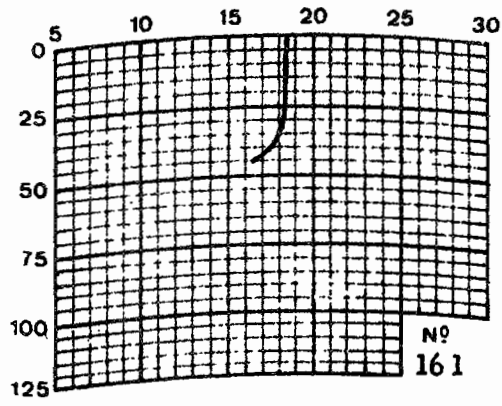


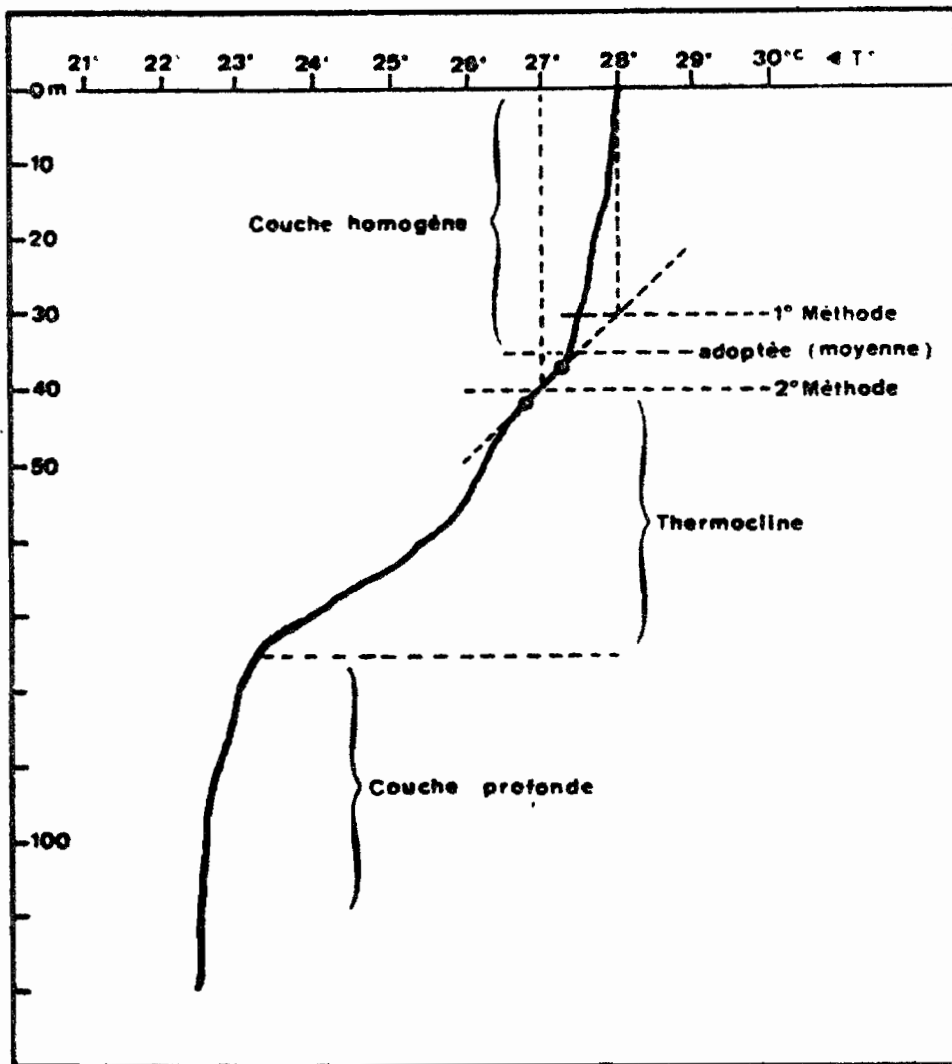












Cette figure représente la définition caractéristique d'un B.T. .
 L'épaisseur de la couche homogène est une donnée spécialement intéressante dans certaines techniques de pêche, mais son estimation à partir d'un B.T. étant assez subjective, il convient de préciser la méthode utilisée par WYRICKI (1971)

On distingue généralement, à partir de la surface :

- Une couche supérieure quasi-homogène
- La thermocline où la température varie rapidement
- Une couche profonde où la température décroît lentement

La profondeur "P" de la couche homogène est estimée par deux méthodes :

Par la première méthode : On note le premier intervalle où la température varie de plus de 0,5 degré en 5 mètres ; "P" est alors l'immersion où la droite (qui joint les points représentant cet intervalle sur la courbe bathythermique) coupe la verticale correspondant à la température de surface.

Par la deuxième méthode : On prend "P" égal à l'immersion où l'on observe 1 degré de moins qu'à la surface.

- Lorsque ces deux méthodes sont applicables on adopte pour "P" la moyenne des deux valeurs obtenues.

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