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INSTITUT SENEGALAIS DE
RECHERCHES,, AGRICOLES

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

par

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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 4A 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.

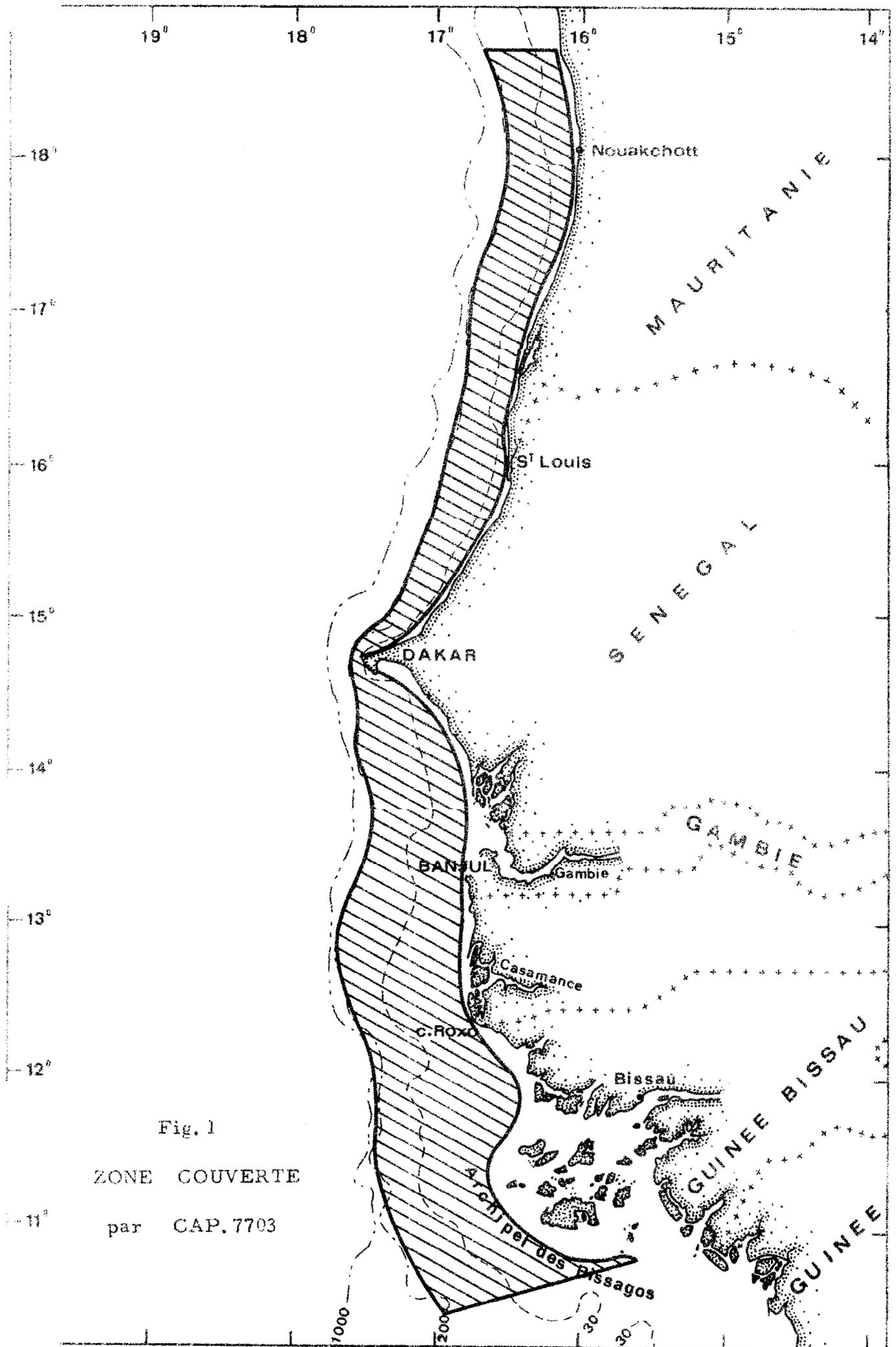


Fig. 1

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.

BATHYTHERMOGRAPWES (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	10.16	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
"	11.30	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
VI	\$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						
"	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

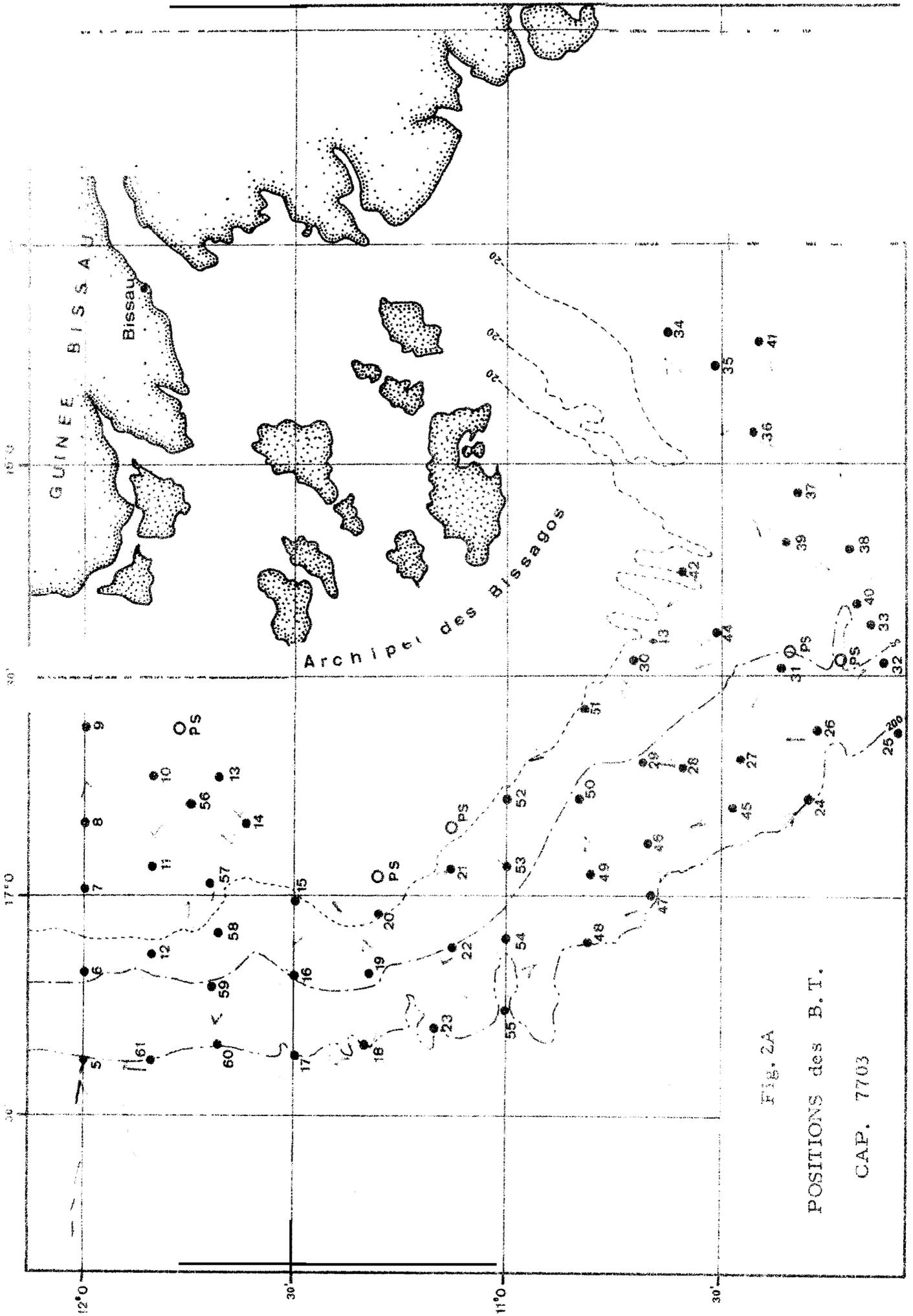
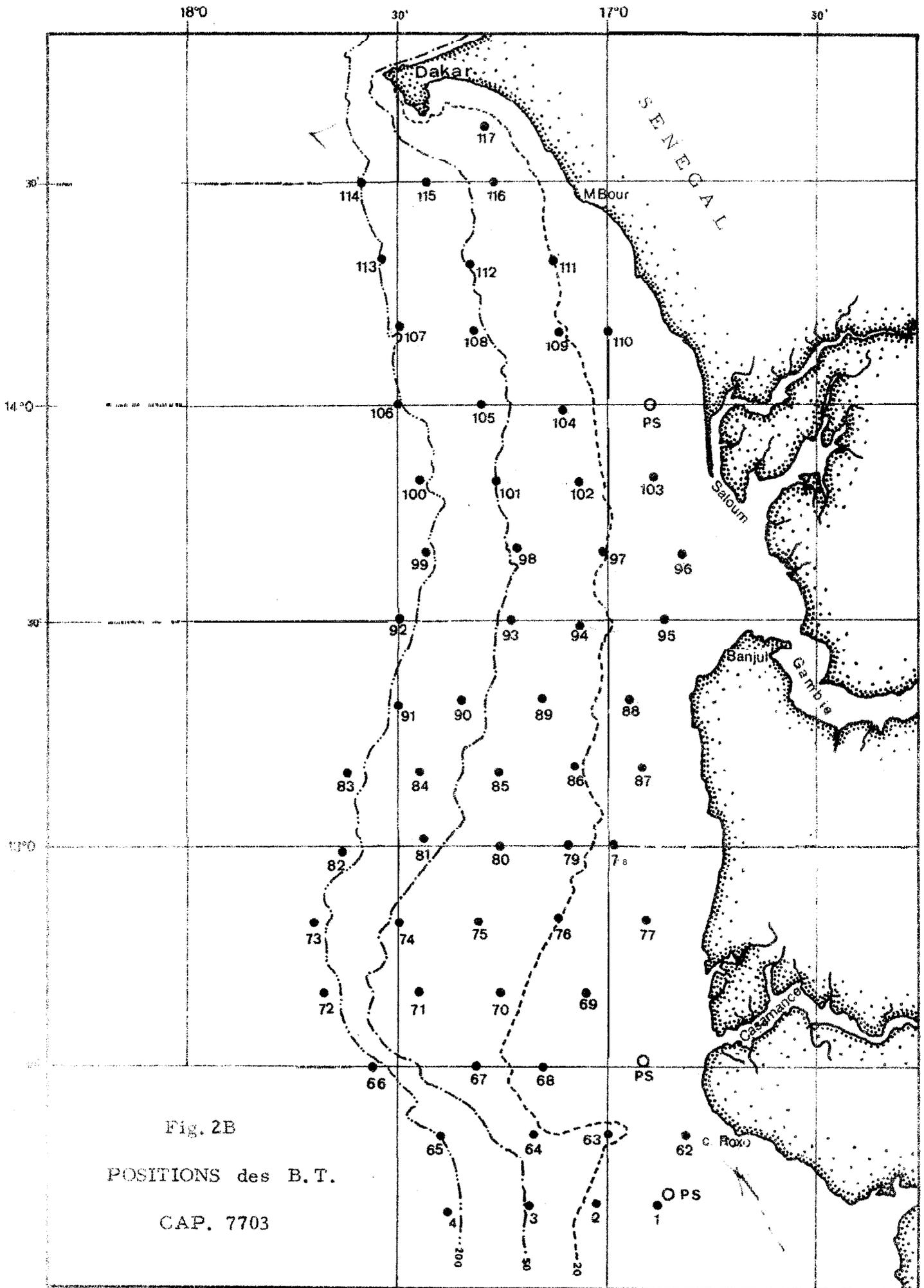


FIG. 2A
 POSITIONS des B.T.
 CAP. 7703



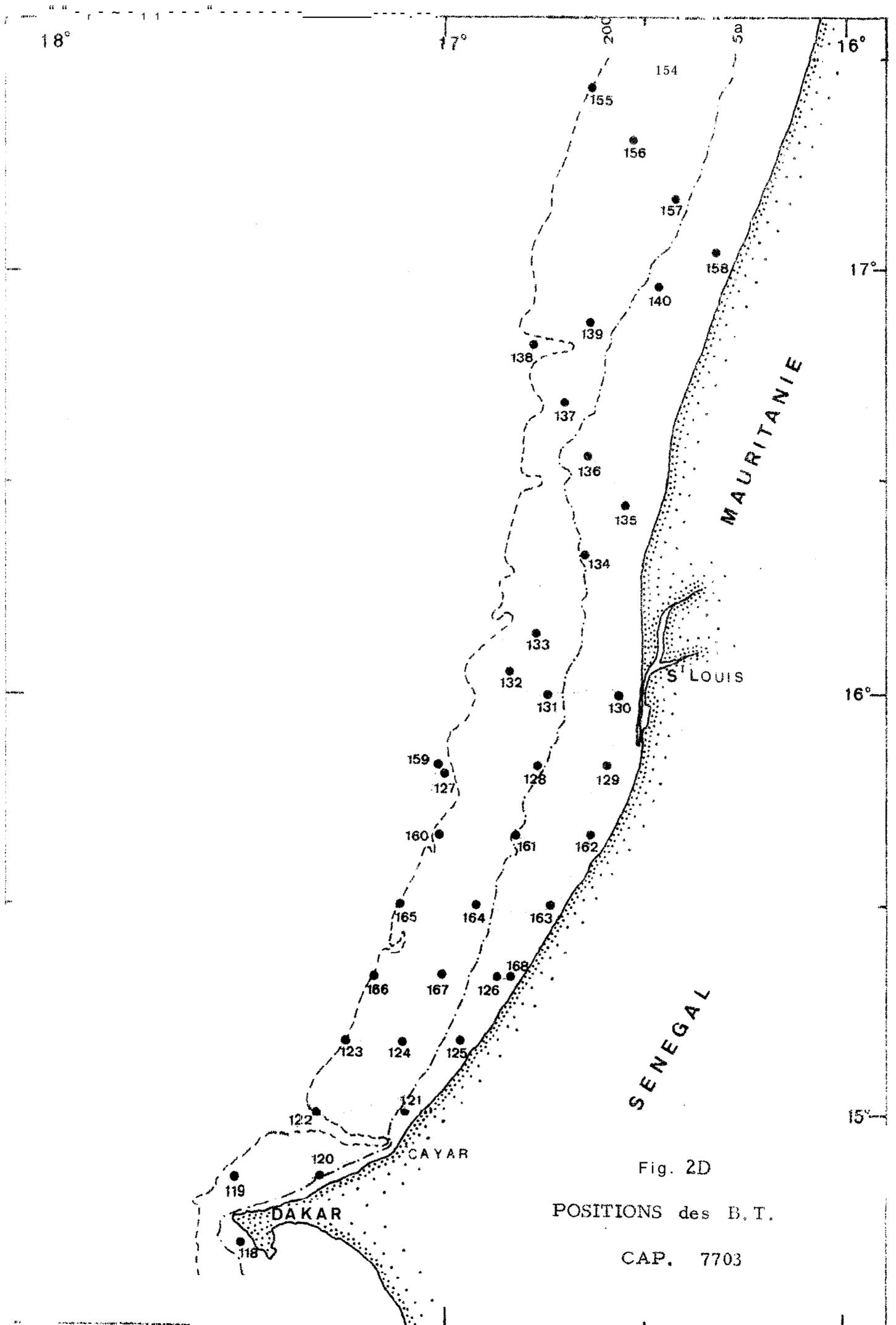


Fig. 2D

POSITIONS des B. T.

CAP. 7703

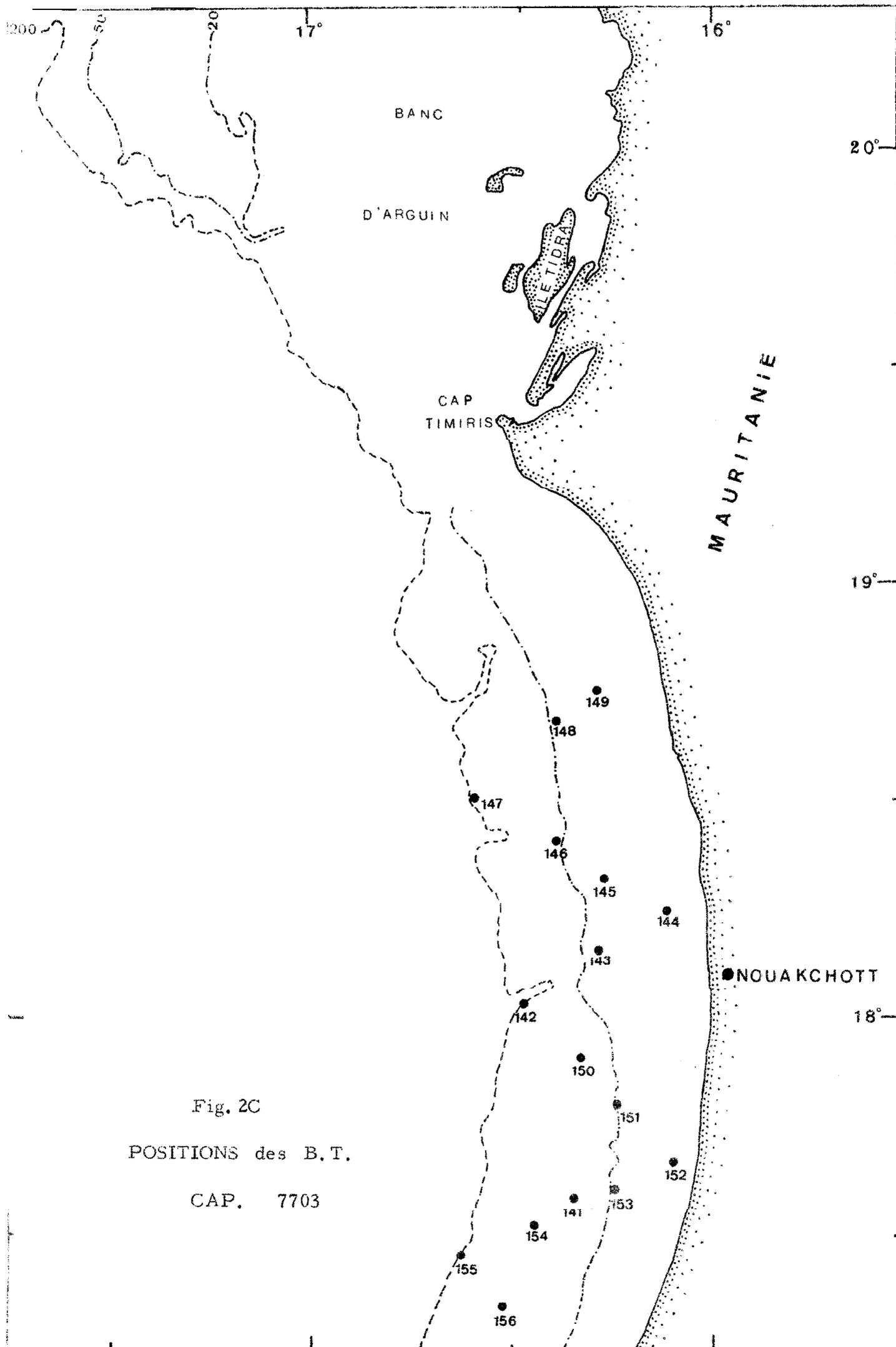
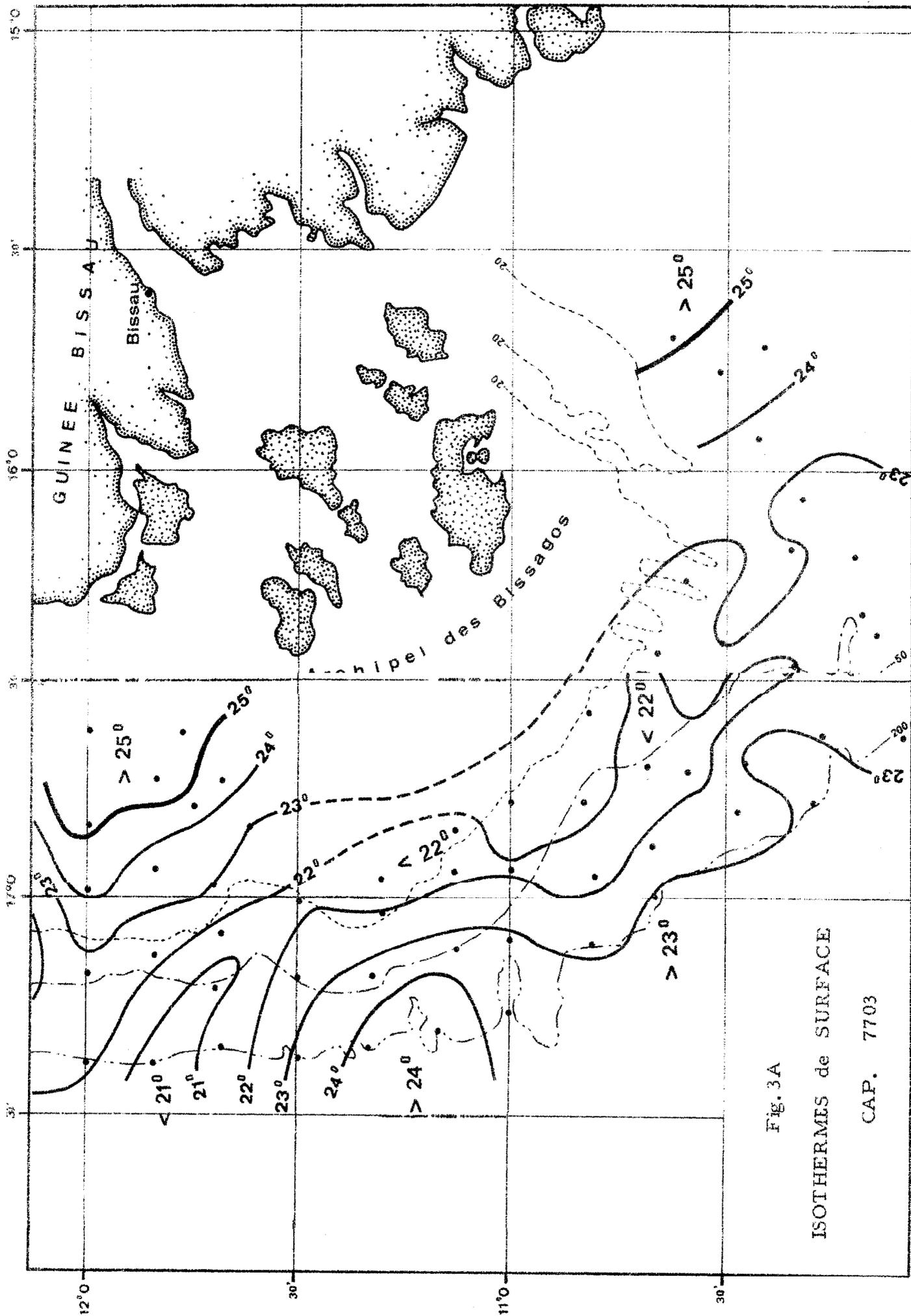


Fig. 2C

POSITIONS des B.T.

CAP. 7703



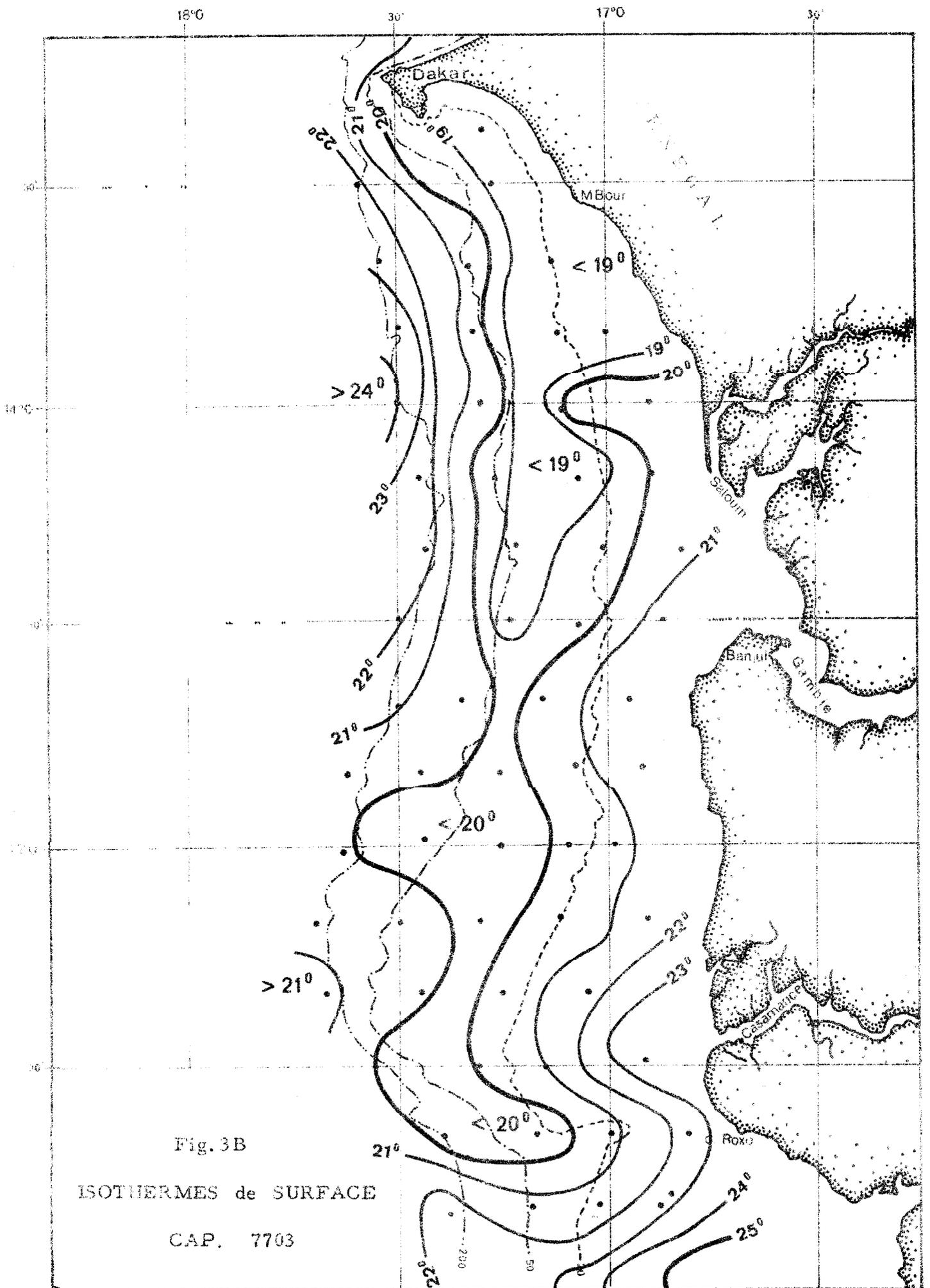


Fig. 3B

ISOTHERMES de SURFACE

CAP. 7703

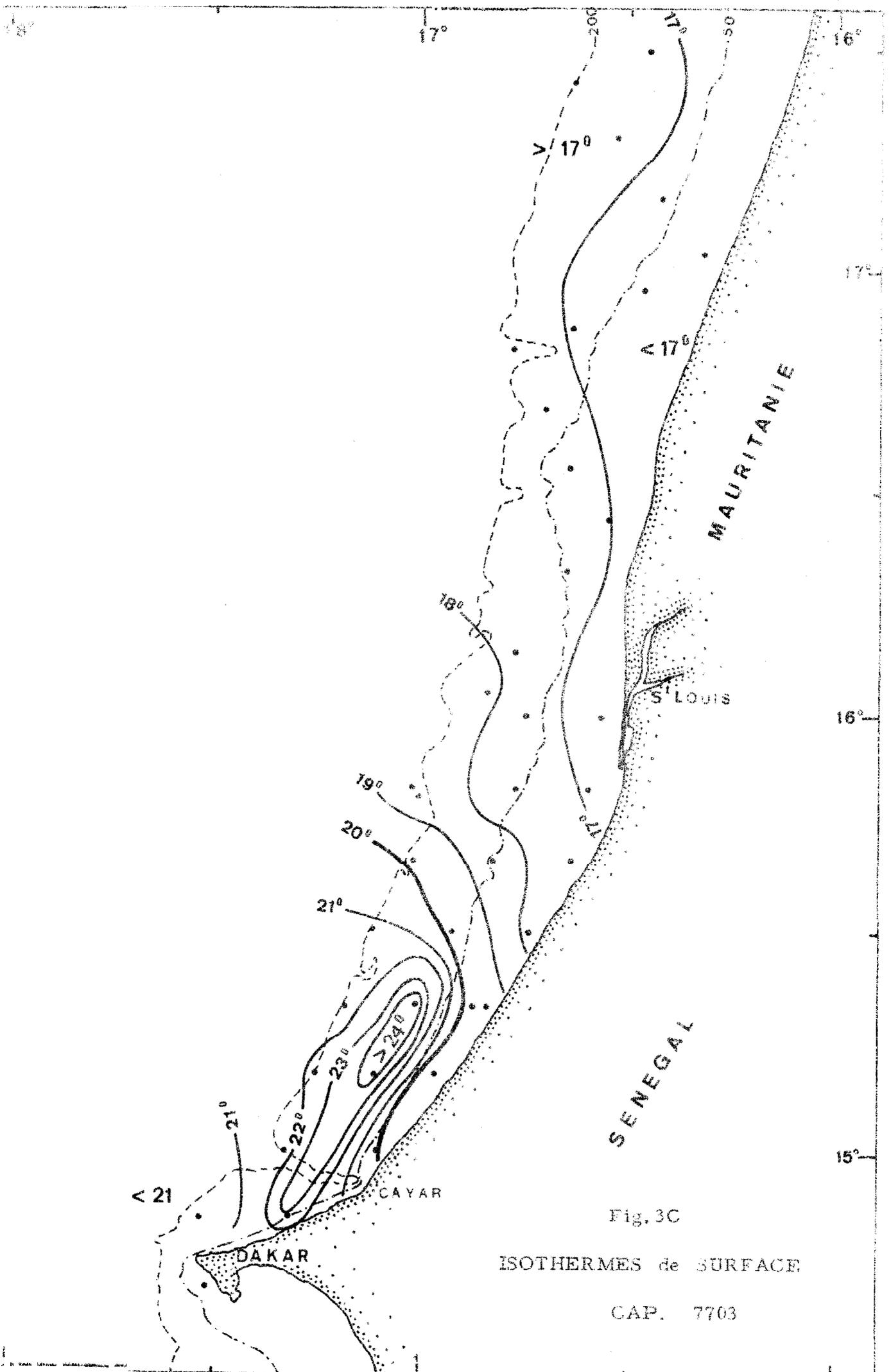


Fig. 3C

ISOTHERMES de SURFACE

CAP. 7703

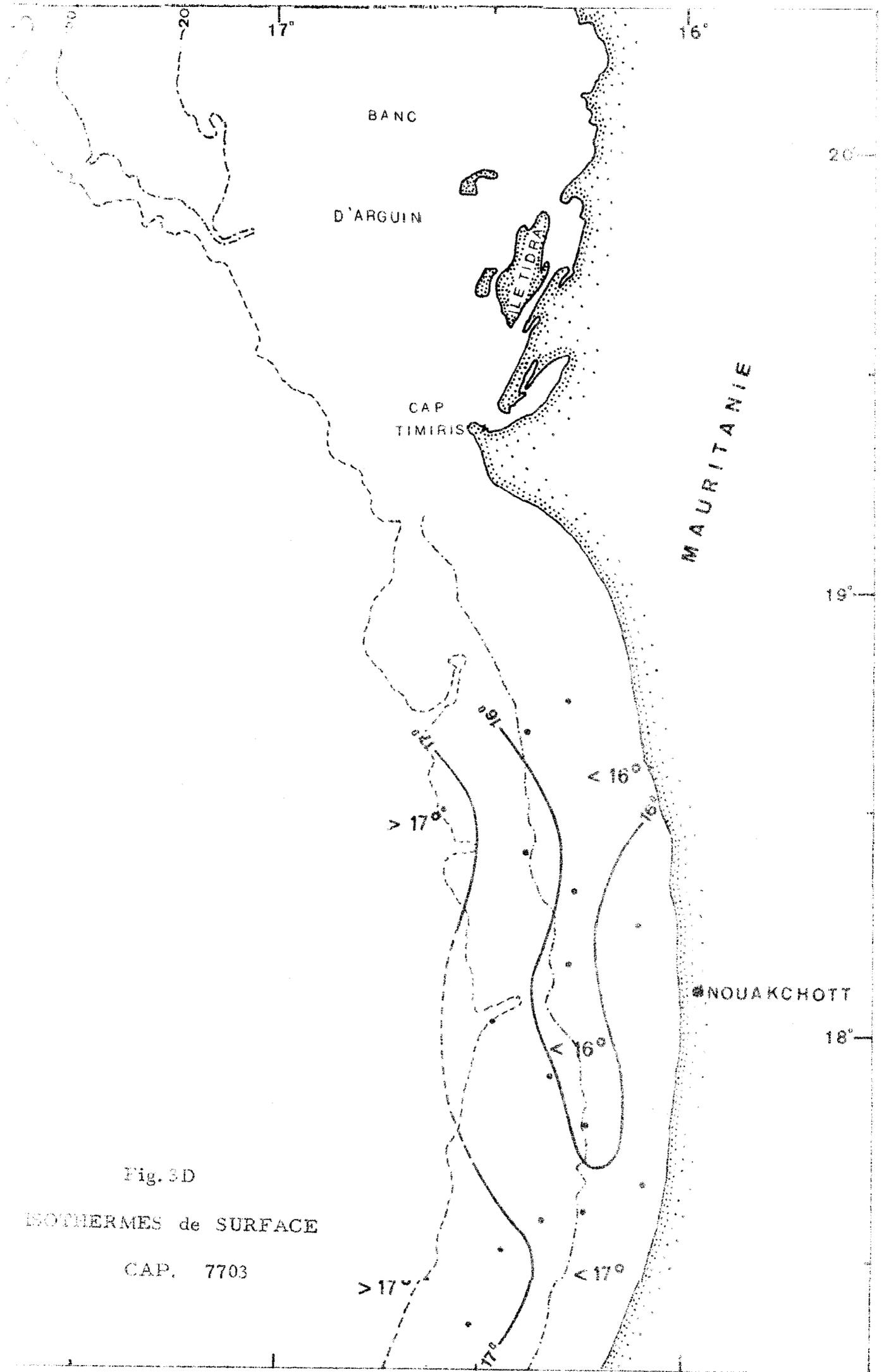
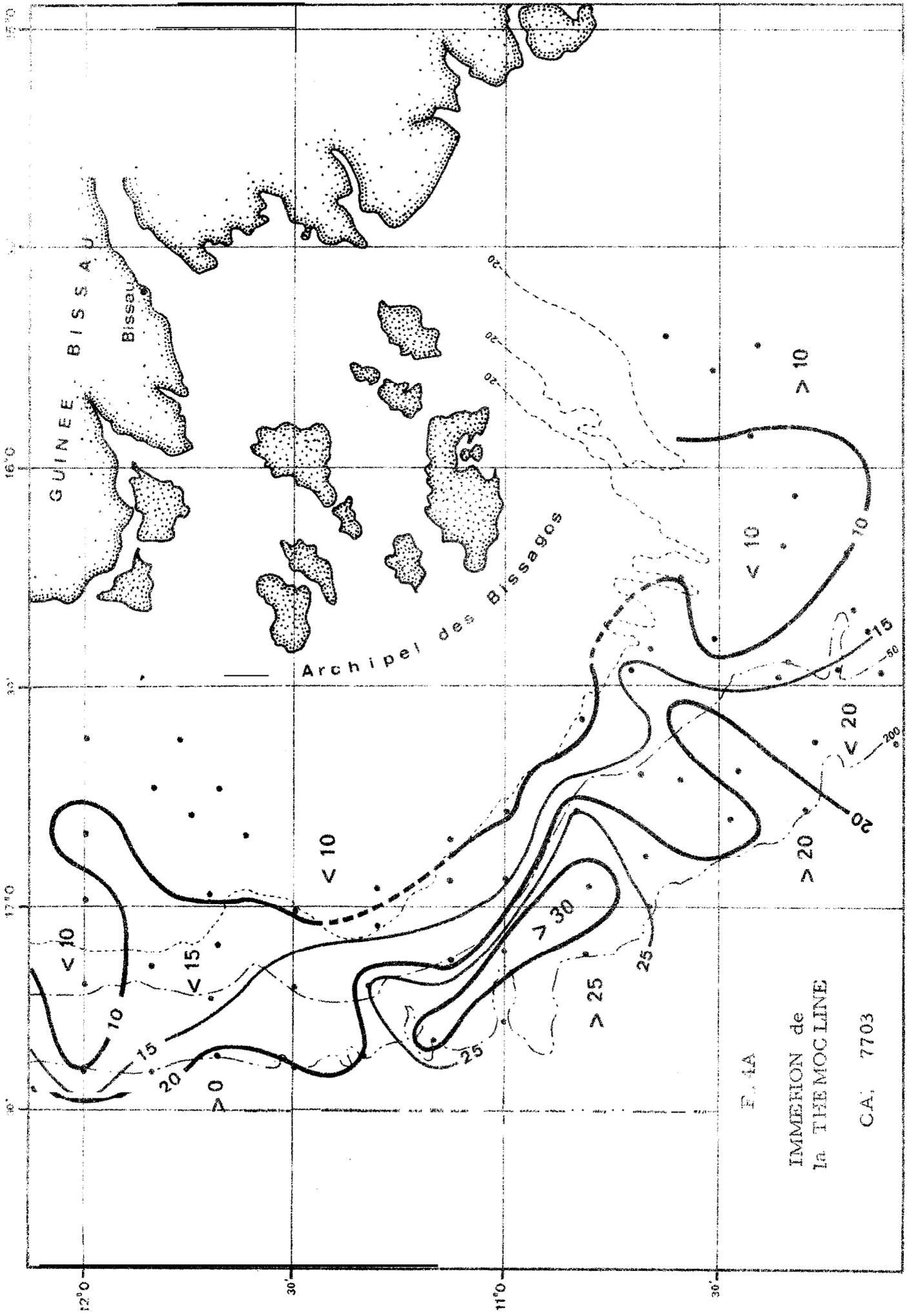


Fig. 3D
 ISOTHERMES de SURFACE
 CAP. 7703



E. 4A
 IMMERSION de
 la THERMOCLINE
 C.A. 7703

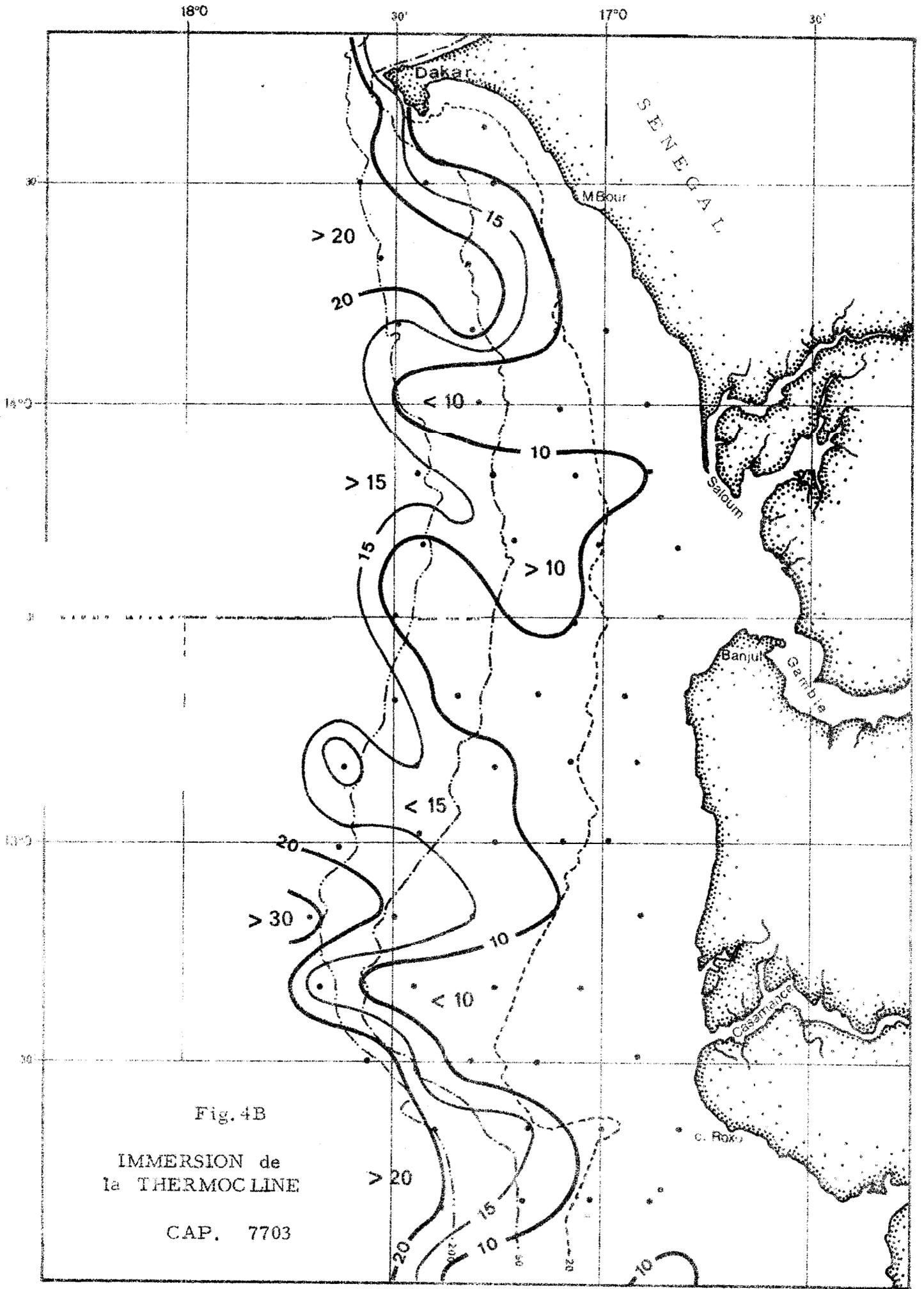


Fig. 4B

IMMERSION de
la THERMOCLINE

CAP. 7703

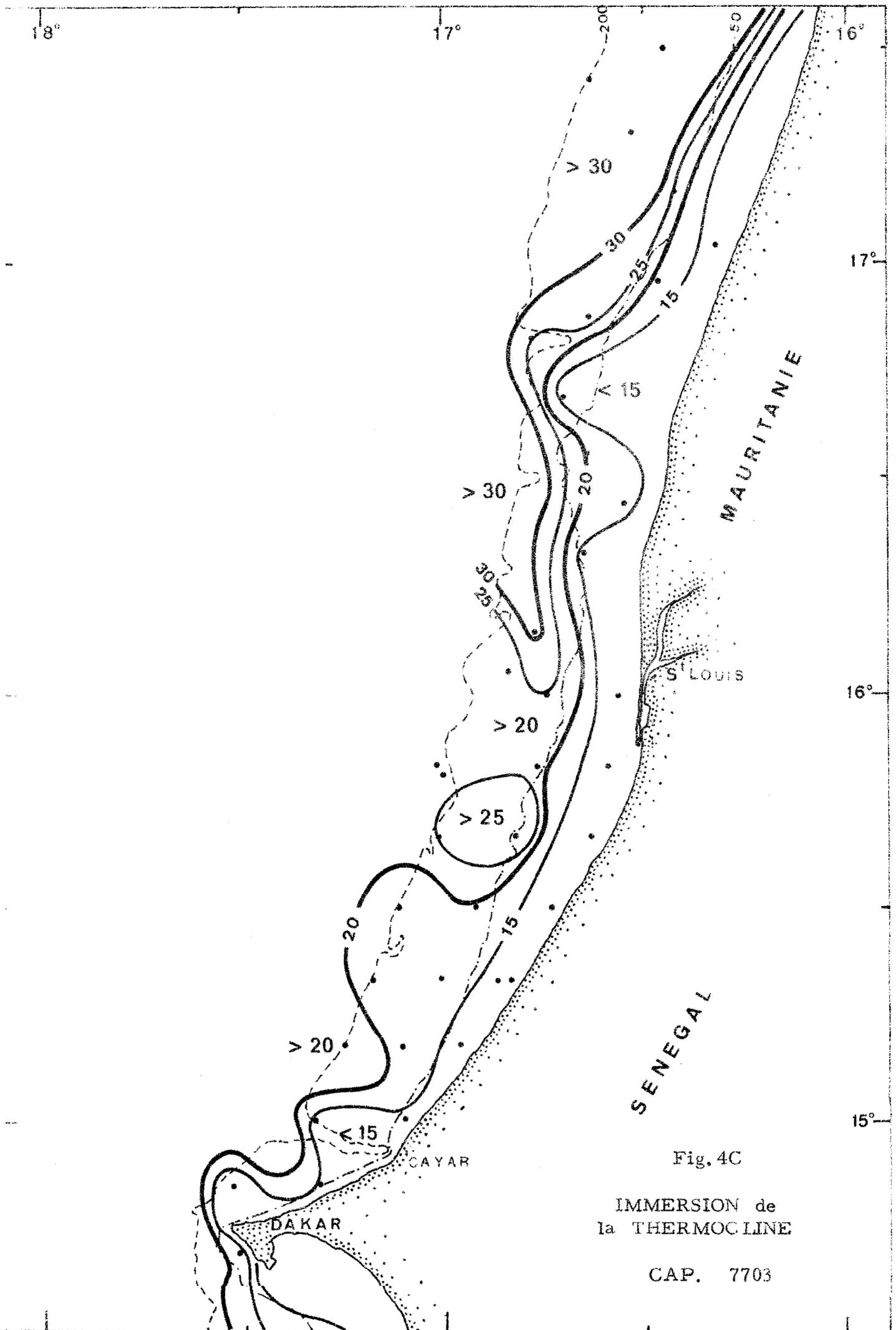


Fig. 4C

IMMERSION de
la THERMOCLINE

CAP. 7703

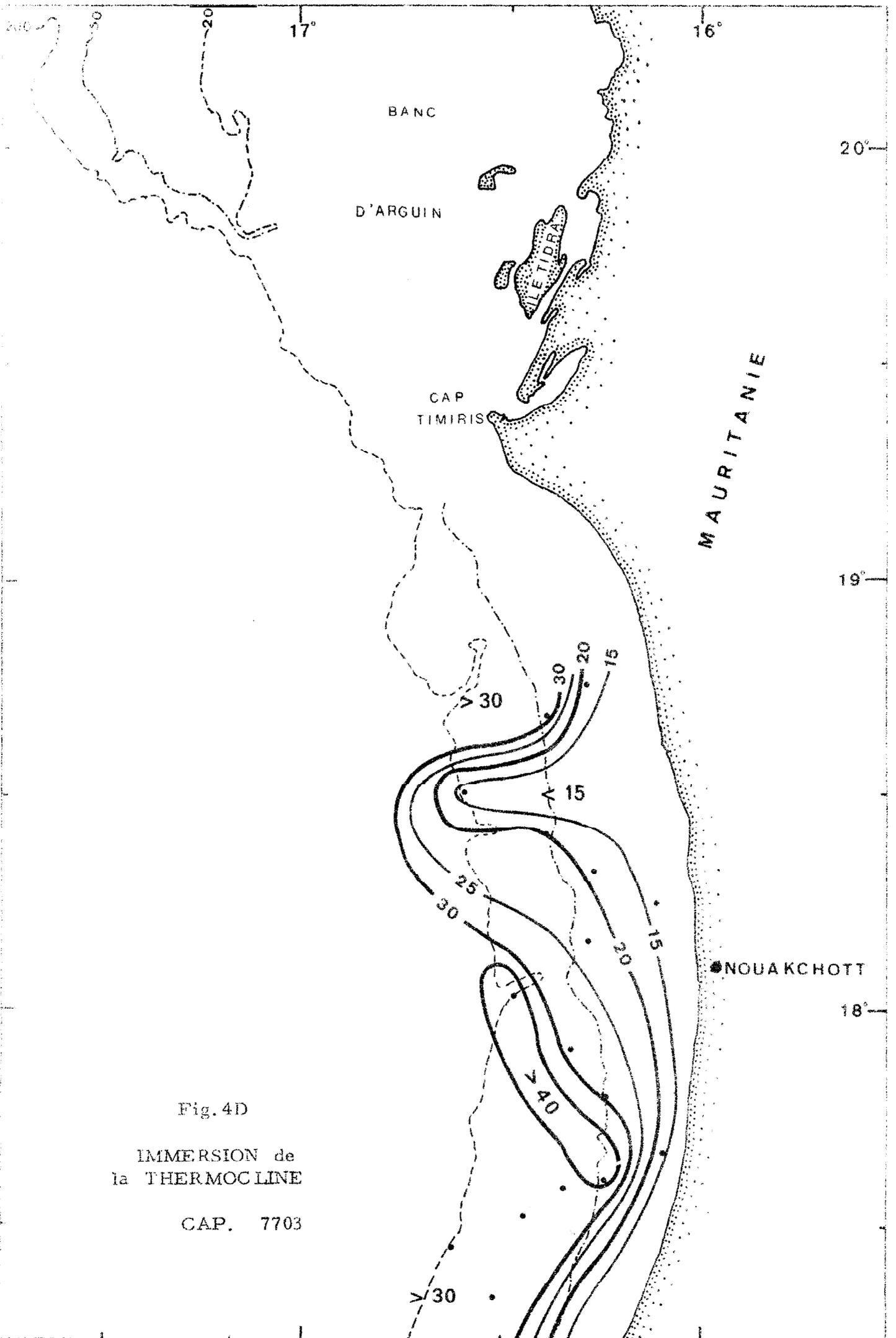
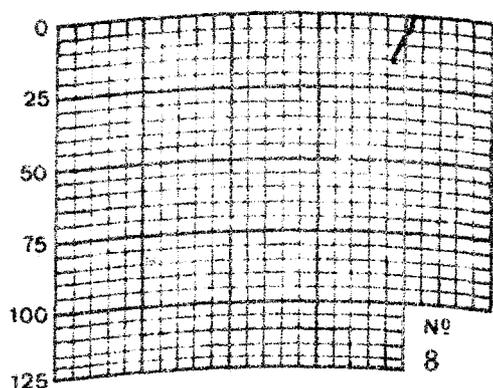
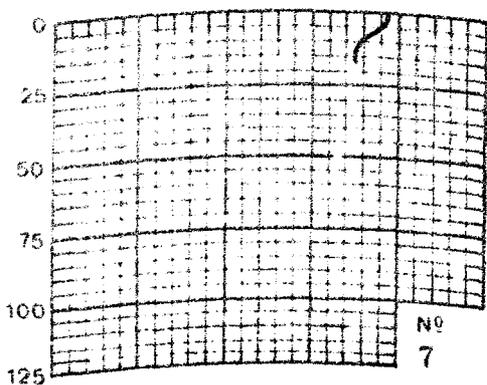
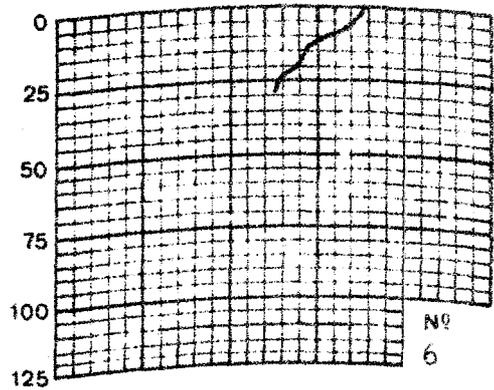
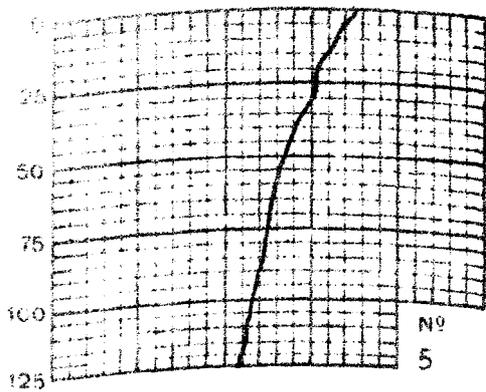
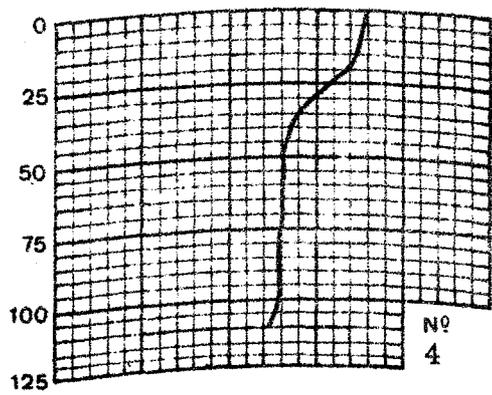
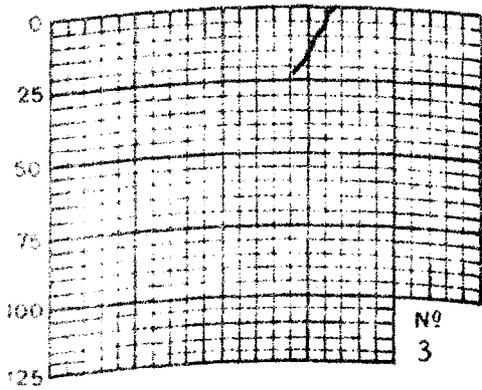
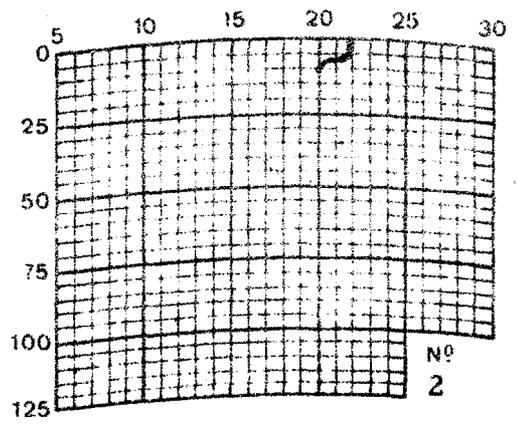
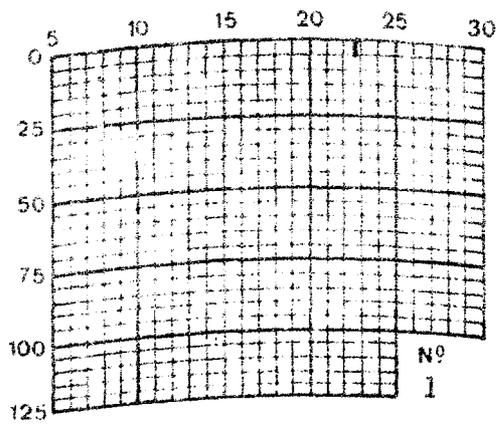
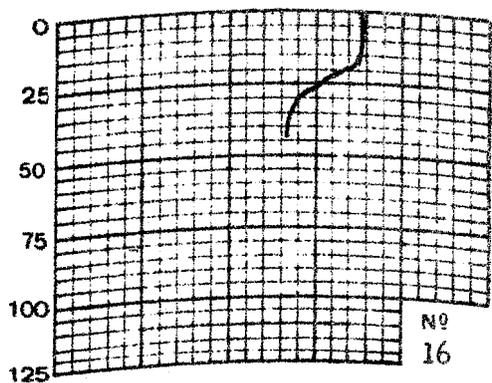
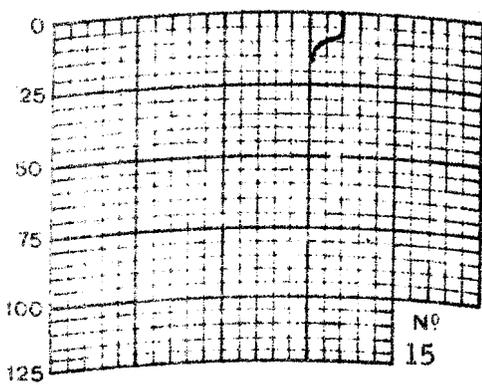
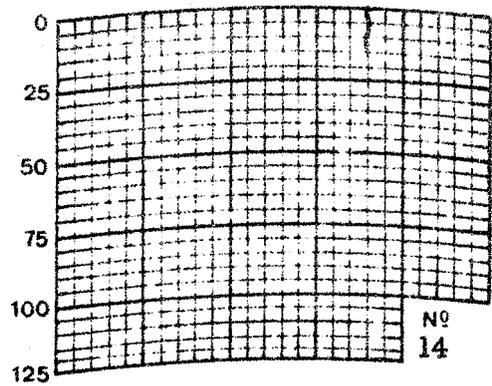
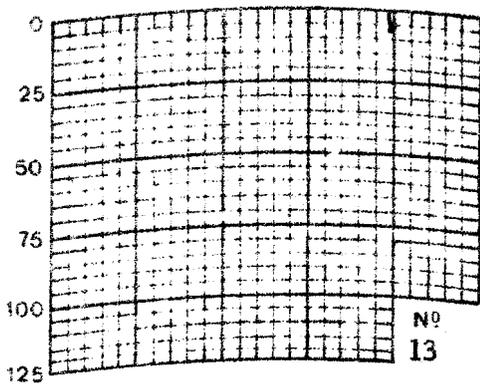
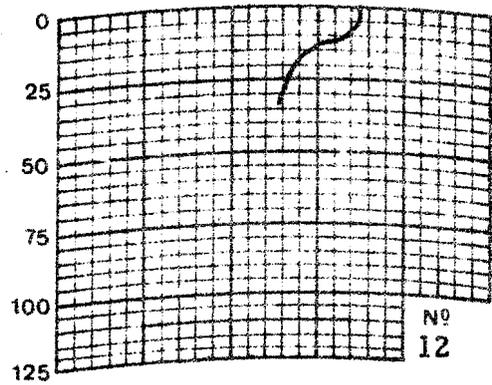
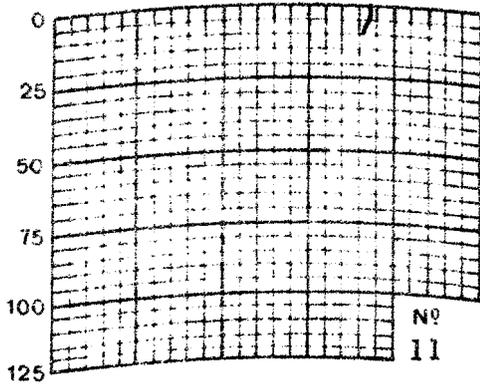
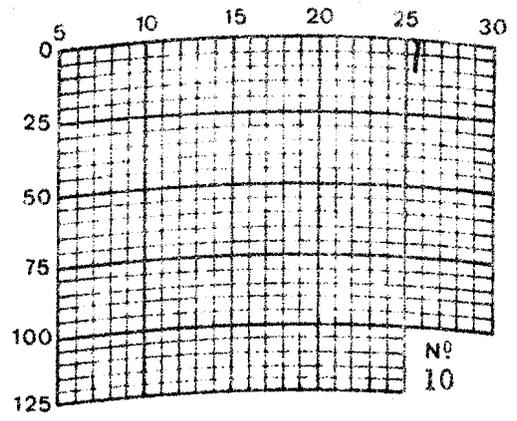
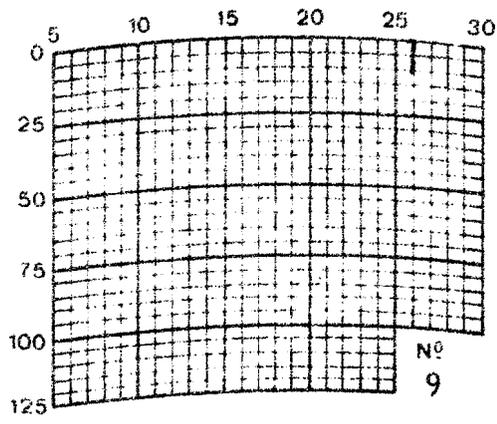


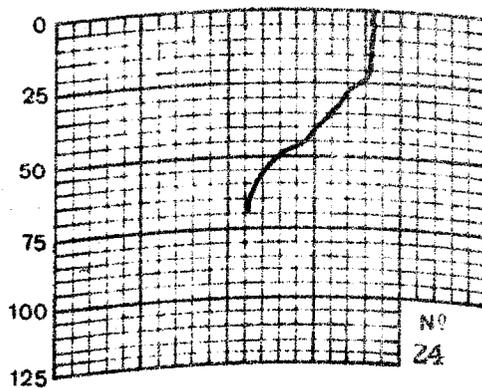
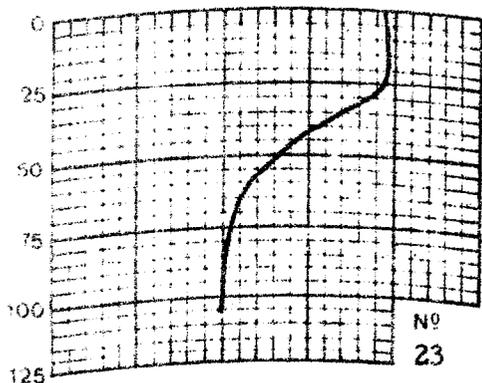
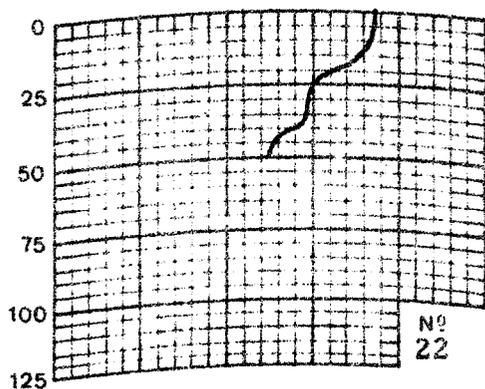
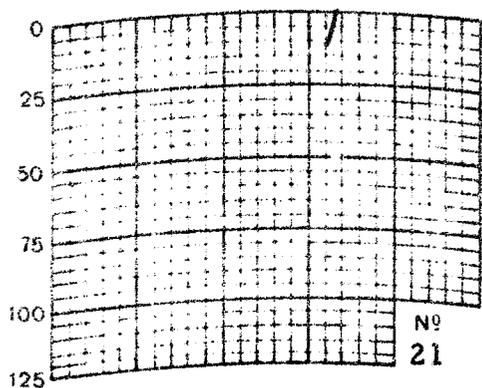
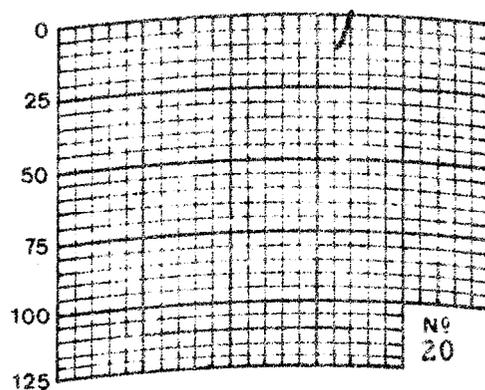
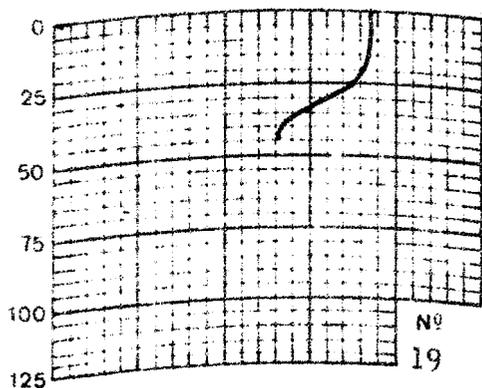
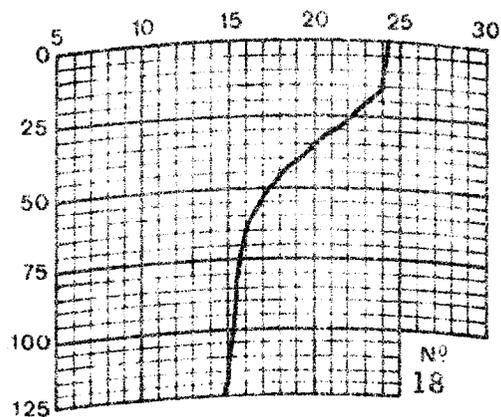
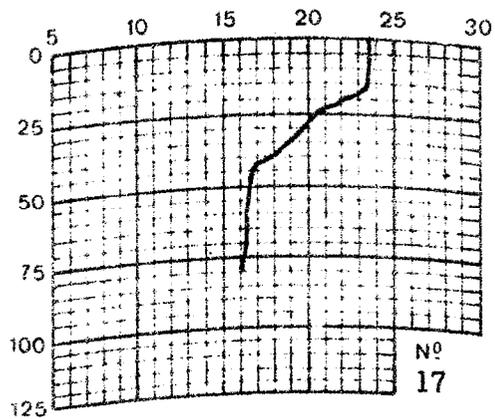
Fig. 4D

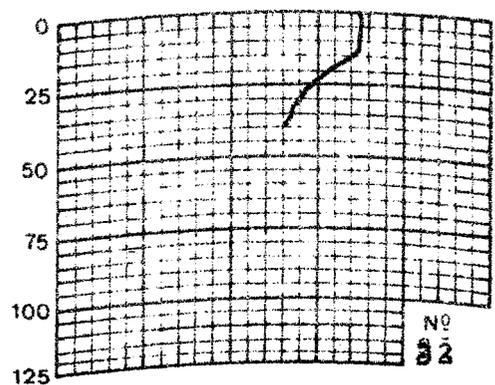
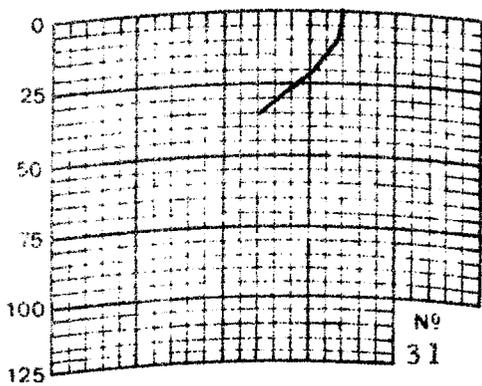
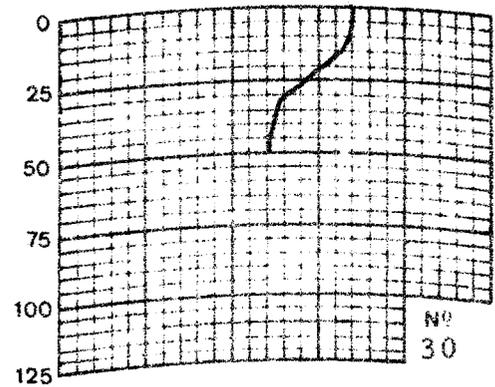
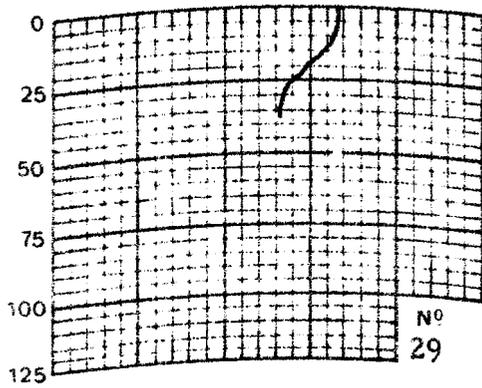
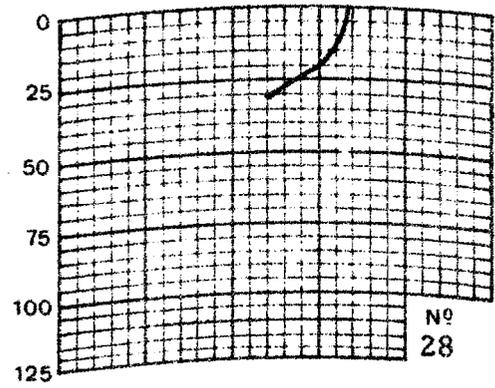
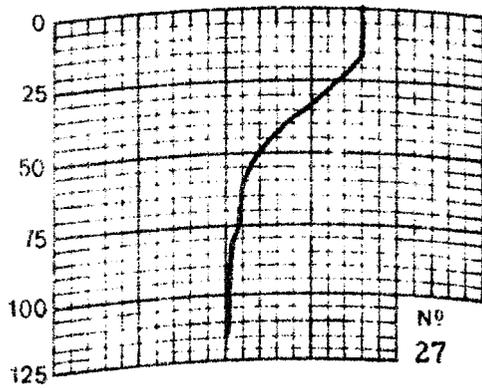
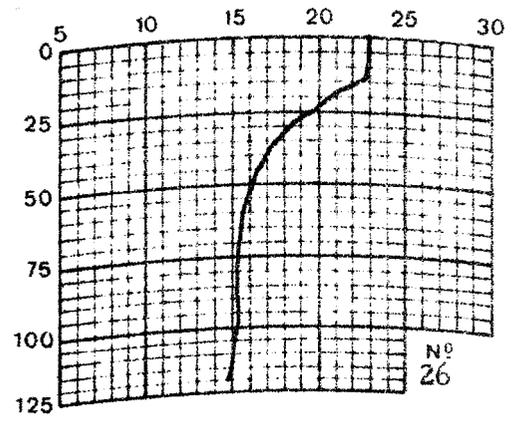
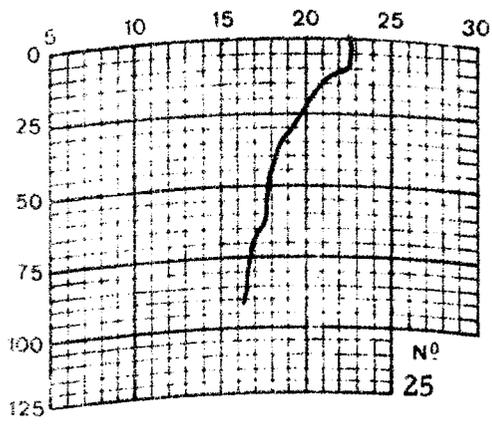
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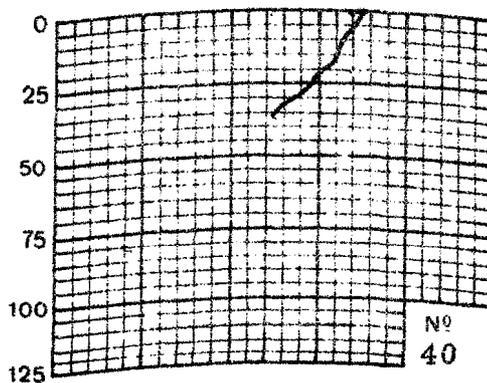
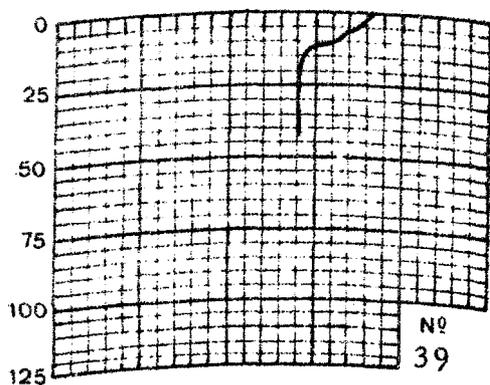
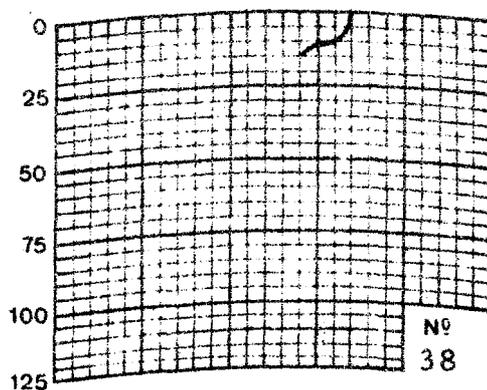
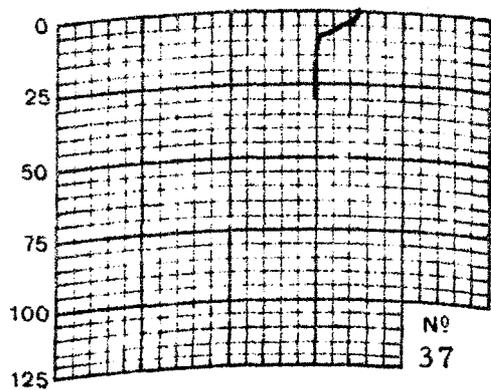
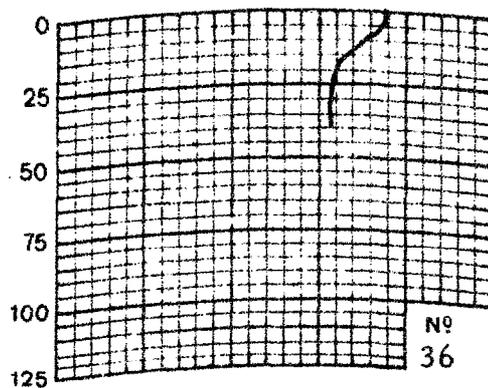
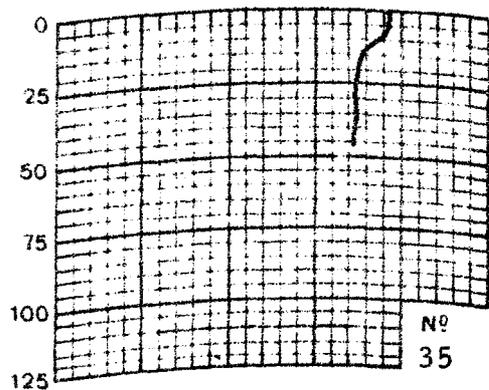
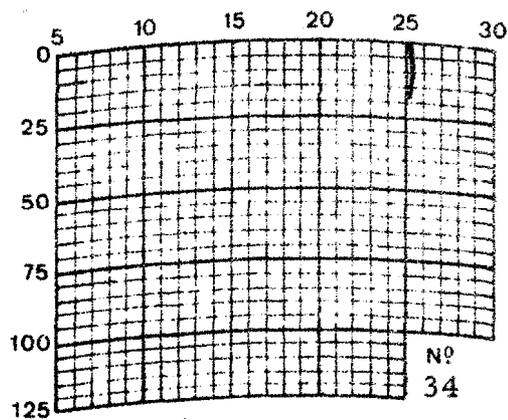
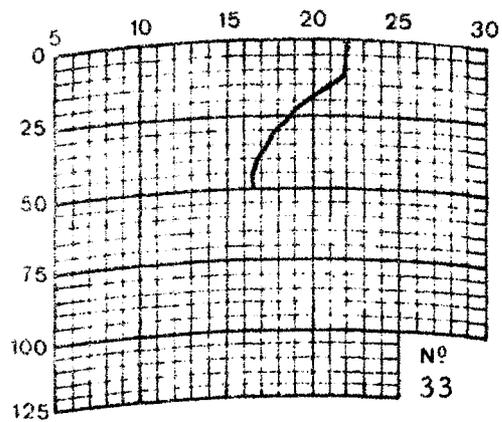
CAP. 7703

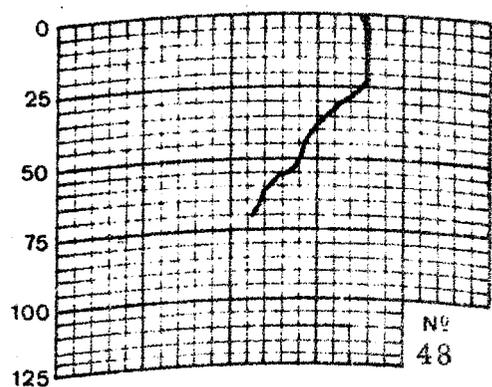
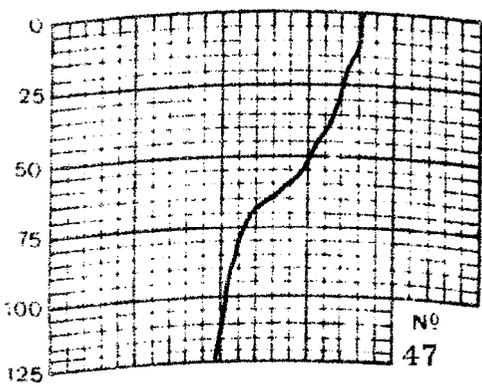
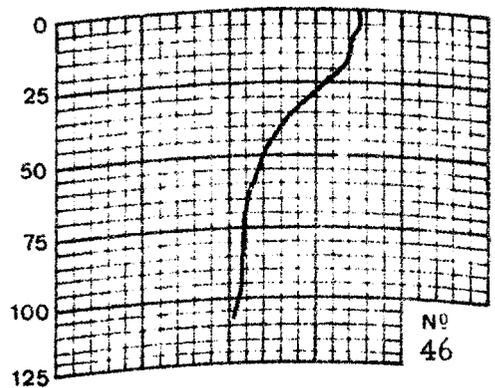
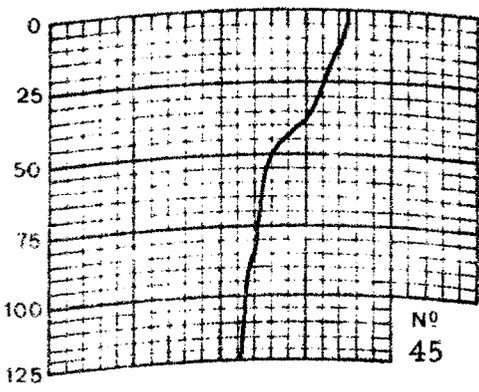
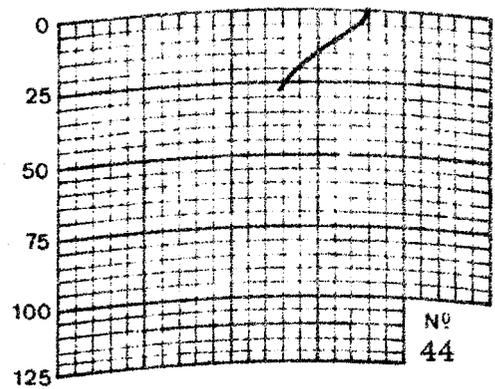
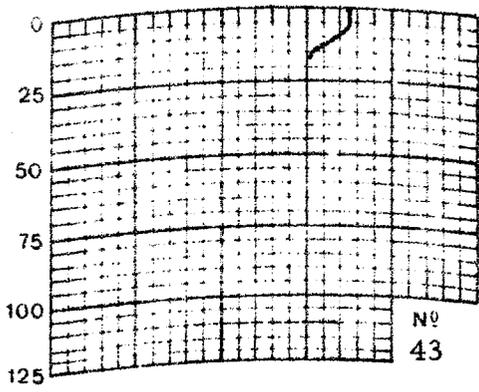
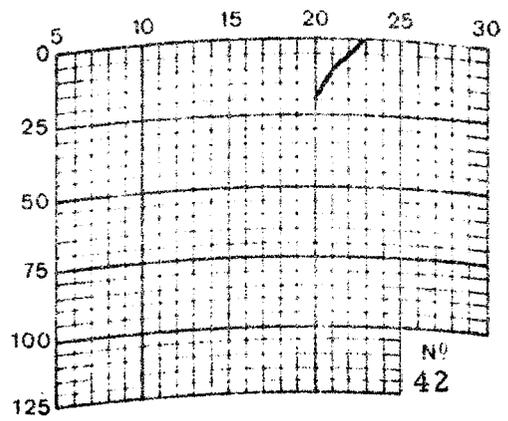
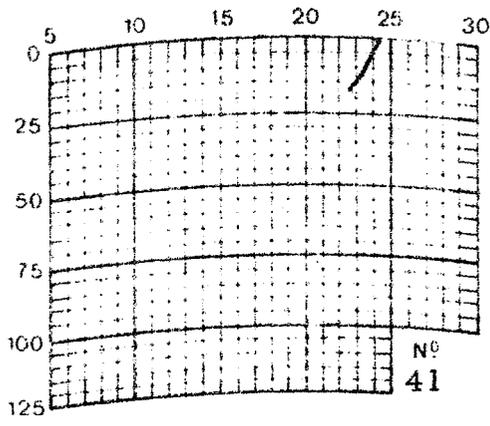


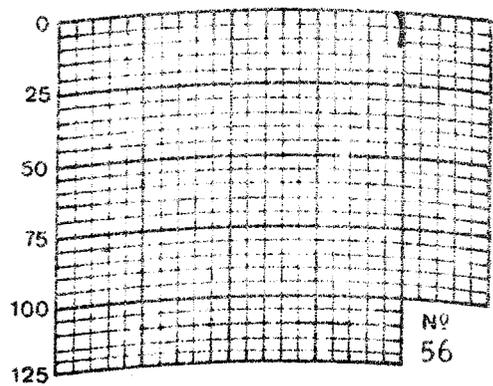
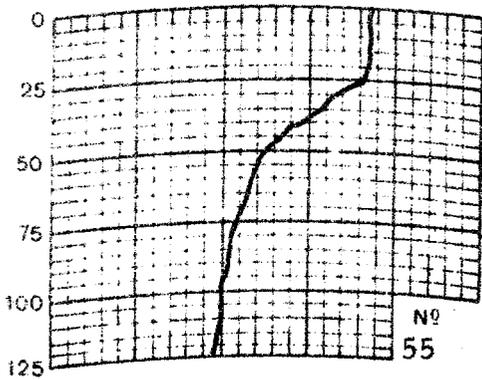
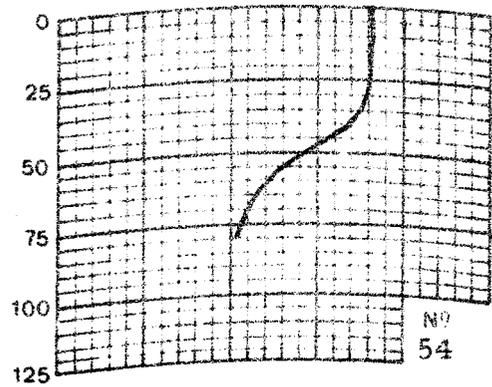
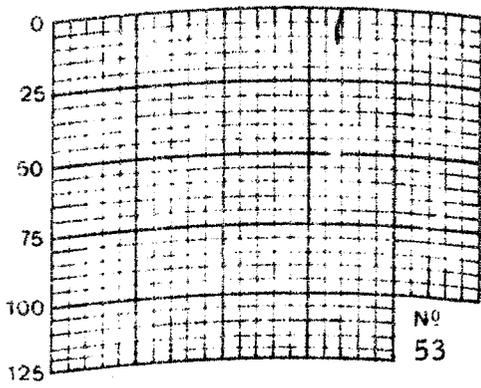
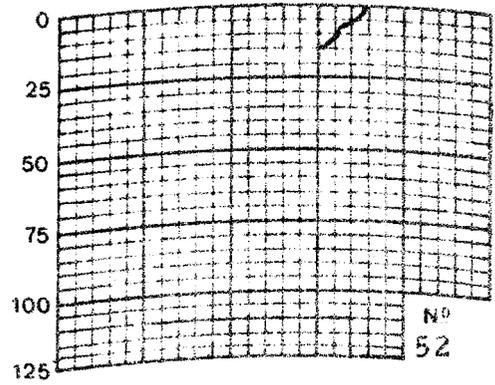
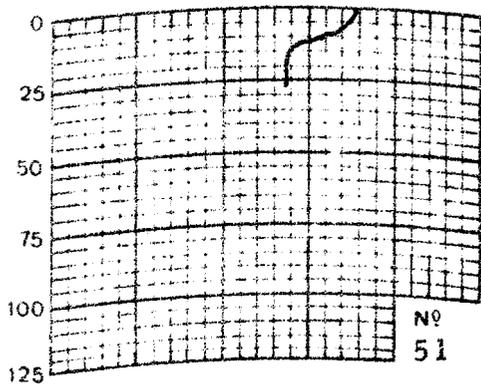
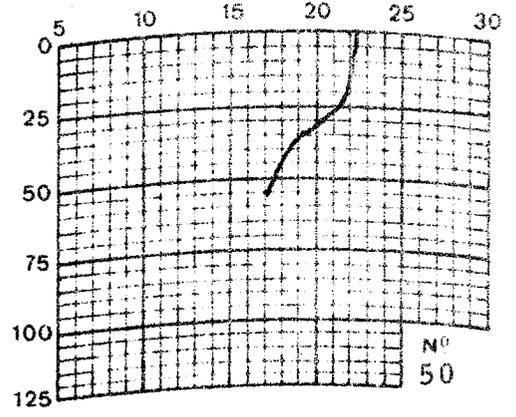
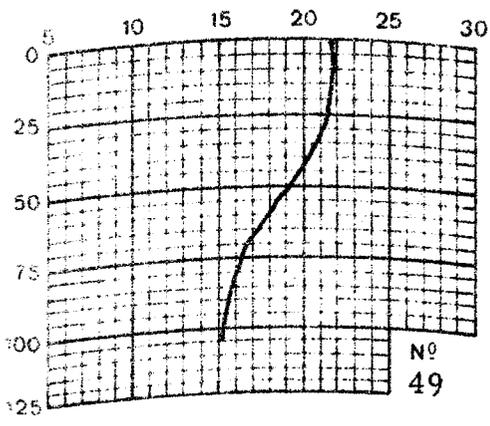


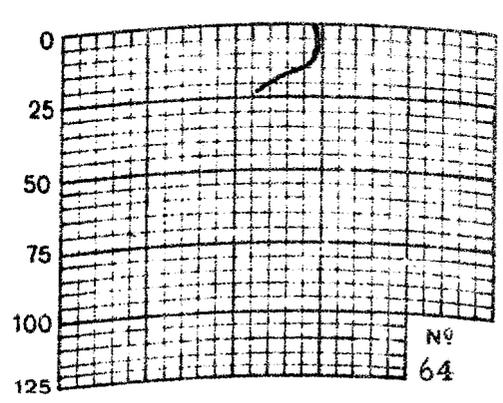
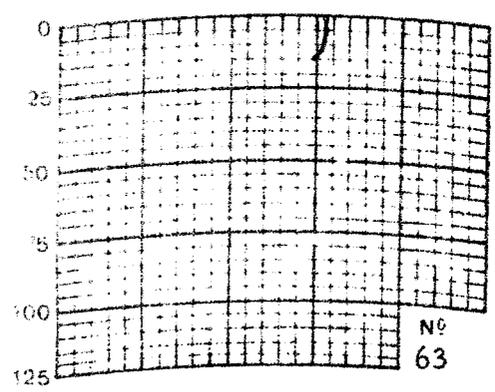
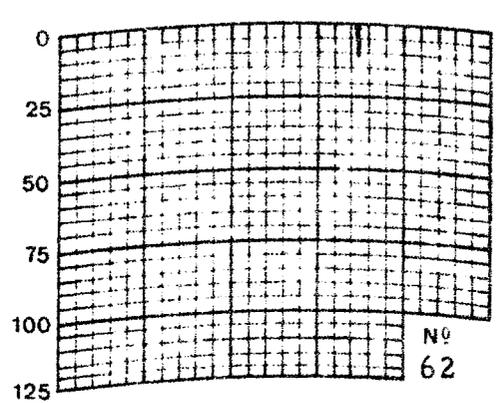
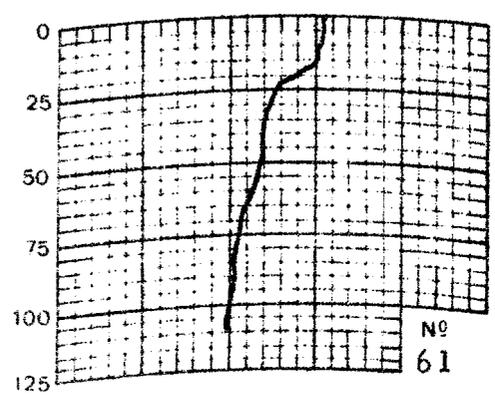
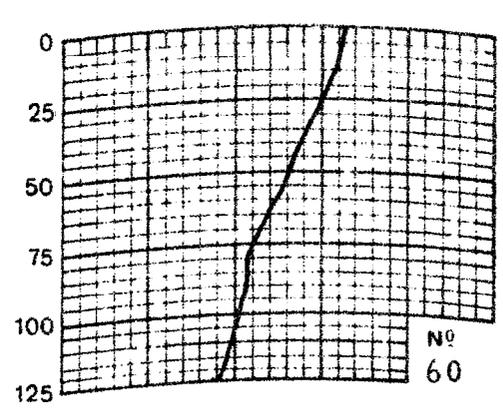
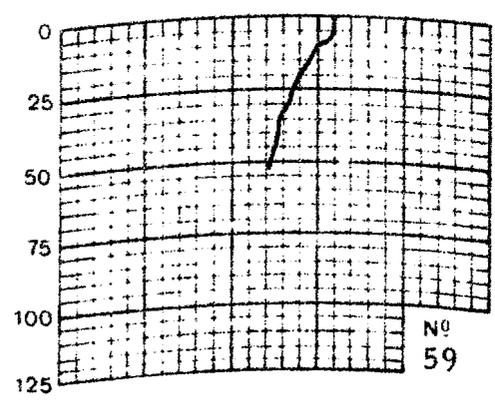
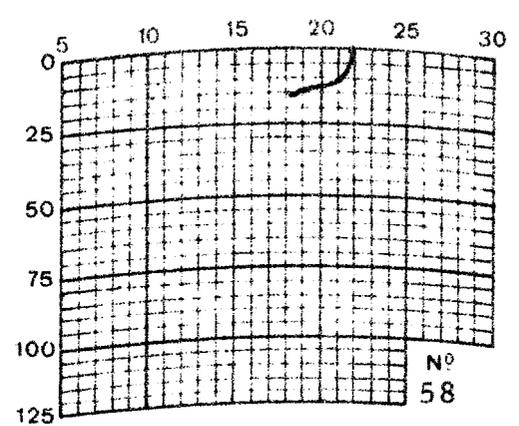
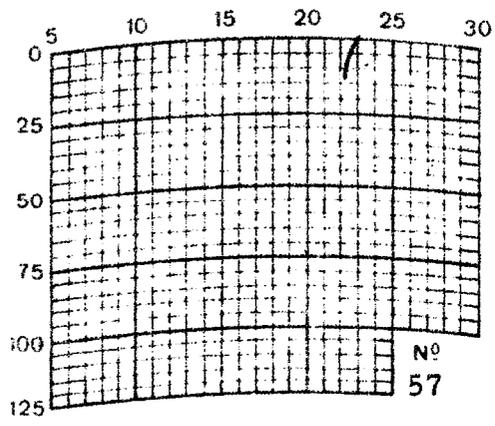


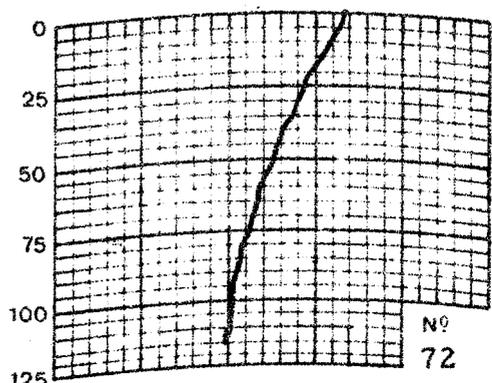
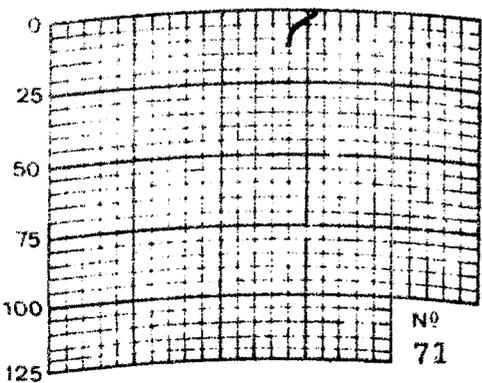
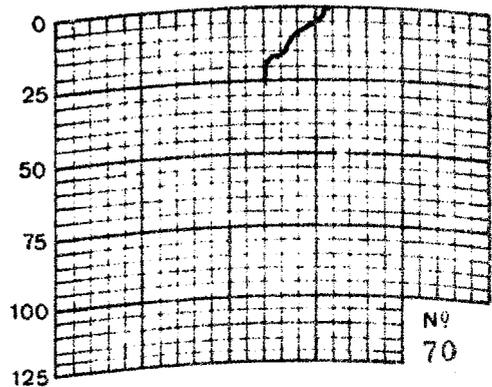
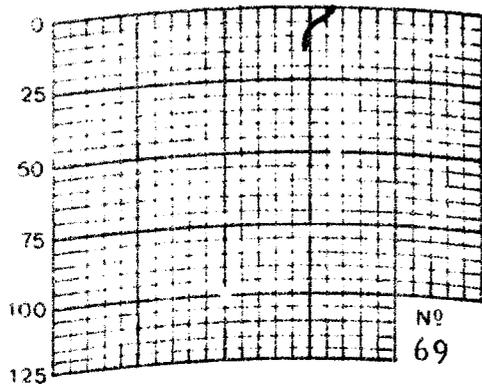
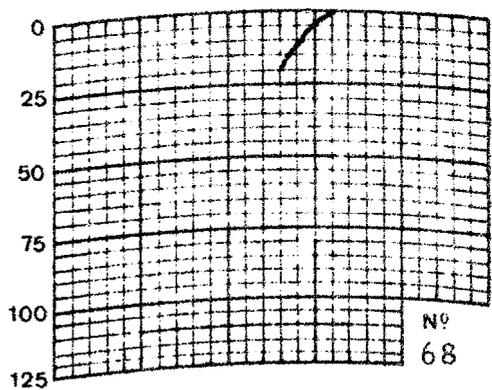
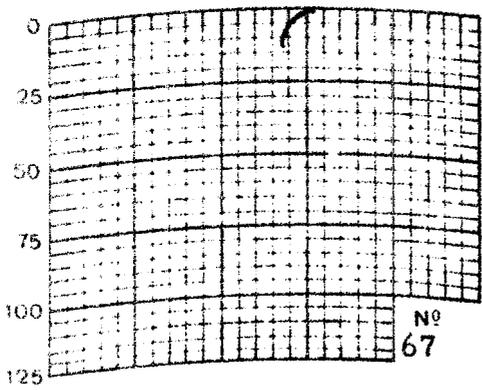
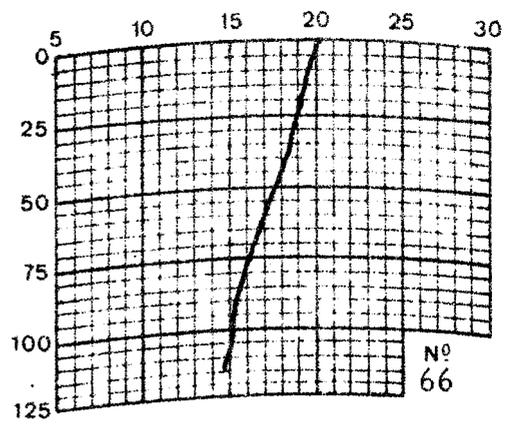
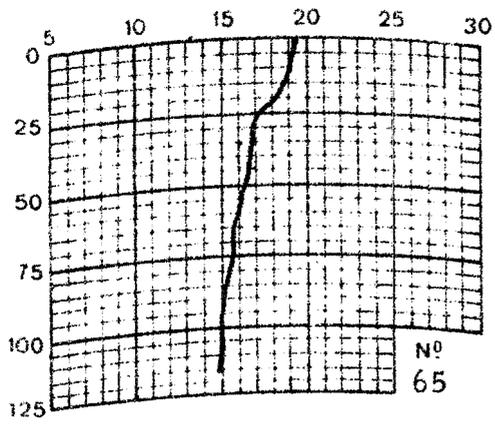


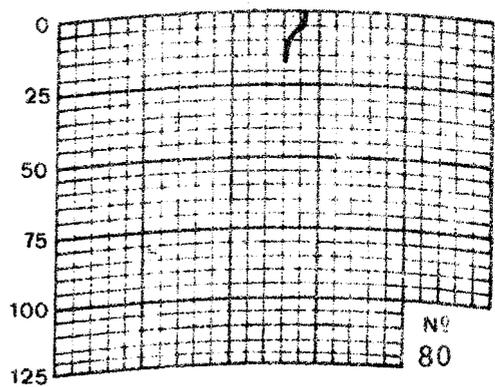
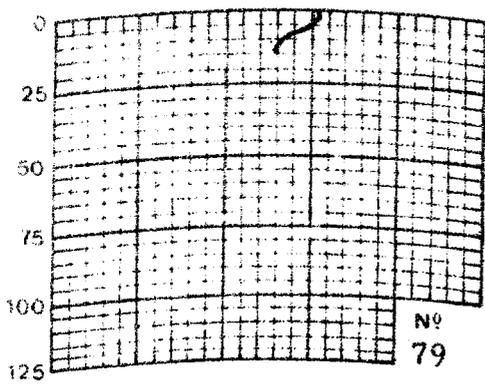
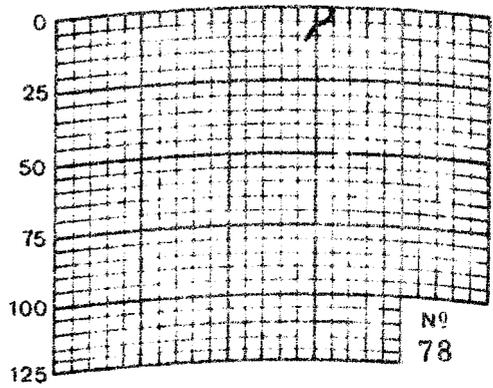
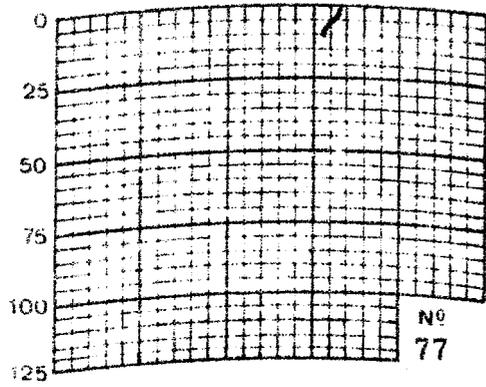
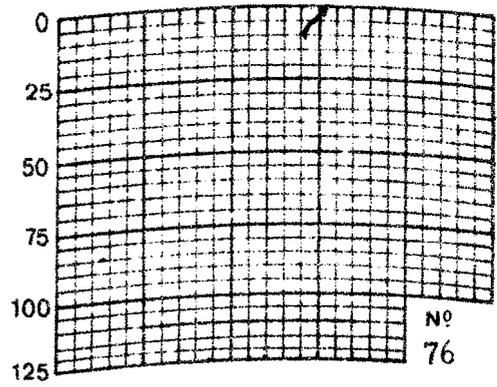
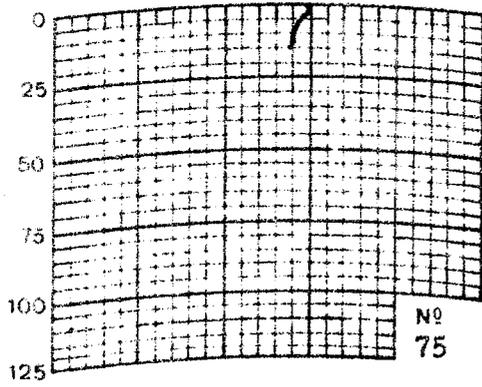
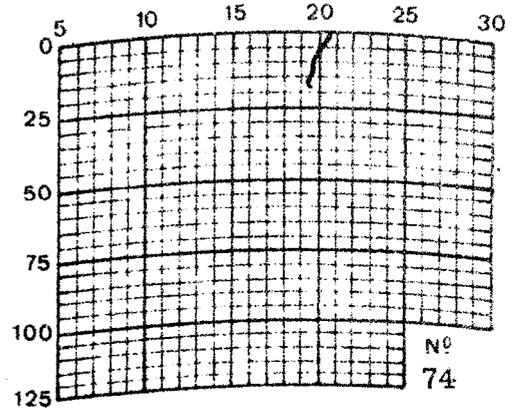
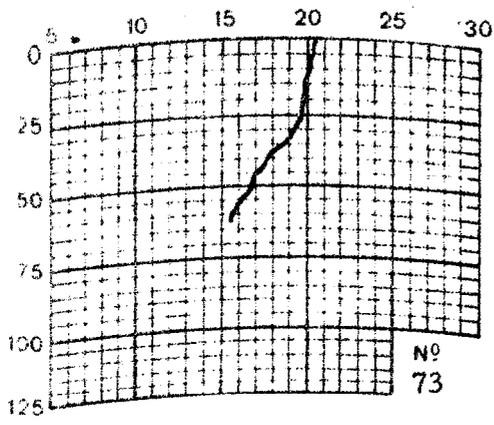


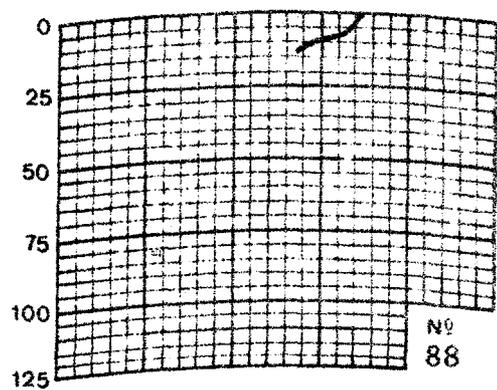
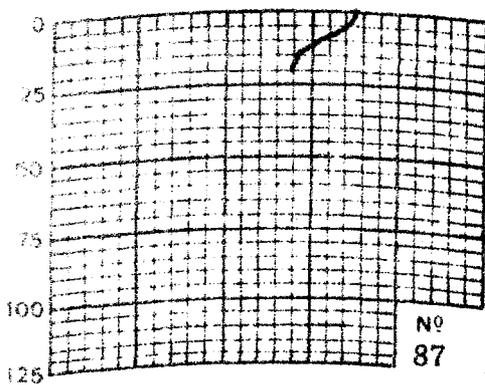
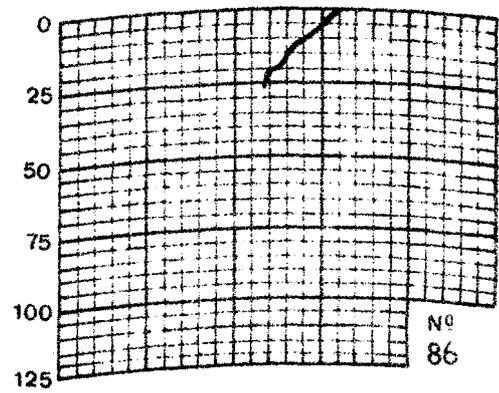
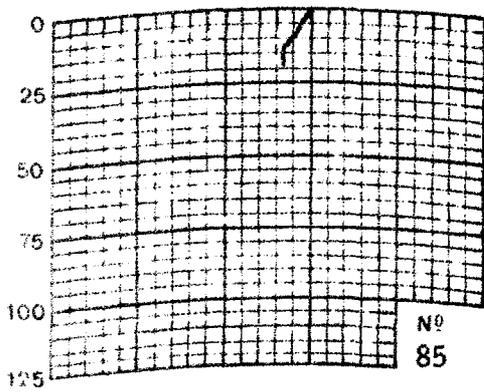
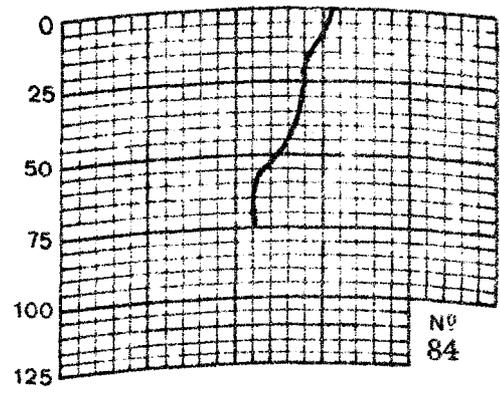
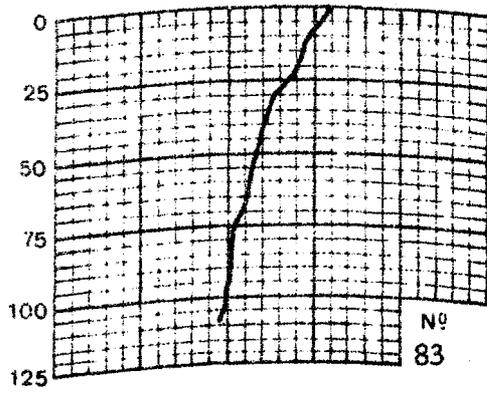
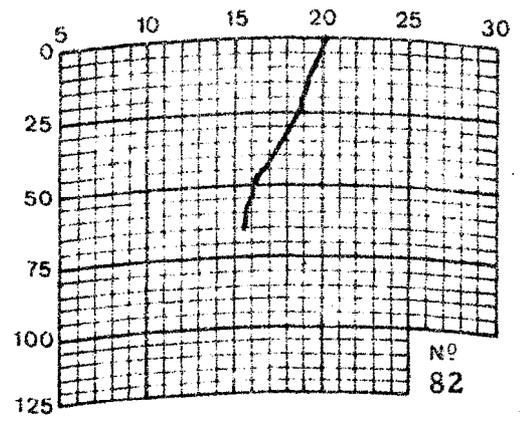
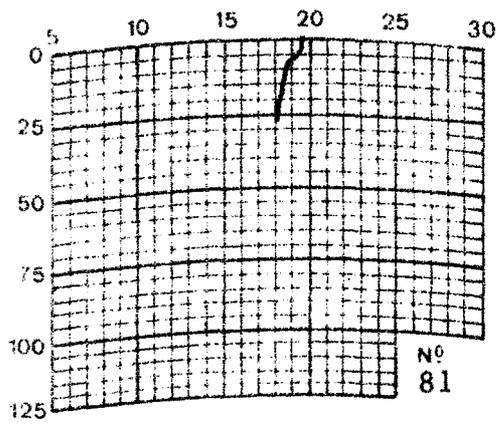


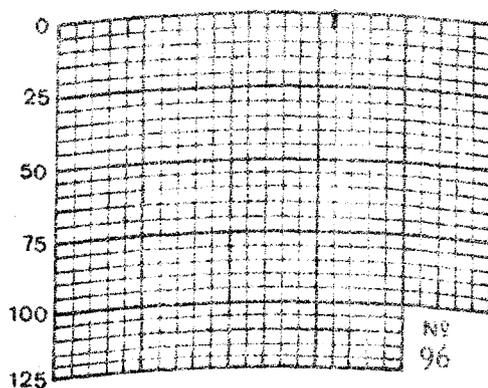
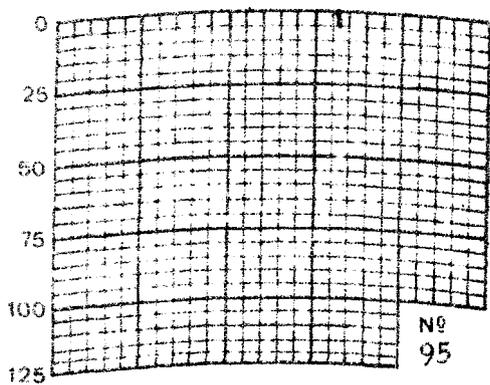
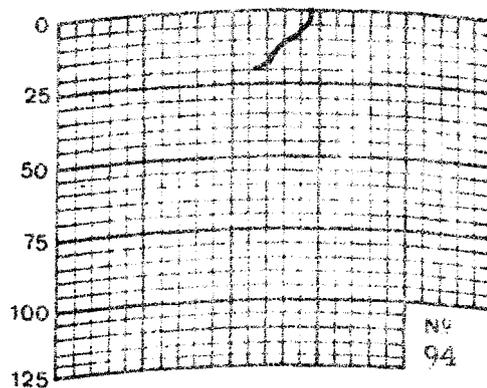
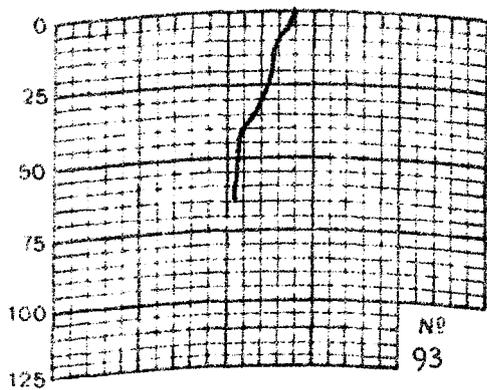
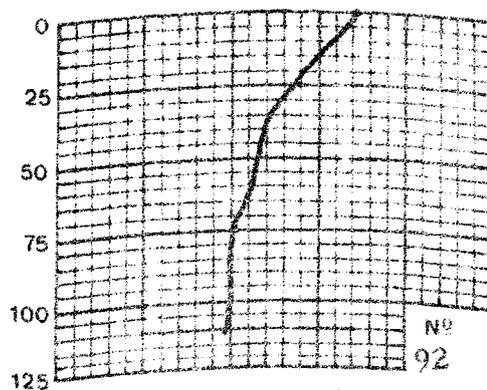
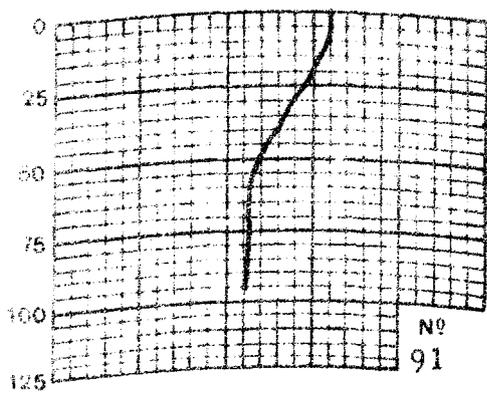
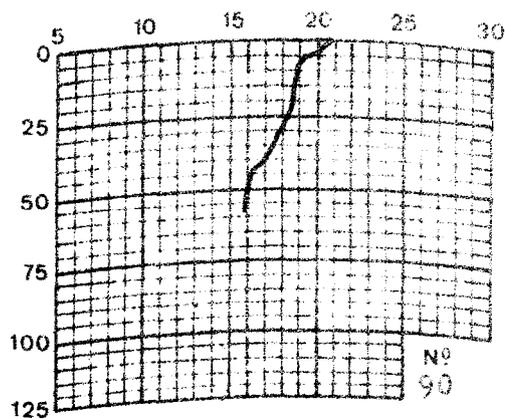
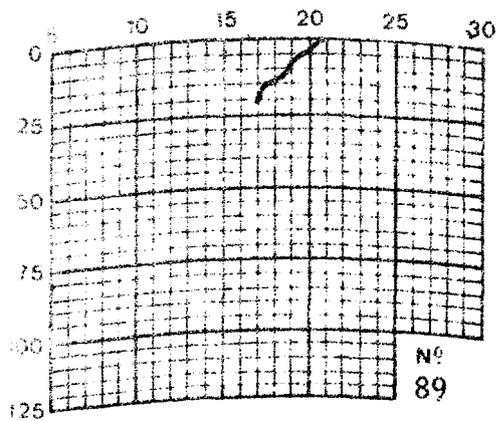


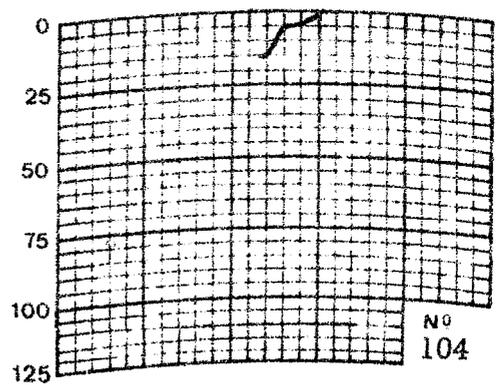
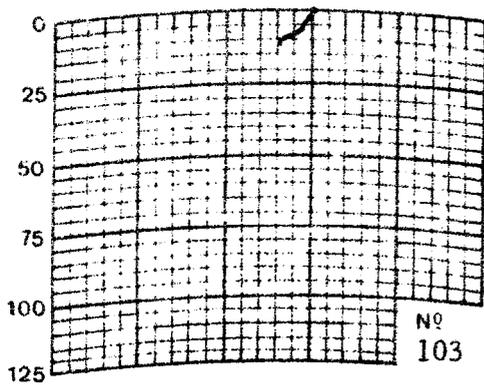
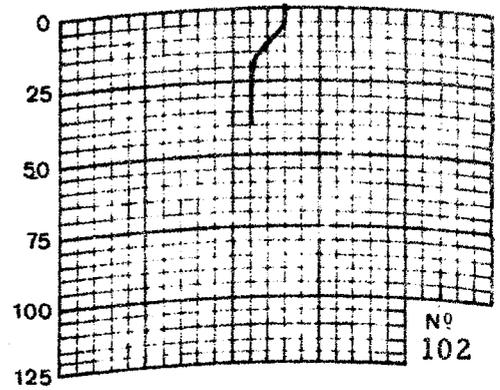
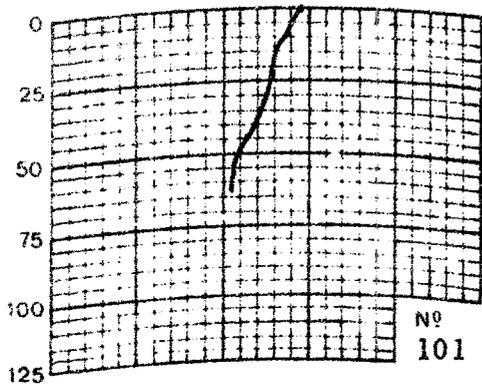
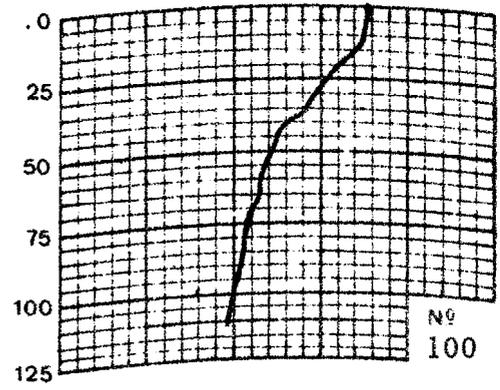
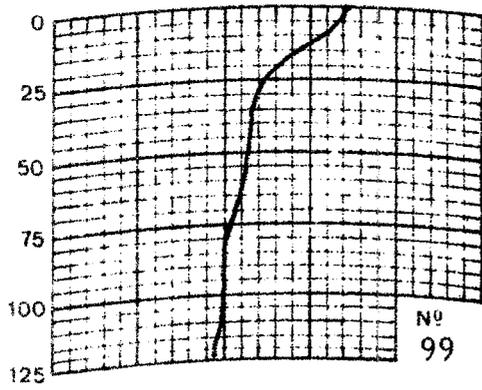
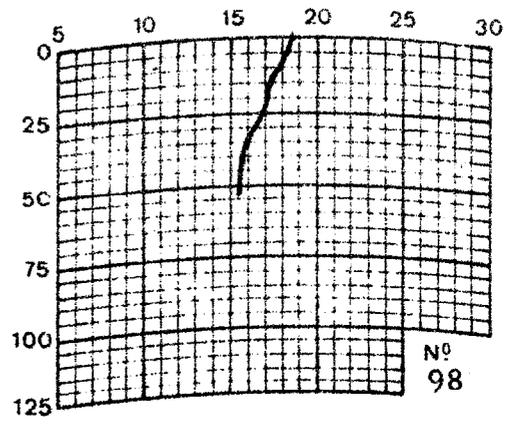
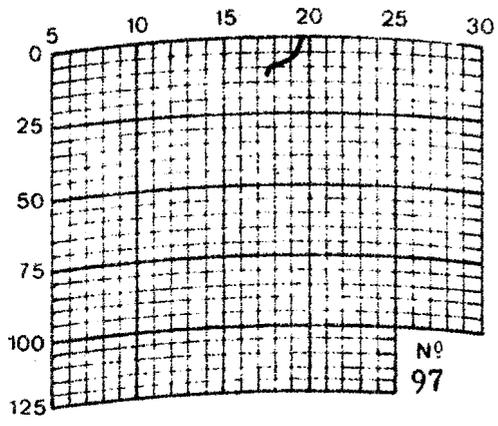


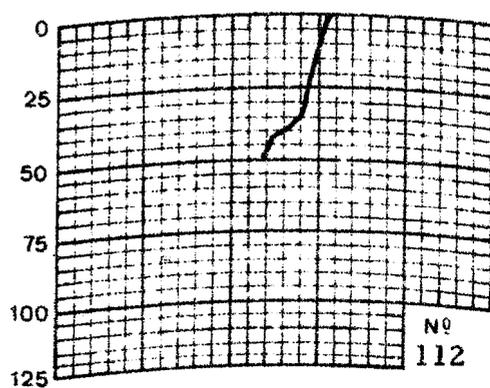
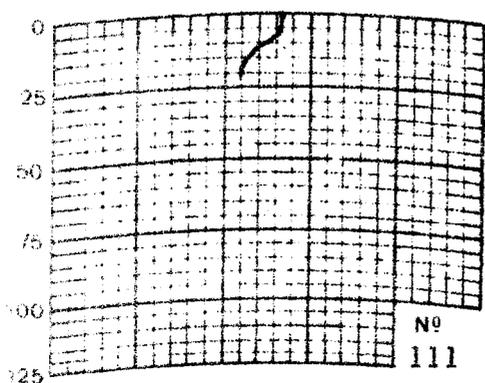
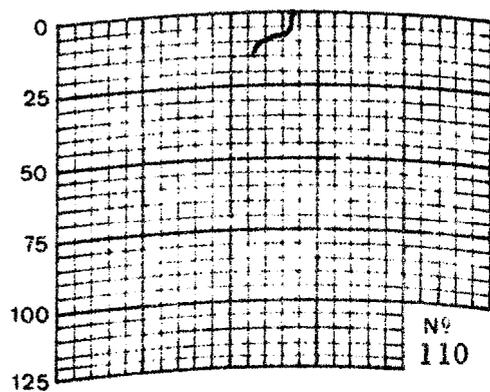
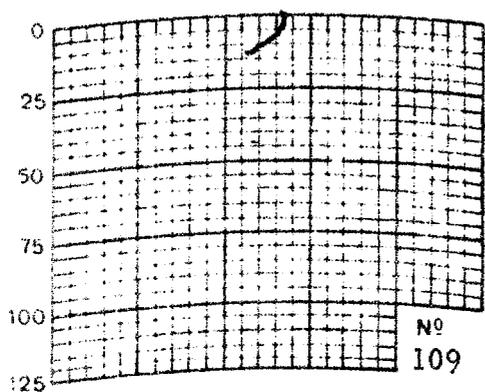
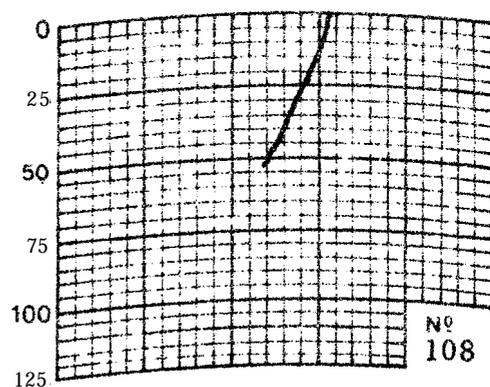
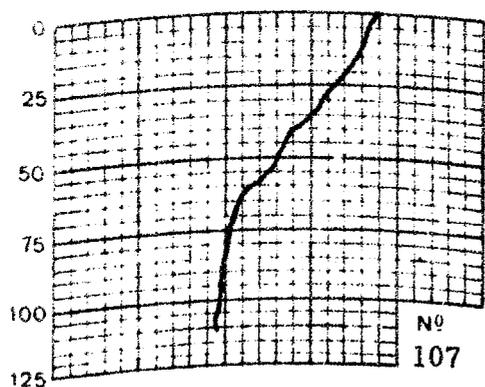
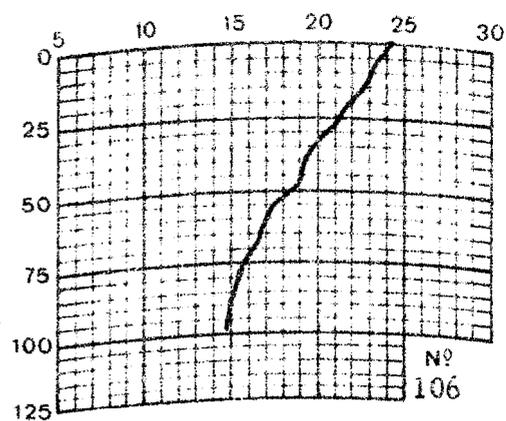
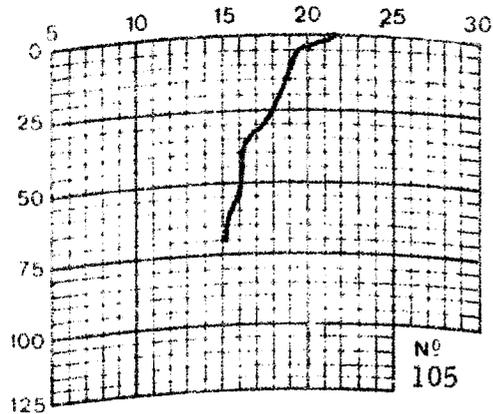


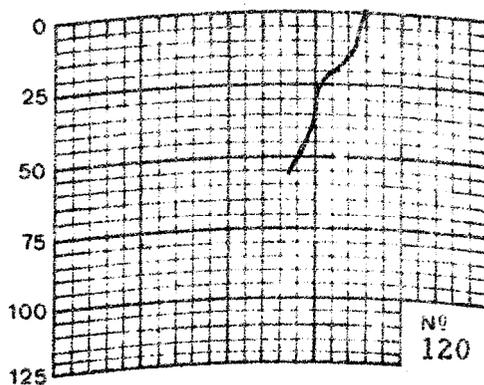
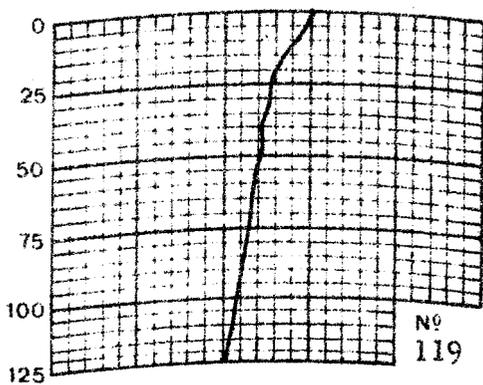
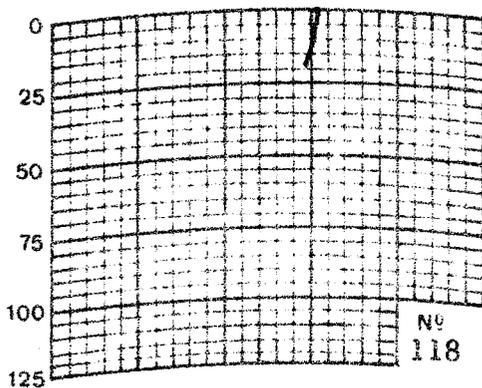
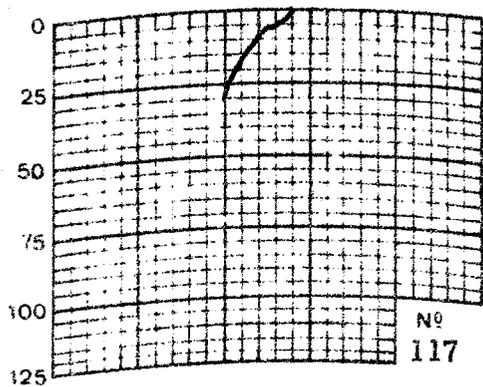
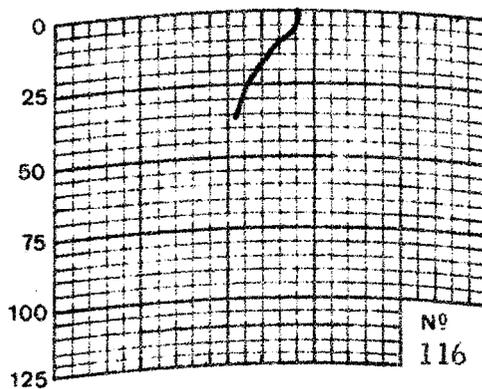
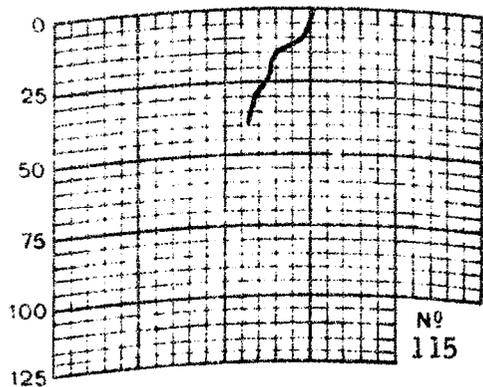
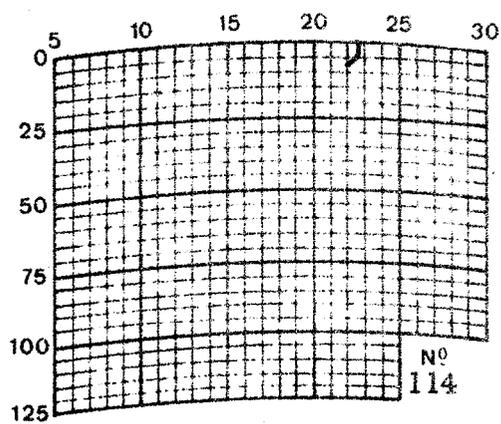
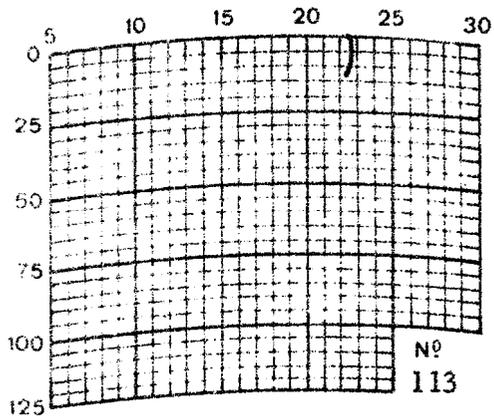


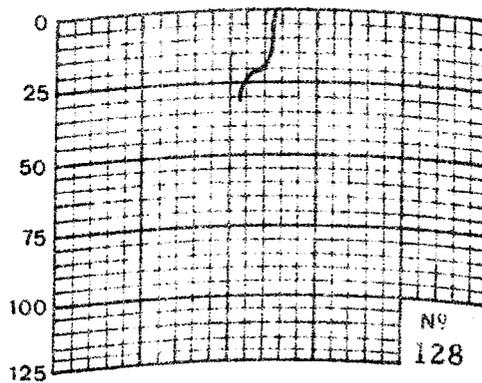
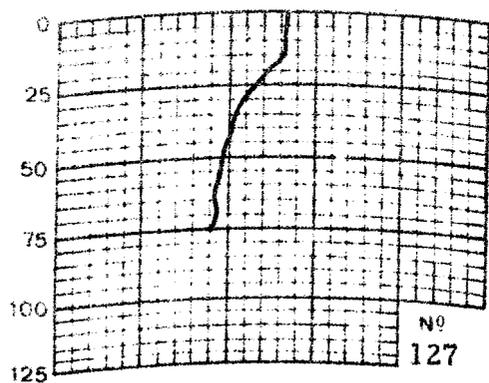
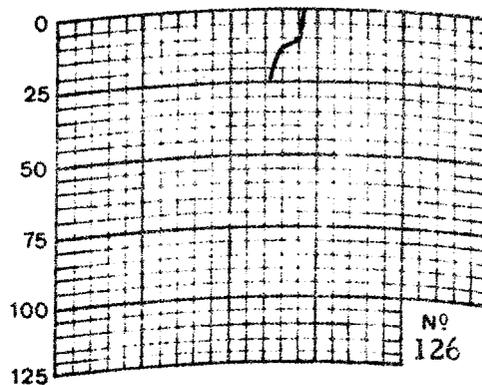
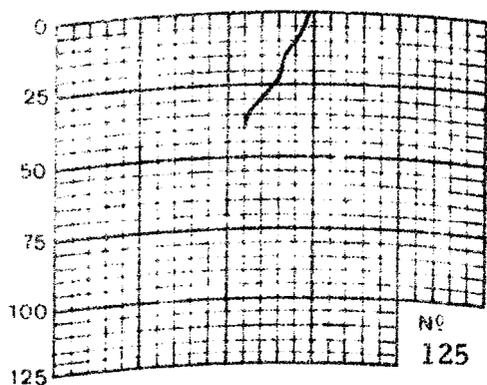
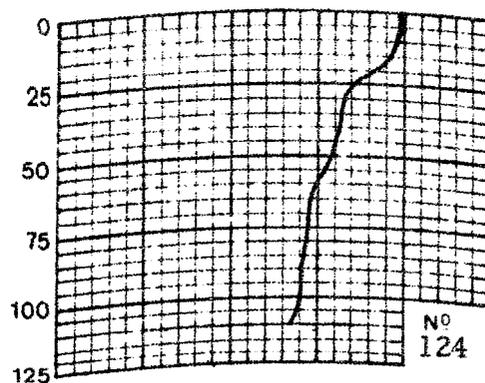
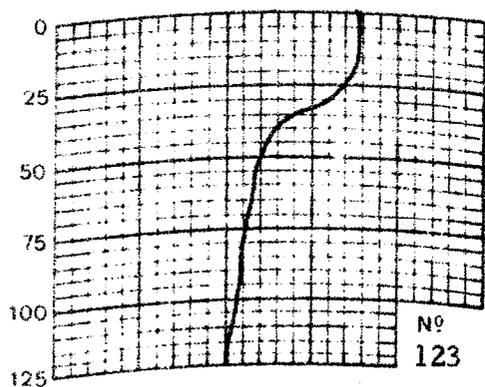
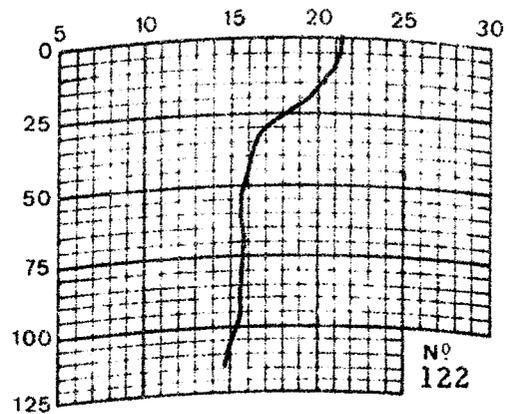
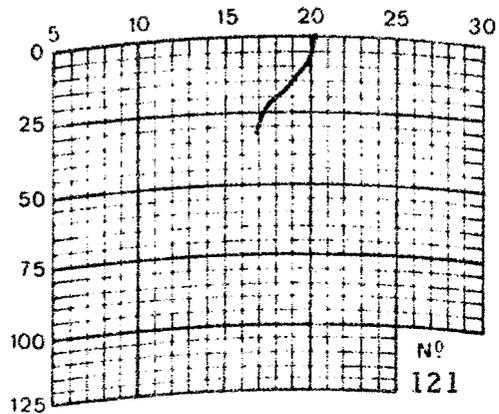


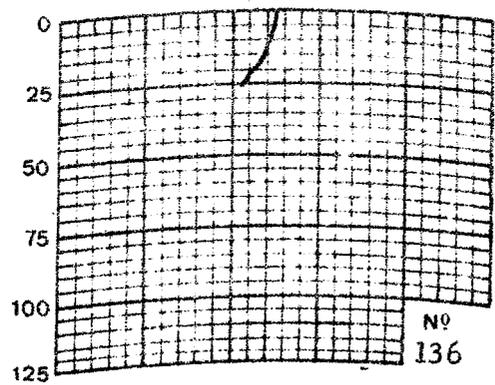
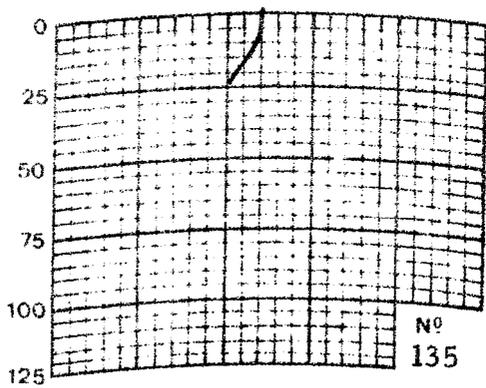
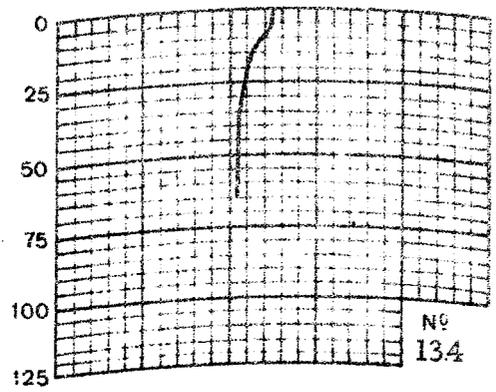
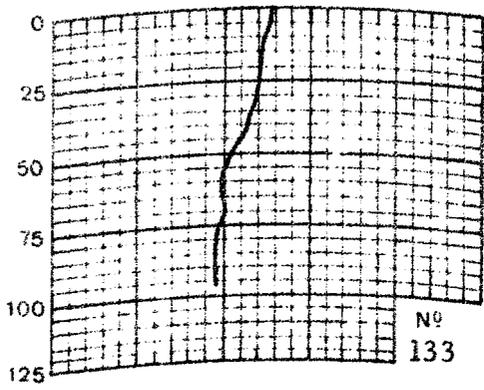
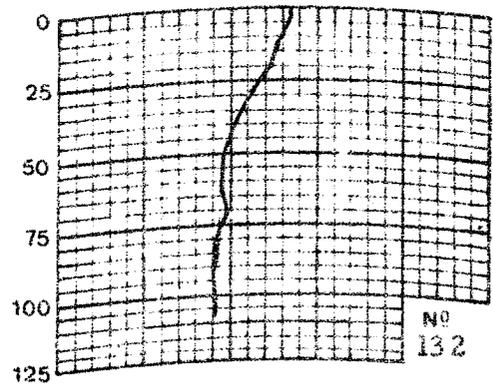
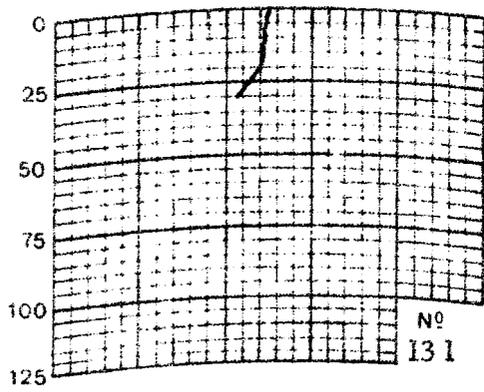
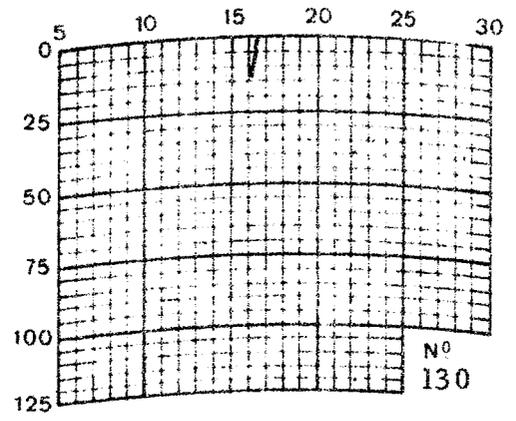
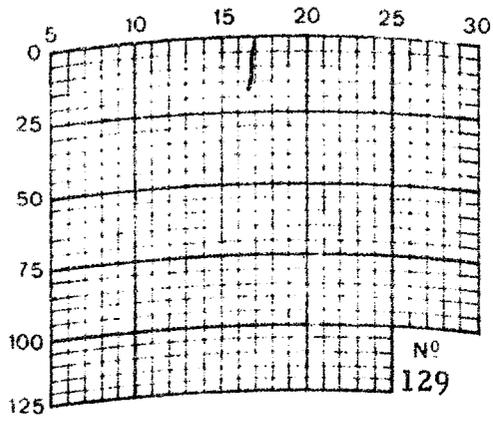


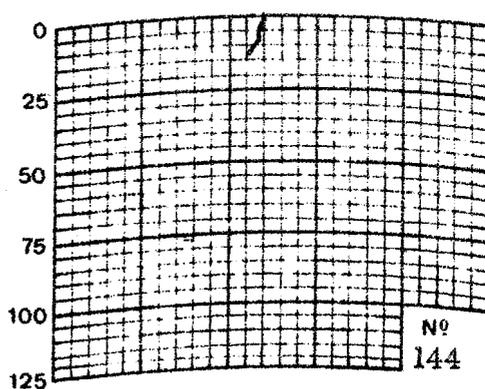
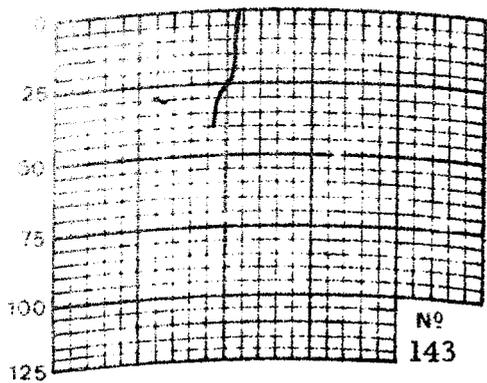
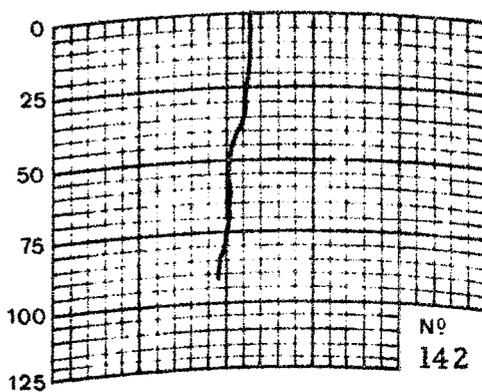
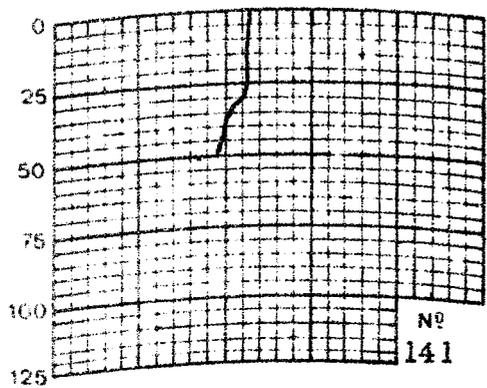
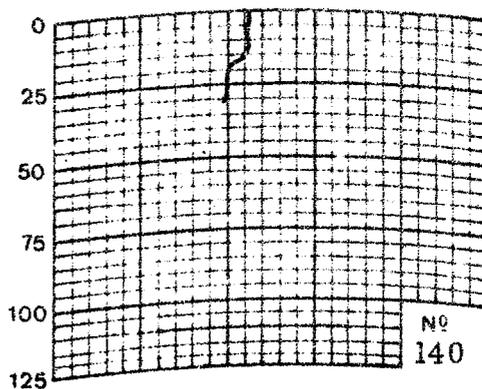
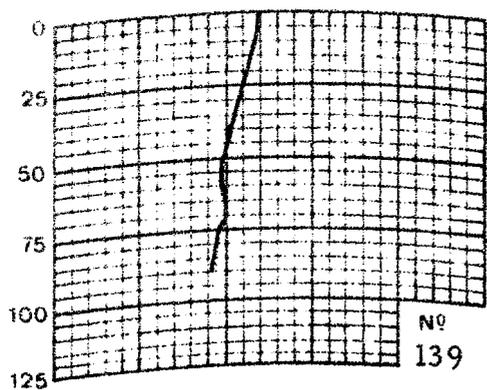
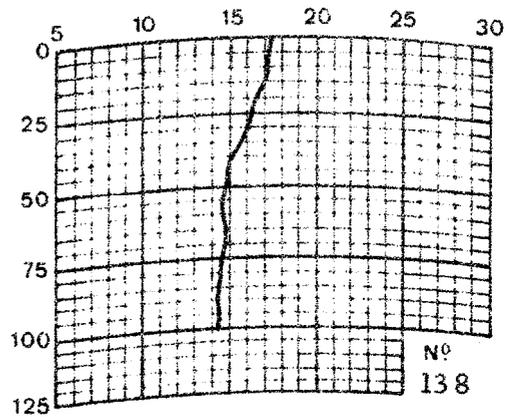
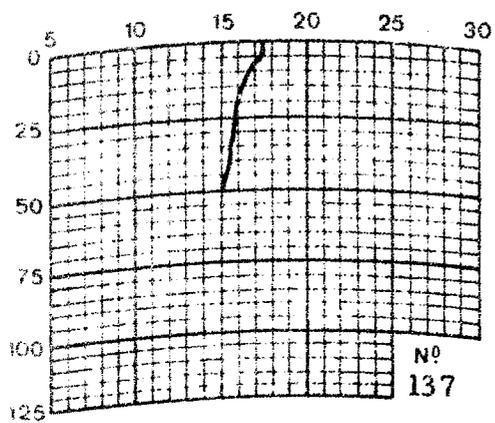


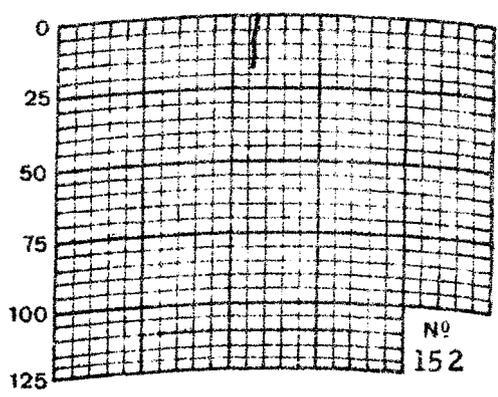
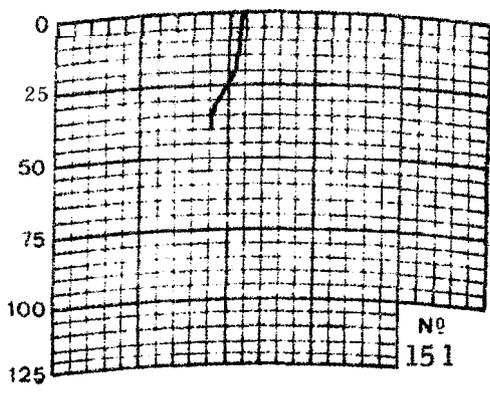
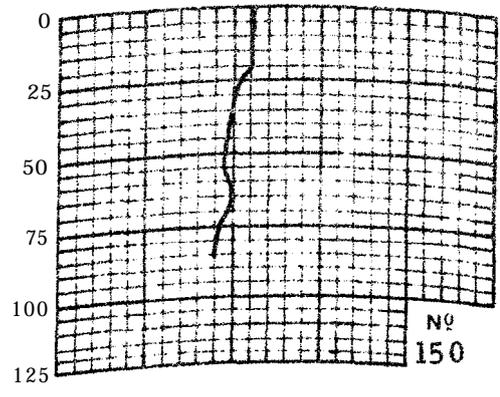
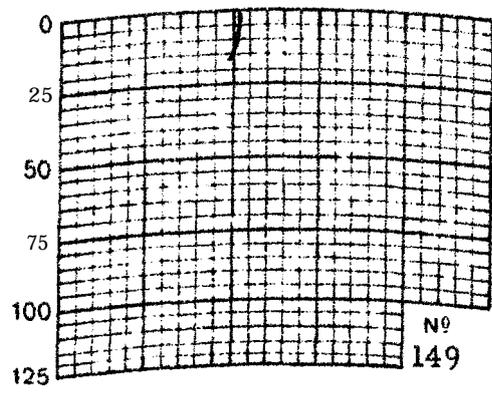
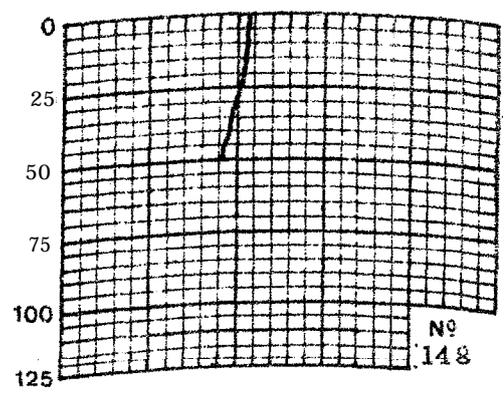
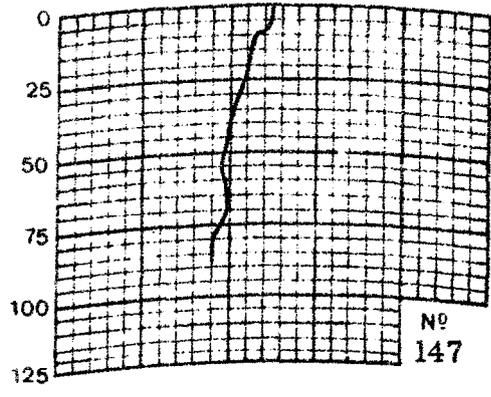
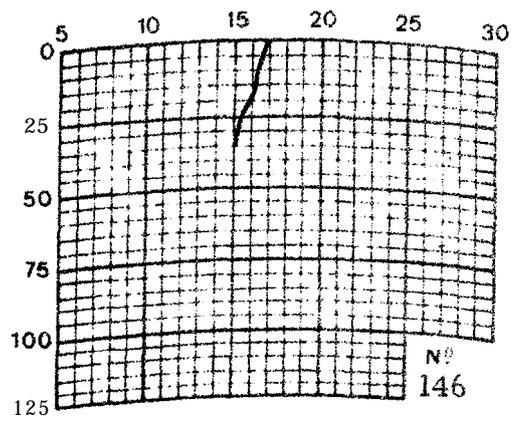
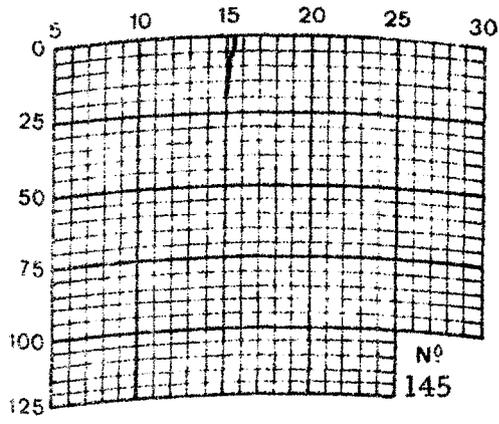


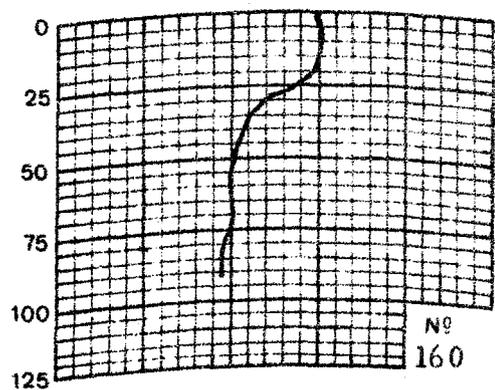
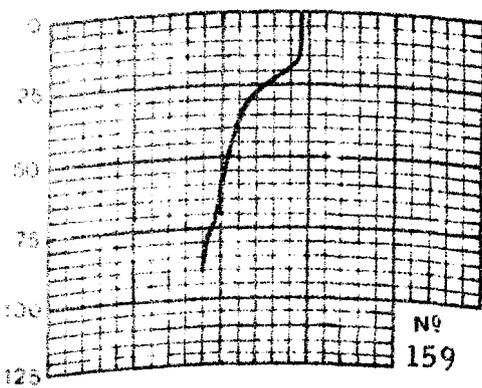
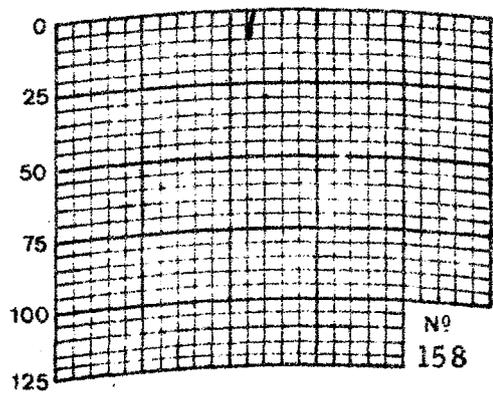
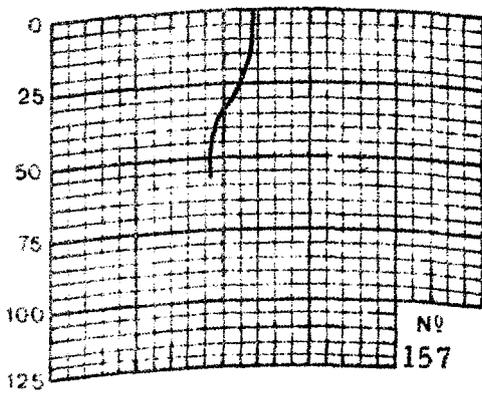
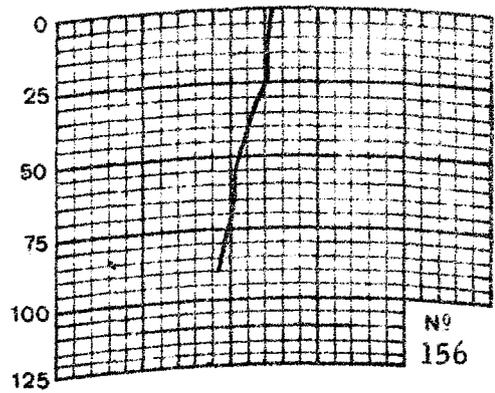
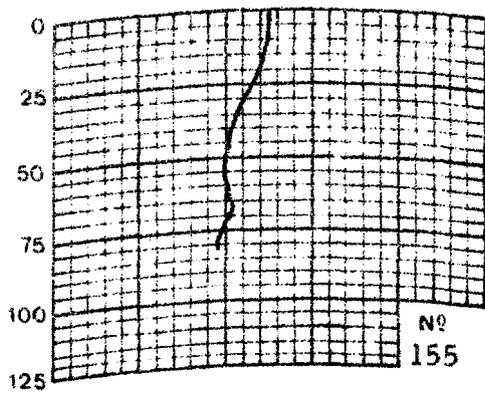
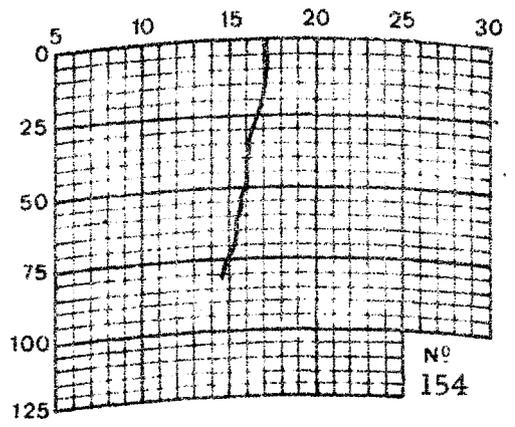
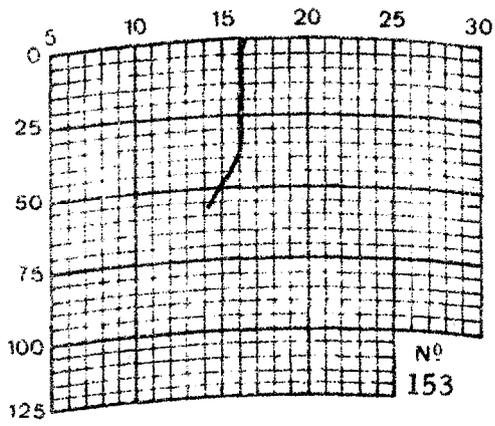


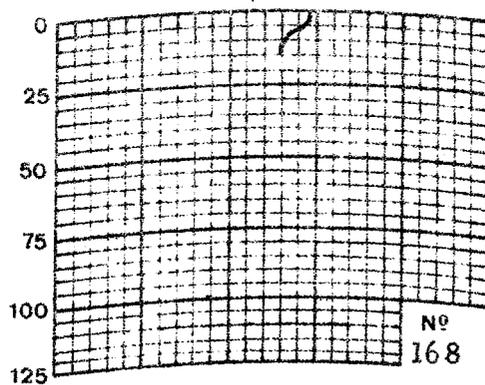
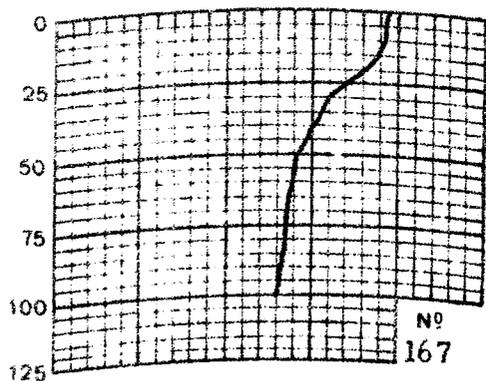
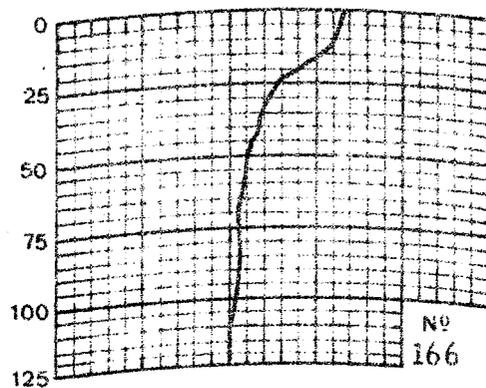
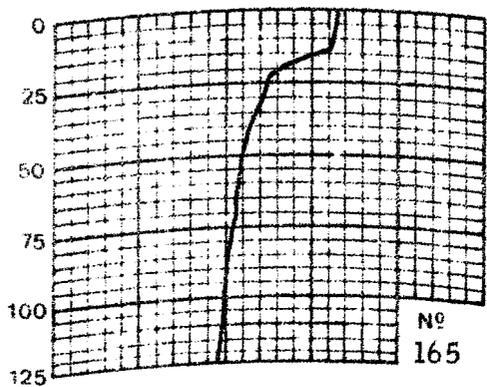
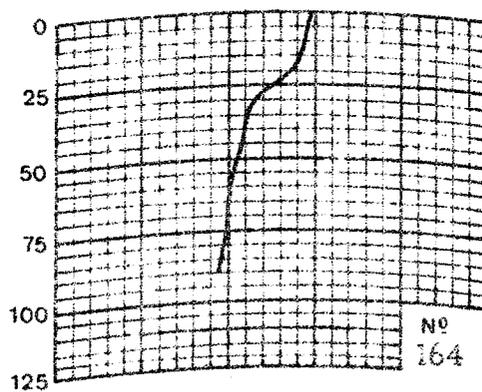
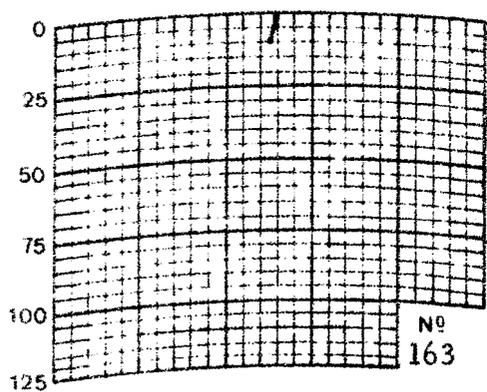
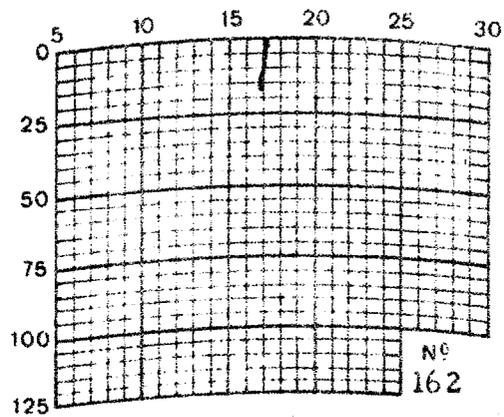
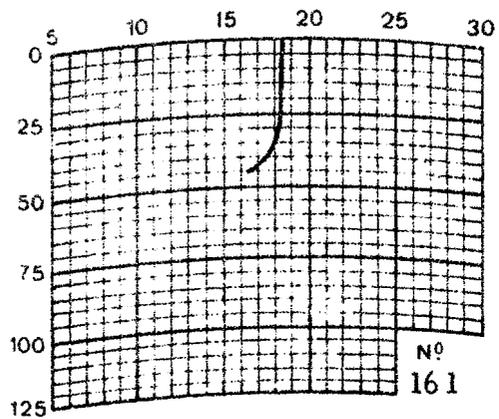


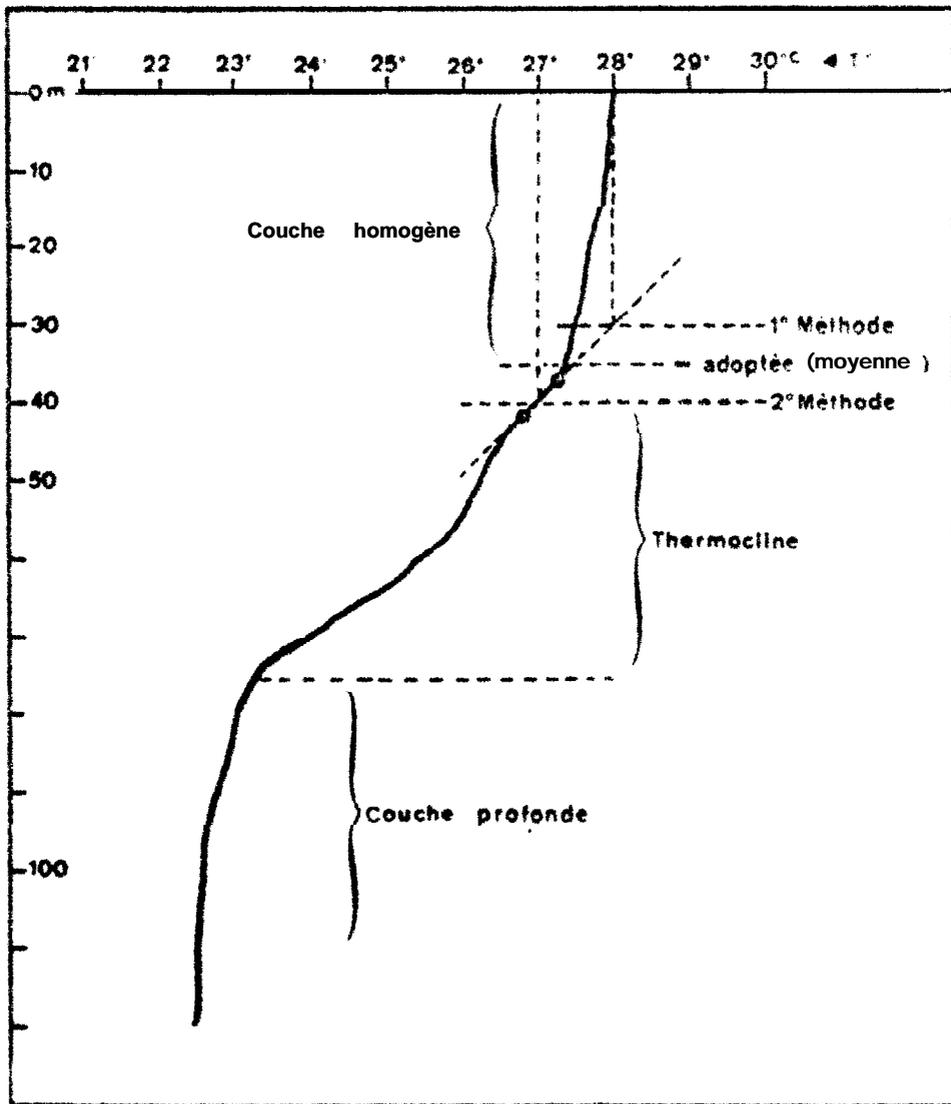












Cette figure représente la définition caractéristique d'un B.T. . L'épaisseur de la couche homogène est une donnée spécialement intéressante dans certaines techniques de pêche, mais son estimation à partir d'un B.T. étant assez subjective, il convient de préciser la méthode utilisée par WYRTKI (1971)

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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