BULLETIN
ZOOLOGISCH MUSEUM

UNIVERSITEIT VAN AMSTERDAM

Vol. 10 No. 17 1985

LIST OF DISCRETE DEPTH SAMPLES AND OPEN NET HAULS OF THE AMSTERDAM MID NORTH ATLANTIC PLANKTON EXPEDITIONS 1982 AND 1983 (PROJECT 101A) [1)]

S. van der SPOEL

ABSTRACT

The technical details and hydrographic data of the hauls with open nets and opening-closing nets made during the Amsterdam Mid North Atlantic Plankton Expeditions (AMNAPE) in 1982 and 1983 are given together with the general conditions during the sampling periods: 1-27 February 1982 and 27 May - 24 June 1983. Temperature and salinity profiles and correlations are given for the sampled area roughly between 55°N 30°W and 24°N 30°W.

INTRODUCTION

The research programme 101A of the Department of Marine Invertebrates, University of Amsterdam, primarily aims at elucidating the patterns of latitudinal diversity, taxonomic variation below species level, vertical variation and the interaction of climate, hydrographic features and ecology on morphological variation of marine plankton. The AMNAPE expeditions of project 101A consists so far of: the 1979 expedition (26/II-9/III, Stns 1-5), the 1980 expedition (9/IV-6/V, Stns 8-28), the 1981 expedition (14/IX-14/X, Stns 35-55), the 1982 expedition (1/II-27/II, Stns 56-72) and the 1983 expedition (27/V-24/VI, Stns 73-91).

The present list comprises the data of all the net samples made in the periods 1-27 February 1982 and 27 May - 24 June 1983 (figs. 1-2). The lists of the cruises 1979, 1980 and 1981 were published by Heyman (1981:23), Van der Spoel (1981:8) and Van der Spoel & Meerding (1983:87), respectively. The data on samples not collected by nets will be given in a separate paper.

The discrete depth samples were made between 0 and 1010 m in 1982 and between 0 and 1760 m in 1983 with the combined Rectangular Midwater Trawl (RMT1+8) developed by the Institute of Oceanographic Sciences, Wormley, Great Britain (cf. Baker et al., 1973; Roe et al., 1980). The open net hauls were made with an open Rectangular Midwater Trawl (RMT1) in the upper 150 m, with exceptional hauls deeper, to 2000 m in 1982, and in the upper 50 m in 1983, with an open Ringnet in the upper 50 m, with open fine-meshed square nets in the upper 60 m in

1) AMNAPE proj. 101A, rep. no. 19, supported by a grant of the Netherlands Ministry of Education and Sciences, NRZ (rep. no. 18 appeared in Plankt. Newsletter (Rep. Ser. I).

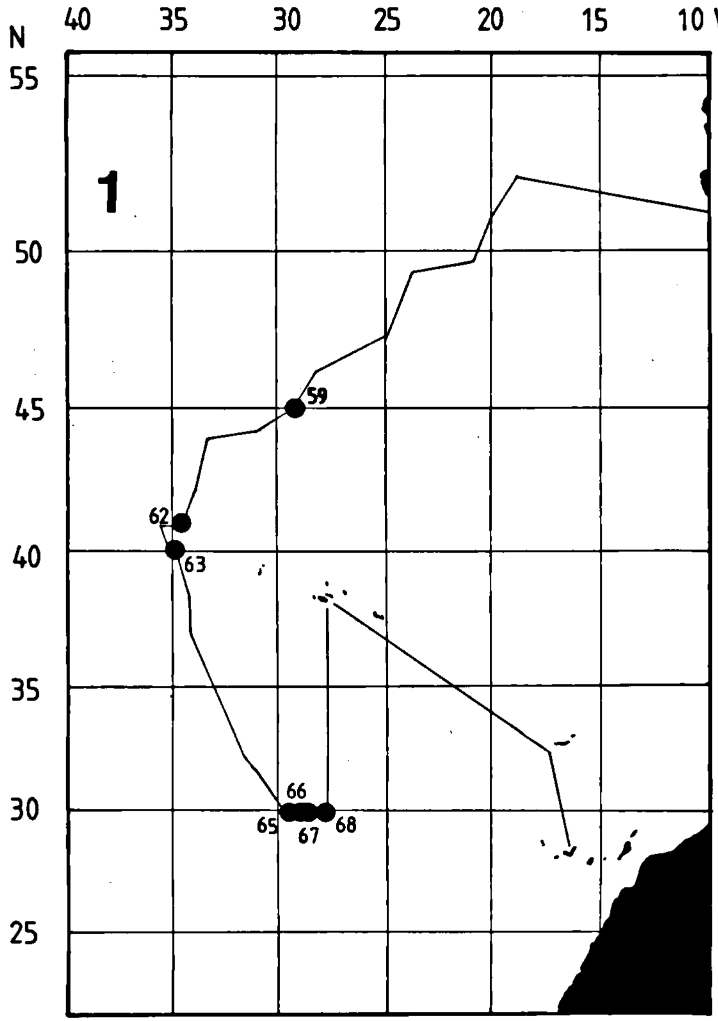

Fig. 1. Position of the stations sampled with plankton nets in 1982.

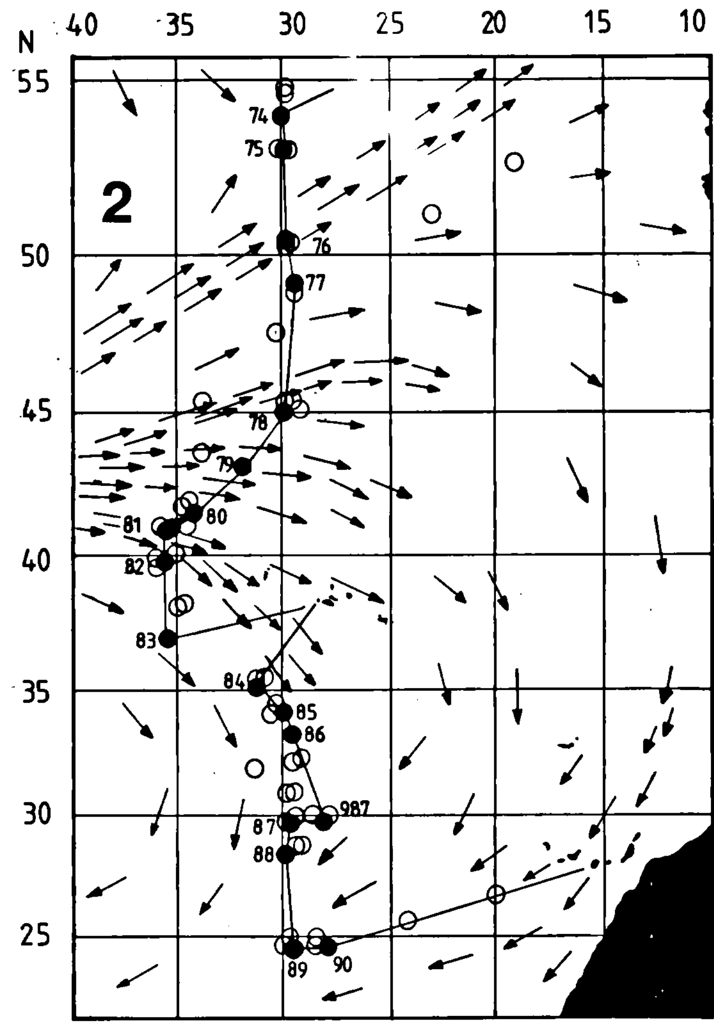

Fig. 2. Position of the stations sampled with plankton nets in 1983 with indication of currents (arrows); the stations sampled during the other cruises are indicated as open circles.

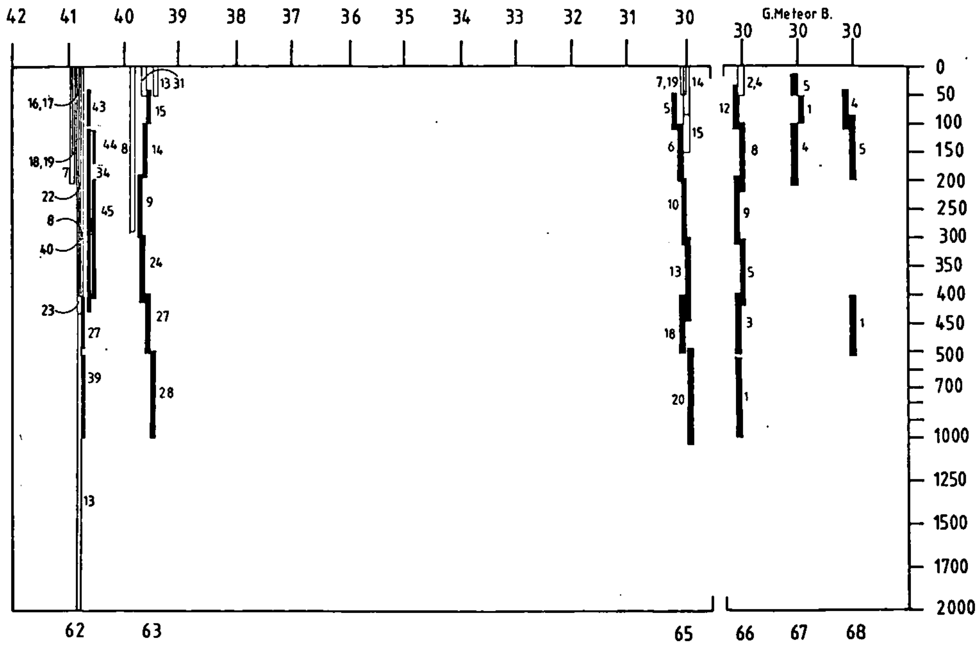

Fig. 3. Position of stations and hauls for 1982 in vertical profile; discrete samples (solid) and open hauls (open). The repeated 30°N positions represent the stations and hauls made over the Great Meteor Bank in eastward (in the figure to the right) direction.

1982 and 1983 and with fine-meshed opening-closing nets between 0-600 m in 1983.

In addition to these samples the same probes, samples and measurements were made as in 1981 (Van der Spoel & Meerding, 1983).

The discrete depth samples and open net hauls are shown in figs. 3-4. The samples were taken as much as possible at the same localities as the samples collected during the two previous cruises. Very bad weather conditions during the February 1982 cruise, however, seriously disturbed the sampling programme. Treatment of the samples was identical to the 1981 procedure (cf. Heyman, 1981 and Van der Spoel & Meerding, 1983). All material is preserved in the Institute of Taxonomic Zoology, Amsterdam.

The temperature measurements made with CTD, XBTs and netmonitor system form the basis of the temperature profiles for 1983 in fig. 5. Fig. 6 gives the sea surface temperatures based on NOAA satellite data for three days of the 1982 and for four days of the 1983 cruise. In fig. 8 the salinity profile for 1983 based on CTD data is given. In addition, some comparisons are made between the temperature and salinity data of the various years.

Collecting methods.-

The net hauls were made in 1982 and 1983 with the same equipment as in 1981 (Van der Spoel & Meerding, 1983). In addition, two small 0.25 m^2 rectangular nets, 76 µm and 202 µm mesh respectively, and provided with an opening-closing device were used. These small opening-closing nets were lowered to a maximum depth of 600 m for sampling of 100 m thick layers below 100 m and for sampling thinner layers at shallower depths (cf. fig. 4B).

All fishing, except for the hauls with the small fine-meshed nets, was executed from the stern of the ship.

In total 29 hauls were made with the functioning opening-closing RMT1+8 in 1982 and 138 in 1983; with open nets, small fine-meshed nets and non-functioning RMT net, in total 35 hauls were made in 1982 and 189 in 1983. No small fine-meshed net hauls were made at night; of the functioning RMT1+8 hauls 31% was made by day and 41% at night in 1982; in 1983 these percentages were 43% and 20%, respectively. For the open net hauls these percentages were 45% and 26% for 1982 and 71% and 2% for 1983 (see table I).

In table I the sequences of dates and sta-

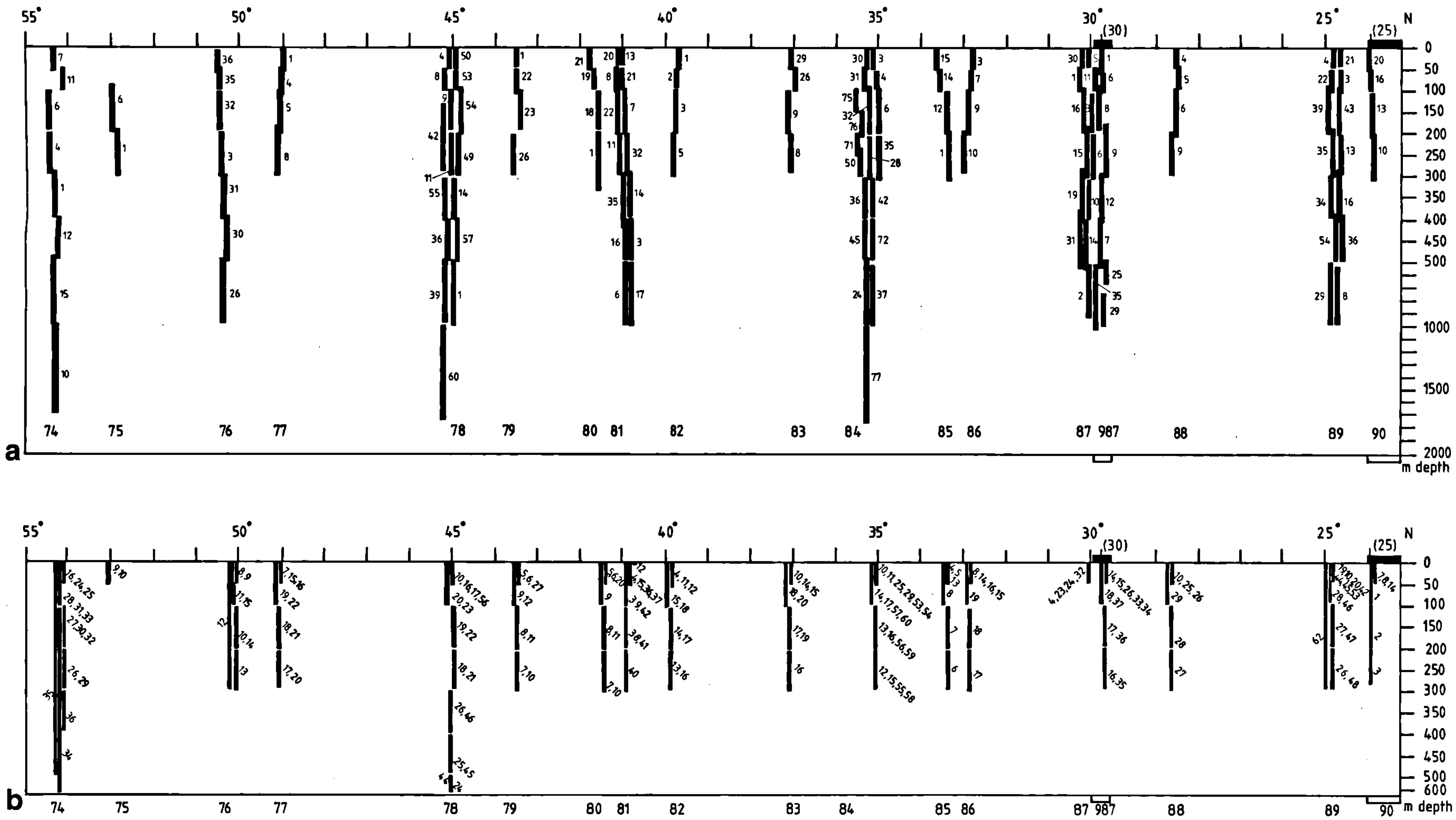

Fig. 4. Position of stations and hauls for 1983, in vertical profile, the black squares along the top line indicate samples taken markedly east of the original cruise transect. a: RMT1+8, Ringnet and RMT1 samples; b: small fine-meshed net hauls.

tion numbers run contrary for the 1983 cruise as the numbering of stations runs north-south regardless of cruise direction. Some station numbers and many haul numbers are not recorded in the table as they concern pump-samples or comparable probes only. The distances sampled as given in table I for the RMT1+8 combinations and for small fine-meshed nets are the actual distance the net was towed through the water; for all other nets the distance sampled is the horizontal distance covered by the ship during towing.

The Secchi-disc, XBT and CTD equipment were identical to those used in 1981 (cf. Van der Spoel & Meerding, 1983).

Conditions.-

The hydrographic conditions in 1982 were scarcely recorded because of the bad weather conditions and for this reason no profiles of temperature or salinity are given. The 1983 cruise, during which many CTD probes were made, presented a picture of the early summer conditions in the area.

The 1982 stations 62 and 63 were made in or close to North Atlantic Drift water, the other stations (cf. fig. 1) are from Sargasso Sea water. The series of station 65 to 68 runs from the west to the east side of the Great Meteor Bank. The samples taken on top of the Bank showed higher quantities of meroplankton and neritic species. In addition, there were typical differences between the samples west (Stn 65) and east (Stn 68) of the Bank. The influences of the Canary Current at the surface and of Mediterranean outflow below 600 m are different at both sides of this sea mount. In 1983 the same differences were found and they are demonstrated in CTD curves. Probe 5 (fig. 9) west of the Great Meteor Bank shows slight influences of Mediterranean outflow with hardly higher salinities below 660 m, and at 1150 m depth 35.57°/$_{oo}$ S only. At the east side of the Bank (probe 6 in fig. 9) Mediterranean waters show up with clearly higher salinities up to 35.86°/$_{oo}$ S at 995 m.

The Canary Current water gradually replaced N. Atlantic Central water at a depth of 85 m east of the Bank, but already at a depth of 53 m west of the Bank, and between 20 m 50 m east of the Bank, salinity is higher than west of the Bank.

During the winter cruise (1982) sea surface temperatures were evidently lower than in the summer cruise (1983) (fig. 10b). Only south of 41°N the salinities of the sea surface were higher in summer probably due to relatively high evaporation, north of 41°N precipitation dominates in the summer period so that water was less saline in 1983 (fig. 10a).

The differences in conditions between the summer expedition (1983) and the spring (1980) and autumn (1981) expeditions are manifold. In 1983 no polar front was found, however, Subpolar water seems to have been present north of 53°N judging from sea surface temperatures (fig. 7) and CTD probes 20 and 21 (fig. 9). In 1980 there was a front, not in 1981, but still the CTD probes 445 and 447 (fig. 11) showed the presence of Subarctic waters north of 53°N also in 1981. A thermocline was only locally present north of 42°N in 1980, in winter (1982) the thermocline was found only at greater depth (> 120 m) between 29° and 37°N. During the summer cruise (1983) thermoclines at greater depths (> 90 m) and seasonal thermoclines between 10 m in the south and 90 m in the north form an uninterrupted feature from north to south.

The T/S diagrams were made from CTD profiles of 1983 (fig. 9) and the 1981 measurements are given for comparison (fig. 11). Waters of which the T/S ratio varies between 9.0°/35.35°/$_{oo}$ and 15.5°/36.20°/$_{oo}$ are considered to be North Atlantic Central water; Mediterranean waters vary between 6° and 10°C and between 35.40°/$_{oo}$ and 35.70°/$_{oo}$ S. At higher temperatures (therefore shallower depths) the T/S curves show some clustering reflecting the differences in surface water masses as shown in table III.

The T/S curves from the profiles made in 1981 show a very small overall difference with the curves of 1983. In 1981 North Atlantic Central water was 0.6°C warmer and 0.06°/$_{oo}$ less saline than in 1983, presumably due to different sensors used.

A principal difference between the two years is the absence of a well-marked body of Mediterranean water in 1981 which did set itself apart strongly in 1983. The profiles made north of

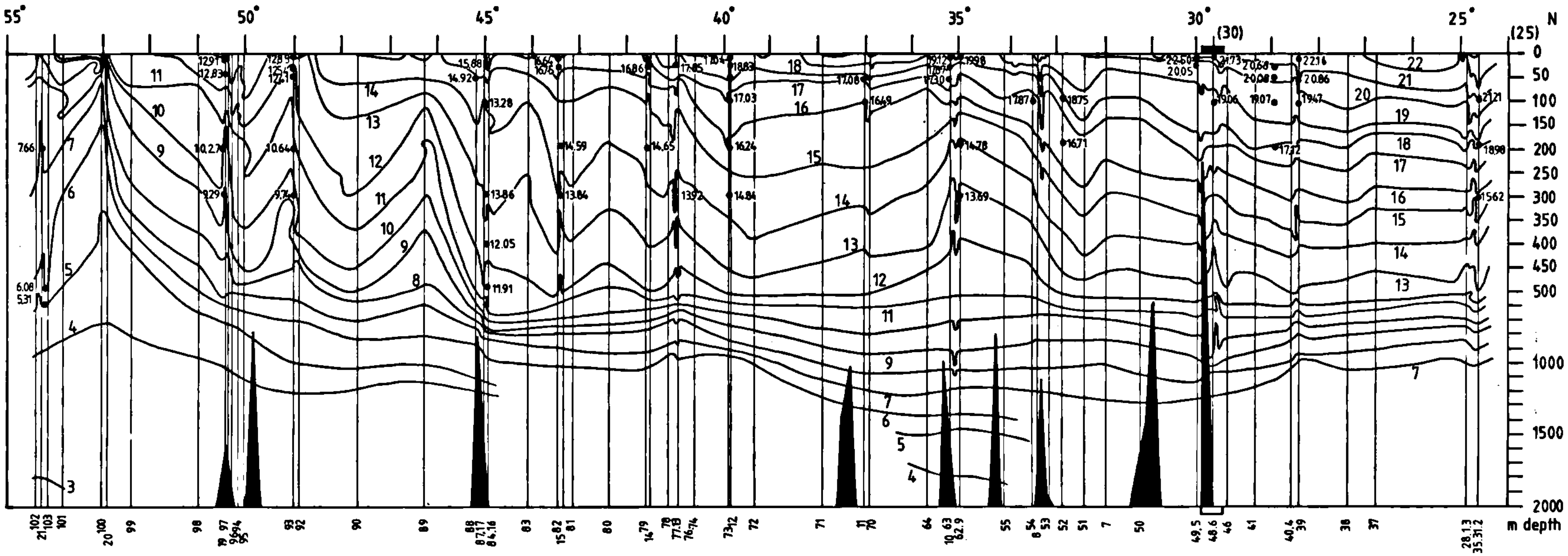

Fig. 5. Vertical temperature profile for the 1983 cruise; the vertical lines indicate XBT and CTD probes with their figures along the bottom line, depths in metres along the y-axis, black square along the top line indicates samples taken markedly east of the original cruise transect.

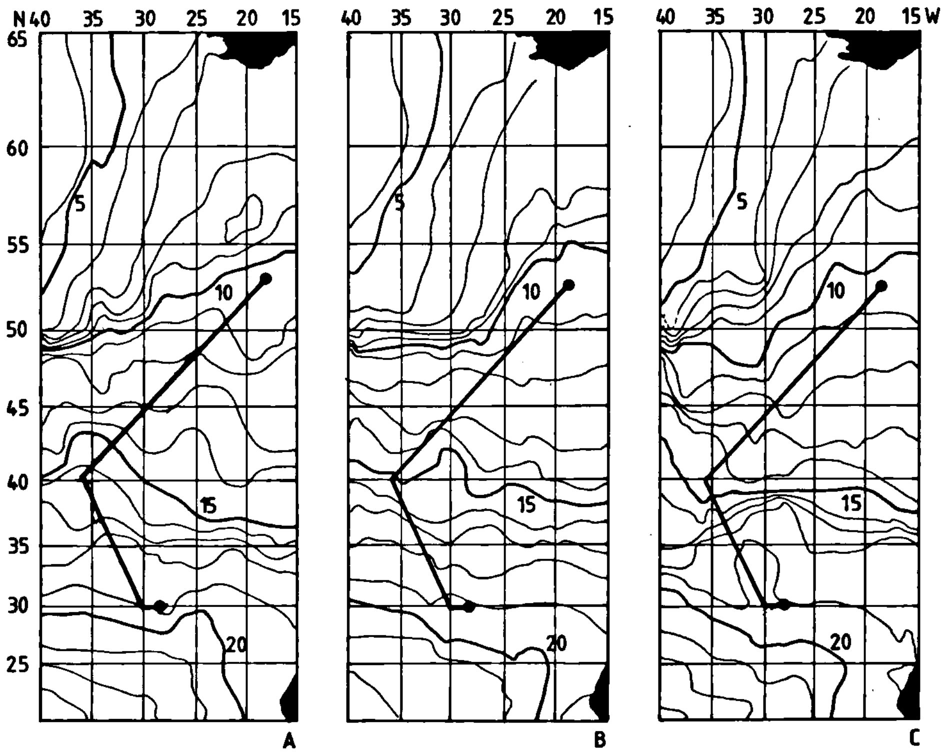

Fig. 6. Sea surface temperatures (1°C interval) in the area investigated in 1982, A: 9 Feb. 1982, B: 16 Feb. 1982, C: 23 Feb. 1982, based on NOAA satellite measurements.

53°N in 1981 differ more in salinity from other water masses than in 1983.

In 1982 and 1983 the northern branch of the North Atlantic Drift was well marked, as it was in 1980; the southern branch is much broader in 1983 and agrees more with the situation in 1981. The position of the southern branch of the North Atlantic Drift, however, was much more to the north than in 1981: for 1983 it was found roughly between 41° and 46°N whereas it was found between 40° and 43°N in 1980 and 1981. The area of Temperate waters in between the two branches was consequently also less developed in 1983.

Fronts as found in 1981 were not observed in 1983, but cold probably Subarctic waters were seen in the temperatures profiles north of 53°N in 1981 as well as in 1983.

In the temperature profiles an uplift of the isotherms over roughly 100 m was found near 35°N so that this seems a constant feature throughout the years (cf. Van der Spoel & Meerding, 1983). In contrast to the other years the salinity profile also showed an uplift in this area of the isohalines. The North Atlantic Drift was reflected in the temperature profile near 50°N but not in the southern region. The same holds good for the salinity profile.

For 1982 the temperature curves from XBTs in fig. 13 show isothermal waters north of 40°N and decaying thermoclines south of 40°N. In 1983 the summer conditions were reflected by a clear isothermal layer above the thermocline at 10 m depth near 30°N, to 90 m near 55°N (fig. 14). Contrary to 1981, however, many secondary isotherms were found under the primary isotherms, which was not the case in the autumn. The primary isotherm is considered to be the uppermost and usually the most marked one.

The different configurations of the layers with thermoclines and the unithermal-mixed layer for the different seasons are given in fig. 15. It is evident from the few measurements made that in winter one isothermal layer is found to a depth of 150 m south of 40°N, while north of 40°N isothermy goes deeper than 300 m. In spring (fig. 15A) warming up of the surface waters induced very shallow stratifica-

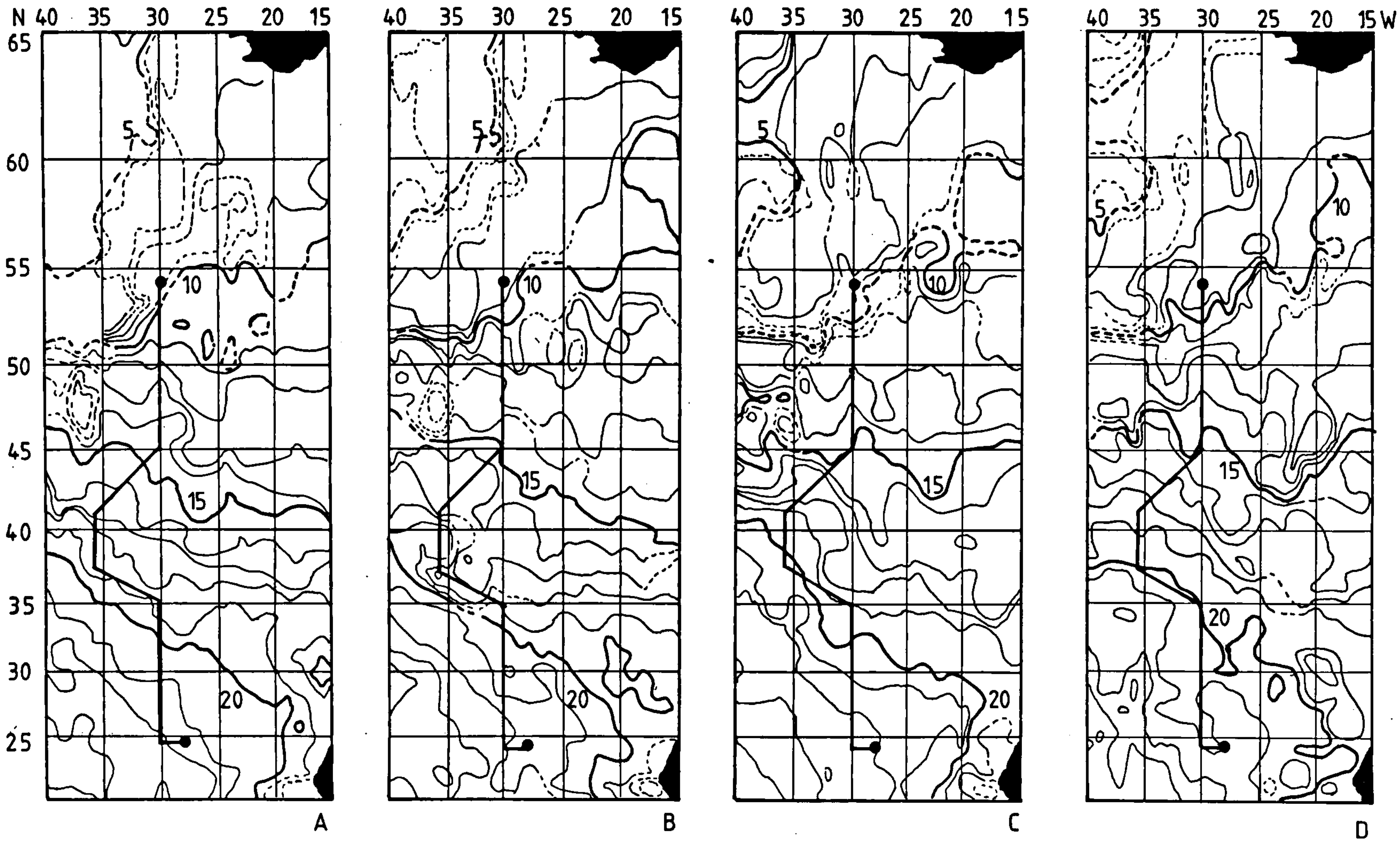

Fig. 7. Sea surface temperatures (1°C interval) in the are investigated in 1983, A: 31 May 1983, B: 7 June 1983, C: 14 June 1983, D: 21 June 1983, based on NOAA satellite measurements.

tion, while south of 41°N a nearly continuous thermocline stretches southwards. In summer (fig. 15B) the thermocline has spread to 55°N with only small interruptions, secondary thermoclines are frequent and in very shallow layers heating still causes a stratification locally. In autumn (fig. 15C) a continuous isothermal sheet lies over the thermocline which is uninterrupted from 55°N to 25°N.

ACKNOWLEDGEMENTS

The author expresses sincere thanks to the Royal Dutch Navy for their help during the organisation of the cruises and more especially to commanders and crews of the oceanographic vessel HnlMS "Tydeman" for their various efforts to make the expeditions successful. Thanks are due to Mrs. A.G.H.A. Meerding for running the computer programme and setting up the administration for the 101A project. Technical assistance from the staffs of the Institute of Oceanographic Sciences (I.O.S., Great Britain), the Netherlands Institute for Sea Research (N.I.O.Z., Texel), the Subfaculty of Biology of the University of Amsterdam and Mr. M. Koperdraat is gratefully acknowledged.

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Prof. Dr. S. van der Spoel,
Instituut voor Taxonomische Zoölogie,
(Zoölogisch Museum),
Postbus 20125,
1000 HC Amsterdam,
The Netherlands.

Received : 5.XII.1985
Distributed : 18.XII.1985

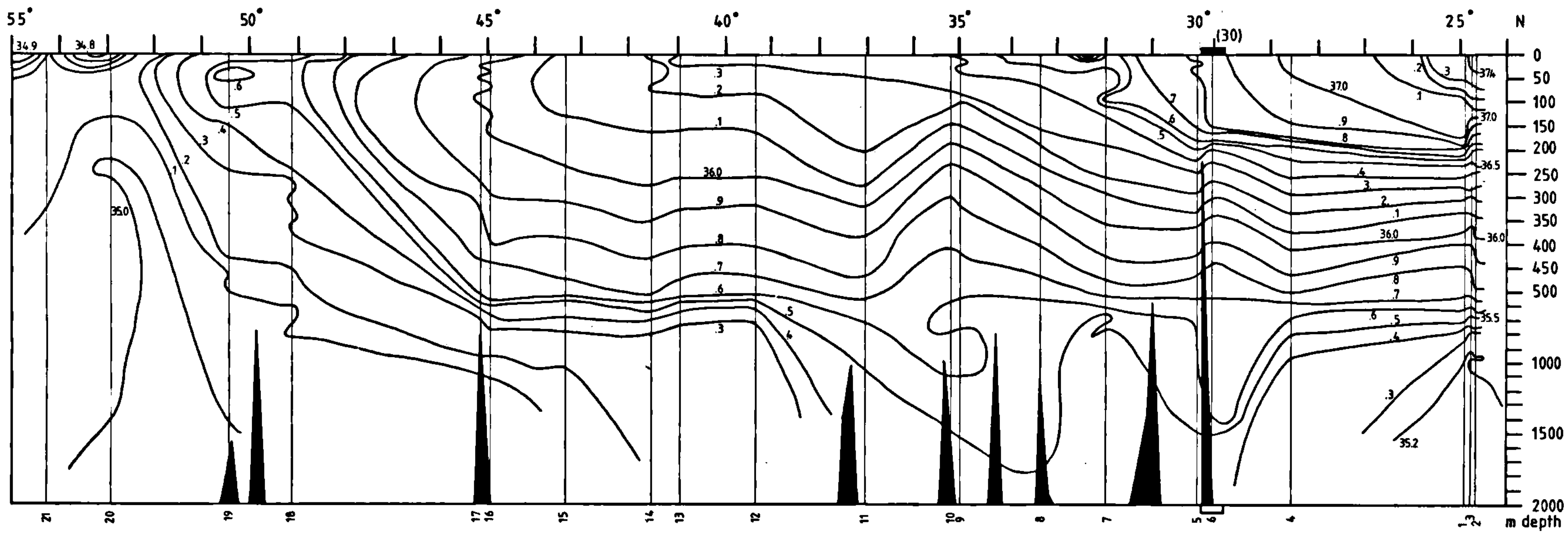

Fig. 8. Salinity profile (°/₀₀ S) after CTD measurements for the 1983 cruise, depths in metres along y-axis, black square along top line indicates probes taken markedly east of the original cruise transect.

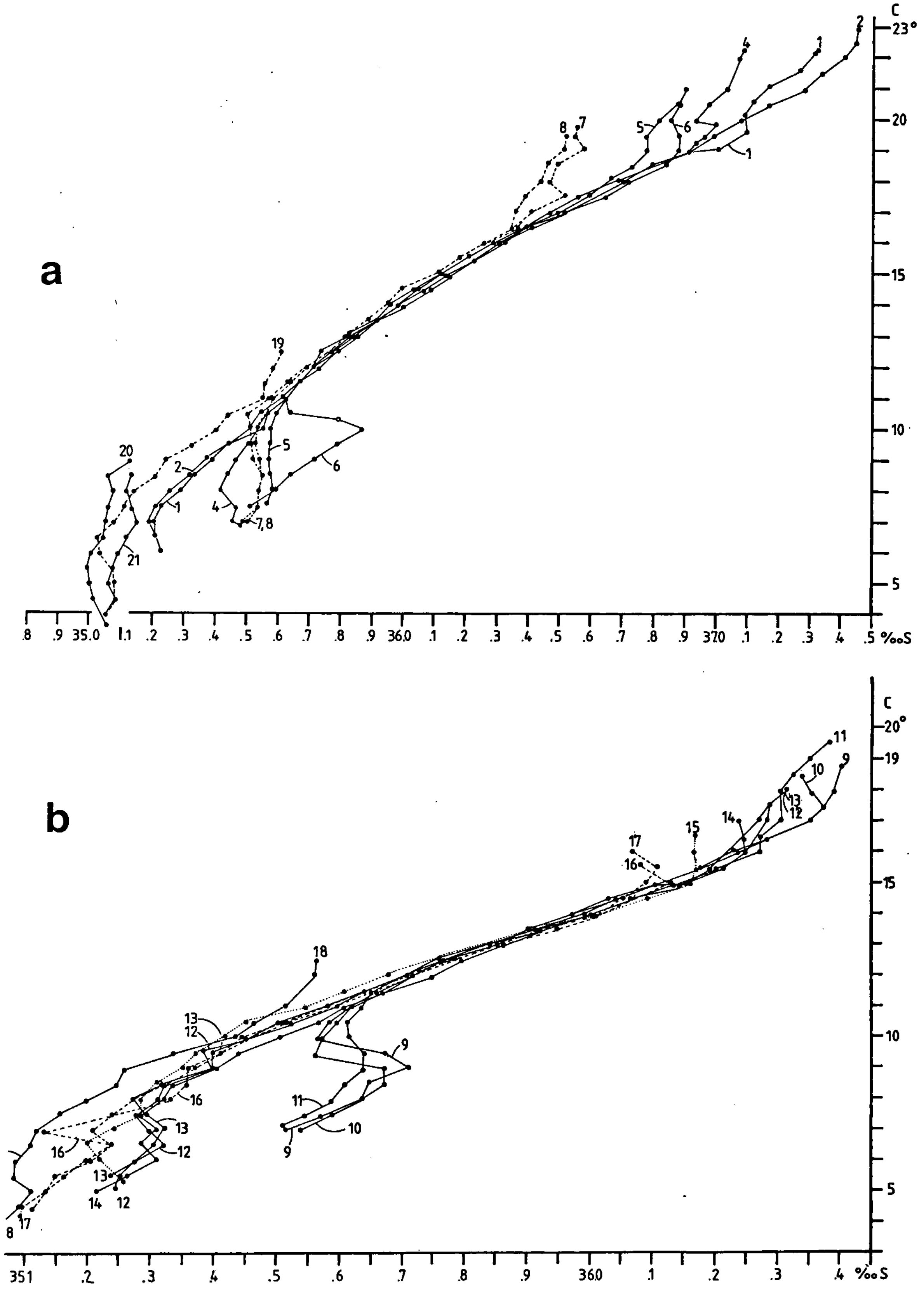

Fig. 9. T/S diagrams for CTD probes made in 1983, the numbers refer to the first column in table II (a and b are at different scales).

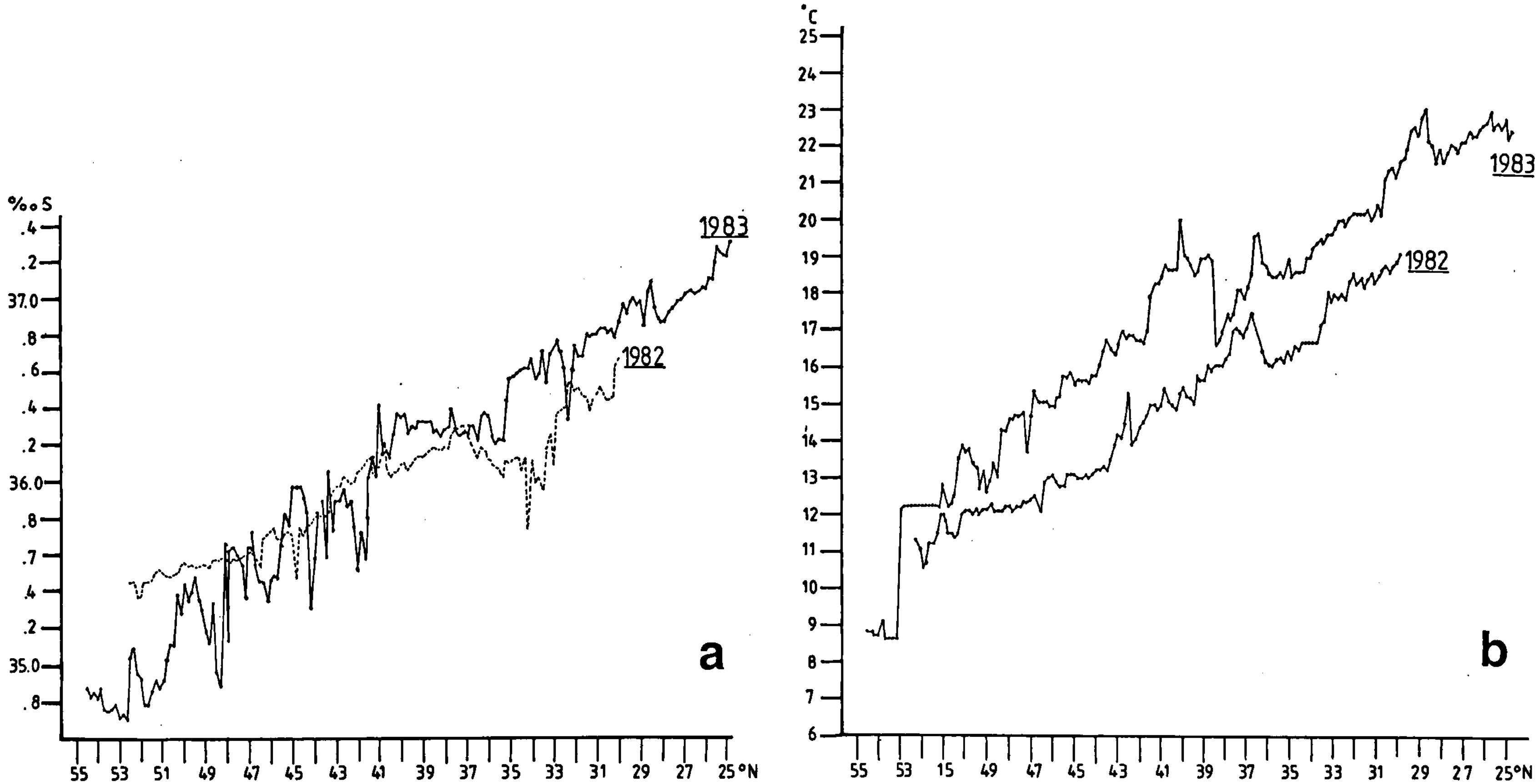

Fig. 10. Sea surface salinities for 1982 and 1983 against latitudes (a) and sea surface temperatures for 1982 and 1983 against latitudes (b).

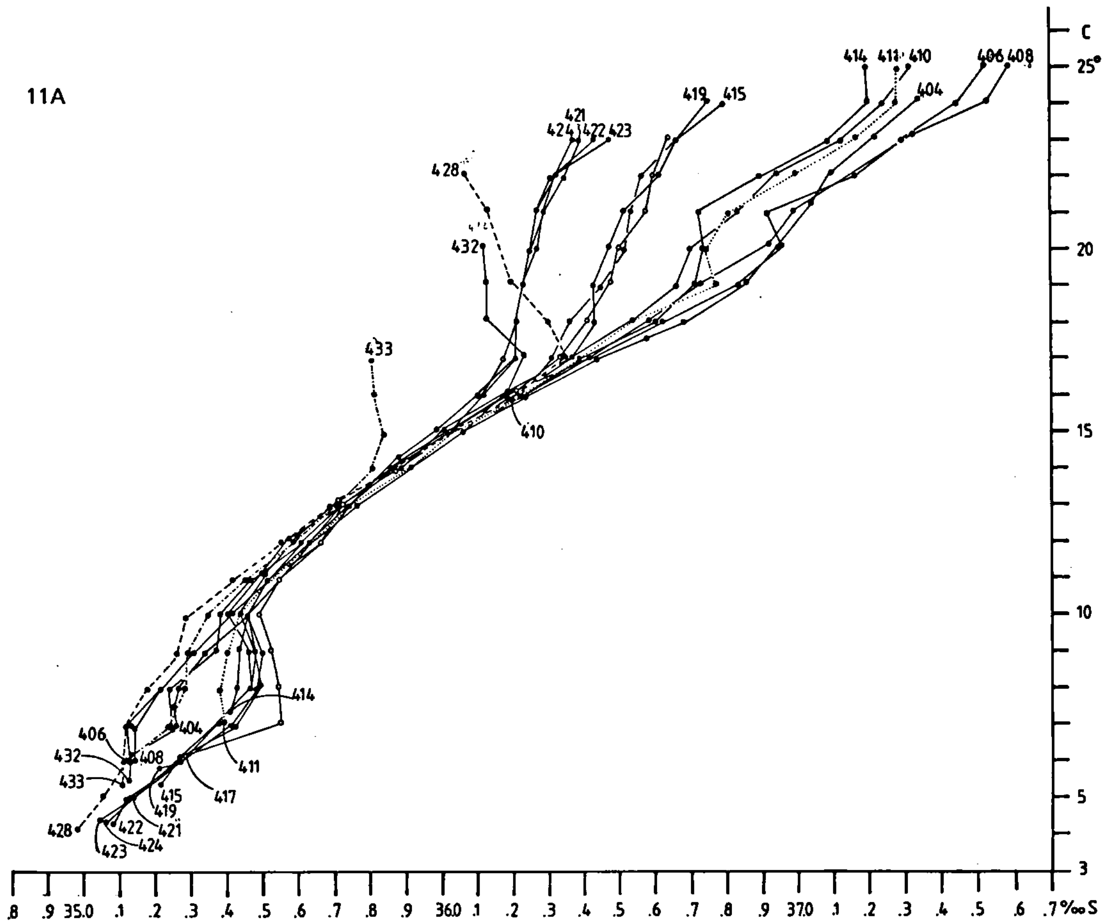

Fig. 11. T/S diagrams for CTD probes made in 1981, the numbers refer to the first column in table II (A and B are at different scales).

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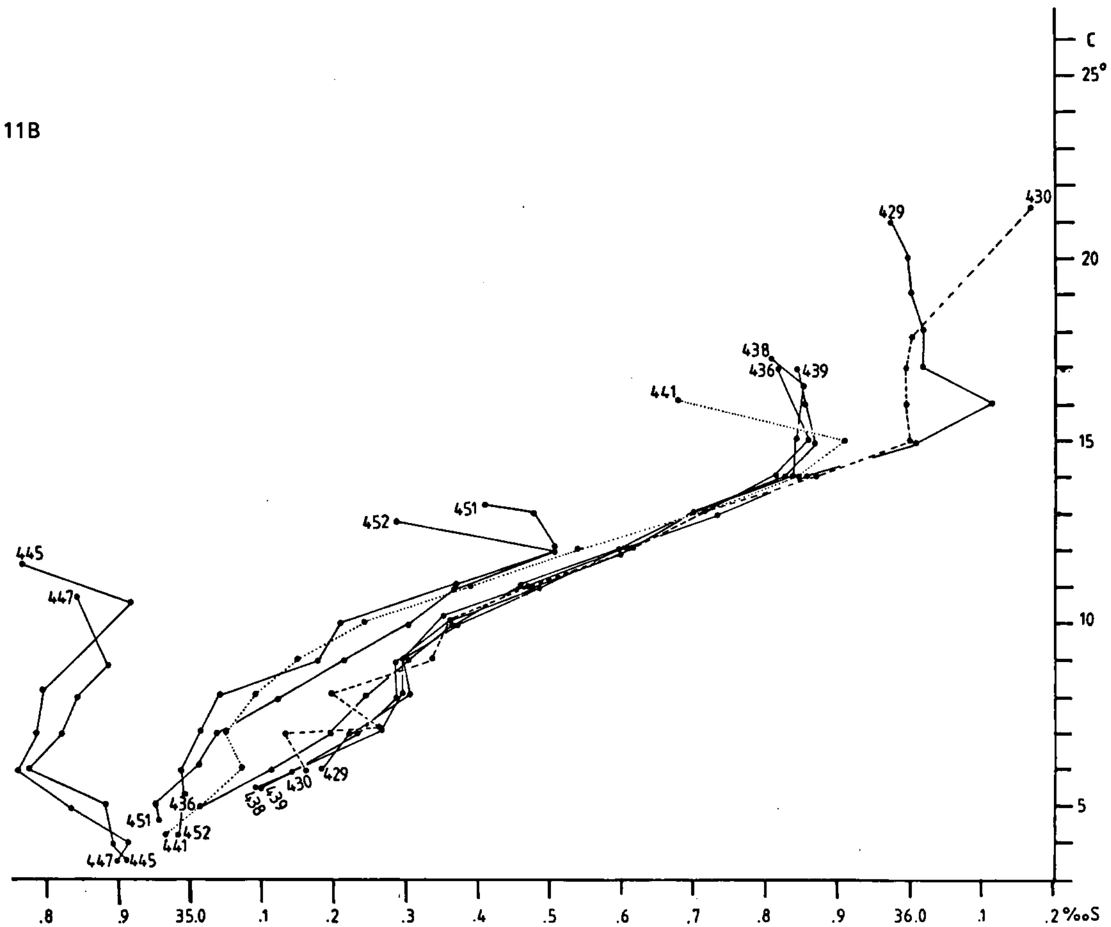

Fig. 11. T/S diagrams for CTD probes made in 1981, the numbers refer to the first column in table II (A and B are at different scales).

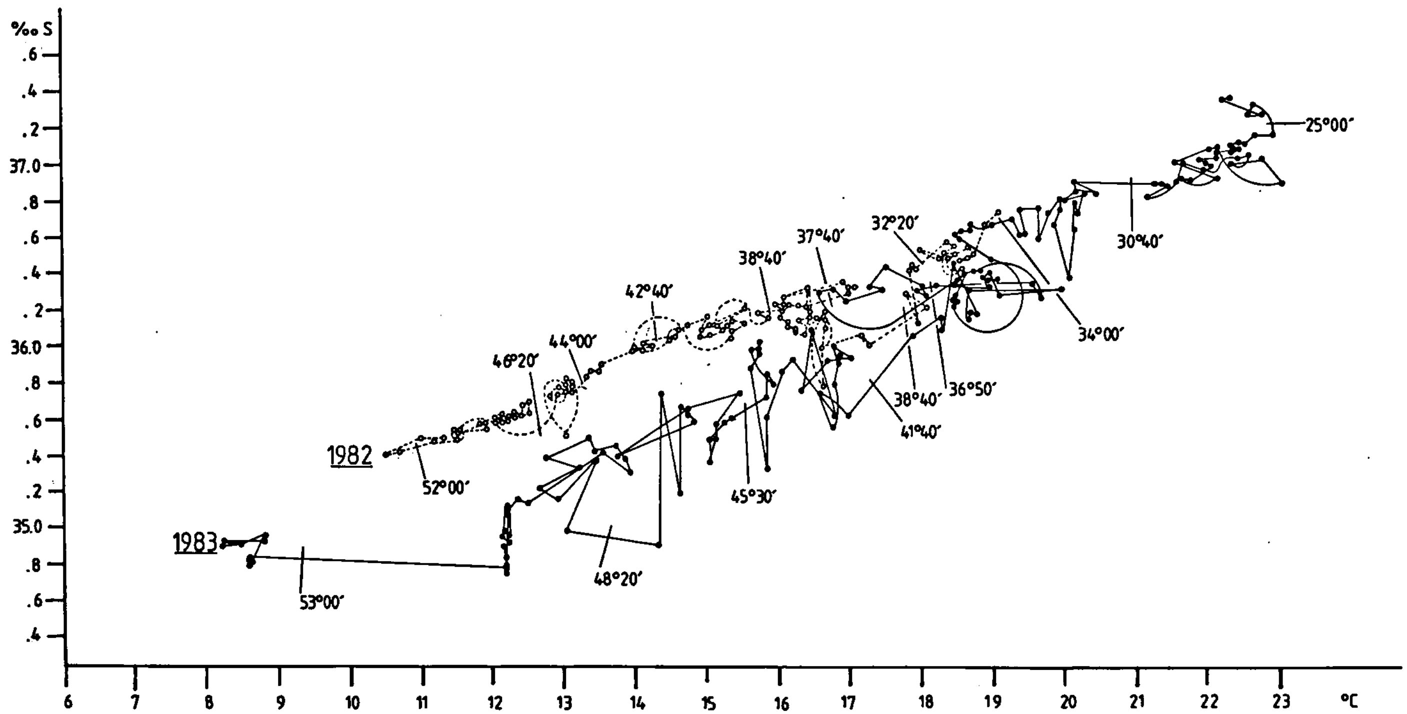

Fig. 12. T/S diagram for sea surface conditions in 1982 and 1983 with some latitudes indicated.

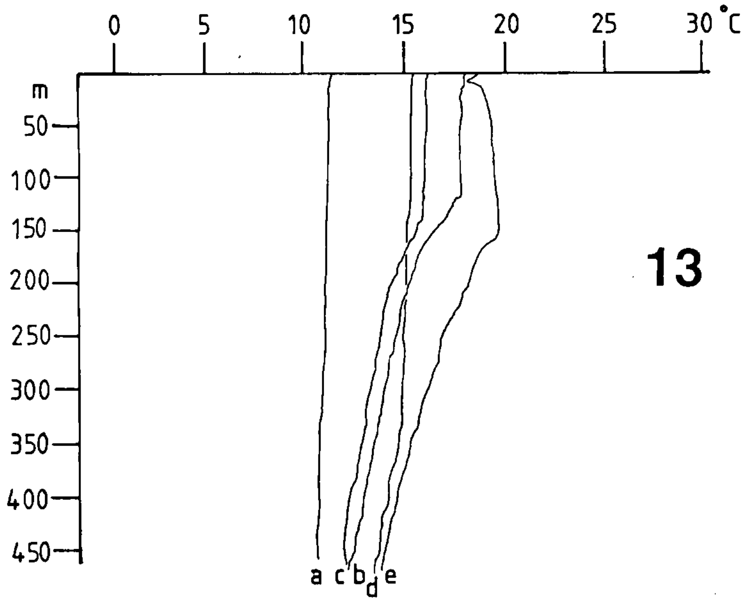

Fig. 13. Five temperature profiles from XBTs taken in 1982 in approx. the same water masses as the profiles given by Van der Spoel, 1981 (fig. 5).
a - 52°03'N 16°00'W, 5 Feb. 1982, 12.40 h., near Stn 56;
b - 34°17'N 27°27'W, 21 Feb. 1982, 23.15 h., near Stn 64;
c - 36°25'N 27°23'W, 22 Feb. 1982, 07.35 h., near Stn 63;
d - 40°55'N 35°36'W, 13 Feb. 1982, 13.05 h., near Stn 62;
e - 32°40'N 27°37'W, 21 Feb. 1982, 17.00 h., near Stn 65.

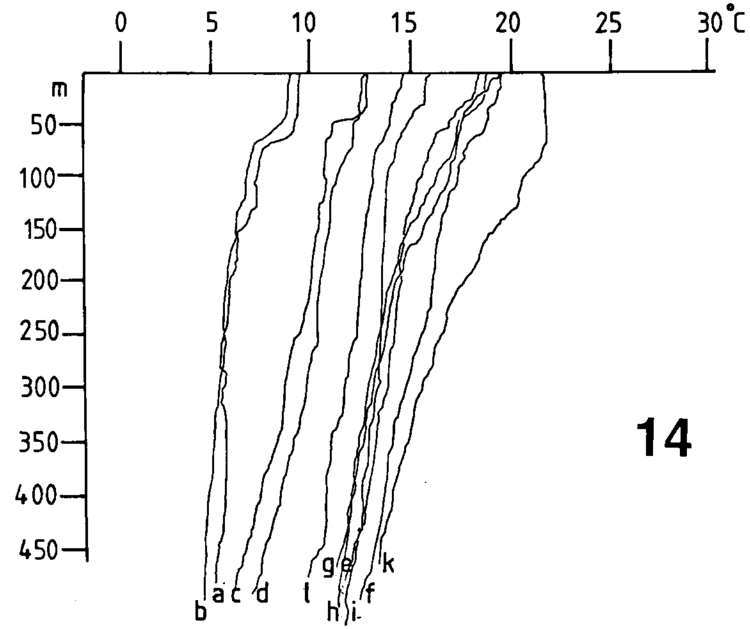

Fig. 14. Eleven temperature profiles from XBTs taken in 1983 in approx. the same water masses as the profiles given by Van der Spoel, 1981 (fig. 5).
a - 54°44'N 28°04'W, 19 June 1983, 17.05 h., near Stn 74;
b - 53°03'N 29°49'W, 18 June 1983, 11.50 h., near Stn 75;
c - 51°00'N 29°23'W, 17 June 1983, 23.05 h., near Stn 76;
d - 50°28'N 29°30'W, 17 June 1983, 17.05 h., near Stn 76;
e - 45°00'N 29°55'W, 15 June 1983, 05.45 h., near Stn 78;
f - 32°53'N 29°53'W, 4 June 1983, 11.05 h., near Stn 86;
g - 34°16'N 30°48'W, 5 June 1983, 06.05 h., near Stn 85;
h - 35°12'N 31°36'W, 7 June 1983, 06.05 h., near Stn 84;
i - 41°11'N 35°21'W, 12 June 1983, 17.05 h., near Stn 80;
k - 25°23'N 26°36'W, 29 June 1983, 06.05 h., near Stn 90;
l - 47°36'N 29°19'W, 15 June 1983, 23.05 h., near Stn 77.

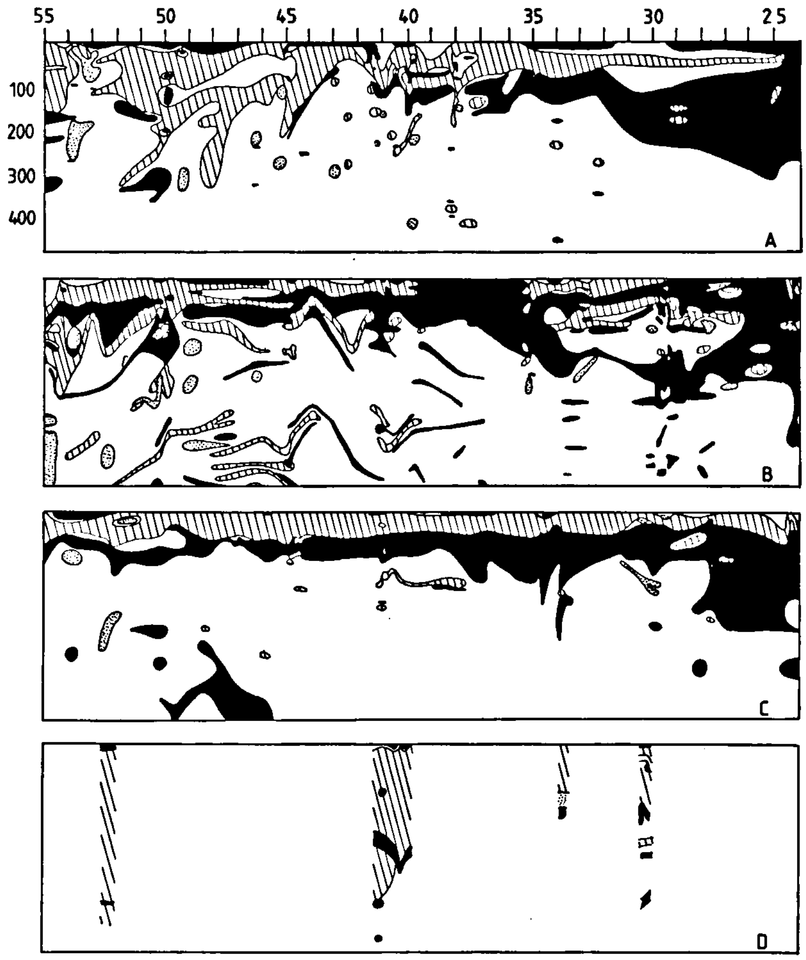

Fig. 15. Profiles of vertical mixing, solid indicates thermoclines and > 1°C.50m^{-1} differences, open indicates <1°C.50 m^{-1} differences, hatched indicates isothermal water, dotted indicates inversions. A: spring 1980; B: summer 1983; C: autumn 1981; D: winter 1982.

Table I. Station list.

A: station number;

B: haul;

C: date;

D: geographic position;

E: average course of the ship during the haul;

F: depth in m;

G, H: haul in min/km: the duration in minutes (G) and the distance towed in kilometers (H);

I: time start;

K, L: temperature in °C at surface (K); salinity in $^{o}/_{oo}$S at surface (L);

M, N: average temperature in °C (at depth) (M); average salinity in $^{o}/_{oo}$S (at depth) (N);

O: gear: 7VU: 0.25 m^2 net, 75 μm mesh, open haul; 2VU: 0.25 m^2 net, 202 μm mesh, open haul; RO1: open rectangular midwater trawl RMT1; RNO: open ringnet; ICT: rectangular midwater trawl RMT1+8 not correctly opened; R18: rectangular midwater trawl RMT1+8; IMT: rectangular midwater trawl RMT1+8 not correctly closed; 7OC: 0.25 m^2 net, 75 μm mesh, discrete sample; 2OC: 0.25 m^2 net, 202 μm mesh, discrete sample; DIP: sample collected by hand;

P: period: D: day sample; D-N: dawn sample; N-D: dusk sample; N: night sample.

A	B	C	D	E	F	G	H	I	K	L	M	N	O	P
59	7	9/ 2/82	45 02.7N 29 52.7W	163	0- 20	7	0.06	19.09	13.10	35.72			7VU	D-N
59	8	9/ 2/82	45 02.7N 29 52.5W	162	0- 30	7	0.06	19.18	13.10	35.71			2VU	D-N
62	7	12/ 2/82	40 57.5N 35 40.0W	219	0- 400	60	1.67	16.15	15.10	36.02			RO1	D
62	8	12/ 2/82	40 55.8N 35 39.9W	223	0- 300	60	1.30	17.30	15.20	36.05			RO1	D-N
62	11	12/ 2/82	40 54.1N 35 39.6W	195	0- 45	6	0.06	19.07	15.20	36.08			7VU	D-N
62	12	12/ 2/82	40 54.0N 35 39.5W	189	0- 45	3	0.06	19.16	15.20	36.08			2VU	D-N
62	13	12/ 2/82	40 53.3N 35 39.3W	211	0-2000	314	13.58	20.01	15.10	36.02			RO1	N
62	16	13/ 2/82	40 45.3N 35 44.6W	210	0- 50	62	2.49	1.33	15.60	36.14			RNO	N
62	17	13/ 2/82	40 44.0N 35 45.7W	209	0- 50	60	2.78	2.40	15.60	36.14			RO1	N
62	18	13/ 2/82	40 42.1N 35 47.3W	209	0- 150	67	3.10	4.16	15.60	36.14			RO1	N
62	19	13/ 2/82	40 41.0N 35 48.2W	48	0- 150	67	3.72	5.33	15.50	36.14			RO1	N
62	22	13/ 2/82	40 57.4N 35 38.1W	181	0- 220	41		9.45	15.30	36.12	15.95		ICT	N-D
62	23	13/ 2/82	40 56.3N 35 37.1W	193	0- 430	70		10.53	15.40	36.13	15.25		ICT	D
62	24	13/ 2/82	40 55.5N 35 35.2W	128	0- 32	6	0.05	13.30	15.50	36.13			2VU	D
62	25	13/ 2/82	40 55.6N 35 35.0W	151	0- 35	7	0.05	13.40	15.40	36.13			7VU	D
62	27	13/ 2/82	40 55.4N 35 35.1W	270	400- 490	47	2.66	15.16	15.40	36.11	13.85		R18	D
62	34	14/ 2/82	40 58.6N 35 32.5W	239	110- 430	60	4.18	11.05	15.10	36.06	14.75		R18	D
62	37	14/ 2/82	40 55.9N 35 35.5W	274	0- 60	4	0.06	12.59	15.20	36.08			7VU	D
62	38	14/ 2/82	40 55.8N 35 35.4W	257	0- 59	3	0.06	13.05	15.20	36.07			2VU	D
62	39	14/ 2/82	40 56.3N 35 33.0W	60	505- 980	61	3.37	14.22	15.10	36.05	10.30		R18	D
62	40	14/ 2/82	40 57.8N 35 29.3W	249	0- 310	52		16.45	15.20	36.05	15.50		ICT	D-N
62	43	14/ 2/82	40 57.6N 35 31.7W	249	40- 110	63	3.73	18.01	15.10	36.05	15.85		R18	D-N
62	44	14/ 2/82	40 57.1N 35 36.0W	249	110- 170	60	3.37	19.38	15.00	36.05	15.55		R18	D-N
62	45	14/ 2/82	40 56.5N 35 40.0W	246	195- 305	65	4.09	21.24	15.30	36.08	15.30		IMT	N
63	6	15/ 2/82	39 49.9N 35 59.9W	174	0- 43	9	0.05	14.39	15.30	36.09			2VU	D
63	7	15/ 2/82	39 50.0N 35 59.7W	165	0- 32	8	0.05	14.50	15.30	36.09			7VU	D
63	8	15/ 2/82	39 50.0N 35 59.1W	161	0- 290	90		15.30	15.30	36.10	14.75		ICT	D
63	9	15/ 2/82	39 45.6N 35 54.0W	158	190- 300	61	4.09	18.09	15.30	36.09	14.80		R18	D-N
63	13	15/ 2/82	39 46.0N 35 54.6W	158	0- 50	59	3.46	17.56	15.30	36.10			RO1	D-N
63	14	15/ 2/82	39 43.0N 35 48.9W	163	100- 200	60	4.36	19.59	15.20	35.68	15.25		R18	D-N
63	15	15/ 2/82	39 40.1N 35 44.6W	189	40- 100	60	4.27	21.38	15.20	36.06	15.30		R18	N
63	24	16/ 2/82	39 47.7N 35 50.3W	190	295- 410	60	4.27	23.57	15.20	36.11	13.55		R18	N
63	27	17/ 2/82	39 41.9N 35 46.2W	190	385- 500	60	4.00	2.16	15.00	36.11	12.15		R18	N
63	28	17/ 2/82	39 36.2N 35 43.1W	191	505-1000	68	3.81	4.51	15.30	36.11	8.60		R18	N
63	31	17/ 2/82	39 29.9N 35 38.5W	137	0- 50	60	0.93	9.55	15.20	36.11			RNO	D
65	5	19/ 2/82	30 11.2N 29 45.0W	221	45- 110	59	3.73	9.14	18.90	36.60	19.10		R18	D
65	6	19/ 2/82	30 06.7N 29 44.8W	220	100- 200	78	3.63	10.42	18.90	36.67	18.00		R18	D
65	7	19/ 2/82	30 06.5N 29 45.0W	221	0- 50	60	4.45	10.50	18.80	36.67			RNO	D
65	10	19/ 2/82	30 04.1N 29 46.6W	220	195- 310	64	3.19	12.26	19.00	36.64	16.40		R18	D
65	11	19/ 2/82	30 01.9N 29 47.9W	137	0- 30	4	0.06	14.08	19.60	36.74			7VU	D
65	12	19/ 2/82	30 01.9N 29 47.8W	150	0- 20	4	0.06	14.14	19.60	36.74			2VU	D
65	13	19/ 2/82	29 59.8N 29 42.9W	92	285- 445	60	2.83	19.57	19.40	36.72	14.80		R18	D-N
65	14	19/ 2/82	30 00.5N 29 46.4W	196	0- 100	61	3.58	16.14	19.30	36.66			RO1	D
65	15	19/ 2/82	29 58.4N 29 46.4W	196	0- 150	60	3.15	17.25	19.50	36.69			RO1	D-N
65	18	19/ 2/82	29 60.0N 29 37.5W	91	400- 525	60	2.83	21.46	19.10	36.71	13.40		R18	N
65	19	19/ 2/82	29 60.0N 29 37.5W	90	0- 50	61	4.14	21.45	19.10	36.71			RNO	N
65	20	19/ 2/82	29 59.4N 29 34.8W	91	490-1010	61	3.01	23.53	19.00	36.71	10.30		R18	N
66	1	20/ 2/82	30 00.2N 29 29.1W	90	515- 995	62	2.47	2.27	19.10	36.71	10.20		R18	N
66	2	20/ 2/82	30 00.2N 29 29.4W	91	0- 50	65	3.61	2.15	19.10	36.71			RO1	N
66	3	20/ 2/82	30 00.4N 29 24.7W	90	395- 505	61	3.10	4.51	19.20	36.73	12.65		R18	N

A	B	C	D	E	F	G	H	I	K	L	M	N	O	P
66	4	20/ 2/82	30 00.4N 29 24.7W	90	0- 50	61	4.14	4.49	19.20	36.73			RNO	N
66	5	20/ 2/82	30 00.9N 29 19.1W	91	300- 415	60	3.73	7.24	19.20	36.76	14.65		R18	N-D
66	8	20/ 2/82	30 02.1N 29 13.1W	60	100- 220	59	3.55	10.32	19.40	36.78	18.10		R18	D
66	9	20/ 2/82	30 02.4N 29 10.5W	271	190- 310	60	3.46	12.08	19.60	36.80	16.45		R18	D
66	12	20/ 2/82	30 02.6N 29 12.5W	180	30- 110	60	3.37	14.23	19.60	36.78	19.40		R18	D
66	13	20/ 2/82	30 02.9N 29 13.0W	134	0- 38	6	0.06	13.40	19.60	36.78			7VU	D
66	14	20/ 2/82	30 02.9N 29 12.9W	160	0- 20	3	0.06	13.48	19.50	36.78			2VU	D
67	1	20/ 2/82	30 00.3N 28 40.4W	90	50- 100	60	3.64	18.13	19.60	36.78	19.20		R18	D-N
67	4	20/ 2/82	30 00.6N 28 38.5W	90	100- 218	63	3.91	19.45	19.40	36.76	18.40		R18	D-N
67	5	20/ 2/82	30 01.8N 28 32.6W	90	10- 50	82	3.35	21.23	19.30	36.75	19.20		R18	N
68	1	21/ 2/82	30 02.4N 28 10.8W	90	400- 505	61	3.19	0.40	19.30	36.76	13.60		R18	N
68	4	21/ 2/82	30 02.6N 28 05.7W	90	40- 115	60	2.92	2.38	19.30	36.76	19.15		R18	N
68	5	21/ 2/82	30 02.6N 28 03.0W	90	80- 190	66	4.27	4.08	19.20	36.77	18.55		R18	N
74	1	18/ 6/83	54 20.8N 29 57.1W	314	296- 400	60	4.18	18.47	8.70	34.80	6.20	35.09	R18	D
74	4	18/ 6/83	54 24.7N 30 00.4W	321	200- 300	60	3.91	20.19	8.70	34.81	6.65	35.13	R18	D-N
74	6	18/ 6/83	54 27.1N 30 01.3W	167	100- 200	60	4.09	21.45	8.70	34.87	6.97	35.16	R18	D-N
74	7	18/ 6/83	54 23.3N 29 58.3W	167	5- 52			23.03	8.70	34.94	8.65	35.03	R18	D-N
74	10	19/ 6/83	54 20.9N 29 53.7W	170	1000-1750	90	4.34	1.07	8.60	34.95	3.45	35.03	R18	N
74	11	19/ 6/83	54 18.0N 29 49.6W	340	50- 98	60	4.27	3.33	8.50	34.90	7.50	35.16	R18	N-D
74	12	19/ 6/83	54 22.0N 29 49.0W	340	400- 502	60	3.91	5.10	8.50	34.93	5.75	35.06	R18	N-D
74	15	19/ 6/83	54 24.4N 29 48.0W	190	490- 995	60	3.28	6.51	8.60	34.94	4.45	35.06	R18	D
74	16	19/ 6/83	54 21.6N 29 43.8W	292	0- 50	26	1.28	10.14	8.50	34.89	9.75	35.00	RNO	D
74	24	19/ 6/83	54 20.7N 29 45.0W	107	0- 50	2	0.05	8.39	8.50	34.93	9.75	35.00	2VU	D
74	25	19/ 6/83	54 20.7N 29 44.9W	131	0- 50	2	0.05	8.45	8.50	34.92	9.75	35.00	7VU	D
74	26	19/ 6/83	54 21.0N 29 44.3W	149	200- 300	4	0.10	9.08	8.50	34.92	6.85	35.11	7OC	D
74	27	19/ 6/83	54 21.0N 29 44.3W	149	100- 200	4	0.10	9.08	8.50	34.92	7.50	35.12	7OC	D
74	28	19/ 6/83	54 21.0N 29 44.3W	149	0- 100	4	0.10	9.08	8.50	34.92	8.05	35.01	7OC	D
74	29	19/ 6/83	54 21.4N 29 43.8W	138	200- 300	4	0.10	9.55	8.50	34.90	6.85	35.11	2OC	D
74	30	19/ 6/83	54 21.4N 29 43.8W	138	100- 200	4	0.10	9.55	8.50	34.90	7.50	35.12	2OC	D
74	31	19/ 6/83	54 21.4N 29 43.8W	138	0- 100	4	0.10	9.55	8.50	34.90	8.05	35.01	2OC	D
74	32	19/ 6/83	54 22.3N 29 43.7W	183	100- 200	7	0.10	11.33	8.50	34.85	7.50	35.12	2OC	D
74	33	19/ 6/83	54 22.3N 29 43.7W	183	0- 100	7	0.10	11.33	8.50	34.85	8.05	34.99	2OC	D
74	34	19/ 6/83	54 22.4N 29 43.5W	190	100- 600	7	0.50	11.46	8.50	34.89	6.15	35.09	7OC	D
74	35	19/ 6/83	54 22.4N 29 43.5W	190	0- 500	7	0.50	11.46	8.50	34.89	6.85	34.95	7OC	D
74	36	19/ 6/83	54 22.4N 29 43.5W	190	300- 400	7	0.10	11.46	8.50	34.89	6.25	35.10	7OC	D
75	1	18/ 6/83	52 56.5N 29 53.8W	349	200- 300	61	4.36	8.03	12.20	34.72	5.35	35.01	R18	D
75	6	18/ 6/83	53 01.0N 29 51.3W		90- 200	60	4.00	10.11	12.20	34.71	6.25	35.10	R18	D
75	9	18/ 6/83	53 03.5N 29 53.0W	195	0- 50	4	0.05	11.39	8.60	34.68	9.00	34.95	7VU	D
75	10	18/ 6/83	53 03.7N 29 52.8W	30	0- 50	3	0.05	11.55	8.70	34.75	9.00	34.95	2VU	D
76	3	16/ 6/83	50 25.0N 29 35.0W	187	200- 305	60	4.63	21.51	12.70	35.14	9.95	35.30	R18	D-N
76	8	16/ 6/83	50 26.2N 29 39.1W	197	0- 50	3	0.05	19.56	12.80	35.11	12.95	35.77	7VU	D-N
76	9	16/ 6/83	50 26.1N 29 38.9W		0- 50	3	0.05	20.02	12.80	35.15	12.95	35.77	2VU	D-N
76	10	16/ 6/83	50 26.3N 29 37.3W	197	100- 200	4	0.10	20.38	12.70	35.13	11.90	35.43	7OC	D-N
76	11	16/ 6/83	50 26.3N 29 37.3W	197	0- 100	4	0.10	20.38	12.70	35.13	12.25	35.52	7OC	D-N
76	12	16/ 6/83	50 26.1N 29 36.1W	206	0- 300	4	0.30	21.13	12.70	35.17	11.10	35.43	7OC	D-N
76	13	16/ 6/83	50 26.1N 29 36.1W	206	200- 300	4	0.10	21.13	12.70	35.17	9.75	35.30	2OC	D-N
76	14	16/ 6/83	50 26.1N 29 36.1W	206	100- 200	4	0.10	21.13	12.70	35.17	11.90	35.43	2OC	D-N
76	15	16/ 6/83	50 26.1N 29 36.1W	206	0- 100	4	0.10	21.13	12.70	35.17	12.25	35.52	2OC	D-N
76	26	17/ 6/83	50 21.3N 29 29.7W	142	500- 995	62	4.54	9.47	13.00	35.40	5.95	35.09	R18	D
76	30	17/ 6/83	50 20.0N 29 20.7W	297	400- 500	60	3.82	12.13	12.90	35.27	8.60	35.18	R18	D
76	31	17/ 6/83	50 22.0N 29 23.7W	295	300- 398	60	4.45	14.10	12.60	35.19	9.45	35.25	R18	D
76	32	17/ 6/83	50 26.3N 29 27.8W	295	100- 200	60	4.36	15.46	12.50	35.17	11.20	35.44	R18	D
76	35	17/ 6/83	50 28.3N 29 29.1W	128	50- 100	58	3.91	17.11	12.50	35.19	12.00	35.56	R18	D
76	36	17/ 6/83	50 28.1N 29 24.4W	140	13- 52	60	5.08	18.32	12.50	35.15	12.60	35.52	R18	D
77	1	16/ 6/83	48 56.0N 28 59.0W	3	0- 52	60	3.82	5.05	12.80	35.04	12.55	35.54	R18	N-D
77	4	16/ 6/83	48 59.1N 28 59.5W	360	53- 100	60	3.46	6.25	12.70	35.21	11.75	35.56	R18	D
77	5	16/ 6/83	49 02.0N 28 59.9W	360	100- 200	59	4.18	7.45	12.50	35.17	11.00	35.49	R18	D
77	7	16/ 6/83	49 04.0N 29 00.2W	147	0- 50	59	2.55	9.10	12.50	34.78	12.45	35.54	RNO	D
77	8	16/ 6/83	49 04.1N 29 00.3W	147	200- 300	60	4.09	9.08	12.50	34.96	10.05	35.38	R18	D
77	15	16/ 6/83	49 02.6N 28 59.0W	90	0- 50	2	0.05	10.43	12.50	35.21	12.45	35.54	2VU	D
77	16	16/ 6/83	49 02.6N 28 59.2W	86	0- 50	3	0.05	10.48	12.50	35.19	12.45	35.54	7VU	D
77	17	16/ 6/83	49 02.9N 29 00.4W	162	200- 300	4	0.10	11.40	12.60	34.88	10.19	35.38	7OC	D
77	18	16/ 6/83	49 02.9N 29 00.4W	162	100- 200	4	0.10	11.40	12.60	34.88	10.82	35.50	7OC	D
77	19	16/ 6/83	49 02.9N 29 00.4W	162	0- 100	4	0.10	11.40	12.60	34.88	12.30	35.53	7OC	D
77	20	16/ 6/83	49 03.2N 29 01.2W	159	200- 300	4	0.10	12.17	12.60	35.19	10.19	35.38	2OC	D
77	21	16/ 6/83	49 03.2N 29 01.2W	159	100- 200	4	0.10	12.17	12.60	35.19	10.82	35.50	2OC	D
77	22	16/ 6/83	49 03.2N 29 01.2W	159	0- 100	4	0.10	12.17	12.60	35.19	12.30	35.31	2OC	D
78	1	14/ 6/83	44 58.5N 30 03.8W	46	500-1000	61	3.73	5.39	15.60	35.95	8.40	35.41	R18	N-D
78	4	14/ 6/83	45 02.6N 30 00.0W	56	0- 50	57	4.18	7.28	15.60	36.02	15.25	36.00	R18	D
78	8	14/ 6/83	45 04.7N 29 56.7W	173	50- 100	60	4.00	8.43	15.60	36.03	14.62	36.00	R18	D
78	9	14/ 6/83	45 02.0N 29 55.5W	173	100- 202	59	3.37	10.02	15.60	36.00	14.15	35.99	R18	D
78	10	14/ 6/83	45 01.7N 29 55.4W	173	0- 50	40	2.59	10.12	15.60	35.97	15.25	35.97	RNO	D
78	11	14/ 6/83	44 59.6N 29 54.7W	182	200- 300	62	3.19	11.23	15.50	35.51	13.70	35.94	R18	D
78	14	14/ 6/83	44 59.3N 29 54.9W	300	300- 400	50	2.93	15.42	15.60	35.63	12.90	35.85	R18	D
78	16	14/ 6/83	44 57.6N 29 54.3W	80	0- 50	3	0.05	12.43	15.60	35.55	15.25	35.97	7VU	D
78	17	14/ 6/83	44 57.6N 29 54.2W	81	0- 50	3	0.05	12.50	15.60	35.73	15.25	35.97	2VU	D
78	18	14/ 6/83	44 57.8N 29 54.3W	87	200- 300	4	0.10	13.20	15.50	35.66	13.25	35.94	7OC	D
78	19	14/ 6/83	44 57.8N 29 54.3W	87	100- 200	4	0.10	13.20	15.50	35.66	13.80	35.98	7OC	D
78	20	14/ 6/83	44 57.8N 29 54.3W	87	0- 100	4	0.10	13.20	15.50	35.66	14.65	35.99	7OC	D
78	21	14/ 6/83	44 58.0N 29 54.3W	87	200- 200	4	0.00	13.45	15.50	35.66	13.25	35.94	2OC	D
78	22	14/ 6/83	44 58.0N 29 54.3W	87	100- 200	4	0.10	13.45	15.50	35.66	13.80	35.98	2OC	D
78	23	14/ 6/83	44 58.0N 29 54.3W	87	0- 100	4	0.10	13.45	15.50	35.66	14.65	35.99	2OC	D
78	24	14/ 6/83	44 58.2N 29 54.2W	91	500- 600	15	0.10	14.30	15.60	35.45	10.60	35.51	7OC	D
78	25	14/ 6/83	44 58.2N 29 54.2W	91	400- 500	15	0.10	14.30	15.60	35.45	11.75	35.69	7OC	D
78	26	14/ 6/83	44 58.2N 29 54.2W	91	300- 400	15	0.10	14.30	15.60	35.45	12.70	35.81	7OC	D
78	36	14/ 6/83	45 00.8N 29 57.0W	286	400- 503	60	3.28	17.04	15.70	35.51	11.90	35.70	R18	D
78	39	14/ 6/83	45 02.3N 30 01.3W	260	500-1000	60	3.28	18.42	15.80	35.55	8.15	35.41	R18	D-N
78	42	14/ 6/83	45 02.6N 30 06.7W	173	140- 300	49	4.19	21.33	15.80	35.65	13.70	35.93	R18	D-N
78	44	14/ 6/83	45 02.9N 30 06.5W	30	500- 600	7	0.10	21.00	15.90	35.67	10.60	35.51	2OC	D-N
78	45	14/ 6/83	45 02.9N 30 06.5W	30	400- 500	7	0.10	21.00	15.90	35.67	11.75	35.69	2OC	D-N
78	46	14/ 6/83	45 02.9N 30 06.5W	30	300- 400	7	0.10	21.00	15.90	35.67	12.70	35.81	2OC	D-N
78	49	14/ 6/83	44 59.6N 30 06.9W	153	196- 299	60	3.91	23.01	15.80	35.68	13.50	35.94	R18	D-N
78	50	15/ 6/83	44 57.2N 30 05.3W	116	0- 50	60	3.75	0.19	15.80	35.73	15.92	36.00	R18	D-N
78	53	15/ 6/83	44 57.0N 30 01.0W	115	50- 98	60	3.82	1.38	15.60	35.70	15.00	36.02	R18	N
78	54	15/ 6/83	44 56.8N 29 56.1W	81	98- 200	60	4.18	2.56	15.60	35.72	14.05	36.01	R18	N-D
78	55	15/ 6/83	44 58.3N 29 52.4W	301	302- 400	60	3.82	4.36	15.60	35.69	12.95	35.84	R18	N-D
78	56	15/ 6/83	44 58.1N 29 52.1W	300	0- 50	65	6.02	4.27	15.70	35.42	15.30	35.97	RNO	N-D
78	57	15/ 6/83	45 00.6N 29 55.9W	276	398- 500	60	3.64	6.16	15.50	35.59	12.20	35.71	R18	N-D
78	60	15/ 6/83	45 03.3N 29 59.1W	5	1002-1752	120	5.93	8.11	15.80	35.39	4.35	35.12	R18	D

A	B	C	D	E	F	G	H	I	K	L	M	N	O	P
79	1	13/ 6/83	43 26.5N 32 22.2W	69	0- 50	61	3.91	14.32	16.60	35.78	16.85	36.12	R18	D
79	5	13/ 6/83	43 26.6N 32 24.8W	98	0- 50	3	0.05	12.30	16.50	36.04	16.80	36.12	7VU	D
79	6	13/ 6/83	43 26.5N 32 54.6W	150	0- 50	3	0.05	12.36	16.50	36.04	16.80	36.12	2VU	D
79	7	13/ 6/83	43 26.5N 32 25.0W	111	200- 300	5	0.10	13.28	16.50	35.80	14.25	35.97	7OC	D
79	8	13/ 6/83	43 26.5N 32 25.0W	111	100- 200	5	0.10	13.28	16.50	35.80	14.75	36.07	7OC	D
79	9	13/ 6/83	43 26.5N 32 25.0W	111	0- 100	5	0.10	13.28	16.50	35.80	15.70	36.12	7OC	D
79	10	13/ 6/83	43 26.4N 32 24.7W	136	200- 300	4	0.10	14.07	16.50	35.62	14.25	35.97	2OC	D
79	11	13/ 6/83	43 26.4N 32 24.7W	136	100- 200	4	0.10	14.07	16.50	35.62	14.75	36.07	2OC	D
79	12	13/ 6/83	43 26.4N 32 24.7W	136	0- 100	4	0.10	14.07	16.50	35.62	15.70	36.12	2OC	D
79	22	13/ 6/83	43 24.6N 32 16.8W	52	52- 105	58	4.27	15.47	16.70	35.57	15.35	36.12	R18	D
79	23	13/ 6/83	43 29.5N 32 14.9W	324	100- 200	60	3.37	17.04	16.80	35.63	14.70	36.09	R18	D
79	26	13/ 6/83	43 32.2N 32 14.2W	20	198- 300	60	4.18	18.27	16.80	35.85	14.10	35.97	R18	D-N
79	27	13/ 6/83	43 32.0N 32 14.4W	20	0- 50	62	4.79	18.24	16.80	35.84	16.80	36.12	RNO	D-N
80	1	12/ 6/83	41 34.5N 34 51.6W	51	198- 340	45	3.02	20.38	17.20	35.82	14.15	36.00	R18	D-N
80	5	12/ 6/83	41 34.2N 34 54.8W	136	0- 50	3	0.05	19.09	17.30	35.55	16.90	36.21	7VU	D-N
80	6	12/ 6/83	41 34.1N 34 55.0W	137	0- 50	3	0.05	19.15	17.30	35.46	16.90	36.21	2VU	D-N
80	7	12/ 6/83	41 33.9N 34 54.9W	141	200- 300	10	0.10	19.39	17.10	35.66	14.20	36.00	7OC	D-N
80	8	12/ 6/83	41 33.9N 34 54.9W	141	100- 200	4	0.10	19.39	17.10	35.63	14.17	36.20	7OC	D-N
80	9	12/ 6/83	41 33.9N 35 54.9W	141	0- 100	4	0.10	19.39	17.10	35.63	16.05	35.91	7OC	D-N
80	10	12/ 6/83	41 34.0N 34 53.3W	123	200- 300	3	0.10	20.08	17.10	35.54	14.20	36.00	2OC	D-N
80	11	12/ 6/83	41 34.0N 34 53.3W	123	100- 200	3	0.10	20.08	17.10	35.54	14.17	36.11	2OC	D-N
80	18	12/ 6/83	41 37.6N 34 50.3W	44	103- 195	50	2.84	21.48	16.90	35.51	14.90	36.13	R18	D-N
80	19	12/ 6/83	41 39.1N 34 48.2W	40	52- 105	50	2.48	23.01	17.00	35.62	15.40	36.18	R18	N
80	20	12/ 6/83	41 39.0N 34 48.2W	21	0- 50	50	2.93	22.58	17.00	35.42	16.75	36.21	RNO	N
80	21	13/ 6/83	41 40.9N 34 47.1W	329	0- 50	50	3.11	0.08	17.00	35.74	16.80	36.19	R18	N
81	3	11/ 6/83	40 54.7N 35 30.8W	1	402- 500	50	2.93	18.58	18.90	36.16	12.40	35.72	R18	D-N
81	4	11/ 6/83	40 54.8N 35 30.8W	1	0- 50	43	3.32	19.02	18.90	36.16	17.40	36.29	RNO	D-N
81	6	11/ 6/83	40 56.2N 35 31.6W	2	500-1000	60	2.74	20.29	18.80	36.42	8.75	35.45	R18	D-N
81	7	11/ 6/83	41 00.3N 35 32.1W	2	95- 200	50	2.93	22.12	18.50	36.42	15.50	36.12	R18	D-N
81	8	11/ 6/83	41 02.4N 35 32.3W	62	35- 100	50	3.47	23.29	18.50	36.43	16.90	36.22	R18	D-N
81	11	12/ 6/83	41 03.0N 35 29.3W	121	200- 300	50	2.75	0.43	18.40	36.44	14.40	36.01	R18	D-N
81	12	11/ 6/83	40 54.7N 35 30.8W	54	0- 1	210		19.00	18.90	36.17	18.70	36.32	DIP	D-N
81	13	12/ 6/83	41 01.5N 35 27.0W	149	0- 48	50	3.02	1.53	18.20	36.43	18.00	36.29	R18	N
81	14	12/ 6/83	40 59.1N 35 25.4W	155	280- 400	50	3.29	3.08	18.10	36.07	13.45	35.88	R18	N
81	15	12/ 6/83	40 59.4N 35 25.6W	153	0- 50	49	3.78	3.01	18.10	36.06	17.05	36.29	RNO	N
81	16	12/ 6/83	40 56.6N 35 24.6W	311	400- 500	50	2.93	4.37	17.90	36.09	12.15	35.72	R18	N-D
81	17	12/ 6/83	40 58.5N 35 27.5W	295	505-1000	62	3.19	6.16	17.90	36.12	8.55	35.45	R18	N-D
81	20	12/ 6/83	41 00.2N 35 31.4W	296	0- 50	50	3.74	7.56	18.20	36.26	17.95	36.29	R18	D
81	21	12/ 6/83	41 01.3N 35 33.0W	107	47- 100	50	3.74	9.05	18.00	36.27	16.90	36.23	R18	D
81	22	12/ 6/83	41 00.7N 35 29.9W	136	100- 200	50	3.29	10.13	18.30	36.26	15.20	36.12	R18	D
81	32	12/ 6/83	40 58.9N 35 26.2W	309	205- 300	50	3.02	13.07	17.90	36.09	14.20	36.01	R18	D
81	35	12/ 6/83	41 00.2N 35 28.4W	319	295- 420	49	3.20	14.27	18.30	36.17	13.35	35.87	R18	D
81	36	12/ 6/83	40 59.3N 35 27.3W	124	0- 50	3	0.05	11.22	17.90	36.23	17.00	36.28	7VU	D
81	37	12/ 6/83	40 59.2N 35 27.2W	120	0- 50	3	0.05	11.28	17.80	36.23	16.95	36.28	2VU	D
81	38	12/ 6/83	40 59.2N 35 26.8W	126	100- 200	6	0.10	11.54	17.90	36.18	14.85	36.10	7OC	D
81	39	12/ 6/83	40 59.2N 35 26.8W	126	0- 100	6	0.10	11.54	17.90	36.18	16.55	36.25	7OC	D
81	40	12/ 6/83	40 59.2N 35 26.6W	126	200- 300	5	0.10	12.13	17.90	36.15	14.20	35.99	2OC	D
81	41	12/ 6/83	40 59.2N 35 26.6W	126	100- 200	5	0.10	12.13	17.90	36.15	14.85	36.10	2OC	D
81	42	12/ 6/83	40 59.2N 35 26.6W	126	0- 100	5	0.10	12.13	17.90	36.15	16.55	36.25	2OC	D
82	1	11/ 6/83	39 43.5N 35 30.9W	360	0- 50	50	3.20	7.19	18.70	36.28	18.90	36.29	R18	N-D
82	2	11/ 6/83	39 45.4N 35 31.9W	360	52- 99	50	3.20	8.26	18.70	36.36	17.87	36.22	R18	D
82	3	11/ 6/83	39 47.1N 35 32.9W	134	99- 205	50	3.11	9.33	19.00	36.37	16.55	36.12	R18	D
82	4	11/ 6/83	39 47.1N 35 32.9W	360	0- 50	45	3.47	9.32	19.00	36.38	17.60	36.29	RNO	D
82	5	11/ 6/83	39 49.2N 35 34.1W	11	200- 300	50	2.84	10.45	19.00	36.38	15.45	36.00	R18	D
82	11	11/ 6/83	39 51.4N 35 34.0W	331	0- 50	4	0.05	11.57	19.00	36.38	17.60	36.29	7VU	D
82	12	11/ 6/83	39 51.4N 35 34.0W	338	0- 50	2	0.05	12.06	19.00	36.38	17.60	36.29	7VU	D
82	13	11/ 6/83	39 51.3N 35 33.8W	334	200- 300	4	0.10	12.41	19.10	36.38	15.25	35.99	7OC	D
82	14	11/ 6/83	39 51.3N 35 33.8W	334	100- 200	4	0.10	12.41	19.10	36.38	16.50	36.11	7OC	D
82	15	11/ 6/83	39 51.3N 35 33.8W	334	0- 100	4	0.10	12.41	19.10	36.38	18.06	36.25	7OC	D
82	16	11/ 6/83	39 51.3N 35 33.8W	336	200- 300	4	0.10	13.18	19.10	36.39	15.25	35.99	2OC	D
82	17	11/ 6/83	39 51.3N 35 33.8W	336	100- 200	4	0.10	13.18	19.10	36.39	16.50	36.11	2OC	D
82	18	11/ 6/83	39 51.3N 35 33.8W	336	0- 100	9	0.10	13.18	19.10	36.39	18.06	36.25	2OC	D
83	8	10/ 6/83	37 01.9N 35 21.5W	234	185- 300	60	3.55	13.40	19.70	36.29	15.15	36.14	R18	D
83	9	10/ 6/83	37 00.1N 35 25.2W	146	100- 200	62	3.64	15.11	19.90	36.31	15.85	36.23	R18	D
83	10	10/ 6/83	37 00.3N 35 24.4W	251	0- 50	67	4.35	15.08	19.90	36.31	18.54	36.34	RNO	D
83	14	10/ 6/83	37 01.6N 35 23.8W	297	0- 50	3	0.05	11.31	19.50	36.20	18.29	36.34	7VU	D
83	15	10/ 6/83	37 01.6N 35 23.7W	259	0- 50	3	0.05	11.37	19.50	36.18	18.29	36.34	2VU	D
83	16	10/ 6/83	37 01.9N 35 22.4W	77	200- 300	5	0.10	12.35	19.60	36.27	14.75	36.11	7OC	D
83	17	10/ 6/83	37 01.9N 35 22.4W	77	100- 200	5	0.10	12.35	19.60	36.27	15.65	36.22	7OC	D
83	18	10/ 6/83	37 01.9N 35 22.4W	77	0- 100	5	0.10	12.35	19.60	36.27	17.85	36.32	7OC	D
83	19	10/ 6/83	37 02.0N 35 22.1W	77	100- 200	5	0.10	12.50	19.70	36.28	15.65	36.22	2OC	D
83	20	10/ 6/83	37 02.0N 35 22.1W	77	0- 100	5	0.10	12.50	19.70	36.28	17.85	36.32	2OC	D
83	26	10/ 6/83	36 58.4N 35 31.9W	8	50- 100	60	3.46	16.34	20.10	36.31	17.05	36.28	R18	D
83	29	10/ 6/83	37 01.3N 35 32.5W	10	0- 50	52	3.29	17.49	19.90	36.31	19.45	36.34	R18	D
84	3	5/ 6/83	35 05.0N 31 25.9W	326	0- 49	60	3.37	10.39	18.60	36.56	18.25	36.38	R18	D
84	4	5/ 6/83	35 05.5N 31 27.2W	331	50- 100	60	3.82	13.47	18.90	36.57	17.08	36.29	R18	D
84	6	5/ 6/83	35 07.6N 31 28.9W	331	92- 202	92	5.68	15.06	18.90	36.52	15.25	36.12	R18	D
84	10	5/ 6/83	35 06.1N 31 27.1W	306	0- 50	2	0.05	12.07	18.60	36.56	17.80	36.39	7VU	D
84	11	5/ 6/83	35 06.0N 31 27.1W	307	0- 50	2	0.05	12.12	18.70	36.57	17.85	36.39	2VU	D
84	12	5/ 6/83	35 05.6N 31 27.0W	270	200- 300	3	0.10	13.06	18.80	36.56	14.10	35.90	2OC	D
84	13	5/ 6/83	35 05.6N 31 27.0W	270	100- 200	3	0.10	13.06	18.80	36.56	17.89	36.07	2OC	D
84	14	5/ 6/83	35 05.6N 31 27.0W	270	0- 100	3	0.10	13.06	18.80	36.56	17.40	36.30	2OC	D
84	24	5/ 6/83	35 09.6N 31 31.8W	307	494-1000	100	5.50	17.05	19.00	36.53	10.00	35.61	R18	D
84	25	5/ 6/83	35 09.8N 31 31.4W	317	0- 50			16.55	19.00	36.52	18.00	36.39	RNO	D
84	28	5/ 6/83	35 10.5N 31 36.7W	80	205- 305	60	4.00	19.42	18.90	36.30	13.45	35.88	R18	D-N
84	29	5/ 6/83	35 10.1N 31 33.1W	79	0- 50	45	2.50	21.02	18.70	36.52	17.90	36.39	RO1	D-N
84	30	5/ 6/83	35 01.8N 31 31.3W	80	0- 55	61	3.46	21.52	18.80	36.52	18.25	36.38	R18	N
84	31	5/ 6/83	35 11.1N 31 27.9W	49	45- 100	60	3.82	23.11	18.70	36.52	16.90	36.29	R18	N
84	32	6/ 6/83	35 12.0N 31 25.7W	221	95- 210	60	3.73	0.38	18.80	36.45	15.15	36.12	R18	N
84	35	6/ 6/83	35 09.2N 31 29.3W	301	205- 305	60	3.37	2.15	18.70	36.48	13.60	35.90	R18	N
84	36	6/ 6/83	35 11.0N 31 30.9W	301	300- 400	62	3.28	3.51	18.60	36.44	12.65	35.75	R18	N-D
84	37	6/ 6/83	35 11.8N 31 31.4W	117	505-1000	94	4.78	5.38	18.60	36.47	9.95	35.60	R18	N-D
84	42	6/ 6/83	35 08.0N 31 27.1W	301	298- 401	58	3.28	8.09	18.50	36.47	12.37	35.76	R18	D
84	45	6/ 6/83	35 10.9N 31 30.4W	280	400- 500	62	4.09	9.43	18.60	36.47	11.72	35.67	R18	D
84	50	6/ 6/83	35 10.8N 31 34.1W	101	240- 303	59	3.28	20.13	18.70	36.42	13.15	35.85	R18	D-N
84	53	6/ 6/83	35 10.9N 31 34.1W	265	0- 50	3	0.05	11.30	18.50	36.44	17.75	36.39	7VU	D
84	54	6/ 6/83	35 10.7N 31 34.1W	271	0- 50	2	0.05	11.36	18.50	36.44	17.75	36.39	2VU	D
84	55	6/ 6/83	35 10.0N 31 34.2W	265	200- 300	2	0.10	12.03	18.50	36.43	14.10	35.90	7OC	D
84	56	6/ 6/83	35 10.0N 31 34.2W	265	100- 200	2	0.10	12.03	18.50	36.43	15.39	36.07	7OC	D
84	57	6/ 6/83	35 10.0N 31 34.2W	265	0- 100	2	0.10	12.03	18.50	36.43	17.25	36.31	7OC	D

A	B	C	D	E	F	G	H	I	K	L	M	N	O	P
84	58	6/ 6/83	35 09.2N 31 34.2W	261	200- 300	2	0.10	12.37	18.50	36.42	14.10	35.90	2OC	D
84	59	6/ 6/83	35 09.2N 31 34.2W	261	100- 200	2	0.10	12.37	18.50	36.42	15.39	36.07	2OC	D
84	60	6/ 6/83	35 09.2N 31 34.2W	261	0- 100	2	0.10	12.37	18.50	36.42	17.25	36.30	2OC	D
84	71	6/ 6/83	35 09.9N 31 30.6W	91	200- 255	60	3.46	21.40	18.70	36.42	13.75	35.95	R18	D-N
84	72	6/ 6/83	35 09.2N 31 26.6W	91	405- 495	60	3.10	23.24	18.60	36.28	11.60	35.67	R18	D-N
84	75	7/ 6/83	35 08.6N 31 23.8W	301	100- 150	60	3.55	1.04	18.70	36.45	15.85	36.18	R18	N
84	76	7/ 6/83	35 09.3N 31 27.4W	278	145- 205	56	3.28	2.30	18.60	36.47	14.95	36.04	R18	N
84	77	7/ 6/83	35 09.6N 31 31.7W	298	1000-1760	120	4.94	4.19	18.70	36.36	6.15	35.55	R18	N-D
85	1	4/ 6/83	33 24.7N 30 09.2W	351	195- 314	60	3.91	20.00	19.60	36.71	14.80	36.07	R18	D-N
85	4	4/ 6/83	33 24.4N 30 09.1W	280	0- 50	2	0.05	18.33	19.60	36.72	18.80	36.49	7VU	D-N
85	5	4/ 6/83	33 24.4N 30 09.1W	272	0- 50	2	0.05	18.38	19.50	36.72	18.80	36.49	2VU	D-N
85	6	4/ 6/83	33 24.3N 30 09.1W	257	200- 300	5	0.10	19.13	19.60	36.71	14.75	36.07	7OC	D-N
85	6	4/ 6/83	33 24.3N 30 09.1W	257	200- 300	5	0.10	19.13	19.60	36.71	14.75	36.07	2OC	D-N
85	7	4/ 6/83	33 24.3N 30 09.1W	257	100- 200	5	0.10	19.13	19.60	36.71	15.75	36.25	7OC	D-N
85	7	4/ 6/83	33 24.3N 30 09.1W	257	100- 200	5	0.10	19.13	19.60	36.71	15.75	36.25	2OC	D-N
85	8	4/ 6/83	33 24.3N 30 09.1W	257	0- 100	5	0.10	19.13	19.60	36.71	18.30	36.44	7OC	D-N
85	8	4/ 6/83	33 24.3N 30 09.1W	257	0- 100	5	0.10	19.13	19.60	36.71	18.30	36.44	2OC	D-N
85	12	4/ 6/83	33 28.1N 30 10.3W	343	98- 200	60	3.91	21.50	19.50	36.71	16.35	36.27	R18	N
85	13	4/ 6/83	33 28.0N 30 10.3W	343	0- 50	60	4.45	21.48	19.50	36.71	18.75	36.49	RNO	N
85	14	4/ 6/83	33 30.9N 30 12.0W	343	50- 102	61	3.91	23.27	19.40	36.71	17.65	36.39	R18	N
85	15	5/ 6/83	33 33.2N 30 13.4W	338	0- 50	61	3.91	0.44	19.40	36.70	18.95	36.48	R18	N
86	3	4/ 6/83	32 48.0N 29 48.9W	331	0- 50	60	4.09	8.05	20.10	36.77	19.75	36.53	R18	D
86	7	4/ 6/83	32 50.8N 29 51.2W	330	50- 100	61	3.73	9.36	19.90	36.85	18.75	36.43	R18	D
86	8	4/ 6/83	32 50.8N 29 51.2W	330	0- 50	60	3.89	9.36	19.90	36.77	19.45	36.52	RNO	D
86	9	4/ 6/83	32 53.7N 29 53.3W	330	98- 208	60	3.91	10.59	19.80	36.76	17.25	36.31	R18	D
86	10	4/ 6/83	32 56.7N 29 55.8W	331	200- 285	60	4.09	14.48	19.60	36.45	15.50	36.13	R18	D
86	14	4/ 6/83	32 56.0N 29 55.0W	273	0- 50	3	0.05	12.25	19.60	36.75	19.30	36.52	7VU	D
86	15	4/ 6/83	32 56.0N 29 55.0W	279	0- 50	2	0.05	12.31	19.60	36.74	19.30	36.52	2VU	D
86	16	4/ 6/83	32 56.0N 29 55.0W	278	0- 50	3	0.05	12.36	19.70	36.74	19.35	36.52	2VU	D
86	17	4/ 6/83	32 56.0N 29 55.1W	281	200- 300	3	0.10	13.57	19.60	36.73	15.65	36.12	7OC	D
86	17	4/ 6/83	32 56.0N 29 55.1W	281	200- 300	3	0.10	13.57	19.60	36.73	15.65	36.12	2OC	D
86	18	4/ 6/83	32 56.0N 29 55.1W	281	100- 200	3	0.10	13.57	19.60	36.73	16.70	36.30	7OC	D
86	18	4/ 6/83	32 56.0N 29 55.1W	281	100- 200	3	0.10	13.57	19.60	36.73	16.70	36.30	2OC	D
86	19	4/ 6/83	32 56.0N 29 55.1W	281	0- 100	3	0.10	13.57	19.60	36.73	18.30	36.53	7OC	D
86	19	4/ 6/83	32 56.0N 29 55.1W	281	0- 100	3	0.10	13.57	19.60	36.73	18.30	36.53	2OC	D
87	1	1/ 6/83	29 59.7N 29 49.9W	61	50- 100	57	3.37	19.58	21.70	36.88	19.15	36.75	R18	D-N
87	2	1/ 6/83	30 00.1N 29 47.0W	84	500-1000	64	3.01	21.32	21.60	36.86	10.45	35.66	R18	N
87	3	1/ 6/83	29 59.7N 29 43.2W	91	108- 205	60	3.64	23.36	21.20	36.85	18.20	36.62	R18	N
87	4	1/ 6/83	29 59.7N 29 43.2W	91	0- 50			23.36	21.20	36.85	20.55	36.82	RNO	N
87	5	2/ 6/83	29 58.6N 29 40.4W	80	0- 50	60	4.36	0.56	21.10	36.85	20.07	36.81	R18	N
87	6	2/ 6/83	29 57.9N 29 36.8W	204	200- 305	58	3.37	2.25	21.00	36.84	16.80	36.13	R18	N
87	10	2/ 6/83	29 58.9N 29 35.7W	95	293- 398	62	3.46	3.51	21.10	36.84	16.80	36.05	R18	N-D
87	11	2/ 6/83	29 58.8N 29 32.6W	293	51- 101	51	3.11	5.23	21.10	36.85	18.95	36.75	R18	N-D
87	14	2/ 6/83	29 59.1N 29 30.0W	86	395- 550	50	2.39	6.42	20.90	36.85	13.15	35.82	R18	N-D
87	15	2/ 6/83	29 59.6N 29 26.6W	90	190- 302	60	4.27	8.16	21.00	36.87	16.60	36.39	R18	D
87	16	2/ 6/83	30 00.1N 29 23.2W	90	90- 200	60	4.27	10.03	20.90	36.87	17.85	36.61	R18	D
87	19	2/ 6/83	30 01.4N 29 18.2W	92	278- 409	61	4.27	12.42	21.20	36.86	14.85	36.08	R18	D
87	23	2/ 6/83	30 00.8N 29 19.7W	173	0- 50	3	0.05	11.32	21.10	36.88	20.55	36.82	2VU	D
87	24	2/ 6/83	30 00.8N 29 19.7W	179	0- 50	3	0.05	11.37	21.10	36.88	20.55	36.82	7VU	D
87	30	2/ 6/83	30 02.0N 29 15.0W	101	0- 50	60	4.00	14.02	21.40	36.86	20.55	36.79	R18	D
87	31	2/ 6/83	30 01.8N 29 10.4W	106	395- 532	75	5.07	15.38	21.50	36.87	13.70	35.84	R18	D
87	32	2/ 6/83	30 01.9N 29 11.2W	105	0- 50	45	2.50	15.22	21.30	36.87	20.55	36.82	RNO	D
87	35	2/ 6/83	30 00.9N 29 04.0W	106	500-1000	90	4.79	17.56	21.70	36.87	10.57	35.67	R18	D-N
88	4	1/ 6/83	28 27.5N 29 51.2W	15	0- 47	60	3.55	4.43	22.00	37.08	21.30	37.02	R18	N-D
88	5	1/ 6/83	28 30.2N 29 50.8W	15	50- 96	60	3.91	5.59	22.10	37.08	20.20	36.99	R18	N-D
88	6	1/ 6/83	28 32.8N 29 50.6W	268	95- 202	60	3.82	7.15	21.90	37.05	19.05	36.73	R18	N-D
88	9	1/ 6/83	28 34.6N 29 49.6W	250	198- 300	60	3.46	8.45	21.90	37.04	16.95	36.45	R18	D
88	10	1/ 6/83	28 34.7N 29 49.4W	250	0- 50	60	5.37	8.40	21.90	37.01	21.00	37.01	RNO	D
88	16	1/ 6/83	28 34.3N 29 51.8W	244	200- 300		0.10	10.56	22.10	37.05			7OC	D
88	16	1/ 6/83	28 34.3N 29 51.8W	244	200- 300		0.10	10.56	22.10	37.05			2OC	D
88	17	1/ 6/83	28 34.3N 29 51.8W	244	100- 200		0.10	10.56	22.10	37.05			7OC	D
88	17	1/ 6/83	28 34.3N 29 51.8W	244	100- 200		0.10	10.56	22.10	37.05			2OC	D
88	18	1/ 6/83	28 34.3N 29 51.8W	244	0- 100		0.10	10.56	22.10	37.05			7OC	D
88	18	1/ 6/83	28 34.3N 29 51.8W	244	0- 100		0.10	10.56	22.10	37.05			2OC	D
88	25	1/ 6/83	28 34.4N 29 51.8W	210	0- 50	3	0.05	11.37	22.00	37.05	21.00	37.01	7VU	D
88	26	1/ 6/83	28 34.5N 29 51.8W	214	0- 50	3	0.05	11.41	22.00	37.05	21.00	37.01	2VU	D
88	27	1/ 6/83	28 34.6N 29 51.9W	240	200- 300	4	0.10	12.23	22.00	37.04	16.95	36.43	7OC	D
88	27	1/ 6/83	28 34.6N 29 51.9W	240	200- 300	4	0.10	12.23	22.00	37.04	16.95	36.43	2OC	D
88	28	1/ 6/83	28 34.6N 29 51.9W	240	100- 200	4	0.10	12.23	22.00	37.04	18.00	36.76	7OC	D
88	28	1/ 6/83	28 34.6N 29 51.9W	240	100- 200	4	0.10	12.23	22.00	37.04	18.00	36.76	2OC	D
88	29	1/ 6/83	28 34.6N 29 51.9W	240	0- 100	4	0.10	12.23	22.00	37.04	20.75	36.98	7OC	D
88	29	1/ 6/83	28 34.6N 29 51.9W	240	0- 100	4	0.10	12.23	22.00	37.04	20.75	36.98	2OC	D
89	3	30/ 5/83	24 50.2N 29 54.8W	270	50- 95	60	3.46	4.27	22.30	37.25	21.40	37.26	R18	N-D
89	4	30/ 5/83	24 50.0N 29 57.5W	270	0- 49	59	3.64	5.57	22.40	37.29	22.00	36.88	R18	N-D
89	8	30/ 5/83	24 49.5N 30 01.6W	271	510-1000	60	2.83	7.32	22.50	37.30	9.30	35.43	R18	N-D
89	10	30/ 5/83	24 49.3N 30 03.6W	271	0- 50	41	2.91	8.14	22.60	37.31	22.30	37.35	RNO	D
89	13	30/ 5/83	24 49.6N 30 05.5W	91	200- 295	61	3.10	10.42	22.60	37.30	16.70	36.43	R18	D
89	16	30/ 5/83	24 49.3N 30 01.9W	91	290- 408	57	3.73	12.21	22.70	37.29	14.50	36.07	R18	D
89	19	30/ 5/83	24 49.0N 29 58.6W	355	0- 50	7	0.05	14.19	22.70	37.30	22.40	37.35	7VU	D
89	20	30/ 5/83	24 48.9N 29 58.7W	351	0- 50	4	0.05	14.28	22.80	37.30	22.40	37.35	2VU	D
89	21	30/ 5/83	24 49.1N 29 59.2W	270	0- 49	61	3.46	15.05	22.90	37.29	22.25	37.41	R18	D
89	22	30/ 5/83	24 49.6N 30 03.3W	12	50- 105	60	3.55	17.36	22.20	37.29	21.45	37.19	R18	D-N
89	26	30/ 5/83	24 49.3N 30 30.0W	337	200- 300	3	0.10	17.00	22.60	37.28	16.50	36.43	7OC	D
89	27	30/ 5/83	24 49.3N 30 30.0W	337	100- 200	3	0.10	17.00	22.60	37.28	19.00	36.92	7OC	D
89	27	30/ 5/83	24 49.3N 30 30.0W	337	100- 200	3	0.10	17.00	22.60	37.28	19.00	36.92	2OC	D
89	28	30/ 5/83	24 49.3N 30 30.0W	337	0- 100	3	0.10	17.00	22.60	37.28	21.25	37.26	7OC	D
89	28	30/ 5/83	24 49.3N 30 30.0W	337	0- 100	3	0.10	17.00	22.60	37.28	21.25	37.26	2OC	D
89	29	30/ 5/83	24 52.8N 30 03.5W	54	515-1000	91	4.15	19.25	22.70	37.29	9.40	35.45	R18	D-N
89	34	30/ 5/83	24 54.3N 30 00.6W	181	300- 400	60	3.37	21.53	22.40	37.27	14.60	36.05	R18	N
89	35	30/ 5/83	24 49.7N 30 01.7W	255	190- 300	59	4.00	23.33	22.60	37.30	16.95	36.43	R18	N
89	36	31/ 5/83	24 47.9N 30 02.1W	124	370- 520	58	3.73	2.15	22.50	37.28	13.20	35.89	R18	N
89	39	31/ 5/83	24 54.5N 29 58.8W	120	90- 202	60	3.64	4.07	22.30	37.27	20.30	36.93	R18	N-D
89	42	31/ 5/83	24 52.8N 29 56.5W	231	0- 50	60	4.08	5.35	22.20	37.26	22.10	37.35	RO1	N-D
89	43	31/ 5/83	24 50.7N 29 59.7W	236	105- 200	59	3.64	8.31	22.40	37.31	19.30	36.90	R18	D
89	44	31/ 5/83	24 51.4N 29 58.4W	21	0- 50	2	0.05	6.56	22.40	37.31	22.20	37.35	2VU	N-D
89	45	31/ 5/83	24 51.4N 29 58.5W	7	0- 50	2	0.05	7.02	22.40	37.14	22.20	37.35	7VU	N-D
89	46	31/ 5/83	24 51.1N 29 59.0W	12	0- 100	4	0.10	7.48	22.30	37.13	21.25	37.26	7OC	N-D
89	46	31/ 5/83	24 51.1N 29 59.0W	12	0- 100	4	0.10	7.48	22.30	37.13	21.25	37.26	2OC	N-D
89	47	31/ 5/83	24 51.1N 29 59.0W	12	100- 200	4	0.10	7.48	22.30	37.13	19.00	36.90	7OC	N-D
89	47	31/ 5/83	24 51.1N 29 59.0W	12	100- 200	4	0.10	7.48	22.30	37.13	19.00	36.90	2OC	N-D

A	B	C	D	E	F	G	H	I	K	L	M	N	O	P
89	48	31/ 5/83	24 51.1N 29 59.0W	12	200- 300	4	0.10	7.48	22.30	37.13	17.40	36.43	7OC	N-D
89	48	31/ 5/83	24 51.1N 29 59.0W	12	200- 300	4	0.10	7.48	22.30	37.13	17.40	36.43	2OC	N-D
89	53	31/ 5/83	24 50.9N 29 59.4W	235	0- 50	60	4.82	8.25	22.40	37.31	22.25	37.35	RNO	D
89	54	31/ 5/83	24 50.1N 30 02.9W	4	390- 518	58	3.91	10.07	22.50	37.29	16.70	35.87	R18	D
89	62	30/ 5/83	24 49.3N 30 30.0W	337	0- 300	3	0.30	17.00	22.60	37.28	19.30	36.79	2OC	D
90	1	29/ 5/83	25 52.5N 28 33.0W	360	0- 100	4	0.10	14.00	21.60	37.27	21.30		7OC	D
90	2	29/ 5/83	25 52.5N 28 33.0W	360	100- 200	4	0.10	14.00	21.60	37.27	18.50		2OC	D
90	3	29/ 5/83	25 52.5N 28 33.0W	360	200- 300	4	0.10	14.00	21.60	37.27			7OC	D
90	3	29/ 5/83	25 52.5N 28 33.0W	360	200- 300	4	0.10	14.00	21.60	37.27			2OC	D
90	7	29/ 5/83	24 52.3N 28 32.2W	342	0- 60	4	0.06	15.32	21.70	37.27	21.85	37.27	7VU	D
90	8	29/ 5/83	24 52.3N 28 32.2W	342	0- 60	4	0.06	15.41	21.70	37.26	21.85	37.26	2VU	D
90	10	29/ 5/83	24 51.3N 28 35.1W	321	205- 310	61	3.73	16.39	21.70	37.27	16.45		R18	D
90	13	29/ 5/83	24 53.2N 28 37.9W	322	100- 200	60	3.46	18.25	21.70	37.27	18.70		R18	D-N
90	14	29/ 5/83	24 53.1N 28 38.1W	320	0- 50	56	0.35	18.34	21.70	37.27	21.85	37.27	RNO	D-N
90	16	29/ 5/83	24 55.1N 28 40.8W	275	55- 100	61	3.55	20.49	21.90	37.23	20.70		R18	D-N
90	20	29/ 5/83	24 55.5N 28 43.6W	272	0- 50	60	3.73	22.11	21.90	37.23	21.70		R18	N
987	1	2/ 6/83	29 58.8N 28 07.4W	86	0- 50	62	4.00	23.31	21.50	36.93	20.30	36.84	R18	N
987	6	3/ 6/83	29 59.1N 28 06.0W	87	55- 105	54	3.29	0.57	21.20	36.88	19.20	36.84	R18	N
987	7	3/ 6/83	26 59.1N 28 04.2W	87	395- 528	58	3.82	2.26	21.30	36.91	12.95	35.80	R18	N
987	8	3/ 6/83	29 59.8N 27 55.3W	86	85- 193	58	3.64	4.08	21.50	36.90	18.10	36.65	R18	N-D
987	9	3/ 6/83	29 59.5N 27 51.9W	104	180- 295	58	3.46	5.40	21.50	36.83	16.30	36.35	R18	N-D
987	12	3/ 6/83	29 57.4N 27 47.1W	90	300- 415	52	3.20	8.44	21.30	36.88	14.15	36.00	R18	D
987	14	3/ 6/83	29 58.2N 27 48.5W	275	0- 50	2	0.05	7.09	21.30	36.88	20.40	36.87	2VU	N-D
987	15	3/ 6/83	29 58.2N 27 48.5W	258	0- 50	2	0.05	7.15	21.30	36.88	20.40	36.87	7VU	N-D
987	16	3/ 6/83	29 57.9N 27 48.3W	257	200- 300	5	0.10	7.45	21.30	36.88	15.90	36.25	7OC	N-D
987	16	3/ 6/83	29 57.9N 27 48.3W	257	200- 300	5	0.10	7.45	21.30	36.88	15.90	36.25	2OC	N-D
987	17	3/ 6/83	29 57.9N 27 48.3W	257	100- 200	5	0.10	7.45	21.30	36.88	17.90	36.62	7OC	N-D
987	17	3/ 6/83	29 57.9N 27 48.3W	257	100- 200	5	0.10	7.45	21.30	36.88	17.90	36.62	2OC	N-D
987	18	3/ 6/83	29 57.9N 27 48.3W	257	0- 100	5	0.10	7.45	21.30	36.88	19.90	36.86	7OC	N-D
987	18	3/ 6/83	29 57.9N 27 48.3W	257	0- 100	5	0.10	7.45	21.30	36.88	19.90	36.86	2OC	N-D
987	25	3/ 6/83	29 57.1N 27 44.6W	341	498- 677	46	1.67	10.15	21.20	36.89	9.90	35.69	R18	D
987	26	3/ 6/83	29 56.8N 27 44.5W	340	0- 50	62	4.02	10.02	21.20	36.89	20.35	36.87	RNO	D
987	29	3/ 6/83	29 59.8N 27 45.7W	330	752-1005	60	3.01	12.03	21.10	36.83	9.65	35.63	R18	D
987	33	3/ 6/83	30 02.3N 27 47.2W	264	0- 50	3	0.05	14.11	21.50	36.83	20.50	36.86	7VU	D
987	34	3/ 6/83	30 02.2N 27 47.2W	264	0- 50	3	0.05	14.18	21.50	36.77	20.50	36.87	2VU	D
987	35	3/ 6/83	30 01.9N 27 47.3W	256	200- 300	3	0.10	15.05	21.30	36.74	15.90	36.25	7OC	D
987	35	3/ 6/83	30 01.9N 27 47.3W	256	200- 300	3	0.10	15.05	21.30	36.74	15.90	36.25	2OC	D
987	36	3/ 6/83	30 01.9N 27 47.3W	256	100- 200	3	0.10	15.05	21.30	36.74	17.90	36.62	7OC	D
987	36	3/ 6/83	30 01.9N 27 47.3W	256	100- 200	3	0.10	15.05	21.30	36.74	17.90	36.62	2OC	D
987	37	3/ 6/83	30 01.9N 27 47.3W	256	0- 100	3	0.10	15.05	21.30	36.74	19.90	36.86	7OC	D
987	37	3/ 6/83	30 01.9N 27 47.3W	256	0- 100	3	0.10	15.05	21.30	36.74	19.90	36.86	2OC	D

Table II. CTD probes for 1981 and 1983

number	date	time of	depth	stat.	position	
	1981	lowering	in m		N	W
402	15-IX	08.27-08.32	0-0314-0	55	27°06.1'	20°07.6'
404	16-IX	12.32-13.44	0-1198-0	54	26°21.6'	23°26.6'
406	17-IX	12.56-13.12	0-1206-0	54	25°21.3'	27°47.8'
408	18-IX	13.17-13.32	0-1204-0	52	24°57.7'	29°54.2'
410	19-IX	14.14-14.23	0-0314-0	52	24°57.8'	29°54.5'
411	19-IX	20.37-20.50	0-1207-0	51	28°05.6'	29°52.4'
413	20-IX	13.02-13.10	0-0308-1	50	29°56.2'	29°49.5'
414	20-IX	17.53-18.06	0-1208-0	50	30°02.1'	29°47.8'
415	21-IX	17.04-17.20	0-1512-0	49	31°40.2'	29°49.0'
417	22-IX	16.52-17.10	0-1505-0	48	33°26.5'	30°21.8'
419	23-IX	10.31-10.50	0-1504-0	48	34°11.0'	31°09.9'
421	23-IX	18.05-18.24	0-1508-0	47	35°07.4'	31°37.2'
422	24-IX	08.40-09.01	0-1807-0	47	35°08.0'	31°04.1'
423	24-IX	09.44-10.06	0-1804-0	47	35°08.2'	31°03.7'
424	24-IX	10.36-10.58	0-1804-0	47	35°08.1'	31°03.7'
428	28-IX	14.09-14.32	0-1610-0	44	39°49.3'	35°47.5'
429	28-IX	09.03-09.34	0-1209-0	44	38°57.8'	35°39.4'
430	29-IX	17.50-18.07	0-1208-0	42	41°13.8'	35°47.8'
432	30-IX	04.52-05.04	0-1214-0	42	41°32.9'	34°47.3'
433	1-X	02.46-02.59	0-1207-0	41	44°03.7'	34°52.5'
435	3-X	08.17-08.33	0-1205-0	40	45°08.1'	29°57.5'
436	3-X	10.30-10.43	0-1206-0	40	45°17.0'	30°05.1'
438	3-X	14.26-14.41	0-1209-0	40	45°14.8'	29°49.4'
439	3-X	15.49-1602	0-1211-0	40	45°08.7'	29°58.3'
441	5-X	14.39-14.53	0-1234-0	39	47°41.7'	30°16.6'
443	6-X	10.00-10.13	0-1206-0	38	50°59.7'	29°59.1'
445	7-X	13.04-13.19	0-1211-0	37	53°00.4'	29°59.6'
447	8-X	09.08-09.21	0-1210-0	36	55°01.3'	29°58.3'
451	10-X	00.38-00.52	0-1207-0	35	51°08.6'	23°55.5'
452	10-X	01.57-02.10	0-1208-0	35	51°05.3'	24°09.5'
	1983	whole dip				
001	29-V	15.00-16.00	0-1200-0	90	24°52.4'	28°32.5'
002	30-V	14.00-15.00	0-1200-0	89	24°49.0'	29°58.4'
003	31-V	06.46-07.35	0-1201-0	89	24°51.5'	29°58.2'
004	1-VI	10.15-10.55	0-1203-0	88	28°34.2'	29°51.7'
005	2-VI	11.30-12.30	0-1215-0	87	30°00.8'	29°19.8'
006	3-VI	07.00-08.15	0-1202-0	987	29°58.3'	27°48.5'
007	4-VI	12.15-13.15	0-1210-0	86	32°55.9'	29°55.0'

Table II. continued

number	date 1981	time of lowering	depth in m	stat.	position N	W
008	4-VI	18.15-19.00	0-1202-0	85	33°24.5'	30°08.8'
009	5-VI	12.00-12.45	0-1202-0	84	35°06.1'	31°27.1'
010	6-VI	11.15-12.45	0-1207-0	84	35°11.0'	31°34.3'
011	10-VI	11.30-12.15	0-1203-0	83	37°01.7'	35°23.9'
012	11-VI	11.50-12.40	0-1203-0	82	39°51.4'	35°33.9'
013	12-VI	11.30-12.15	0-1203-0	81	40°59.2'	35°27.2'
014	12-VI	18.50-19.50	0-1216-0	80	41°33.8'	34°55.6'
015	13-VI	12.20-13.20	0-1203-0	79	43°25.7'	32°26.5'
016	14-VI	12.15-14.15	0-1202-0	78	44°58.0'	29°54.4'
017	14-VI	20.20-21.00	0-1206-0	78	45°02.7'	30°06.2'
018	16-VI	10.30-11.10	0-1201-0	77	49°02.6'	28°58.9'
019	16-VI	19.37-?	0-1204-0	76	50°26.4'	29°39.7'
020	18-VI	11.35-12.15	0-1201-0	75	53°03.5'	29°52.9'
021	19-VI	08.35-09.05	0-1204-0	74	54°20.8'	29°45.4'

Table III. Diagrammatic subdivision into water masses based on the CTD probes for 1981 and 1983.

	CTD dip	Surface water masses		N. Atlantic Central water		N. Atlantic Deep water		Mediterranean water
1981	402	0-080	Canary	080-?	North			
	404	0-100	Current	100-1190				
	406	0-140	water and	140-0990		0990-?	Antarctic	
	408	0-140	areas	140-0990		0990-?	Intermediate	
	410	0-170	influ-	170-?			water	
	411	0-150	enced	150-0970		0970-?	influence	
	413	0-130	by	130-?				
	414	0-140	it	140-0840	Atlantic			0840-?
	415	0-120	Sargasso	120-0910				0910-?
	417	0-130	Sea	130-0900				0900-1500
	419	0-120	water	120-0900				0900-?
	421	0-130	Sargasso	130-0850				0850-?
	422	0-140	Sea	140-0890				0890-?
	423	0-150	water	150-0880				0880-?
	424	0-160	influences	160-0720				0720-?
	428	0-110	North	110-0910	central	0910-?	North	
	429	0-130	Atlantic	130-0800		0800-?		
	430	0-110	Drift	110-1040		1040-?		
	432	0-080	water	080-0770		0770-?		
	433	0-210	Temp-	210-0840		0840-?	Atlantic	
	435	0-140	erate	140-0910		0910-?		
	436	0-120	water	120-?				
	438	0-130	mass	130-0770		0770-?		
	439	0-130	area	130-0790	water	0790-?	Deep	
	441	0-110	North	110-0680	N. Atlantic	0680-?		
	443	0-90	Atlantic	090-0400	Arctic	0400-?		
	451	0-120	Drift	120-0600	water	0600-?		
	452	0-140	water	140-0600	influence	0600-?	water	
	445	0-110	Subpolar	110-?	Subpolar			
	447	0-150	water	150-?	water			

Table III. continued

	CTD dip	Surface water masses		N. Atlantic Central water		N. Atlantic Deep water		Mediterranean water
1983	1	0-070	Canary	070-960	North	960-?	Antarctic inter-	
	2	0-070	Current	070-980		980-?	mediate influences	
	4	0-060	water	060-970				970-1200
	5	0-060	influenced	060-660				660-?
	6	0-070	area	070-640				640-?
	7	0-120	Sargasso	120-670	Atlantic			670-?
	8	0-100	Sea water	100-680				680-?
	9	0-090	Temperate	090-610				610-?
	10	0-070	water	070-600				600-?
	11	0-130	and	130-650				650-?
	12	0-070	North	070-630	Central	630-?	North	
	13	0-070	Atlantic	070-730		730-?		
	14	0-070	Drift	070-820		820-?	Atlantic	
	15	0-060	water	060-800		800-?		
	16	0-070	influ-	070-840		840-?	Deep	
	17	0-080	ences	080-800	water	800-?		
	18	0-230	N.Atlantic	230-450	Arctic	450-?		
	19	0-110	Drift water	110-520	influences	520-?	water	
	20	0-?	Subpolar					
	21	0-?	water					

Table IV. Secchi disc probes and day length during the 1983 cruise

date	Julian day	time probe	start twilight	sun rise	sun set	end twi-light	depth Secchi (in m)	station
29-V	149	14.00	06.10	07.06	20.38	21.34	43	90
30-V	150	13.30	06.15	07.11	20.44	21.40	42	89
31-V	151	13.30	06.15	07.11	20.44	21.40	42	89
1-VI	152	13.00	06.04	07.03	20.51	21.50	45	88
2-VI	153	11.00	05.57	06.57	20.54	21.54	37	87
3-VI	154	13.00	05.51	06.51	20.48	21.49	46	987
4-VI	155	13.00	05.49	06.51	21.01	22.03	45	86
4-VI	155	--	05.49	06.51	21.01	22.03	--	85
5-VI	156	11.00	05.47	06.51	21.11	22.16	39	84
6-VI	157	11.45	05.46	06.52	21.17	22.23	34	84
10-VI	161	11.30	05.46	06.56	21.36	22.46	33	83
11-VI	162	13.00	05.41	06.54	21.49	23.02	29	82
12-VI	163	11.45	05.33	06.49	21.54	23.10	26	81
12-VI	163	19.00	05.33	06.49	21.54	23.10	23	80
13-VI	164	12.20	05.20	06.39	21.53	23.12	17	79
14-VI	165	13.00	04.50	06.16	21.48	23.14	11	78
16-VI	167	--	04.07	05.51	22.02	23.46	--	77
16-VI	167	19.50	04.07	05.51	22.02	23.46	11	76
18-VI	169	11.45	02.31	05.25	22.37	01.31	13	75
19-VI	170	11.45	01.50	05.09	22.30	01.50	12	74

This periodical is regularly published by the Institute of Taxonomic Zoology (Zoölogisch Museum), of the University of Amsterdam. Requests for exchange or sale of this publication may be addressed to the Administration.

This periodical may be quoted in abbreviation as Bull. zool. Mus. Univ. Amsterdam

ISSN 0165 - 9464