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MIZLANT 81 DATA REPORT
RESULTS OF AN OCEANOGRAPHIC CRUISE
TO THE GREENLAND SEA
OCTOBER - NOVEMBER 1981
BY
Robert H. Bourke
and
Robert G. Paquette
August 1985

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Prepared for:
Director, Arctic Submarine Laboratory
Naval Ocean Systems Center
San Diego, CA 92152

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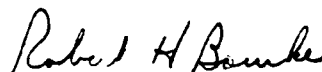
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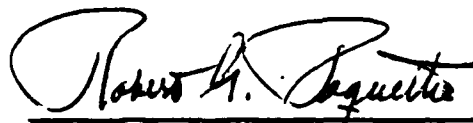
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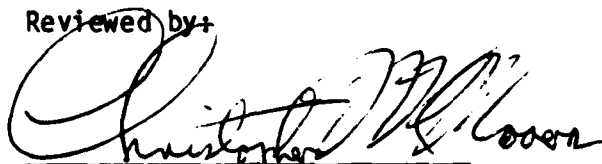


ROBERT H. BOURKE
Assoc. Prof. of Oceanography




ROBERT G. PAQUETTE
Prof. Oceanography

Reviewed by:



CHRISTOPHER N.W. MOOERS, Chairman
Department of Oceanography

Released by:



JOHN N. DYER
Dean of Science and Engineering

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report presents plots of property profiles for each of the 122 oceanographic stations occupied by the U.S. Coast Guard Icebreaker over the continental shelf and slope waters off the east coast of Greenland in October & November 1981. A Neil Brown Mark III CTD was used to obtain temperature and salinity profiles to the sea floor in shallow water and at least to 600m in deeper water. In addition to temperature and salinity profiles, plots of sound speed and density (sigma-t) are shown.		

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MIZLANT 81 DATA REPORT
RESULTS OF AN OCEANOGRAPHIC CRUISE TO THE GREENLAND SEA
OCTOBER-NOVEMBER 1981

by

Robert H. Bourke and Robert G. Paquette

I. INTRODUCTION

This report presents the oceanographic data acquired during the cruise of the U. S. Coast Guard ice breaker NORTHWIND (WAGB-282) to the northern part of the East Greenland Polar Front (EGPF) in the Greenland Sea during October and November 1981. This cruise has been designated Arctic East 1981 (AE81), but for continuity with past cruises is also termed MIZLANT 81. The cruise had as its primary objective a close examination of the EGPF between about 75° and 80°N. This was one of the rare sets of oceanographic observations in this area in autumn and the first done with close-spaced stations and a modern, high-resolution CTD. The NORTHWIND covered over 1600 km of track within the survey area. One hundred twenty-two CTD stations were occupied at spacings varying from 5 to 30 km. These stations were supplemented by 123 not always successful XBT drops. The latter were used between stations and in the otherwise unsampled portion of the track between 69°-27'N and the beginning of regular stations at

74°-51.5°N. These XBT results were sent to the NAVOCEANO representative to COMSUBDEVROK TWELVE, Naval Submarine Base, New London, Groton, Connecticut. A few XBT's were used to extend CTD lines.

The EGPF was found strongly delineated by the Polar Water-Atlantic Intermediate Water (PW-AIW) contrast. It was made particularly striking by the Return Atlantic Current (RAC), a core of warm southward-flowing AIW submerged beneath the PW and penetrating, somewhat modified, onto the shelf. The RAC contained considerable thermal fine-structure in most places. The eastern edge of the EGPF, over the RAC, was marked by a strong geostrophic jet.

Previous reportings of cruise results were made by Paquette (1982), Perdue (1982) and, in a scientific paper, by Paquette, Bourke, Newton and Perdue (1985).

II. MORE DETAILS OF THE CRUISE

The scientific party boarded NORTHWIND between 9 and 10 October 1981 in Reykjavik, Iceland. The members of the scientific party and their affiliations were:

Dr. M. Allan Beal, Arctic Submarine Laboratory,
NOSC San Diego, California, Chief Scientist.

Dr. Robert H. Bourke, Naval Postgraduate School,
at that time on sabbatical leave at Scott Polar
Research Institute, Cambridge University,
Cambridge, England.

Dr. John L. Newton, Science Applications, Inc.,
La Jolla, California.

LT William F. Perdue, Graduate Student,

Naval Postgraduate School, Monterey, California:
Mr. Jerrold G. Norton, Naval Postgraduate School.
Mr. Kim O. McCoy, Naval Postgraduate School.

The cruise track and locations of CTD stations are indicated in Figure 1. Sampling commenced on 17 October and terminated four weeks later on 14 November. A listing of the locations of all CTD stations and ancillary climatological data at each station is shown in Appendix A.

Wind speeds were generally low until 29 October, after which they were generally above 15 knots, reaching 35 knots on 10-11 November. Thereafter they became moderate, with some periods of speed below 10 knots. Air temperatures were well below freezing, especially during the latter half of the cruise.

All of the sampling was done from the ship. Darkness and poor visibility prevented using the ship's helicopters for oceanographic measurements. Adequate visibility and the need for helicopter-based sampling never coincided. However, the helicopters were of considerable utility in ice reconnaissance.

III. MEASUREMENTS

The primary oceanographic instrument was the Neil Brown Instrument Systems (NBIS) Mark III CTD. Data were collected, stored, and displayed using a Hewlett-Packard

9835B computer and 9872A x-y flat-bed plotter. As in the past, an extension was bolted on to the protective frame of the CTD; the lower part of the frame and the extension were covered with coarse wire mesh to protect the sensors from contact with the bottom and with ice. No apparent deterioration in sensor accuracy or response have been noted using this technique.

Some CTD difficulties were experienced during the coldest weather. It was not possible to keep the instrument warm enough to prevent ice formation on the sensors and occasional complete failure to operate. These problems were cured by several minutes "soaking" and up-and-down flushing of the instrument in the sea before each lowering.

The temperature and conductivity sensors of the NBIS CTD were calibrated at NPS prior to the cruise. The calibrated pressure sensor had a 1600 dbar range. The sampling rate of the CTD was set to about 0.4 m of depth per sample. Checking of the temperature and conductivity sensors during the cruise was done by means of a single Nansen bottle and reversing thermometers placed immediately above the CTD. Sample salinities were determined with a deck salinometer. Because of breakage of all but 4 vials of standard water only 17 of the salinity comparisons were reliable. The average deviations of the CTD from reversing bottle results were approximately $+0.004^{\circ}\text{C}$ and $+0.006$

o/oo in salinity, about the limit of error for such measurements; therefore, no corrections were applied.

The plots of properties shown in Appendix B are from data which has been edited, despiked and smoothed with a centered 5-point running mean.

IV. REFERENCES

- Paquette, Robert G., Cruise Report, USCGC NORTHWIND 1981, October- November 1981, Naval Postgraduate School, Monterey, California, Informal Report, 12 February 1982, 13 pp.
- Perdue, William F., Oceanographic Investigation of the East Greenland Polar Front in Autumn, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1982, 80 pp.
- Paquette, Robert G., Robert H. Bourke, John L. Newton and William F. Perdue, The East Greenland Polar Front in Autumn, J. Geophys. Res. 90 (C3), 4866-4882 (May 20, 1985).

APPENDIX A

Explanation of Heading Codes

The heading of the printed output uses the coding from NODC Publication M-2, August 1964, with a few exceptions. Heading entries which are not self-explanatory are as follows: MSQ is the Marsden square, and DPTH is the water depth in meters. Wave source direction (WVD) is in tens of degrees, but the direction 00 indicates calm seas due to ice dampening. The significant wave height is coded by Table 10 (code - 2 = height in meters). Wind speed, V, is coded as Beaufort force, Table 17. The barometer is in millibars, less 1000 if more than 3 digits; wet and dry bulb temperatures are in degrees C. The present weather is from Table 21 with cloud type and amount from Tables 25 and 26, respectively. The combination 4 X 9 indicates that clouds cannot be observed usually because of fog conditions. The visibility is from Table 27 which is roughly in powers of two with code 4 = 1-2 km. The ice concentration, ICE, is in tenths; amounts less than one tenth are preceded by a minus sign and indicate concentrations in powers of ten, e.g., 10⁻⁴ = -4.

The entry, NAV, is a code to identify the accuracy of each station position based upon the navigation system used. Code 1 indicates a position determined by visual sightings, radar or by navigation satellite; Code 2 a position determined by Omega or Loran; and Code 3 a

position determined by dead reckoning. :

The heading data are listed sequentially with increasing station number. Because of data recovery problems five stations are out of order: 12, 21, 27, 48 and 71. These are listed at the end.

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	MVD	HT	MND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31 NW	N74-51.5	W010-11.9	254	10	17	81	08.8	001-	3110	1	-6	07	1	26	2	002	-07.0	-07.7	1	6	5	7
31 NW	N74-51.5	W010-11.9	254	10	17	81	10.8	002-	3110	1	-6	07	1	26	2	002	-07.0	-07.7	1	6	5	7
31 NW	N75-02.6	W010-47.9	254	10	17	81	15.9	003-	2708	1	3	07	0	23	3	002	-07.7	-08.6	1	6	1	7
31 NW	N75-08.0	W011-08.2	254	10	17	81	20.4	004-		1		00	0	00	0	003	-12.2	-12.9	0		0	7
31 NW	N75-15.6	W010-05.0	254	10	18	81	03.3	005-	2743	1	7	00	0	35	3	004	-08.6	-09.2	0		0	7
31 NW	N75-24.0	W009-03.3	253	10	18	81	08.2	006-	2872	1	-2	00	0	34	3	006	-05.0	-05.2	0		0	7
31 NW	N75-35.6	W007-45.1	253	10	18	81	11.5	007-	3068	1	8	00	0	03	6	005	-01.2	-02.0	1	6	4	7
31 NW	N75-49.1	W006-52.0	253	10	18	81	14.8	008-	2780	1	0	04	2	04	4	006	-00.9	-02.1	1	6	6	7
31 NW	N76-01.2	W006-00.3	253	10	18	81	17.2	009-		1	0	04	3	04	6	007	-00.3	-00.3	2	6	8	7
31 NW	N76-11.6	W006-46.0	253	10	18	81	19.6	010-	2438	1	-4	00	0	03	5	006	-00.3	-00.3	2	6	7	7
31 NW	N76-21.5	W007-32.2	253	10	18	81	22.4	011-	1268	1	5	00	0			008						
31 NW	N76-17.1	W007-23.0	253	10	19	81	07.7	013-	1380	1	5	00	0	35	6	008	-06.8	-08.2	1	6	8	6
31 NW	N76-19.3	W007-36.2	253	10	19	81	09.2	014-	1242	1	8	00	0	36	6	007	-07.2	-07.5	1	6	8	7
31 NW	N76-26.0	W007-47.0	253	10	19	81	13.8	015-	0684	1	8	00	0	35	4	007	-07.8	-08.3	1	6	8	6
31 NW	N76-33.0	W008-07.2	253	10	19	81	20.4	016-	0309	1	10	00	0	06	5	010	-04.3	-04.4	7	7	9	1
31 NW	N76-37.9	W008-14.9	253	10	20	81	05.0	017-	0320	1	10	00	0	35	6	012	-06.6	-06.6	7	7	9	2
31 NW	N76-46.1	W008-23.3	253	10	20	81	14.7	018-	0350	1	10	00	0	30	2	012	-08.9	-09.2	2	7	8	6
31 NW	N76-49.2	W008-49.8	253	10	20	81	18.8	019-	0368	1	10	00	0	00	0	011	-08.0	-08.6	1	7	7	7
31 NW	N76-49.2	W008-49.8	253	10	20	81	19.0	020-	0368	1	10	00	0	00	0	011	-08.1	-08.6	1	7	7	7
31 NW	N76-49.3	W008-55.3	253	10	21	81	15.8	022-	1 0350	1	10	00	0	00	0	012	-13.0	-13.2	1	7	1	7
31 NW	N76-49.2	W008-55.0	253	10	21	81	17.0	022-	2 0350	1	10	00	0	00	0	011			1	7	1	7
31 NW	N76-49.0	W008-55.2	253	10	21	81	18.1	022-	3 0359	1	10	00	0	04	2	010	-15.6	-15.6	0		0	7
31 NW	N76-48.9	W008-55.1	253	10	21	81	19.1	022-	4 0359	3	10	00	0	04	2	010	-15.9	-15.9	7	7		6
31 NW	N76-48.7	W008-55.0	253	10	21	81	20.1	022-	5 0350	3	10	00	0	00	0	009	-14.6	-14.4	0		0	7

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS	
31	NW	N76-48.6	W008-55.4	253	10	21	81	21.1	022-6	0332	1	10	00	0	13	2	008	-14.2	-14.3	0	0	7	
31	NW	N76-48.6	W008-55.2	253	10	21	81	22.0	022-7	0339	3	10	00	0	15	2	007	-10.6	-10.8	0	0	7	
31	NW	N76-48.6	W008-55.3	253	10	21	81	23.0	022-8	0350	1	10	00	0	16	2	008	-12.0	-12.0	1	7	3	7
31	NW	N76-48.6	W008-55.1	253	10	22	81	00.1	022-9	0341	1	10	00	0	13	3	007	-12.0	-12.0	1	7	1	7
31	NW	N76-47.4	W008-57.8	253	10	22	81	02.0	022-10	0340	1	10	00	0									
31	NW	N76-47.4	W008-57.8	253	10	22	81	08.8	022-10	0350	1	10	00	0									
31	NW	N76-47.4	W008-57.8	253	10	23	81	09.3	023-1	0335	1	10	00	0	00	0	998	-01.5	-01.5	7	7	6	
31	NW	N76-47.3	W008-57.6	253	10	23	81	10.2	023-2	0335	1	10	00	0	00	0	998			7	7	5	
31	NW	N76-47.0	W008-57.7	253	10	23	81	11.3	023-3	0329	1	10	00	0	00	0	998	-01.1	-01.1	7	7	5	
31	NW	N76-46.8	W008-57.9	253	10	23	81	12.3	023-4	0323	3	10	00	0	11	2	998	-00.5	-00.3	7	7	9	5
31	NW	N76-46.5	W008-58.0	253	10	23	81	13.3	023-5	0323	3	10	00	0	00	0	998	-00.4	-00.3	2	7	8	5
31	NW	N76-46.4	W008-58.6	253	10	23	81	14.3	023-6	0325	1	10	00	0	00	0	998	-00.2	-00.3	2	7	8	5
31	NW	N76-46.3	W008-59.3	253	10	23	81	15.3	023-7	0324	1	10	00	0	00	0	998	-00.0	-00.2	7	7	8	5
31	NW	N76-46.3	W008-59.9	253	10	23	81	16.3	023-8	0333	1	10	00	0	00	0	999	-00.0	-00.2	7	7	8	5
31	NW	N76-46.2	W009-00.0	253	10	23	81	17.3	023-9	0333	3	10	00	0	00	0	998	00.0	00.0	7	7	8	5
31	NW	N76-46.2	W009-00.0	253	10	23	81	18.3	023-10	0359	1	10	00	0	00	0	998	00.0	00.0	7	X	9	5
31	NW	N76-46.2	W009-00.0	253	10	23	81	19.3	023-11	0359	3	10	00	0	00	0	998	01.0	01.0	7	X	9	5
31	NW	N76-45.9	W009-00.9	253	10	23	81	20.3	023-12	0368	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.7	W009-01.6	253	10	23	81	21.3	023-13	0368	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.6	W009-01.3	253	10	23	81	22.3	023-14	0337	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.5	W009-01.5	253	10	23	81	23.3	023-15	0333	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.4	W009-01.6	253	10	24	81	00.2	023-16	0328	1	10	00	0	10	1	998	00.2	-00.2	7	X	9	5
31	NW	N76-45.2	W009-01.9	253	10	24	81	01.2	023-17	0330	1	10	00	0	08	2	998			7	X	9	5
31	NW	N76-45.0	W009-02.6	253	10	24	81	02.1	023-18	0330	3	10	00	0	07	2	998			7	X	9	5

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

MAT SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	MVD	HT	WHD	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31 NW	N76-49.9	W009-03.4	253	10	24	81	03.2	023-19	0336	1	10	00	0	08	2	996	00.2	-00.2	7	X	9	5
31 NW	N76-44.9	W009-04.5	253	10	24	81	03.2	023-20	0340	1	10	00	0	06	2	997	00.2	-00.2	7	X	9	5
31 NW	N76-44.6	W009-05.3	253	10	24	81	05.1	023-21	0340	1	10	00	0	09	2	996			7	X	9	5
31 NW	N76-44.6	W009-05.6	253	10	24	81	06.1	023-22	0328	1	10	00	0	09	2	997			7	X	9	5
31 NW	N76-44.4	W009-07.3	253	10	24	81	07.2	023-23	0327	1	10	00	0	10	3	996			7	X	9	5
31 NW	N76-46.7	W008-25.3	253	10	24	81	19.1	024-	0350	1	10	00	0	17	3	998	-03.2	-03.2	7	X	9	5
31 NW	N76-35.9	W007-53.0	253	10	25	81	02.1	025-	0318	1	09	00	0	17	3	006	-03.0	-03.2	7	X	9	5
31 NW	N76-31.8	W007-40.6	253	10	25	81	04.6	026-	0318	1	09	00	0	17	3	007	-03.0	-03.2	7	X	9	5
31 NW	N76-31.8	W007-40.6	253	10	25	81	04.6	026-UP	0318	1	09	00	0	17	3	007	-03.0	-03.2	7	X	9	5
31 NW	N76-32.0	W006-50.6	253	10	25	81	10.0	028-	1010	1	08	00	0	09	3	008	-01.0	-01.0	7	X	9	5
31 NW	N76-29.9	W006-27.1	253	10	25	81	13.5	029-	1718	1	05	00	0	11	3	009	00.0	00.0	4	X	9	1
31 NW	N76-28.5	W006-20.8	253	10	25	81	15.1	030-	1880	1	0	12	3	17	3	009	-01.1	-01.5	4		0	3
31 NW	N76-25.6	W005-43.7	253	10	25	81	17.2	031-	2250	2	0	18	3	24	3	010	-02.8	-02.8	4	7	8	3
31 NW	N76-23.1	W005-21.3	253	10	25	81	19.2	032-	2348	2	0	18	3	24	3	010	-02.5	-02.5	4	7	8	4
31 NW	N76-34.5	W005-22.9	253	10	25	81	21.3	033-	2150	1	0	18	2	21	1	010	-03.0	-03.0	1	7	5	4
31 NW	N76-39.2	W005-34.7	253	10	25	81	23.6	034-	1970	1	0	18	2	26	3	010	-03.8	-03.8	4	X	9	6
31 NW	N76-45.3	W005-42.5	253	10	26	81	01.9	035-	1672	1	0	19	3	23	3	010	-03.8	-03.8	4	X	9	6
31 NW	N76-46.3	W005-42.9	253	10	26	81	03.5	036-	1618	3	0	20	3		010			4	X	9	6	
31 NW	N76-51.4	W004-50.4	253	10	26	81	08.5	037-	1526	1	-2	21	3					4	X	9	6	
31 NW	N76-50.7	W004-07.1	253	10	26	81	12.3	038-	2078	1	-2	21	2	00	0	013	-03.8	-03.8	4	7	8	4
31 NW	N76-59.4	W003-31.0	253	10	26	81	15.4	039-	1718	1	-2	22	2	08	2	012			2	7	8	6
31 NW	N77-02.1	W002-54.9	253	10	26	81	17.3	040-	1978	1	1	21	2	06	3	011	-00.5	-00.5	7	X	9	1
31 NW	N77-04.8	W003-04.3	253	10	26	81	23.1	041-		1	10	11	0	11	3	009			7	X	9	2
31 NW	N77-07.1	W003-13.7	253	10	27	81	02.4	042-	1947	1	8	00	0	01	6	008	-00.5	-00.5	7	X	9	5

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

MAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N77-12.3	W003-27.6	253	10	27	81	06.5	043-	2392	1	7	00	0			009			7	X	9	5
31	NW	N77-19.1	W003-54.4	253	10	27	81	10.0	044-	2019	1	7	00	0	10	3	009	01.0	01.2	2	7		6
31	NW	N77-24.8	W004-10.6	253	10	27	81	11.8	045-	1654	1	-2	00	0	10	3	009	01.0	01.2	2	7		6
31	NW	N77-22.7	W004-26.7	253	10	27	81	15.4	046-	1440	1	1	00	0	09	2	010	00.0	00.0	4	X	9	3
31	NW	N77-23.5	W004-38.6	253	10	27	81	18.5	047-	1379	1	5	00	0	13	1	012	-00.2	-00.2	5	7	8	5
31	NW	N77-59.8	W004-02.0	253	10	28	81	10.0	049-	2501	1	0	06	2			020			4	7		5
31	NW	N78-00.0	W003-46.0	253	10	28	81	11.2	050-	2605	1	0	06	2	12	4	021	00.0	00.0	4	7		5
31	NW	N78-00.0	W004-17.4	253	10	28	81	12.9	051-	2250	1	-2	06	3	18	3	021	-00.8	-00.9	2	6	8	7
31	NW	N78-00.3	W004-44.6	253	10	28	81	17.0	052-	1674	1	10	00	0	12	4	024	00.0	00.0	2	7	8	7
31	NW	N77-58.4	W005-19.5	253	10	28	81	20.7	053-	461	1	7	00	0	12	4	025	00.4	00.0	5	7	8	4
31	NW	N78-00.7	W005-43.1	253	10	28	81	23.6	054-	323	1	5	00	0	09	3	026	00.1	-00.2	2	7	8	6
31	NW	N78-00.2	W006-07.8	253	10	29	81	03.3	055-	309	1	9	00	0			025						
31	NW	N78-00.0	W006-30.4	253	10	29	81	05.7	056-	299	1						026						
31	NW	N77-59.1	W007-07.1	253	10	29	81	09.0	057-	346	1												
31	NW	N78-00.2	W007-32.6	253	10	29	81	11.2	058-	282	1	9	00	0	08	4	025	-00.2	-01.0	2			6
31	NW	N78-00.0	W008-02.2	253	10	29	81	13.7	059-	224	1	5	00	0	07	4	024	-00.2	-00.2	7	7	8	4
31	NW	N78-00.6	W008-31.9	253	10	29	81	16.6	060-	215	1	9	00	0	07	4	024	00.0	00.0	7	7	8	4
31	NW	N78-00.2	W008-51.6	253	10	29	81	19.5	061-	213	1	9	00	0	12	4	024	00.5	00.3	7	7	8	4
31	NW	N78-06.0	W009-41.7	253	10	30	81	02.3	062-	191	1	9	00	0			024			7	7		4
31	NW	N77-59.8	W010-11.7	253	11	03	81	07.5	063-	190	1	10	00	0									
31	NW	N77-59.8	W010-11.7	253	11	03	81	07.5	063-	190	1	10	00	0									
31	NW	N78-04.5	W009-43.2	253	11	03	81	15.9	064-	199	1	9	00	0	18	3	011	-14.8	-14.9	2	7		2
31	NW	N78-09.3	W009-01.9	253	11	04	81	09.6	065-	190	1	10	00	0				-19.7	-19.7	2			
31	NW	N78-10.7	W008-26.9	253	11	05	81	04.2	066-	217	1	10	00	0	29	2	017	-19.0	-19.0				

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPHT	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31 NW	N78-10.2	W007-53.2	253	11	06	81	03.4	067-	211	1	10	00	0	08	5	009	-06.1	-07.4				
31 NW	N78-13.9	W007-20.5	253	11	06	81	05.7	068-	209	1	10	00	0	09	5	008	-04.5	-04.9				
31 NW	N78-13.9	W007-20.5	253	11	06	81	05.7	068-UP	209	1	10	00	0	09	5	008	-04.5	-04.9				
31 NW	N78-20.2	W006-55.6	253	11	06	81	09.1	069-	269	1	10	00	0	10	3	006	-04.5	-04.9				
31 NW	N78-20.2	W006-55.6	253	11	06	81	09.1	069-UP	269	1	10	00	0	10	3	006	-04.5	-04.5				
31 NW	N78-10.7	W006-46.9	253	11	06	81	15.3	070-	287	1	9	00	0	23	5	008	-07.1	-07.7	1	4	6	7
31 NW	N78-10.9	W006-13.1	253	11	07	81	00.0	071-	228	1	10	00	0			013	-13.2	-13.7	0	0	0	7
31 NW	N78-09.6	W005-17.7	253	11	07	81	11.8	072-	346	1	8	00	0									
31 NW	N78-11.2	W004-56.2	253	11	07	81	14.5	073-	863	1	9	00	0	25	3	007	-08.3	-08.5	4	7	8	4
31 NW	N78-12.5	W004-31.5	253	11	07	81	18.2	074-	1448	1	8	00	0	25	5	010	-11.7	-11.7	0	0	0	6
31 NW	N78-11.7	W004-12.0	253	11	07	81	22.8	075-	2160	1	8	00	0	22	3	014	-14.8	-14.8	0	0	0	6
31 NW	N78-08.4	W003-41.8	253	11	08	81	01.9	076-	2474	1	8	00	0	31	4	010	-14.1	-14.0	0	0	0	6
31 NW	N78-03.8	W003-12.6	253	11	08	81	06.1	077-	2696	3	9	00	0	06	4	003	-11.0	-11.0				
31 NW	N78-05.4	W002-44.5	253	11	08	81	08.5	078-	2738	3	2	00	0	4		012						
31 NW	N78-58.9	E001-18.8	288	11	08	81	23.4	079-	2438	3	0	16	2	19	7	990	00.7	07.7	6	7	8	4
31 NW	N79-03.6	E000-58.1	288	11	09	81	05.5	080-	2697	3	9	00	0	19	6	989	00.7	00.7	1			
31 NW	N79-03.7	E000-32.7	288	11	09	81	10.3	081-	2556	3	10	00	0	22	4	991	-05.4	-05.4	1			6
31 NW	N78-59.8	E000-09.6	288	11	09	81	15.4	082-	2528	1	9	00	0	27	3	991	-09.8	-09.8	7	7	8	4
31 NW	N78-58.3	W000-12.4	253	11	09	81	18.6	083-	2267	3	9	00	0	32	4	992	-14.0	-14.0	1	7	1	5
31 NW	N78-55.8	W000-48.7	253	11	09	81	22.1	084-	2528	1	9	00	0	34	5	992	-15.2	-15.2	1	7	1	5
31 NW	N78-54.3	W001-17.5	253	11	10	81	01.0	085-	2477	1	9	00	0	30	6	992	-15.5	-17.8	1	7		
31 NW	N78-46.0	W001-00.0	253	11	10	81	04.9	086-D	2565	1	8	00	0	7		992			1			
31 NW	N78-45.2	W001-01.6	253	11	10	81	05.1	086-D	2565	1	8	00	0	7		992			1			
31 NW	N78-45.2	W001-01.6	253	11	10	81	05.1	086-UP	2565	1	8	00	0	7		992			1			

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	MVD	HT	WIND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N78-36.3	W000-56.8	253	11	10	81	08.6	087-	2569	1	9	00	0	33	7	993	-16.8	-16.8	1			
31	NW	N78-32.7	W000-33.9	253	11	10	81	11.6	088-		1	8	00	0	33	8	994			1			6
31	NW	N78-08.3	W001-04.2	253	11	10	81	17.9	089-	2798	3	0	30	2	32	6	994			7	X	9	1
31	NW	N77-48.3	W001-48.3	253	11	11	81	00.1	090-	2709	1	0	30	3	31	8	996	-12.0	-12.0	7	X	9	1
31	NW	N77-30.5	W002-42.1	253	11	11	81	07.2	091-	2842	1	0	30	2	33	7	001	-12.3	-12.3	7			
31	NW	N77-08.8	W002-32.6	253	11	11	81	12.6	092-	2996	1	0	34	3	31	6	003	-12.0	-12.0	7	7	8	4
31	NW	N77-00.7	W002-21.2	253	11	11	81	14.4	093-	2933	1	0	34	3	31	6	004	-12.0	-12.0	7	7	8	5
31	NW	N77-00.7	W002-21.2	253	11	11	81	14.4	093-UP	2933	1	0	34	3	31	6	004	-12.0	-12.0	7	7	8	5
31	NW	N76-58.8	W003-04.0	253	11	11	81	17.9	094-	1988	1	5	00	0	30	6	007	-13.2	-13.3	7	7	5	5
31	NW	N76-58.8	W003-04.0	253	11	11	81	17.9	094-UP	1988	1	5	00	0	30	6	007	-13.2	-13.3	7	7	5	5
31	NW	N76-56.8	W003-31.6	253	11	11	81	21.1	095-	1628	1	10	00	0	02	4	018	-15.2	-15.3	7	7	4	6
31	NW	N76-56.8	W003-31.6	253	11	11	81	21.1	095-UP	1628	1	10	00	0	02	4	018	-15.2	-15.3	7	7	4	6
31	NW	N76-58.0	W003-49.3	253	11	12	81	00.0	096-	1862	1	8	00	0	32	4	010	-16.2	-16.2	0	0	0	6
31	NW	N76-58.0	W003-49.3	253	11	12	81	00.0	096-UP	1862	1	8	00	0	32	4	010	-16.2	-16.2	0	0	0	6
31	NW	N76-55.7	W004-09.7	253	11	12	81	04.1	097-	1489	1	9	00	0	32	4	011	-16.2	-16.2	0	0	0	6
31	NW	N76-55.7	W004-09.7	253	11	12	81	04.1	097-UP	1489	1	9	00	0	32	4	011	-16.2	-16.2	0	0	0	6
31	NW	N76-56.1	W004-31.8	253	11	12	81	06.9	098-	1416	1	7	00	0	24	3	011	-17.0	-17.0	0	0	0	6
31	NW	N76-56.1	W004-31.8	253	11	12	81	06.9	098-UP	1416	1	7	00	0	24	3	011	-17.0	-17.0	0	0	0	6
31	NW	N76-59.7	W004-45.6	253	11	12	81	09.4	099-	1445	1	8	00	0	32	4	013	-17.0	-16.9	0	0	0	6
31	NW	N76-59.7	W004-45.6	253	11	12	81	09.4	099-UP	1445	1	8	00	0	32	4	013	-17.0	-16.9	0	0	0	6
31	NW	N76-59.4	W005-13.9	253	11	12	81	12.0	100-	1380	1	8	00	0	33	3	013	-16.3	-16.3	0	0	0	6
31	NW	N76-59.4	W005-13.9	253	11	12	81	12.0	100-UP	1380	1	8	00	0	33	3	013	-16.3	-16.3	0	0	0	6
31	NW	N76-58.6	W005-36.1	253	11	12	81	14.0	101-	1088	1	8	00	0	33	6	013	-16.4	-16.5	0	0	0	6
31	NW	N76-58.6	W005-36.1	253	11	12	81	14.0	101-UP	1088	1	8	00	0	33	6	013	-16.4	-16.5	0	0	0	6

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31 NW	N77-01.2	W006-03.2	253	11	12	81	17.5	102-	0728	1	10	00	0	30	4	014	-21.0	-20.8	0	0	0	6
31 NW	N77-01.2	W006-03.2	253	11	12	81	17.5	102-UP	0728	1	10	00	0	30	4	014	-21.0	-20.8	0	0	0	6
31 NW	N76-54.1	W005-45.2	253	11	13	81	01.6	103-	1191	1	9	00	0	30	3	015	-22.0	-22.0	0	0	0	6
31 NW	N76-50.1	W005-52.4	253	11	13	81	04.0	104-	1380	1	9	00	0	32	2	016			0	0	0	6
31 NW	N76-46.0	W006-05.2	253	11	13	81	06.5	105-	1318	1	9	00	0	31	2	016			0	0	0	6
31 NW	N76-40.0	W006-23.8	253	11	13	81	09.7	106-	1398	1	9	00	0	24	2	015	-21.2	-20.5	0	0	0	6
31 NW	N76-34.7	W006-20.7	253	11	13	81	12.3	107-	1400	1	10	00	0	25	3	016	-22.0	-22.0	0	0	0	6
31 NW	N76-29.4	W006-07.6	253	11	13	81	13.9	108-	1985	1	6	00	0	23	3	017	-16.2	-16.2	0	0	0	6
31 NW	N76-34.4	W005-51.2	253	11	13	81	16.3	109-	2006	1	5	00	0	23	3	016	-15.7	-15.7	0	0	0	6
31 NW	N76-35.0	W005-33.4	253	11	13	81	18.4	110-	2078	1	10	00	0	22	4	016	-16.1	-16.1	0	0	0	6
31 NW	N76-36.1	W005-02.4	253	11	13	81	23.7	111-	2258	1	10	00	0	15	2	014			7	7	4	6
31 NW	N76-39.6	W004-45.2	253	11	14	81	01.6	112-	2203	1	9	00	0	08	3	012			7			
31 NW	N76-38.5	W004-17.5	253	11	14	81	05.8	113-	2569	3	9	00	0	3	005	-02.8	-03.2	7				
31 NW	N76-45.3	W004-20.4	253	11	14	81	08.5	114-	2228	1	7	00	0	20	5	003	-03.0	-03.5	1			
31 NW	N76-49.8	W004-18.4	253	11	14	81	11.1	115-	1837	1	7	00	0	19	2	002	-02.8	-03.2	1			
31 NW	N76-56.4	W004-19.1	253	11	14	81	14.7	116-	1538	1	7	00	0	13	4	997	-01.6	-02.0	1	7	8	6
31 NW	N77-01.7	W004-10.4	253	11	14	81	16.8	117-	1718	1	9	00	0	09	5	994	-01.7	-01.7	7	X	9	3
31 NW	N77-00.0	W004-48.4	253	11	14	81	18.8	118-	1538	1	9	00	0	08	5	988	-01.2	-01.3	7	X	9	3
31 NW	N77-00.0	W004-26.3	253	11	14	81	21.2	119-	1628	1	9	00	0	09	5	982	-00.5	-00.5	7	X	9	3
31 NW	N77-00.1	W004-05.0	253	11	15	81	00.2	120-	1837	1	8	00	0	18	3	982	-01.2	-01.2	1			
31 NW	N77-00.9	W003-42.1	253	11	15	81	02.6	121-	1874	1	5	00	0	15	4	981			1			
31 NW	N76-58.4	W003-08.0	253	11	15	81	05.5	122-	1764	1	3	00	0	4	982			1				
31 NW	N76-18.0	W007-19.6	253	10	19	81	01.1	012-	1289	1	5	00	0	0	008	-06.2	-07.0					
31 NW	N76-50.3	W008-55.6	253	10	21	81	08.4	021-	0356	1	10	00	0	26	2	012	-08.8	-09.0	7	7	4	6

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31 NW	N76-32.7	W007-13.2	253	10	25	81	06.9	027-	0875	1	9	00	0	09	3	008	-01.6	-01.8	7	X	9	6
31 NW	N77-39.8	W003-48.9	253	10	28	81	03.8	048-	2252	1	-2	06	3	15	4	018	-01.8	-02.0	4	X	9	9
31 NW	N78-10.9	W006-13.1	253	11	07	81	00.0	071-	0228	1	10	00	0	0	0	013	-13.2	-13.7	0	0	0	7

TOTAL= 171

APPENDIX B

Property Profiles For MIZLANT 81 Stations

This section contains plots of temperature, salinity, sound speed, and sigma-t for the 122 stations of MIZLANT 81 which were recovered from the cassette tapes of the data-logging system. Both down and up traces were obtained at each station; however, the up trace was recorded only on about half of the stations. To illustrate the change in property profile with time, a sampling of both down and up traces is included between Stations 86 and 102. Where this is done the down trace is on the left.

Temperature has a small range for stations well within the ice pack whereas, east of the ice, the temperature has a moderate range and the salinity a small range. In order to show the property variations with maximum resolution the property scales have been expanded. This has the concomitant result that the scales must vary from page to page. In some cases, the same stations have been plotted on two different scales.

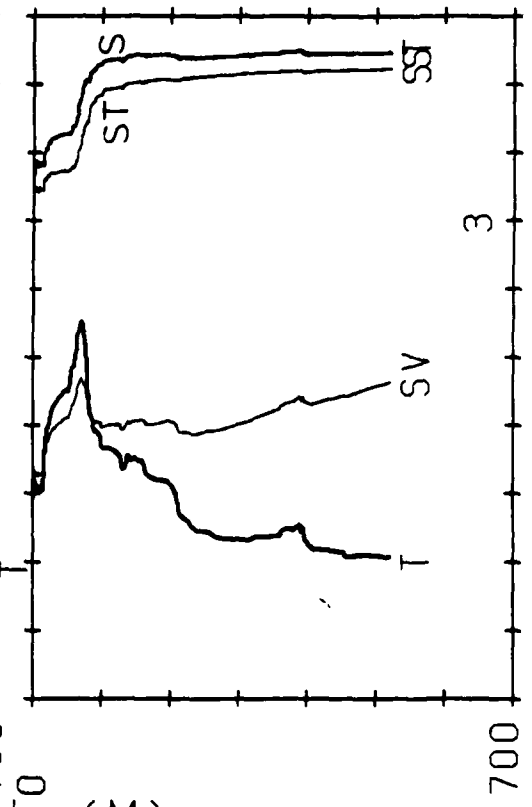
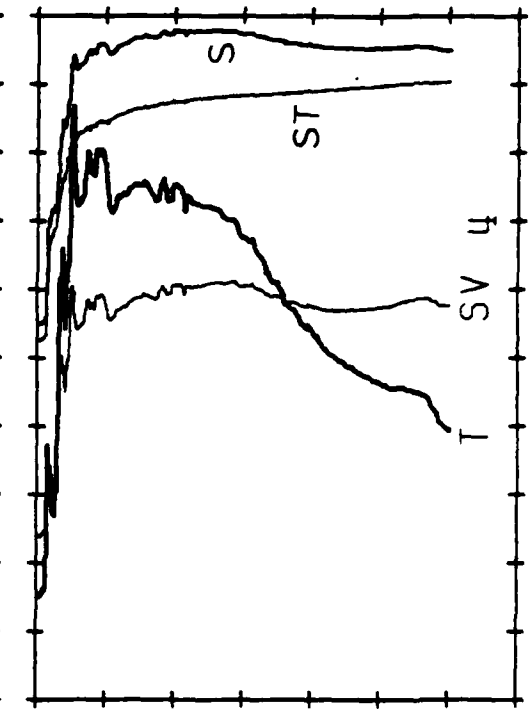
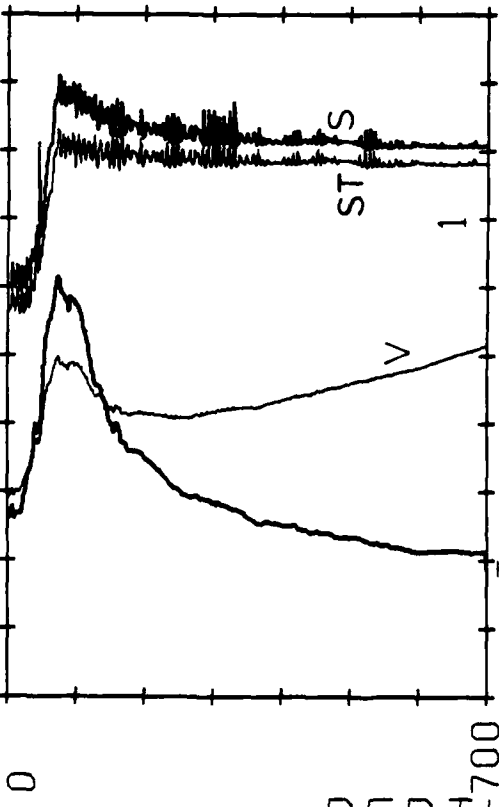
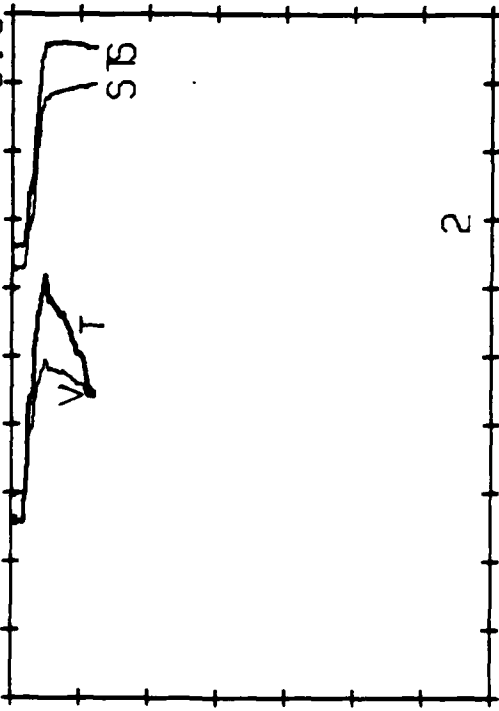
The stations are plotted four per page. To assist in distinguishing between curves the temperature profile has been darkened three times while the salinity trace only twice. The curves are also labeled: T for temperature, S

for salinity, SV for sound velocity, and ST for sigma-t.
The plots of Station 86 may appear confusing. The first
plot is for 86-Down; computer memory was used up before
the lowering was completed and a short section of the
continuation of this lowering to greater depth was
recorded as 86-2-D and is shown in the next frame.
Finally, the up trace, starting at the deepest depth of
86-2-D, is shown at the right, failing to reach the
surface before the memory was full.

ST 26.2
SV 1430
S 32.5
T -2.0

28.2 26.2
1480 1430
35.0 32.5
3.0 -2.0

28.2
1480
35.0
3.0



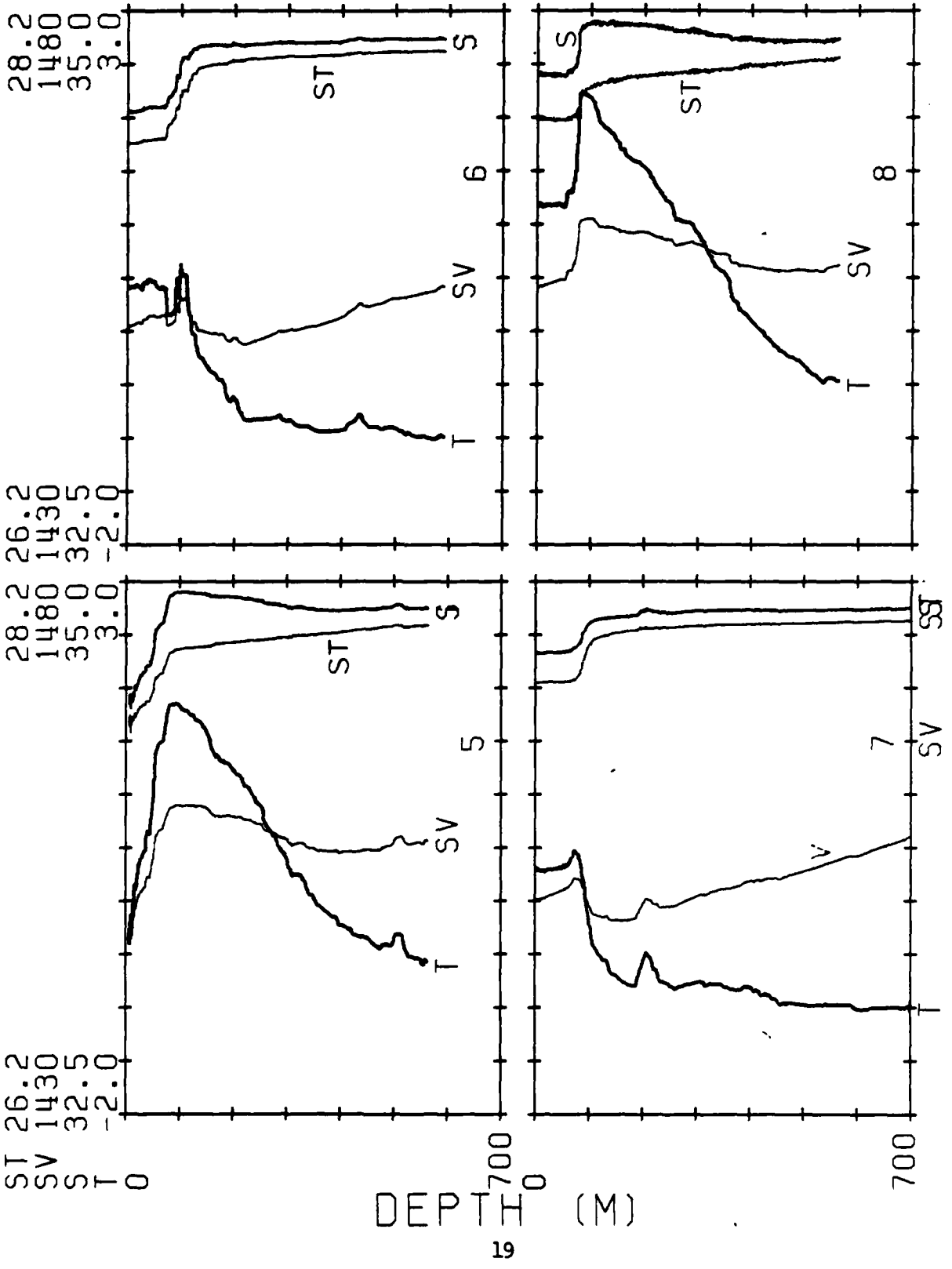
MIZLANT81 C.T.D. STATIONS

MG/CC
M/SEC
P.P.T.
DEG C

DEPTH (M)

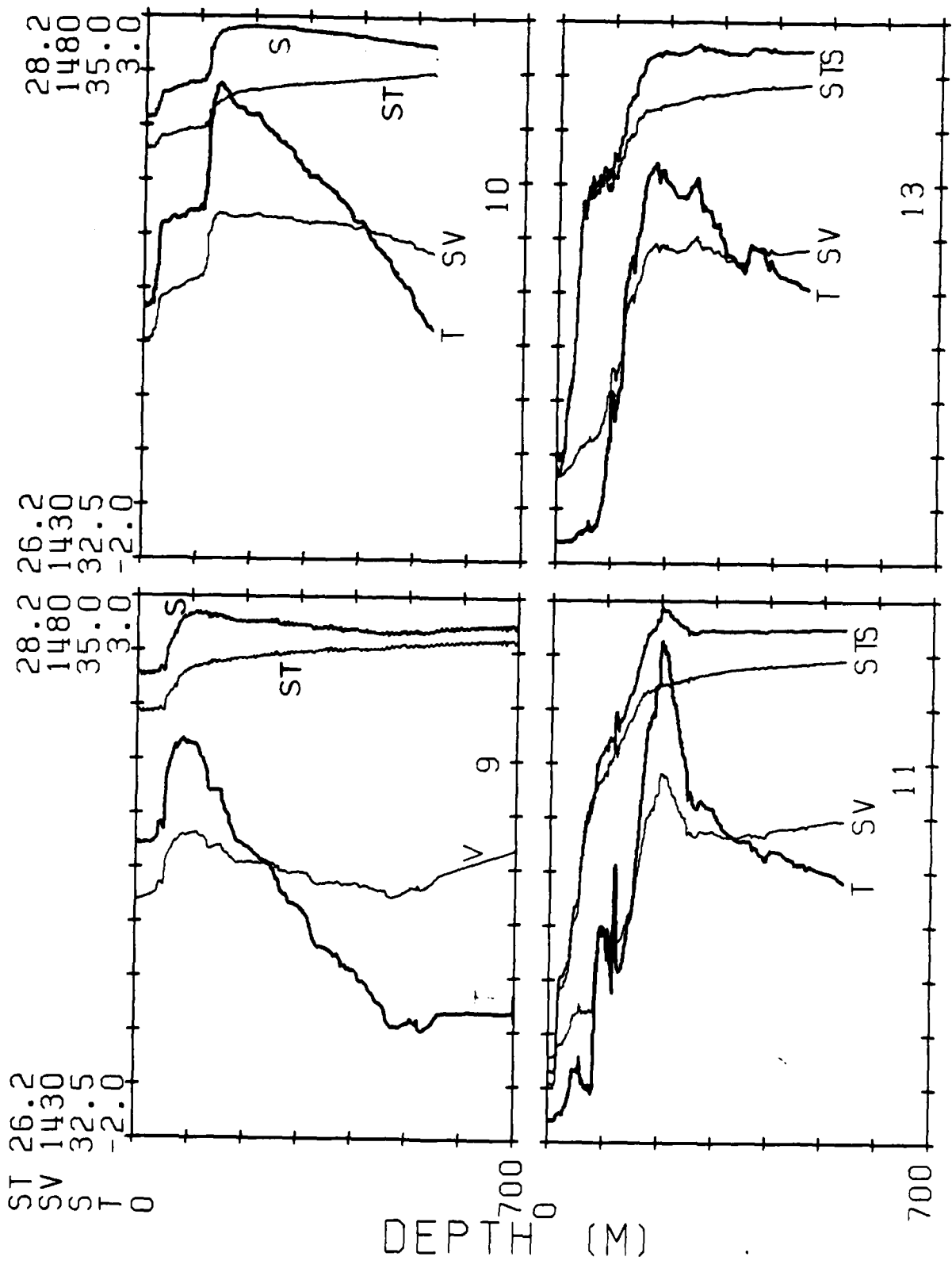
MG/CC
M/SEC
P.P.T.
DEG.C

MIZLANT81 C.T.D. STATIONS



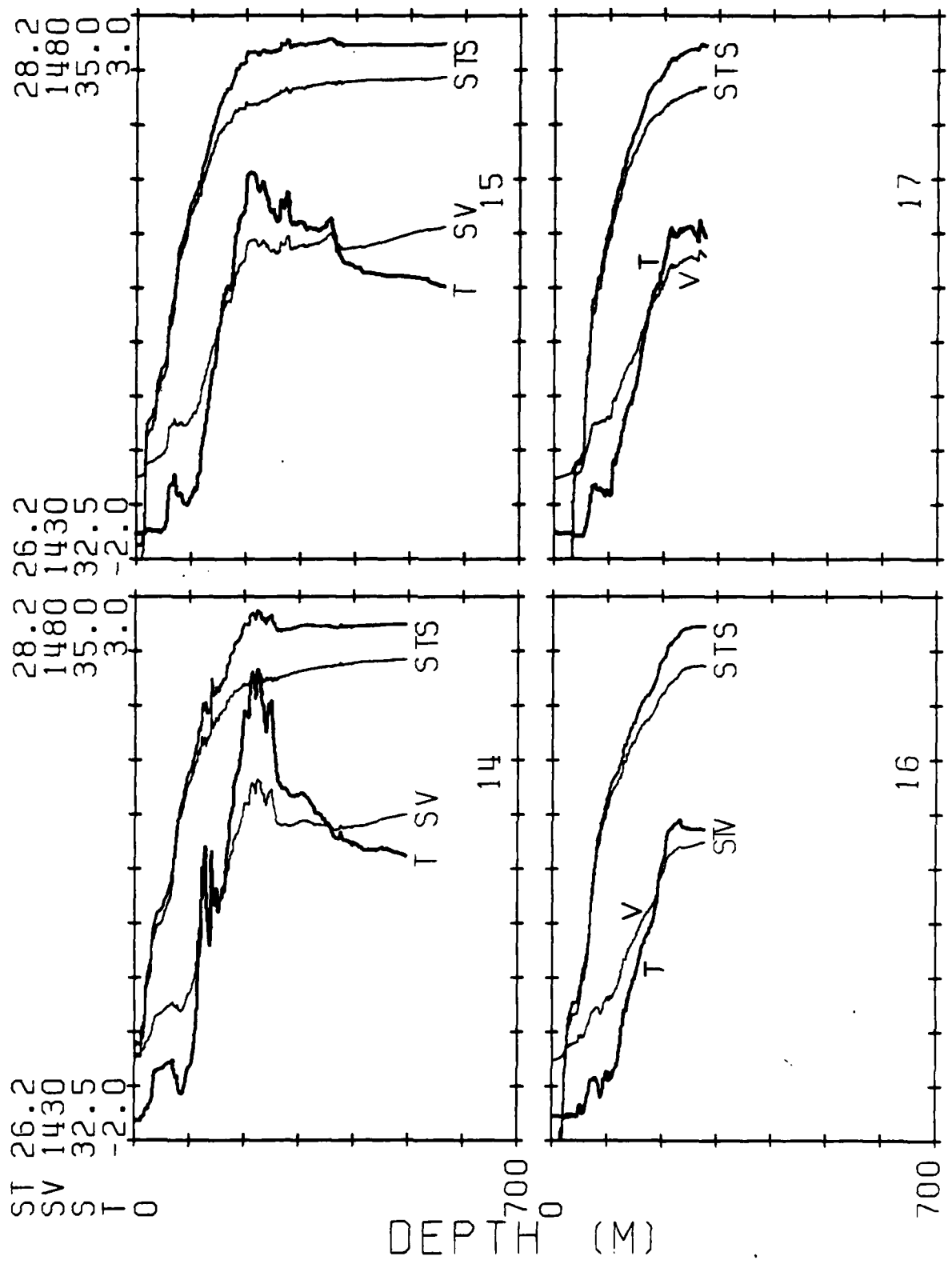
MG/CC
M/SEC
P.P.T.
DEG C

MIZLANT81 C.T.D. STATIONS



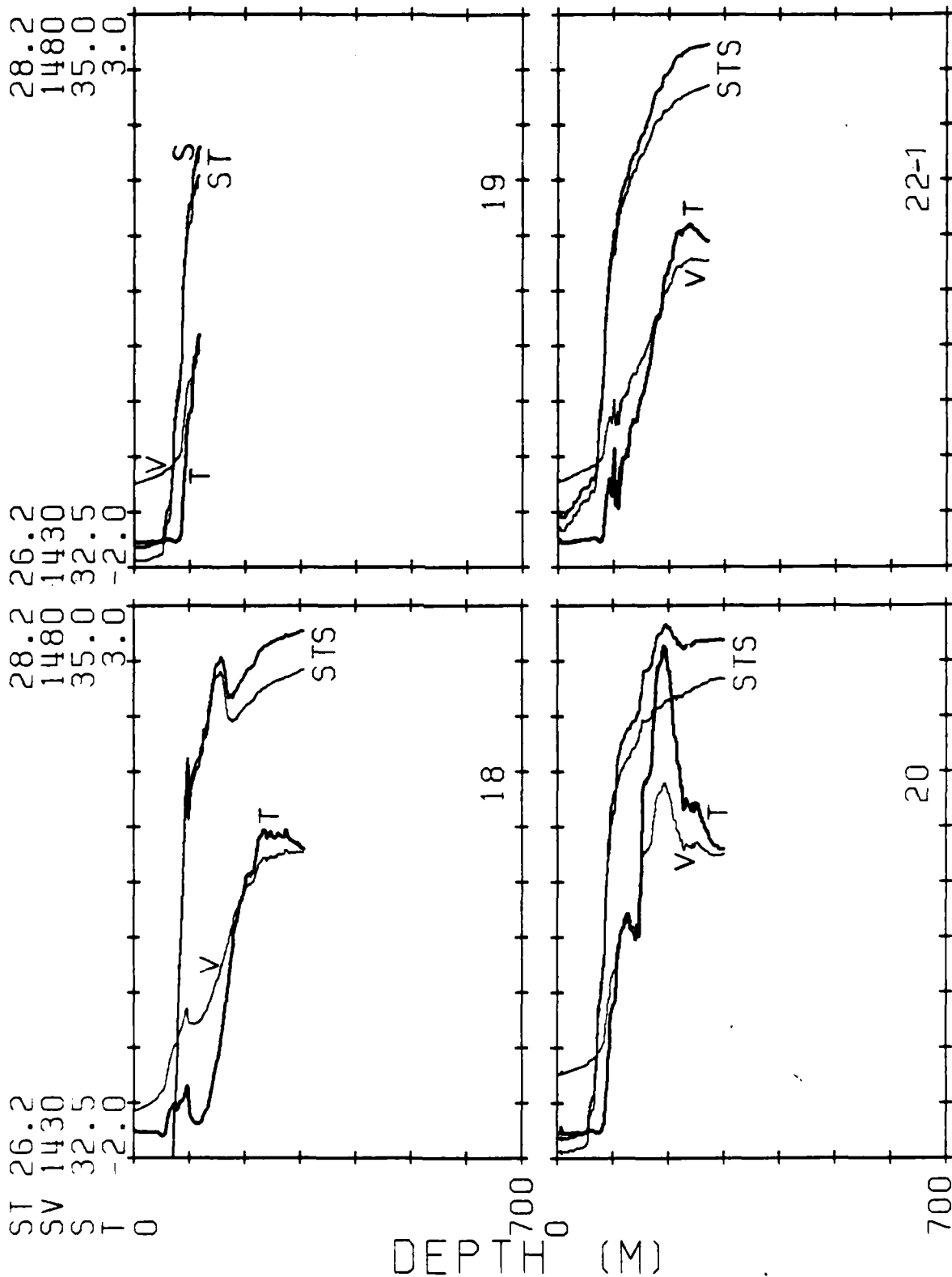
MG/CC
M/SEC
P.P.T.
DEG C

MIZLANT81 C.T.D. STATIONS



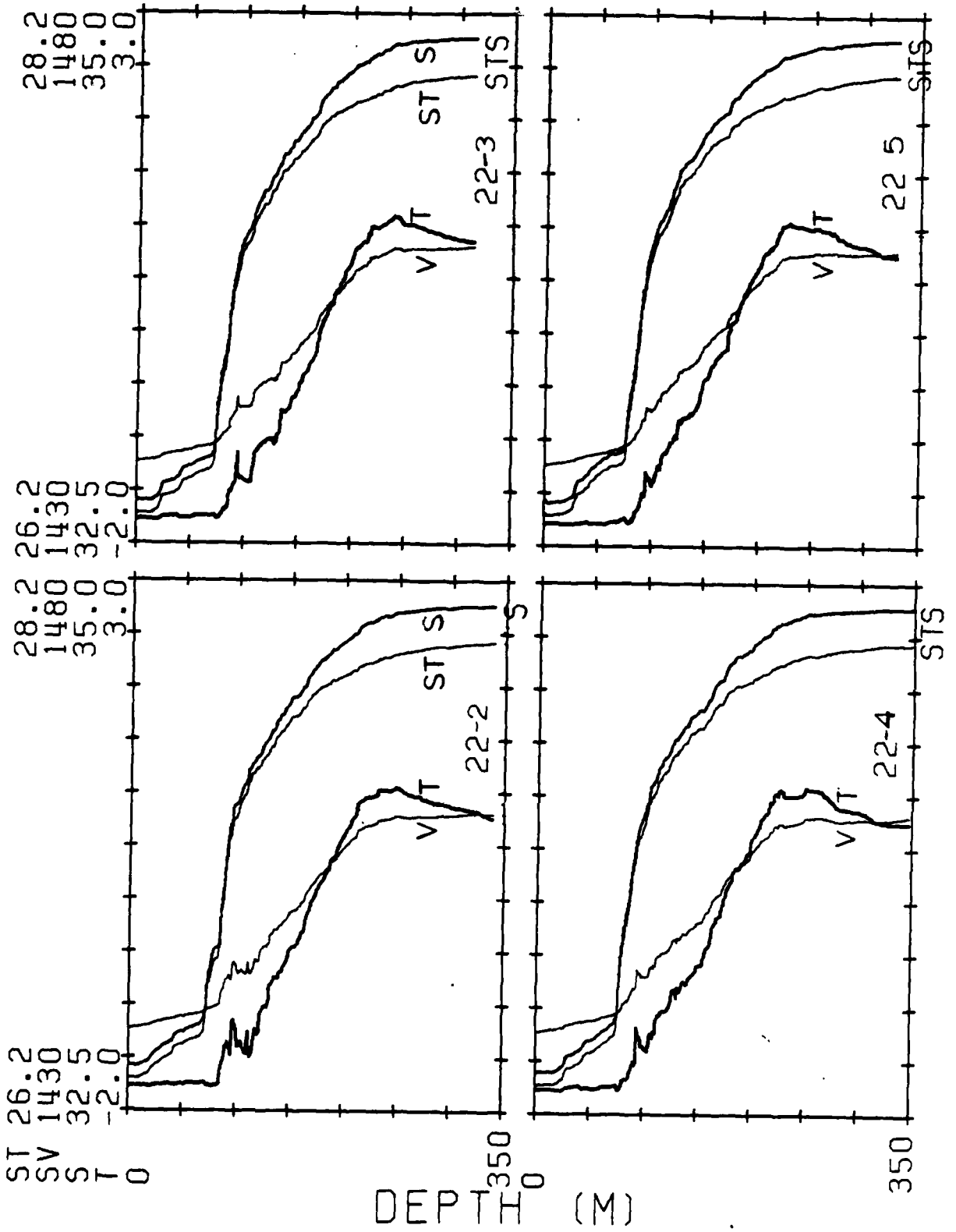
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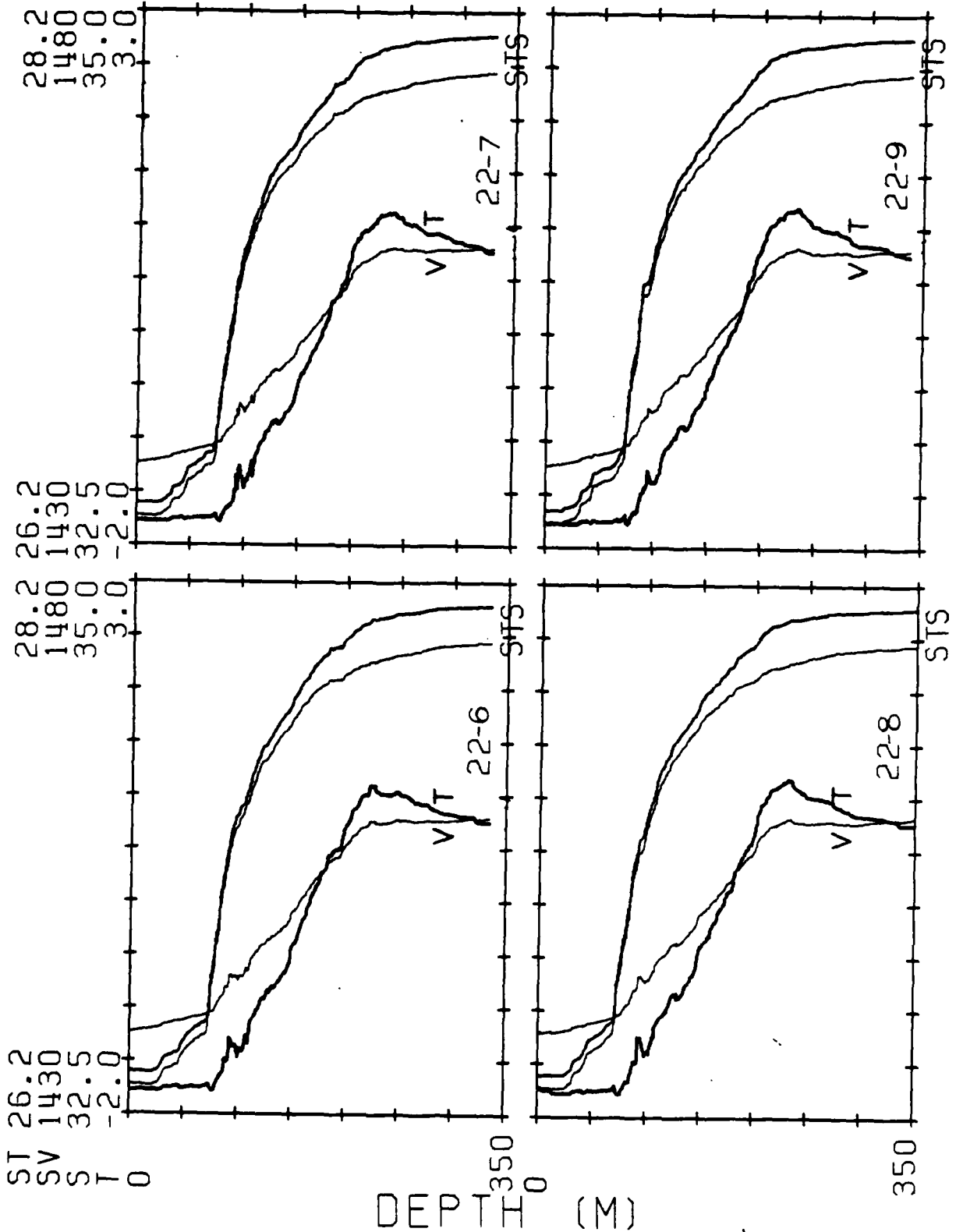
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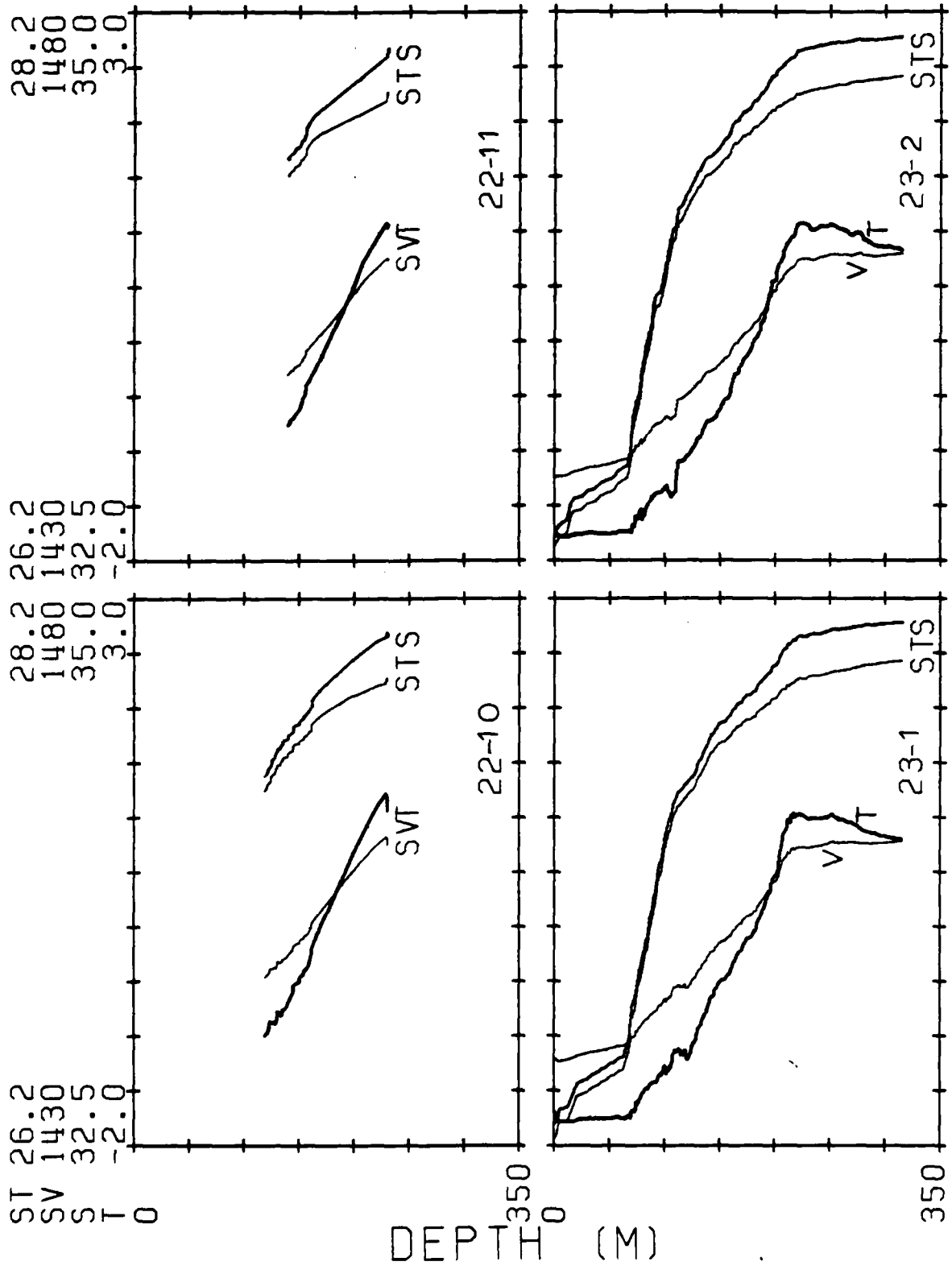
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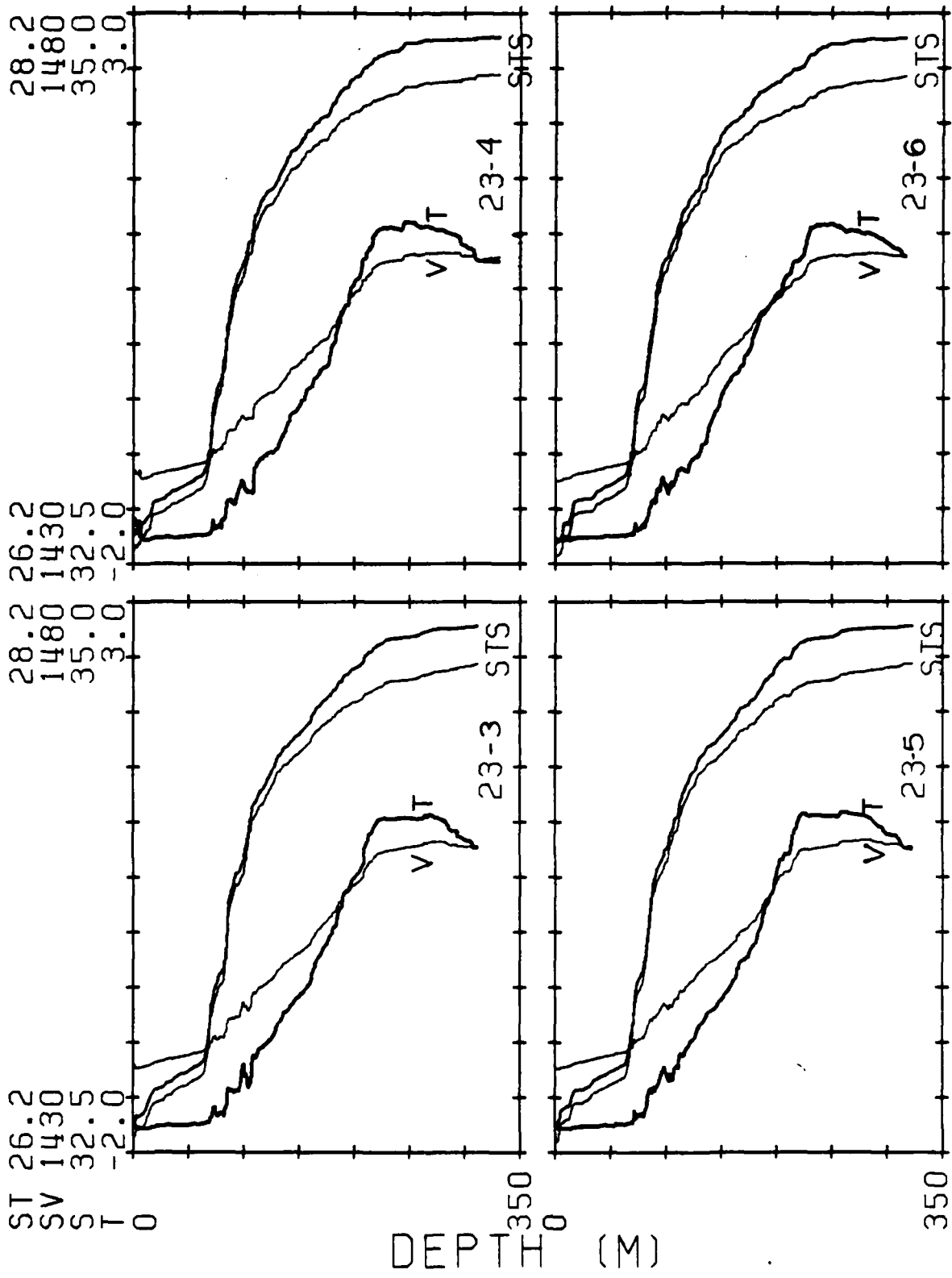
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DEG C

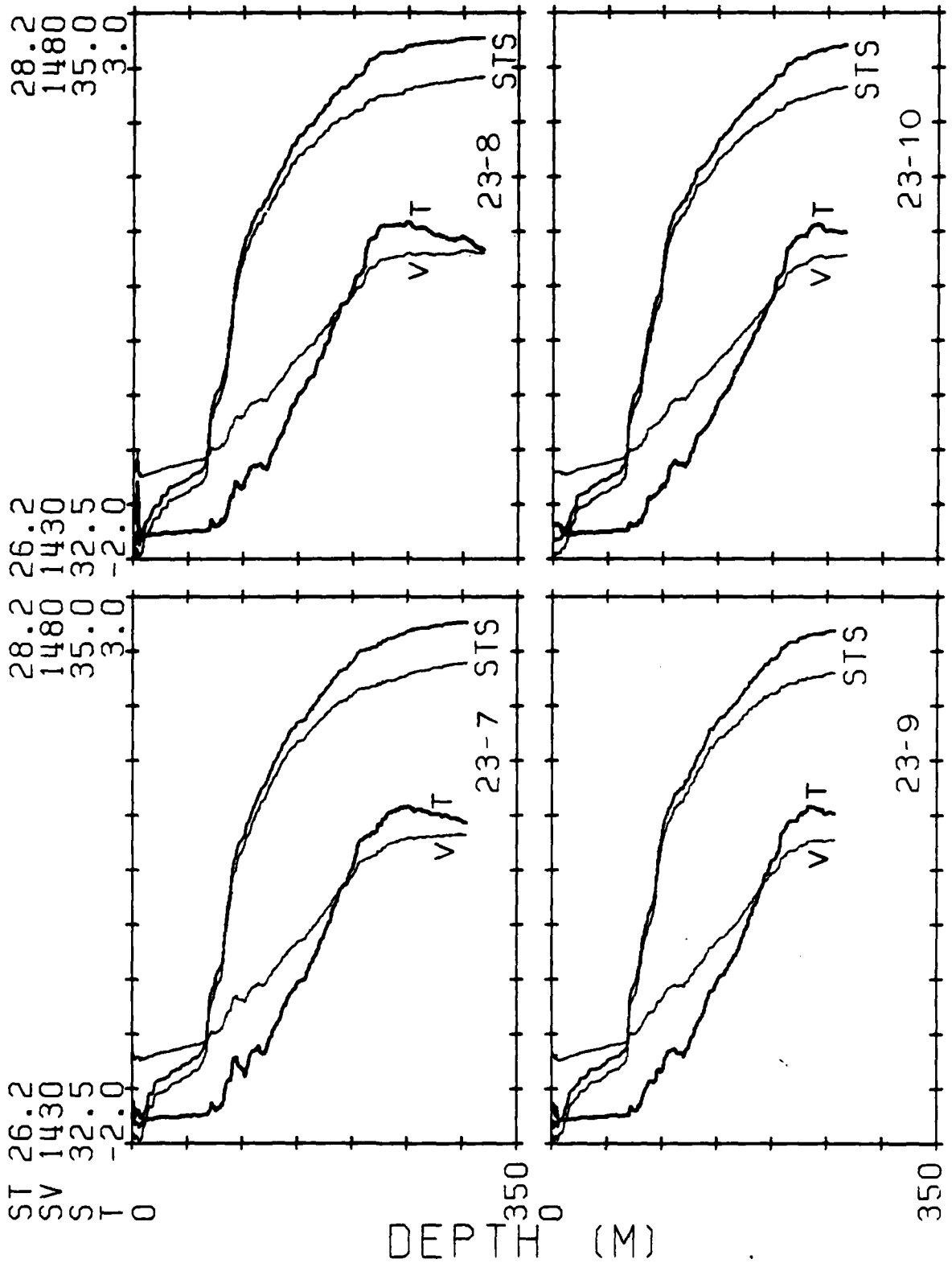
MIZLANT81 C.T.D. STATIONS



DEPTH (M)

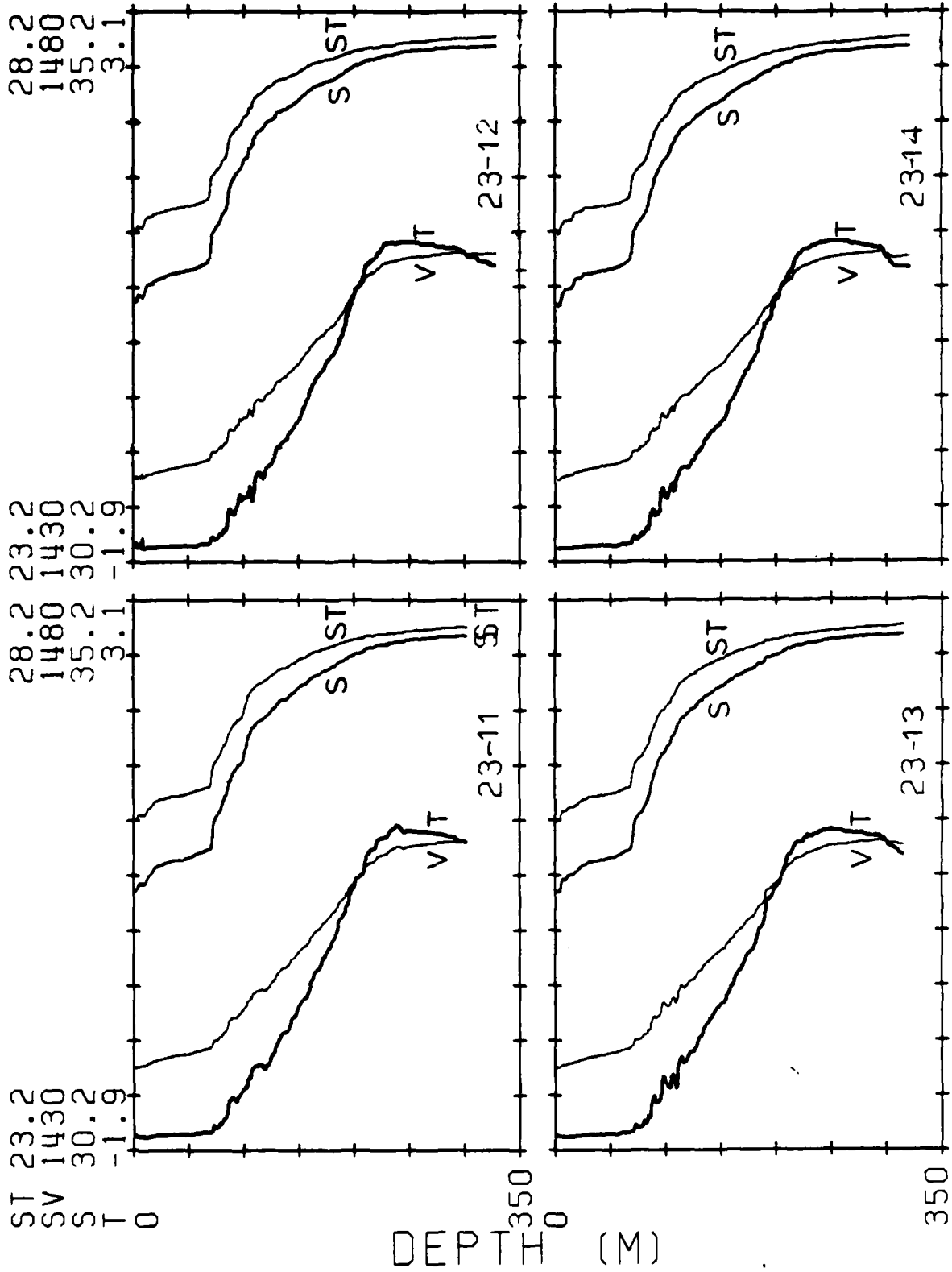
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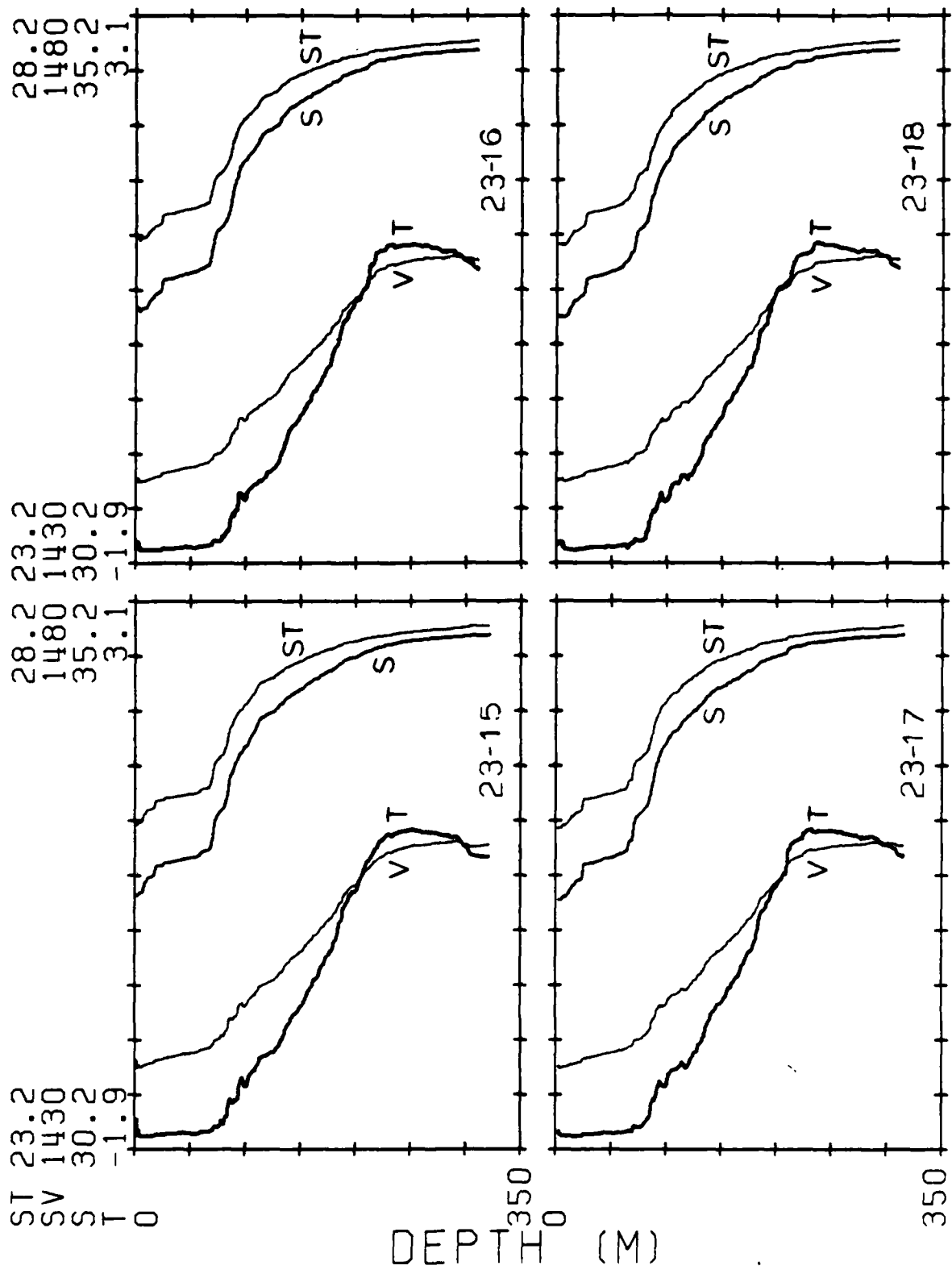
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DEG C

MIZLANT81 C.T.D. STATIONS



MG/CC
M/SEC
P.P.T.
DEG C

MIZLANT.81 C.T.D. STATIONS



ST 23.2
SV 1430
S 30.2
T -1.9

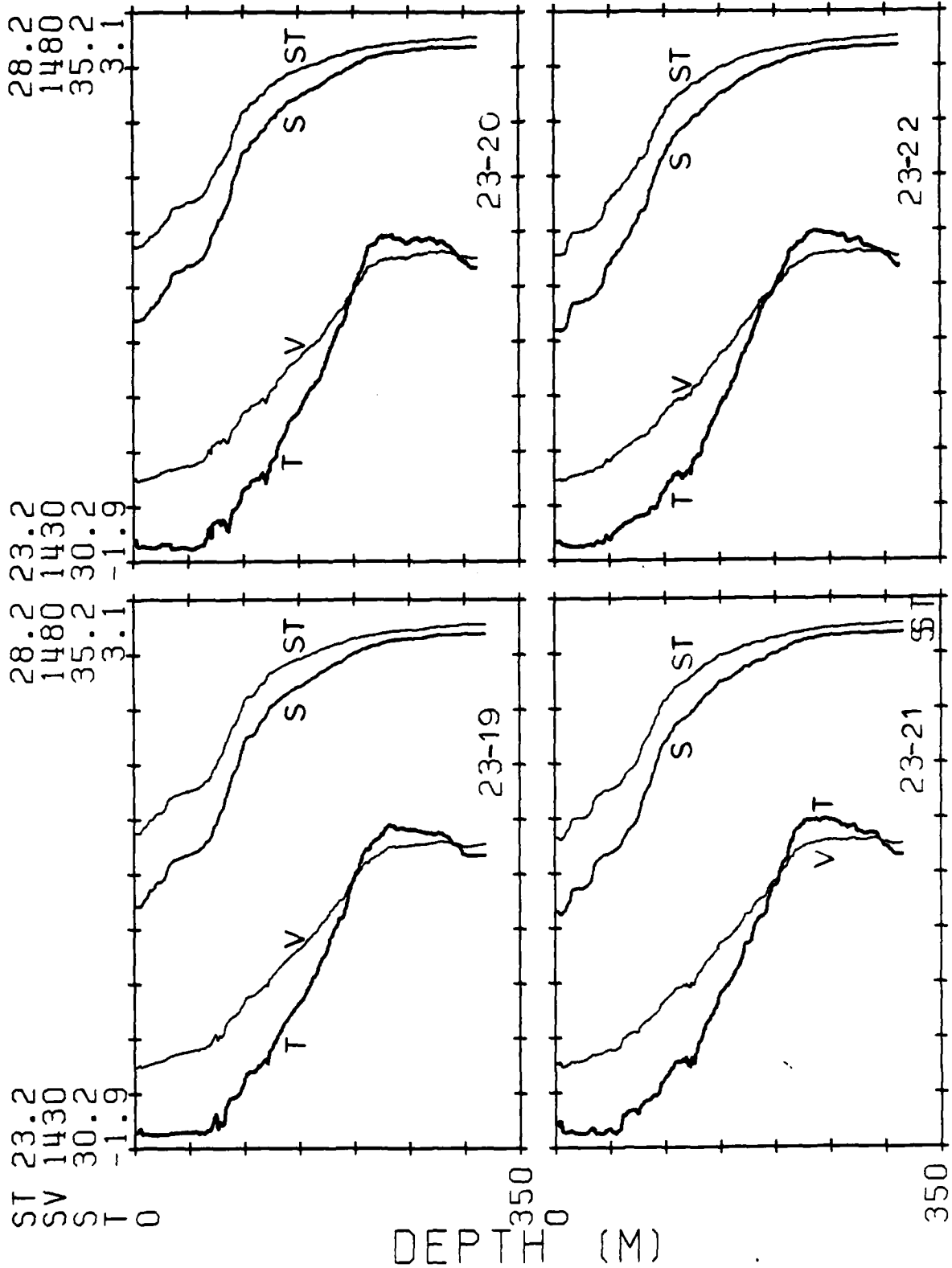
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1480 1430
35.2 30.2
3.1 -1.9

28.2
1480
35.2
3.1

DEPT (M)
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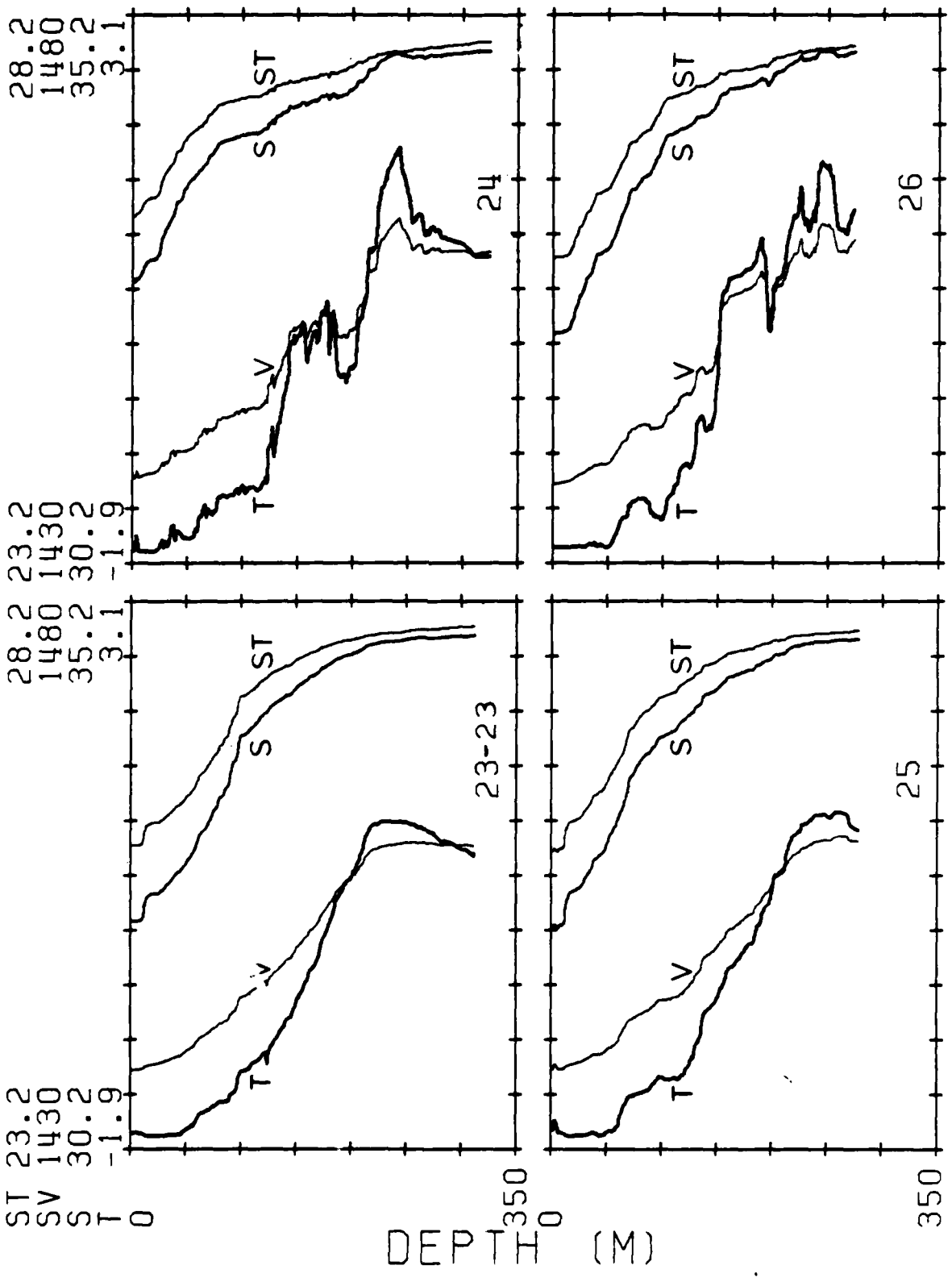
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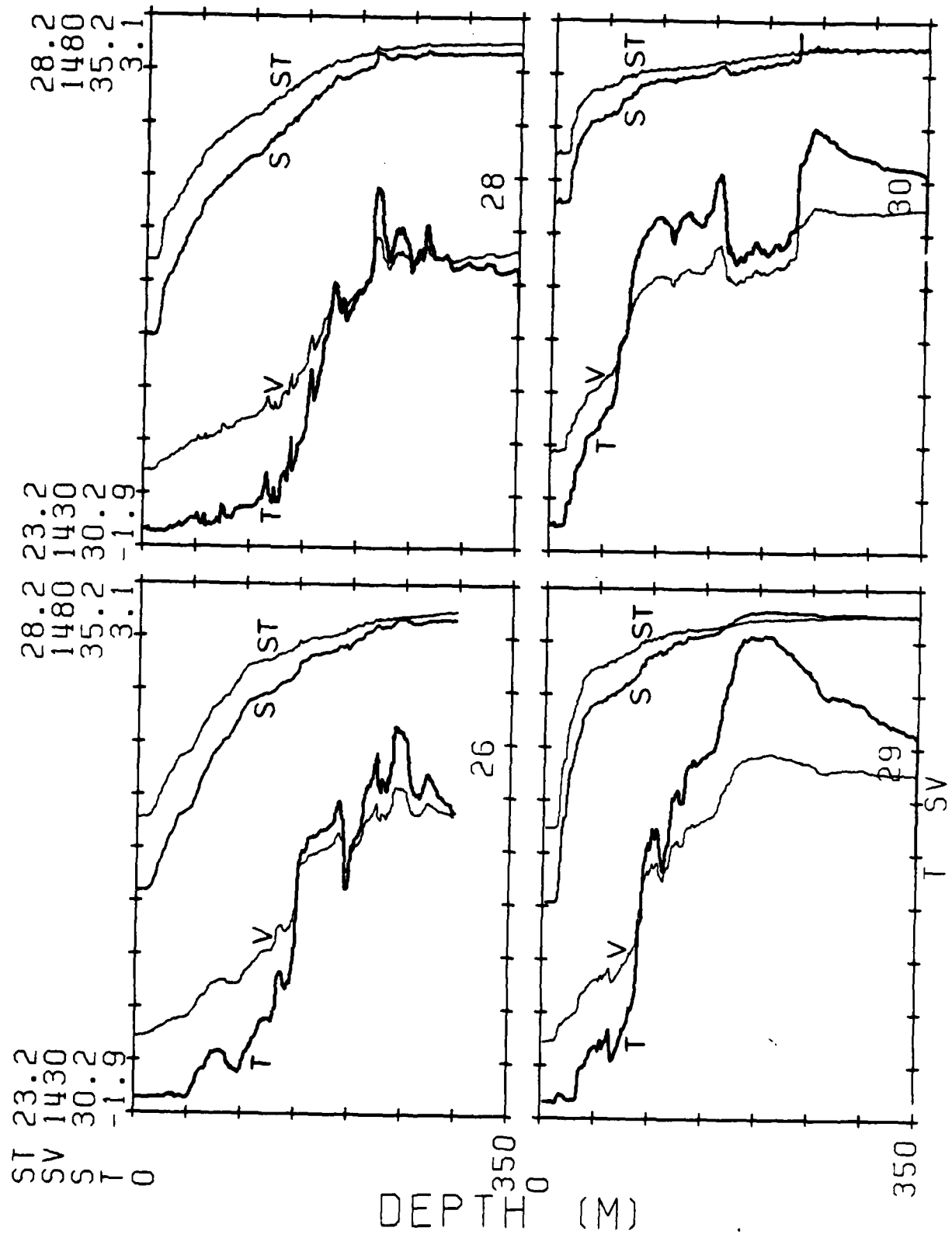
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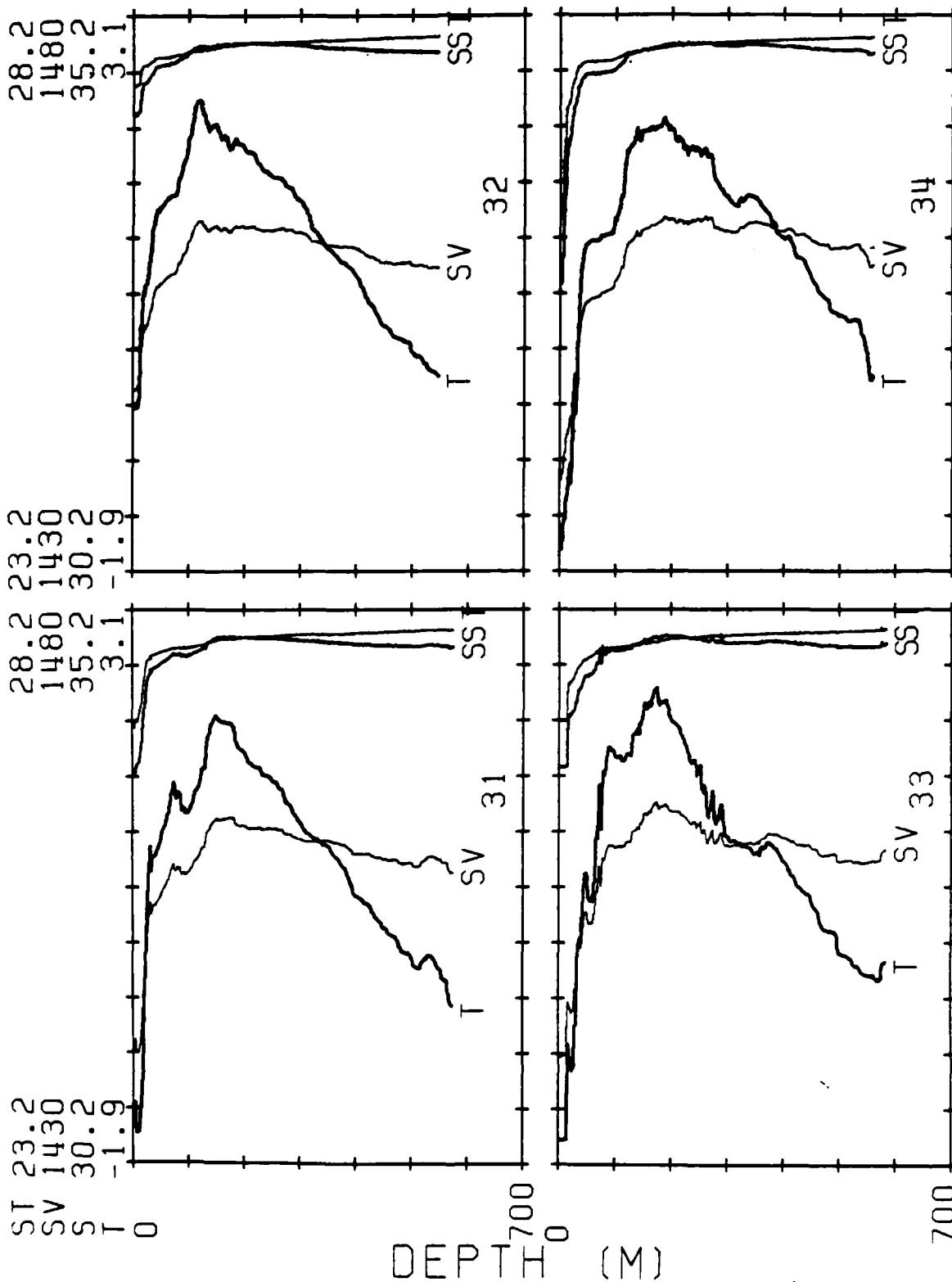
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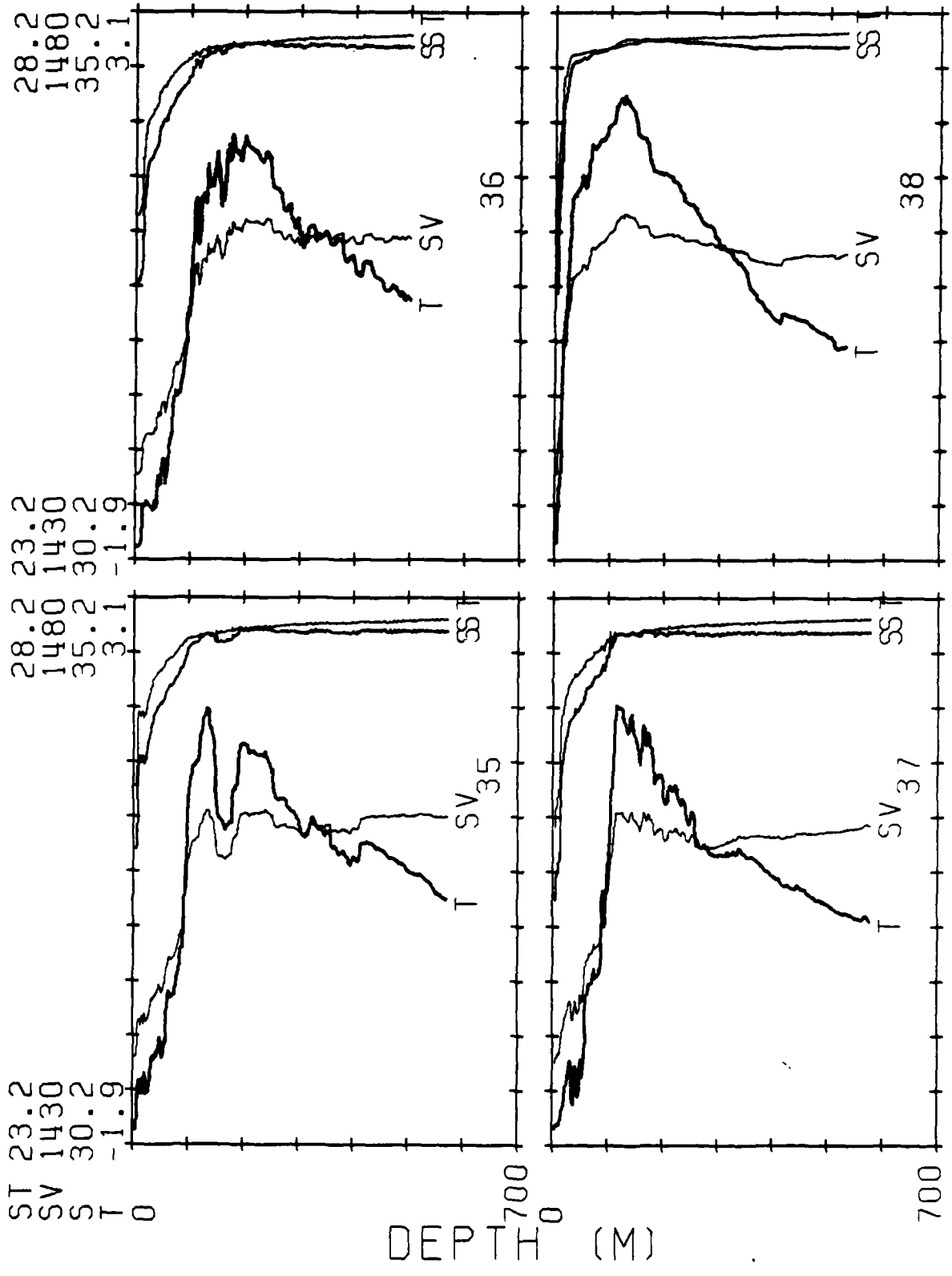
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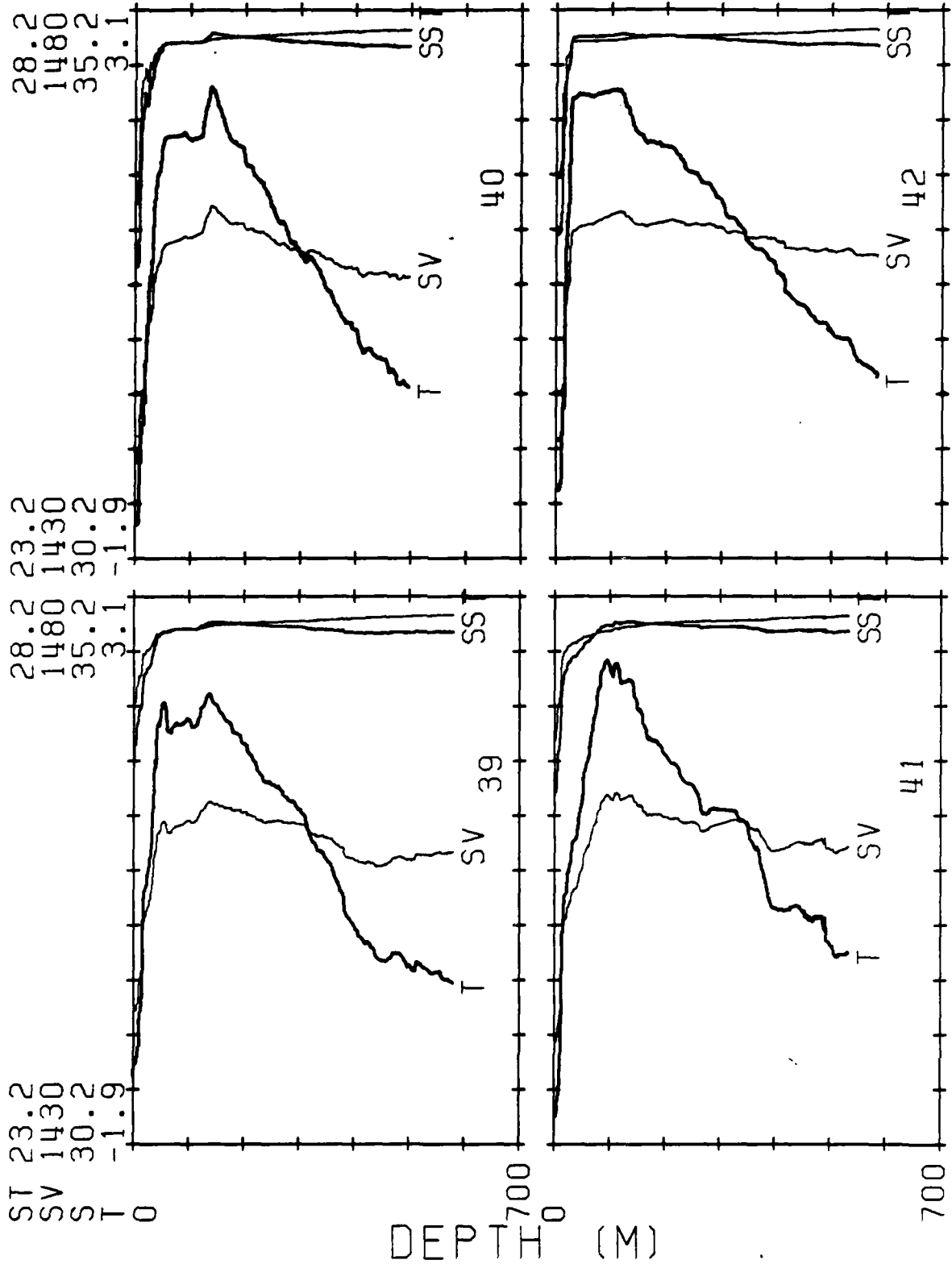
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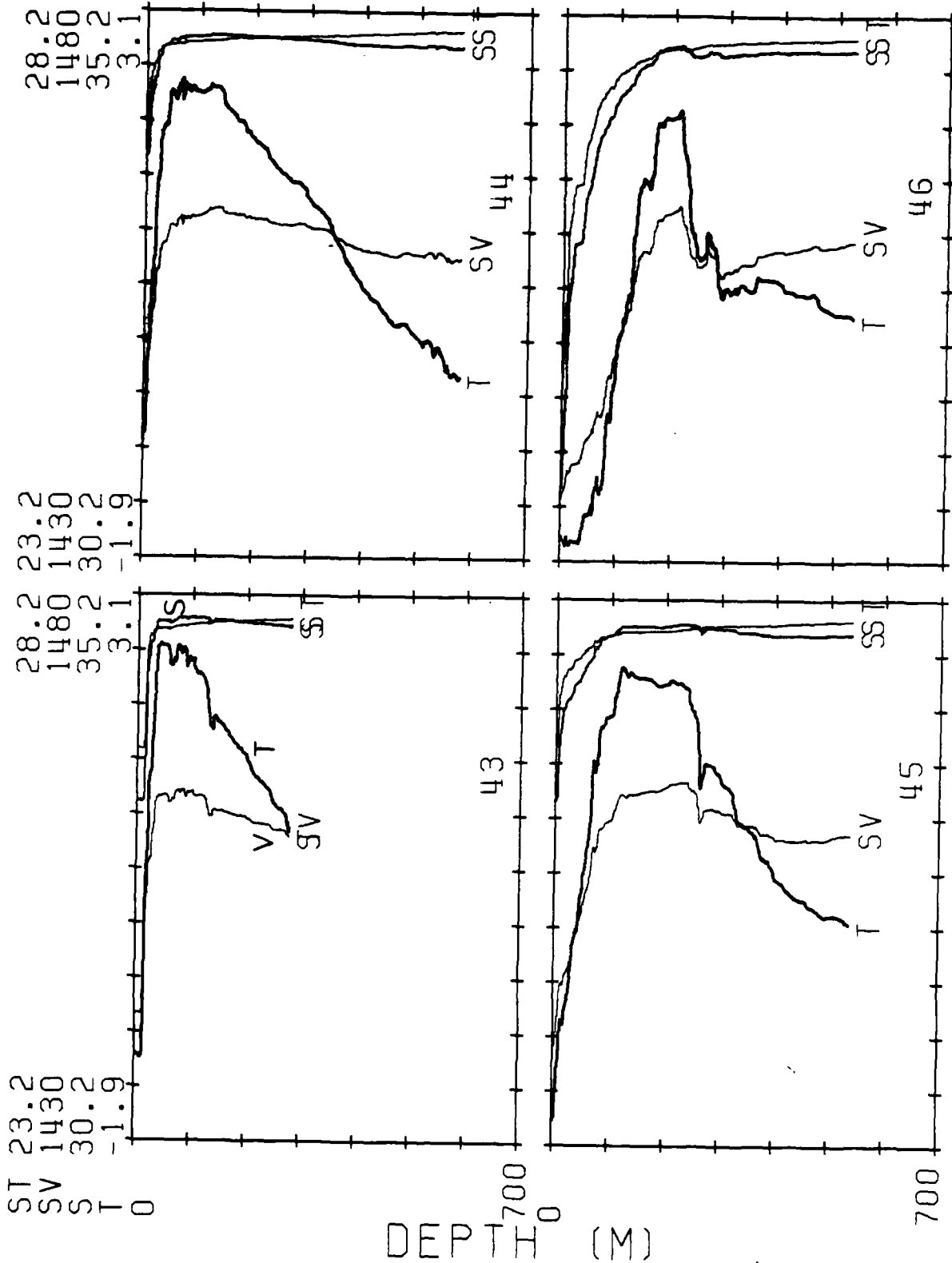
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MIZLANT81 C.T.D. STATIONS



MG/CC
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DEG C

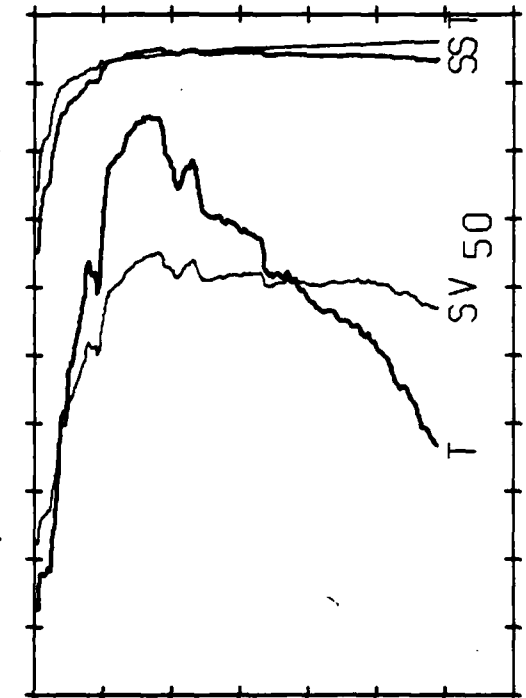
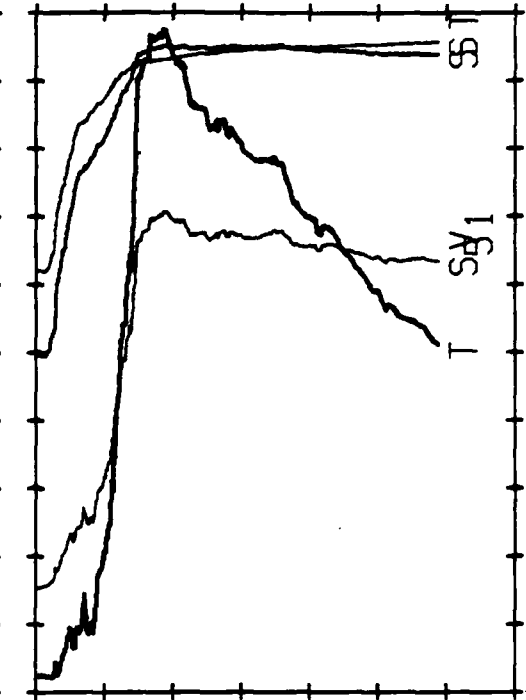
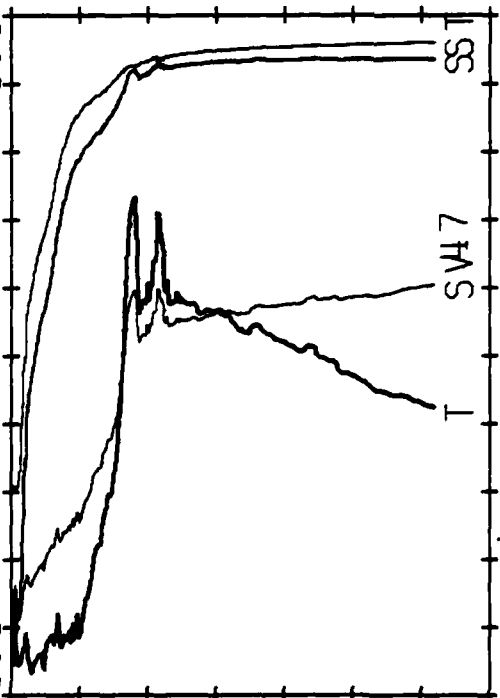
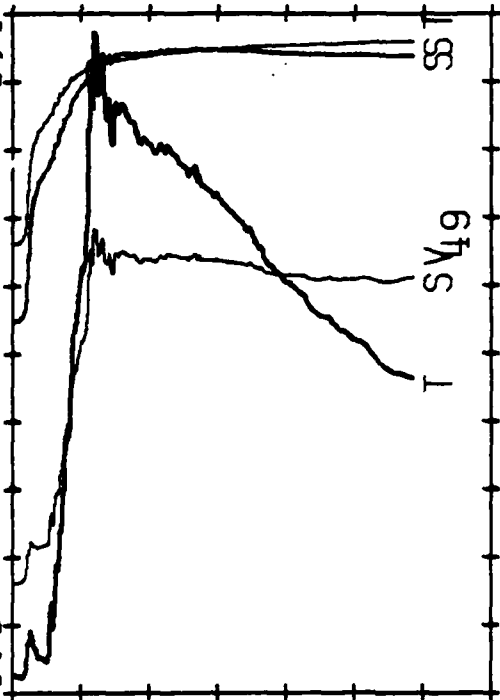
MIZLANT81 C.T.D. STATIONS



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SV 1430
S 30.2
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3.1 -1.9

28.2
1480
35.2
3.1



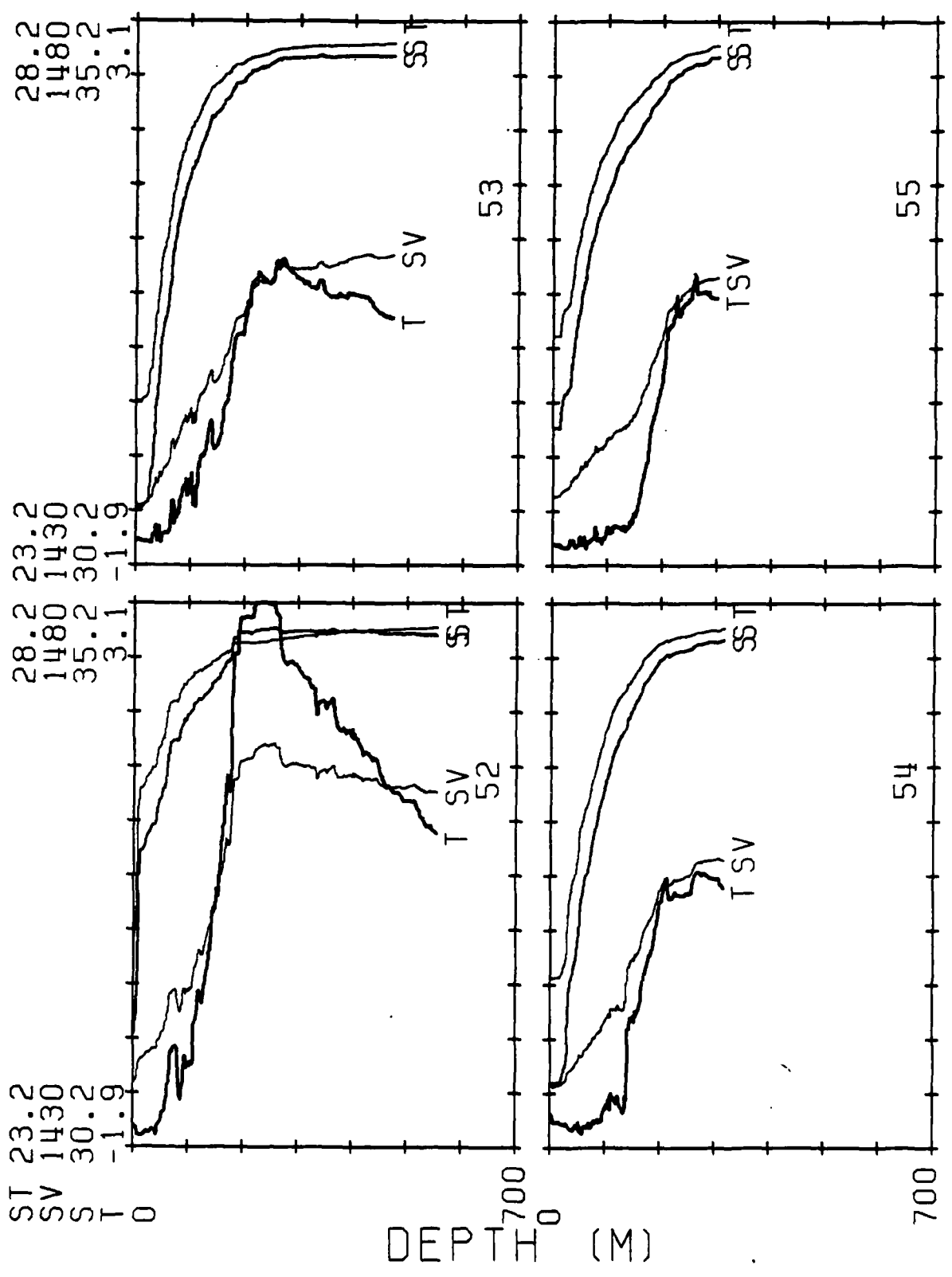
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DEPTH (M)

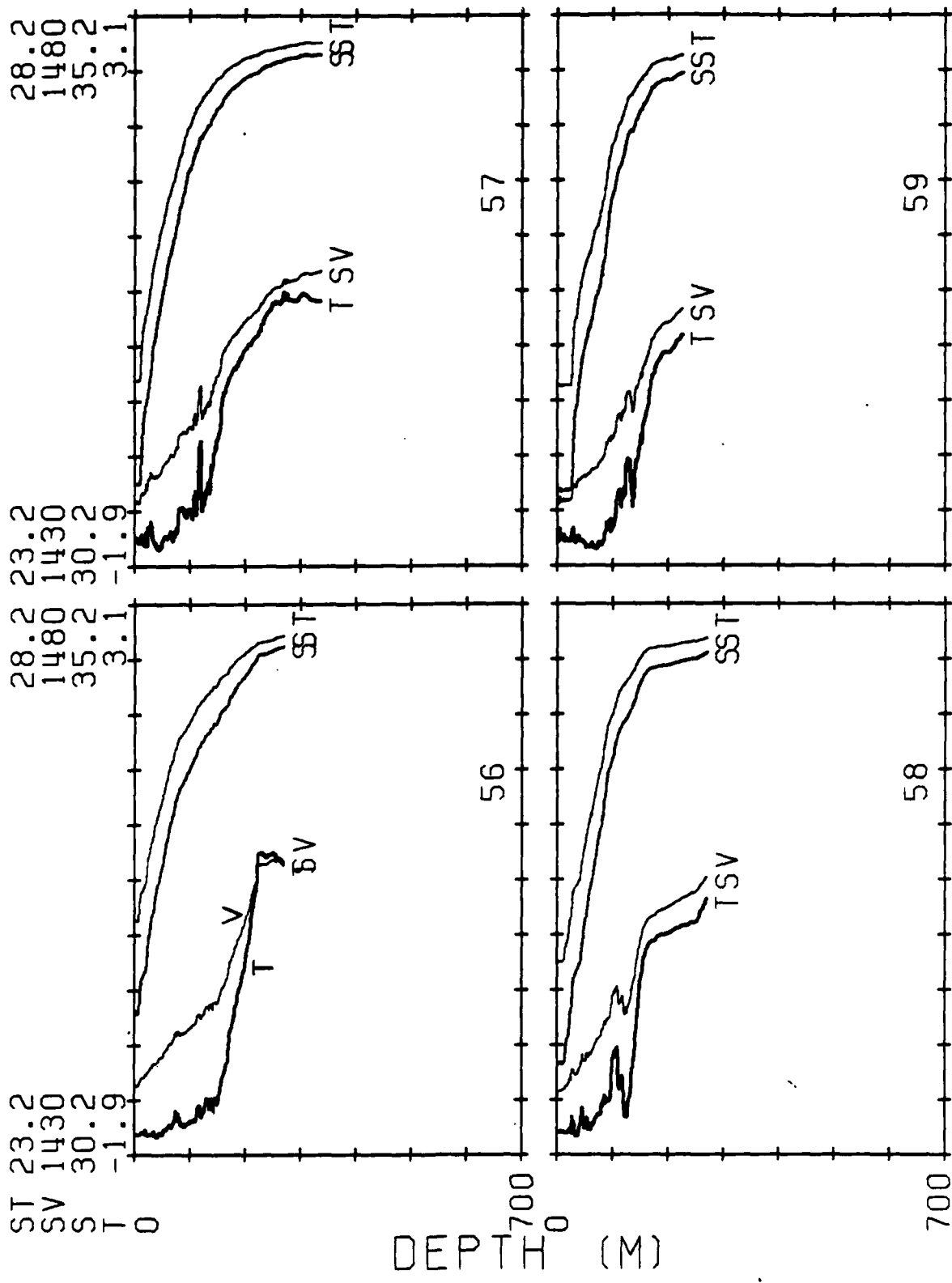
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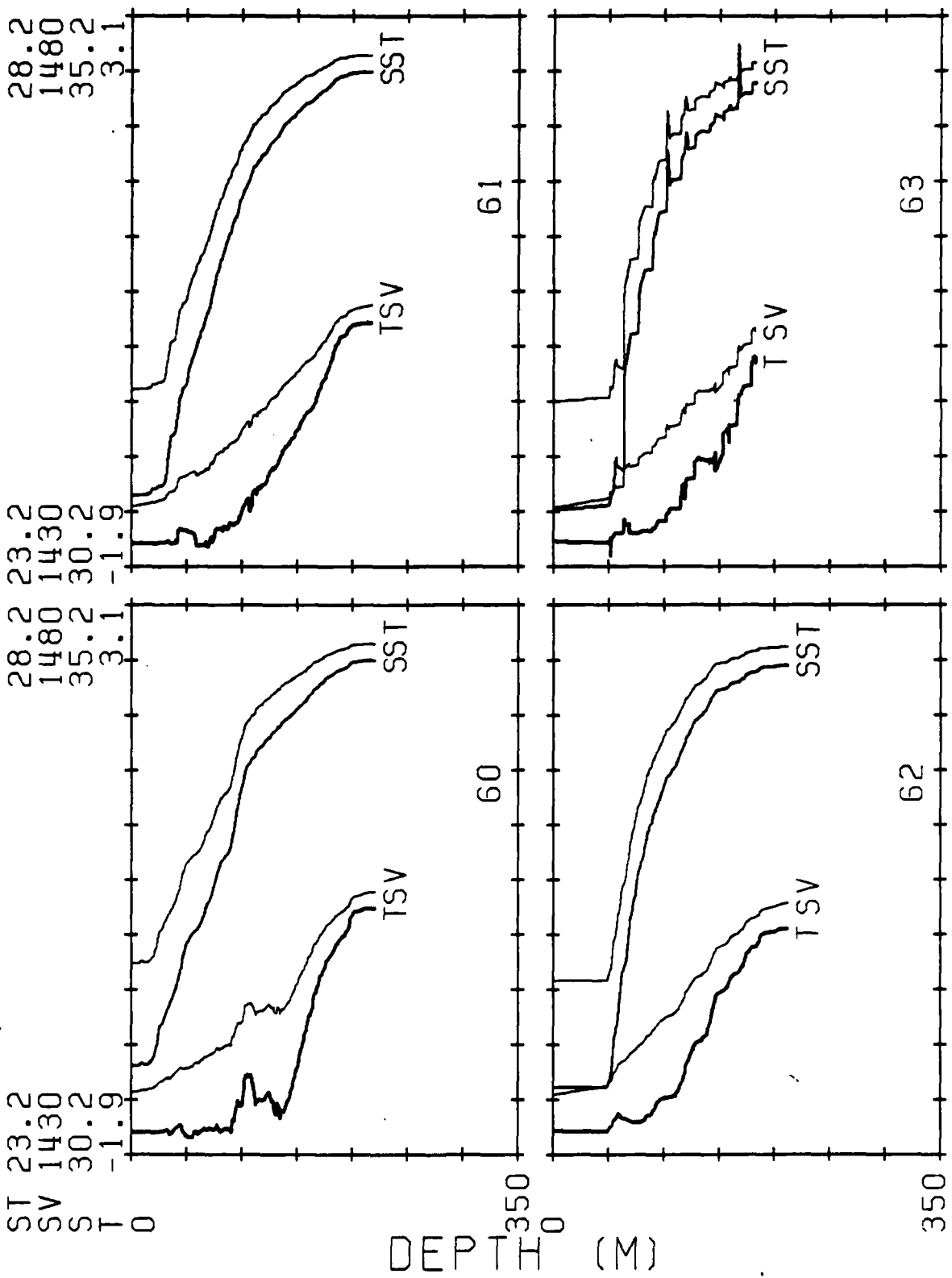
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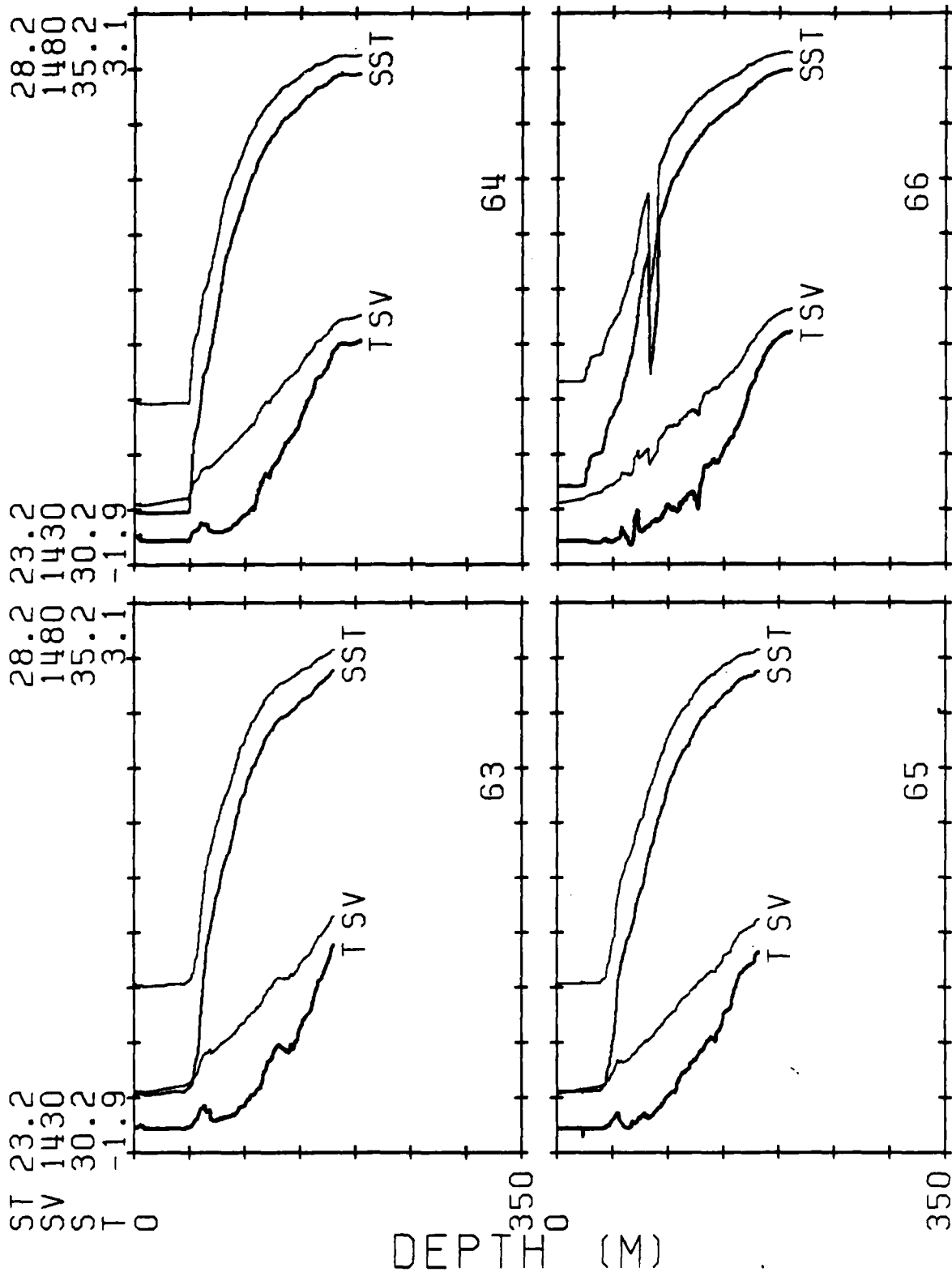
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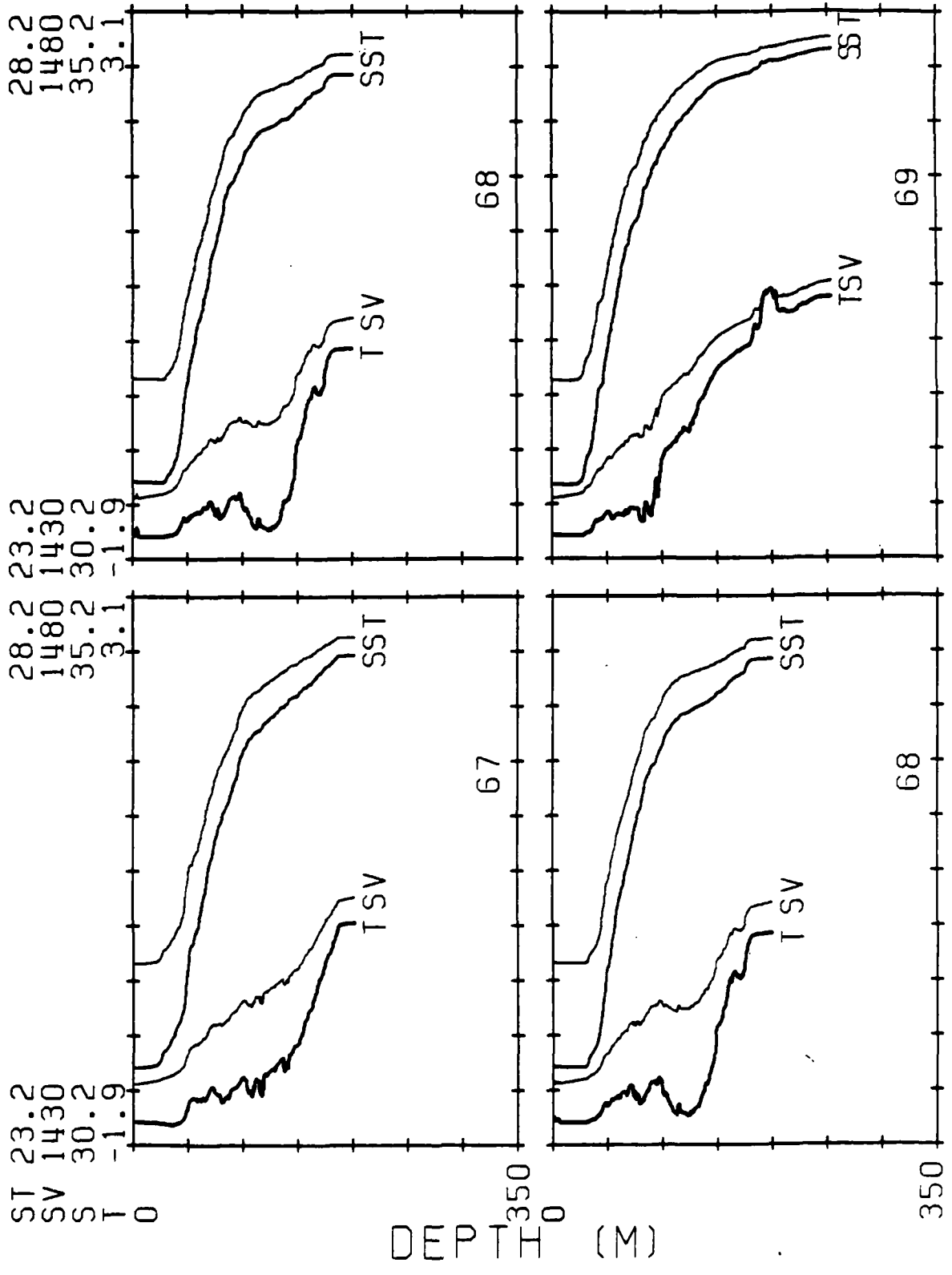
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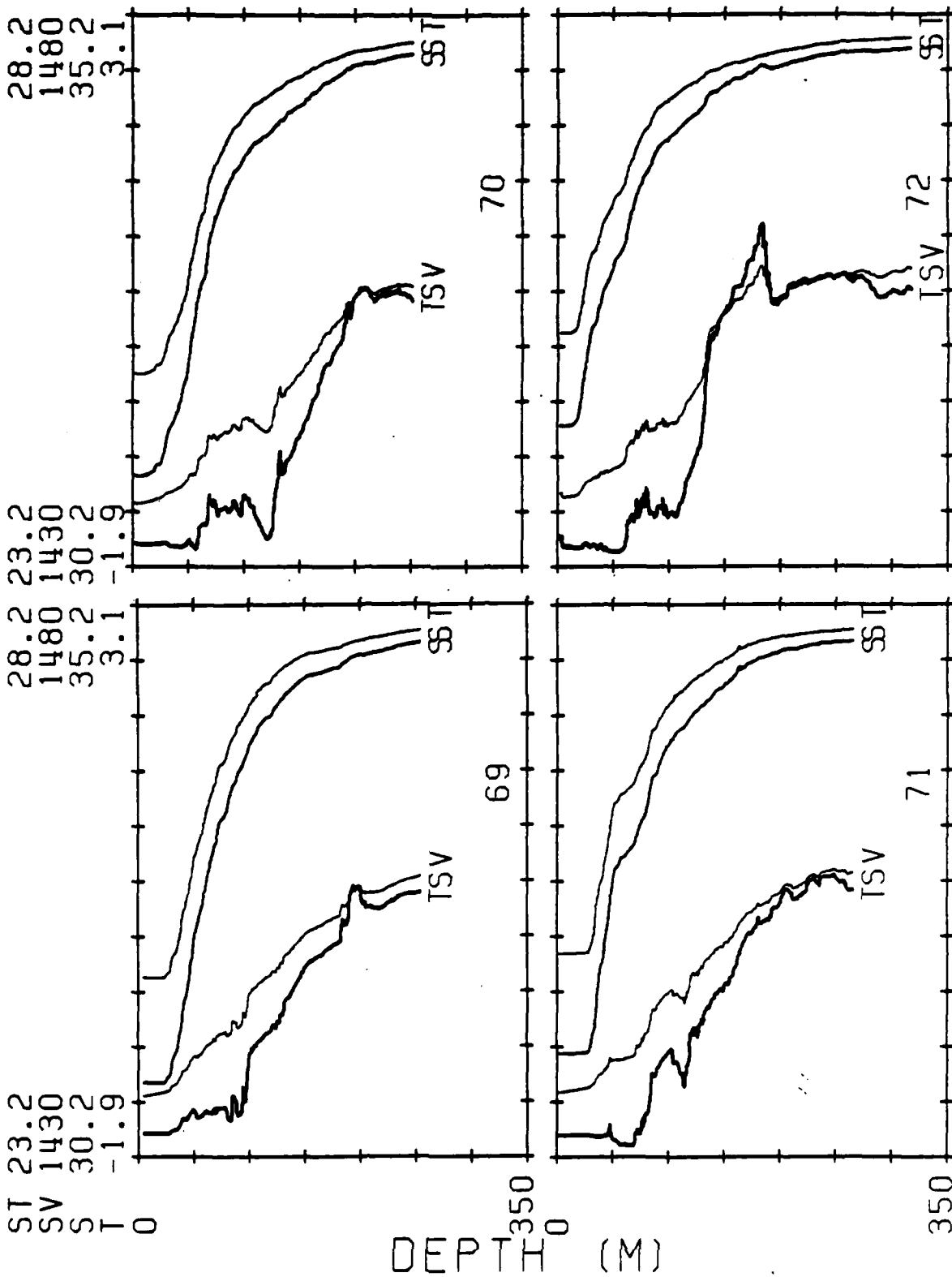
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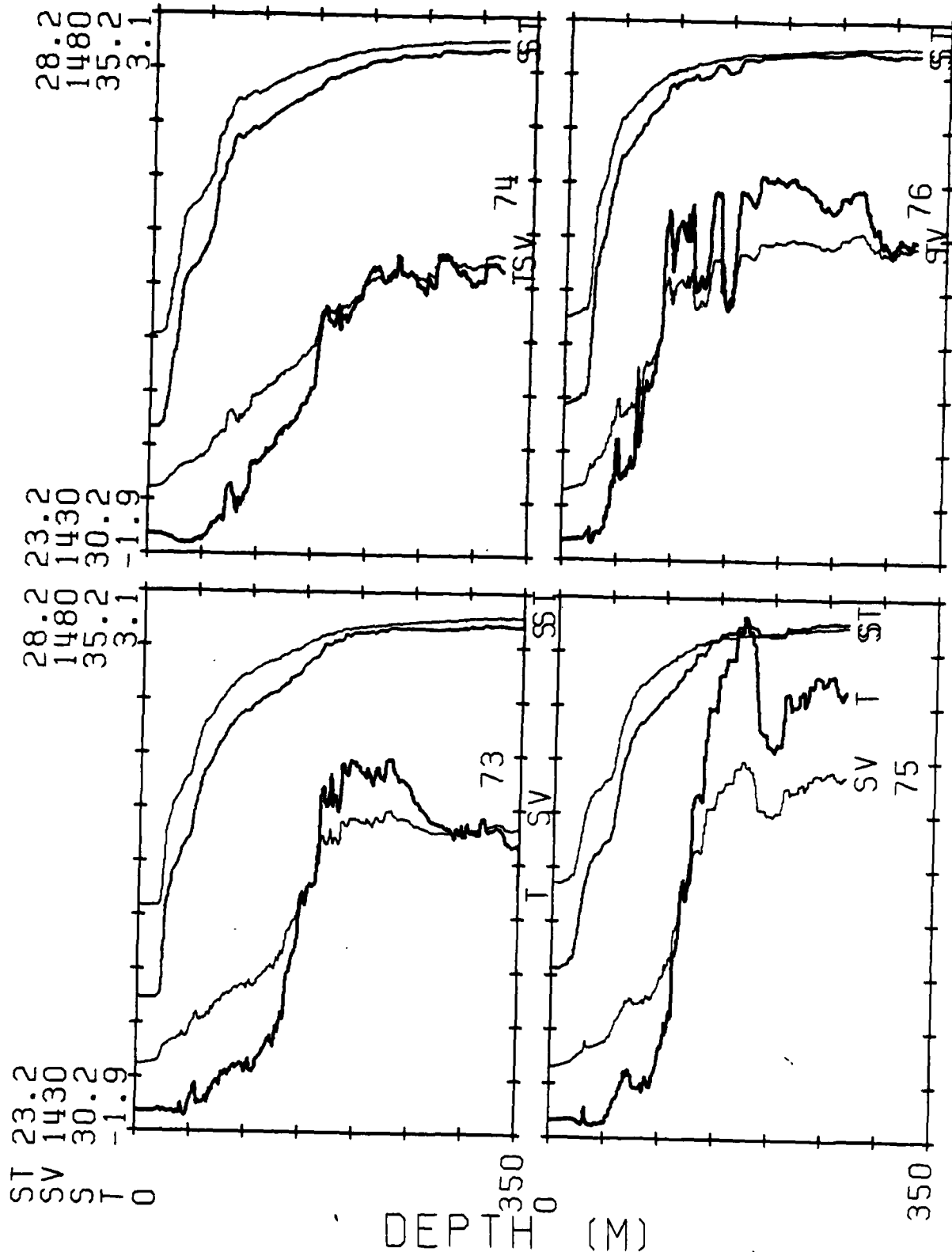
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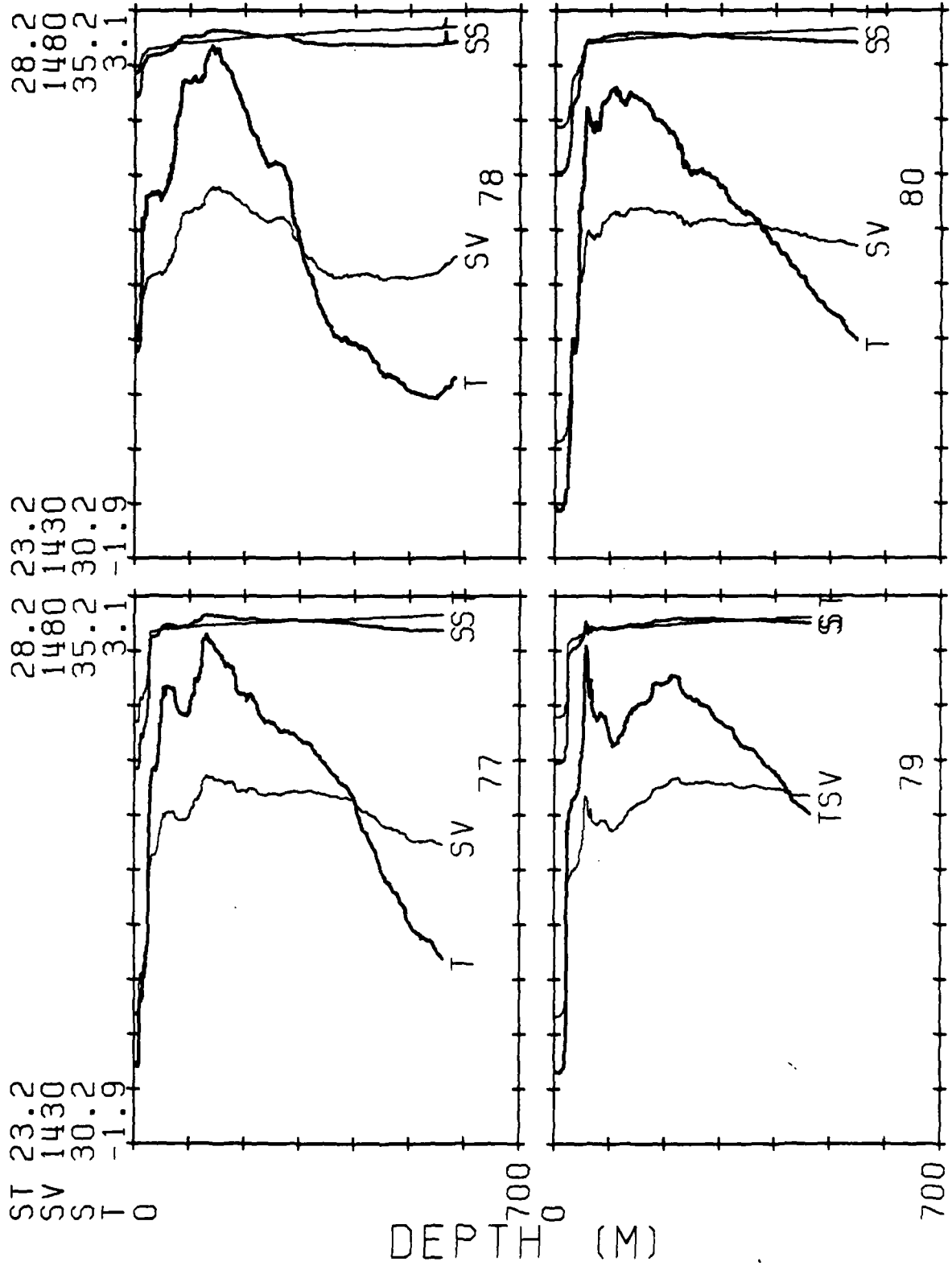
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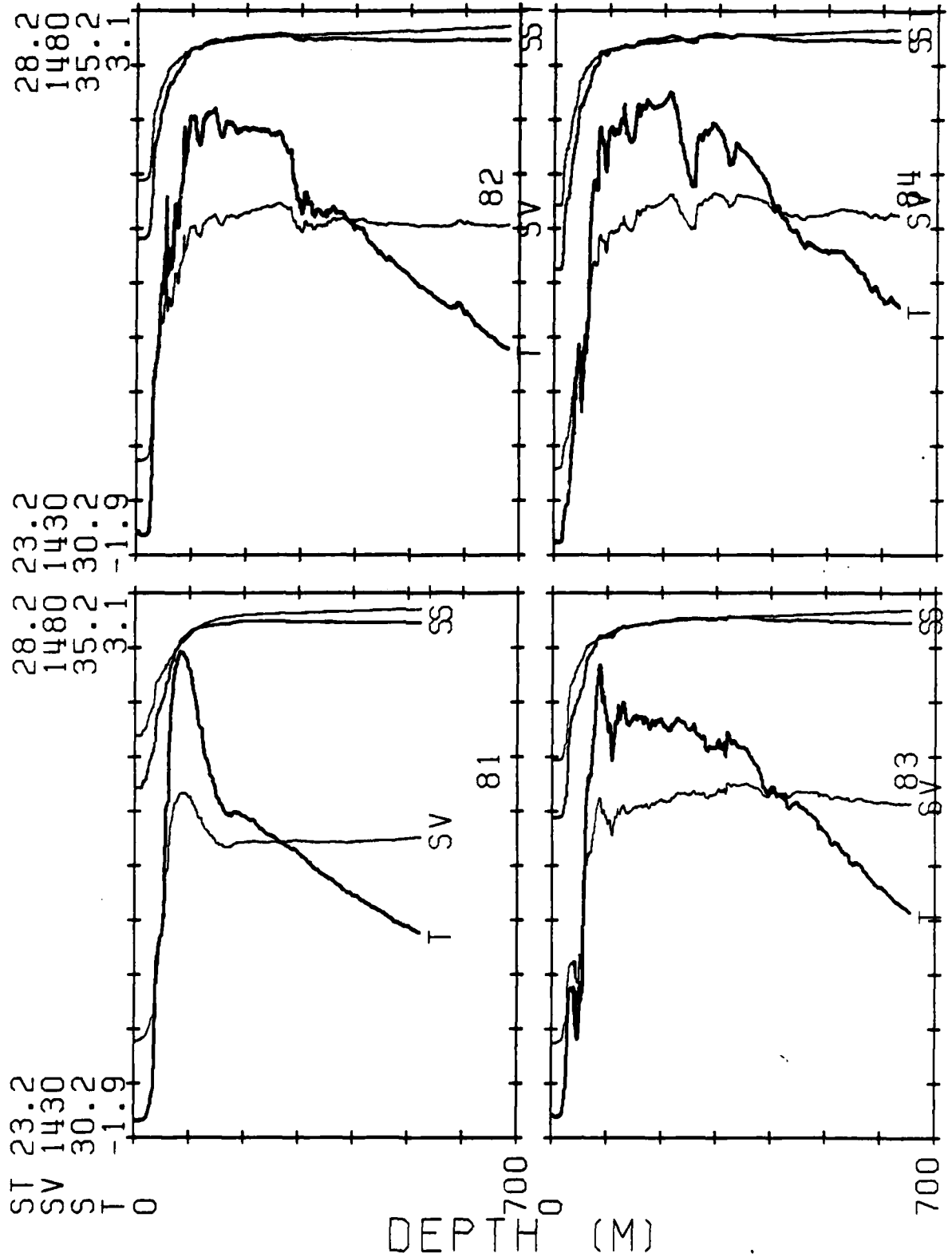
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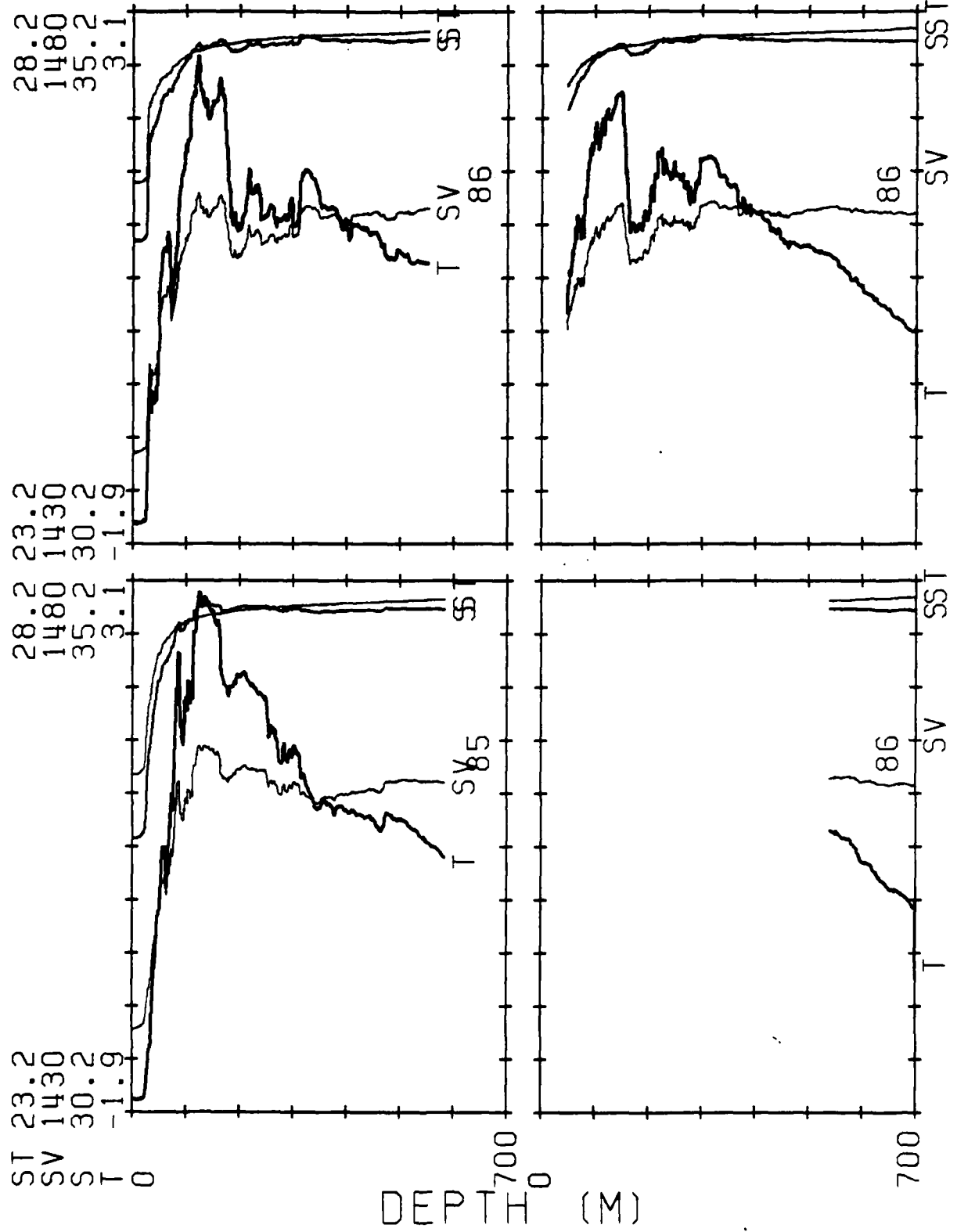
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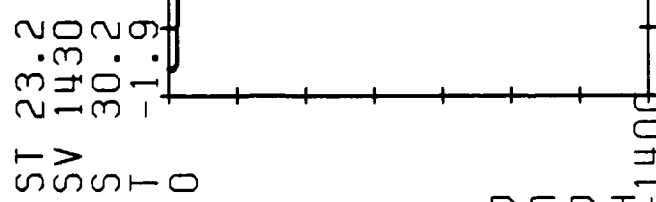
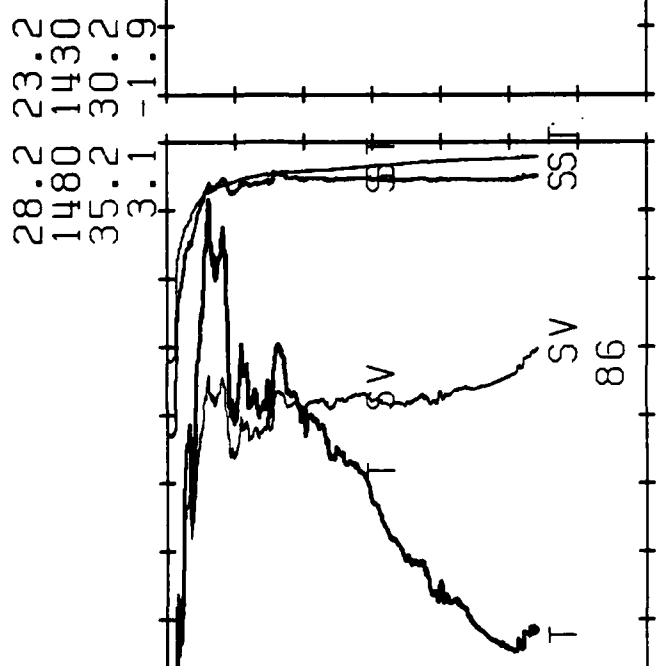
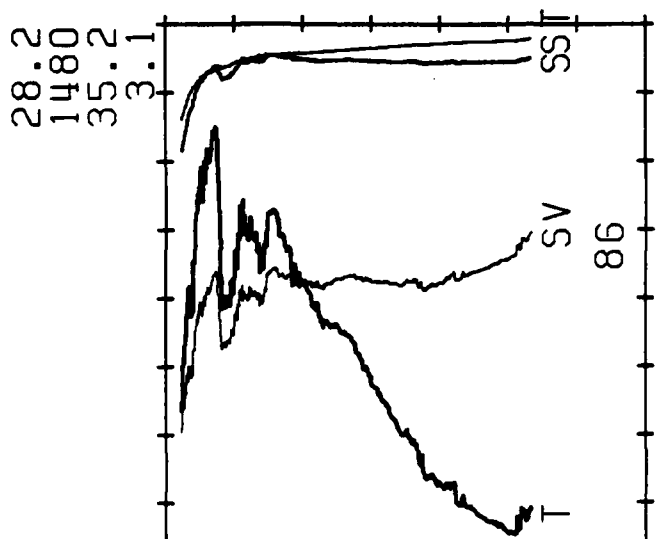
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M/SEC
P.P.T.
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MIZLANT81 C.T.D. STATIONS



MG/CC
M/SEC
P.P.T.
DEG C

MIZLANT81 C.T.D. STATIONS

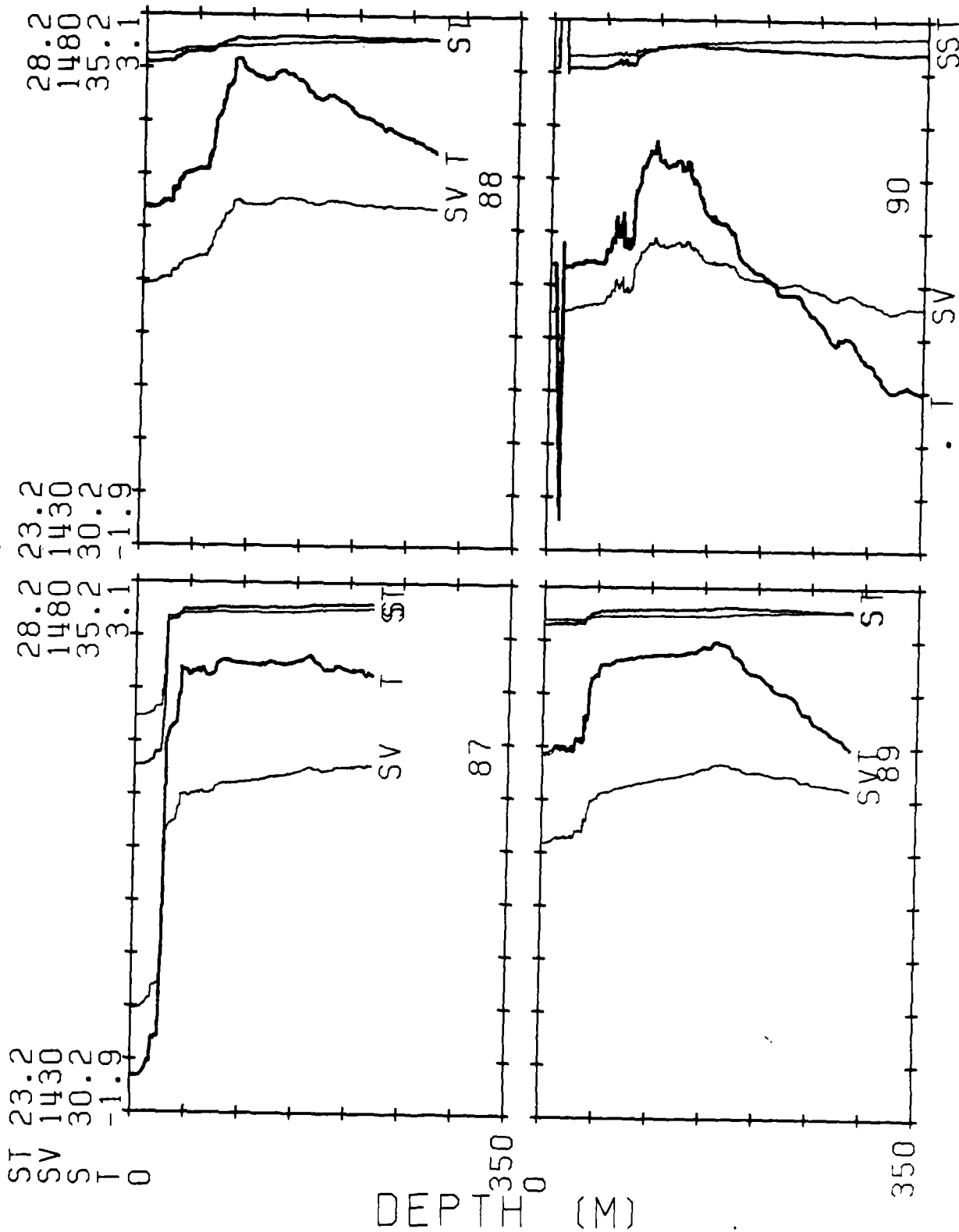


DEPTH (M)

1400

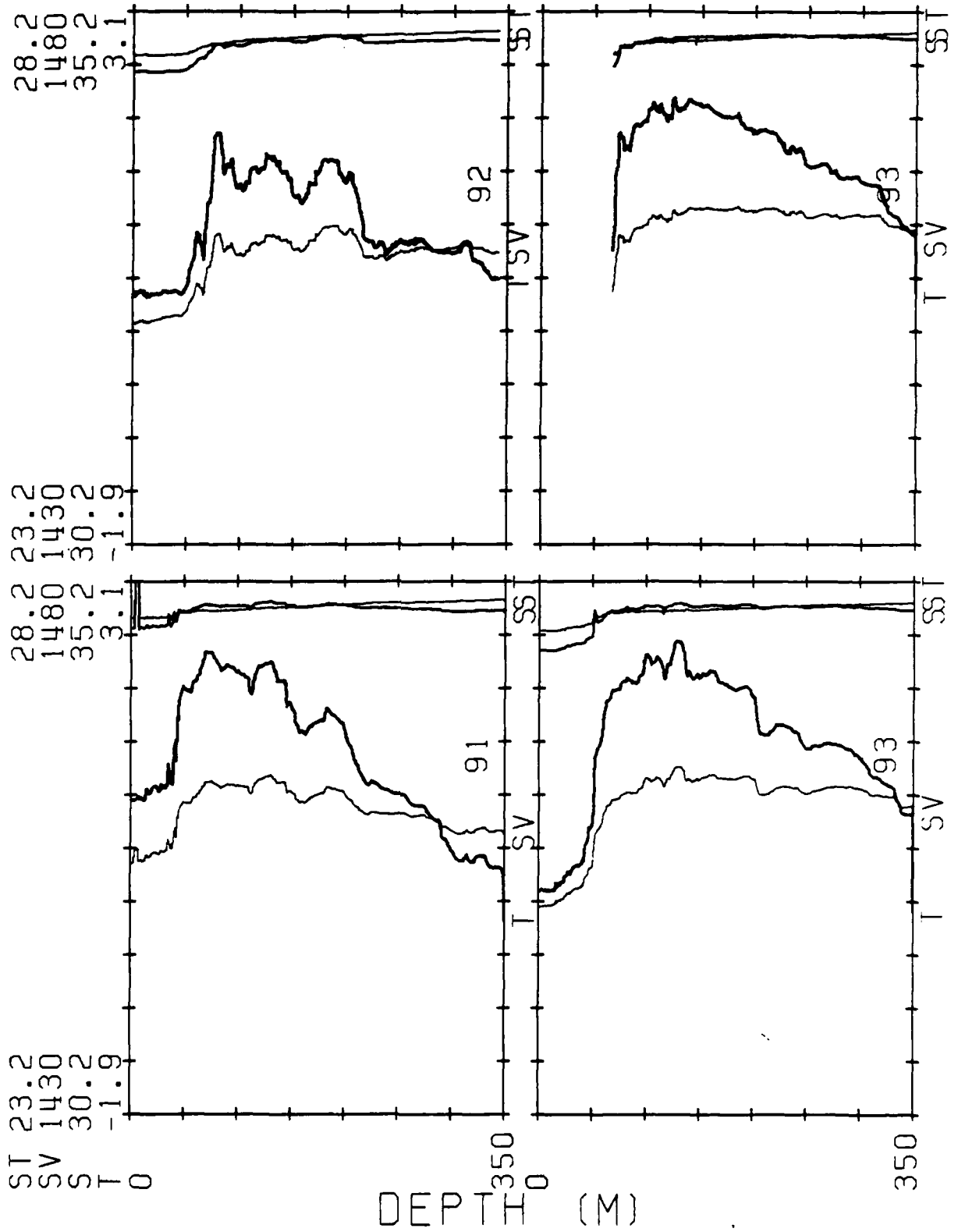
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M/SEC
P.P.T.
DEG C

MIZLANT81 C.T.D. STATIONS



MG/CC
M/SEC
P.P.T.
DEG C

MIZLANT81 C.T.D. STATIONS

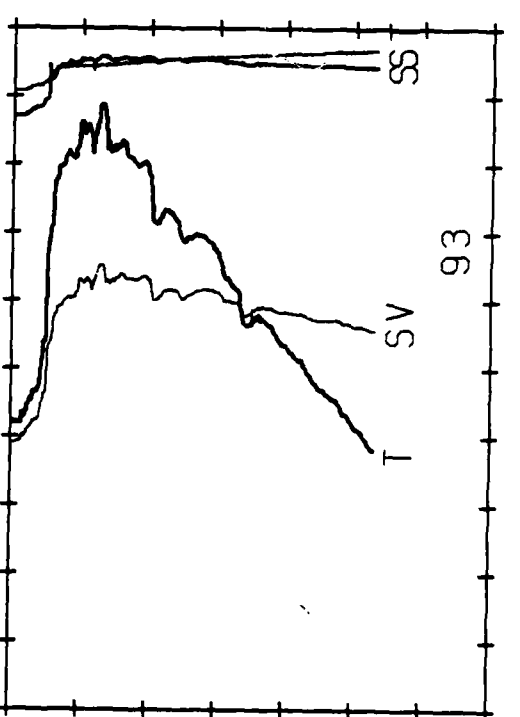
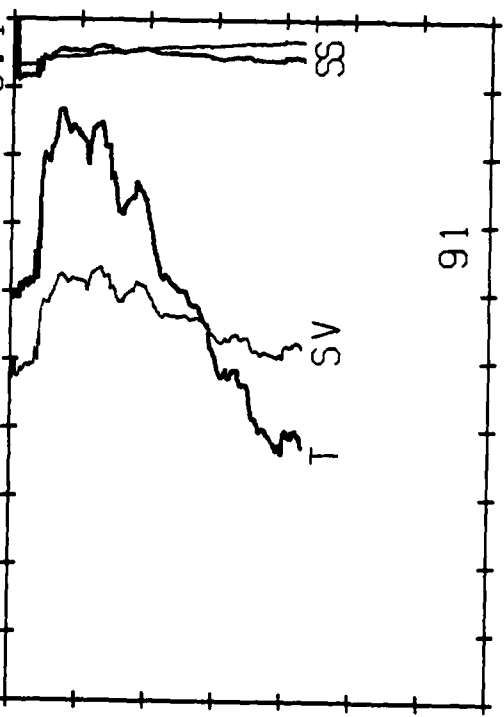
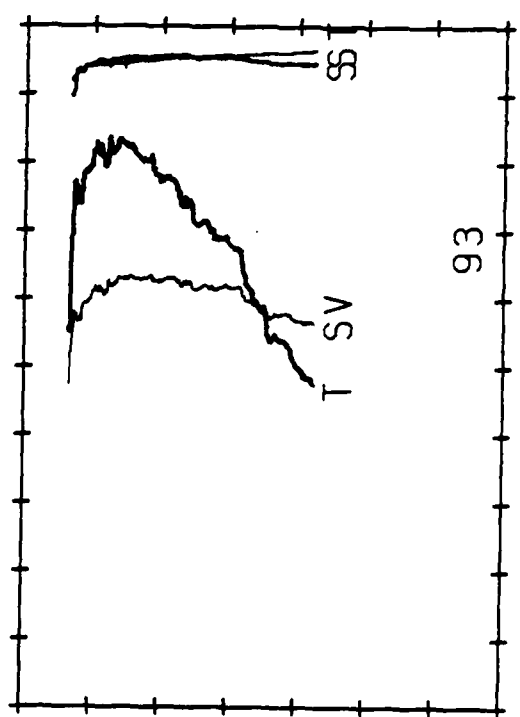
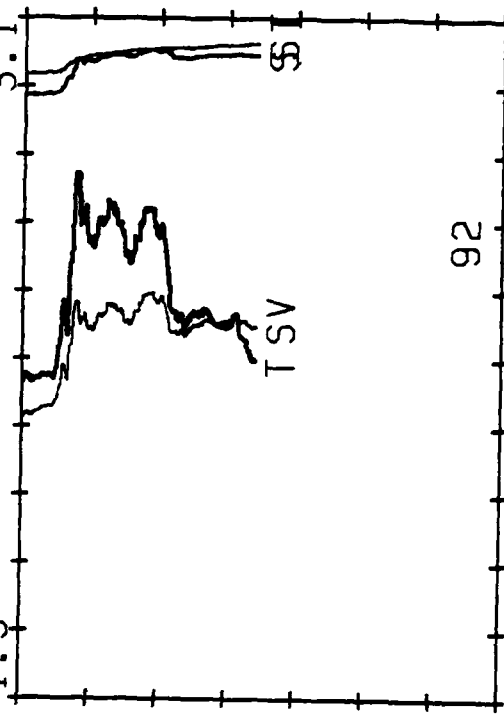


ST 23.2
SV 1430
S 30.2
T -1.9

28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9

MG/CC
M/SEC
P.P.T.
DEG C

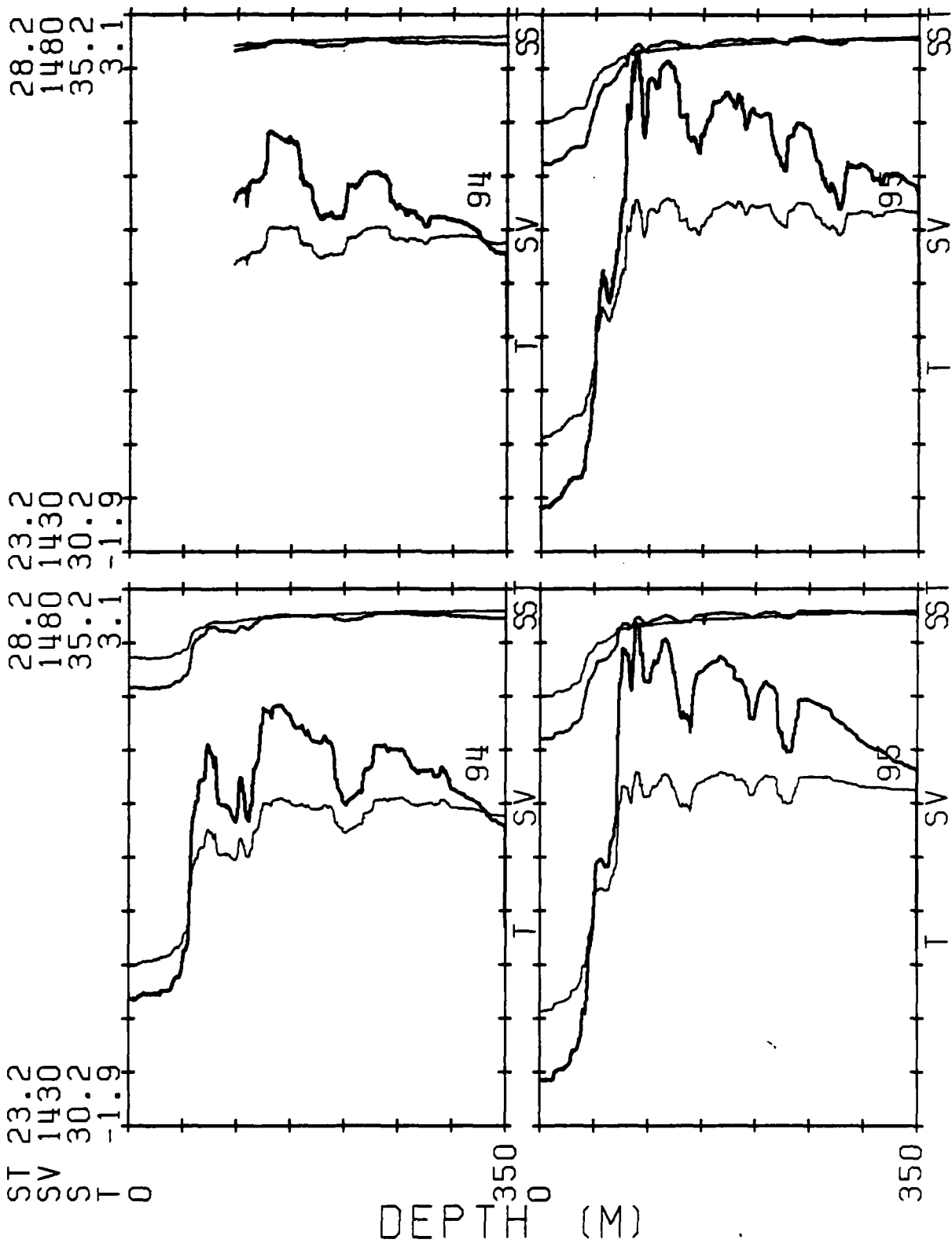
MIZLANT81 C.T.D. STATIONS



DEP 700 (M)

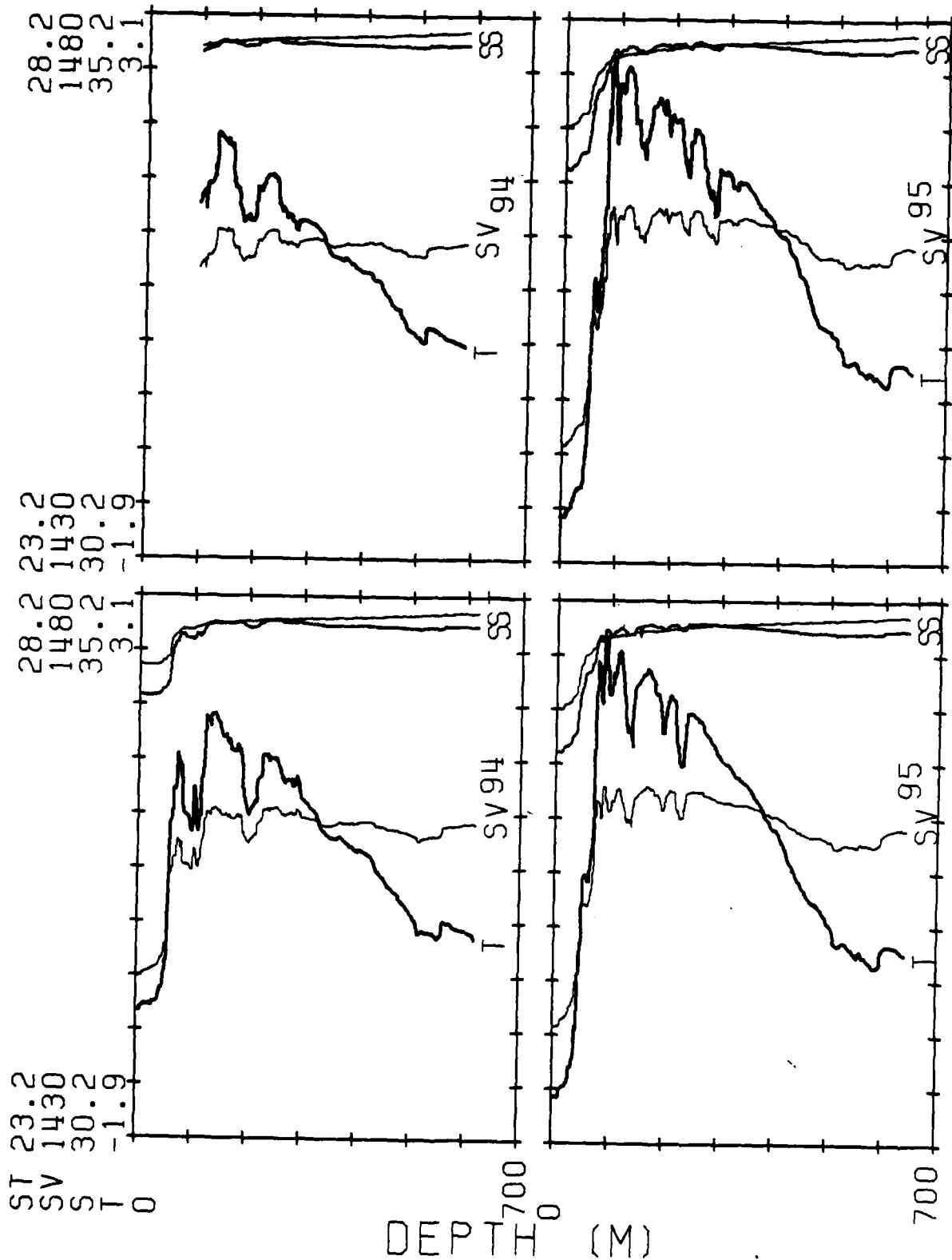
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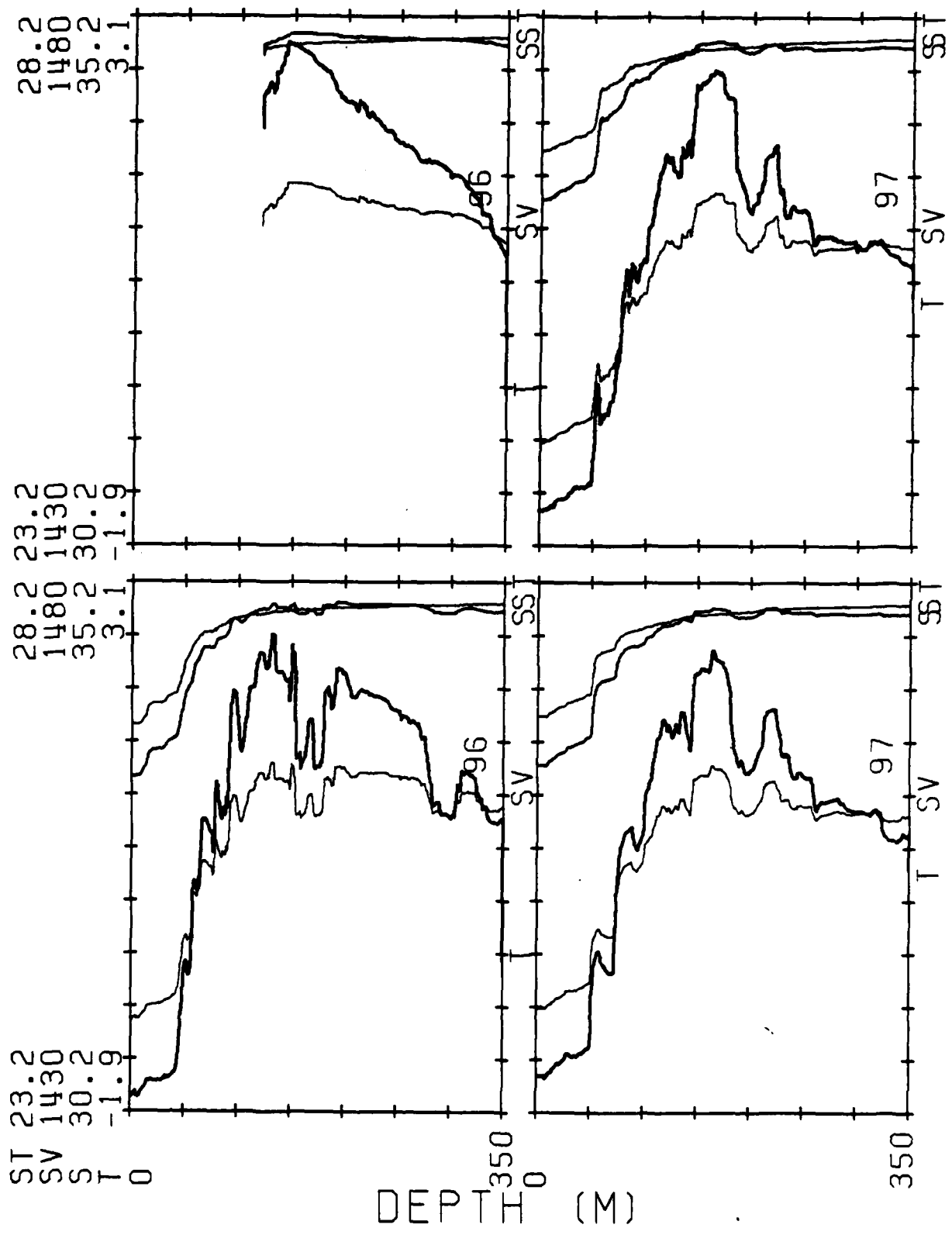
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MIZLANT81 C.T.D. STATIONS



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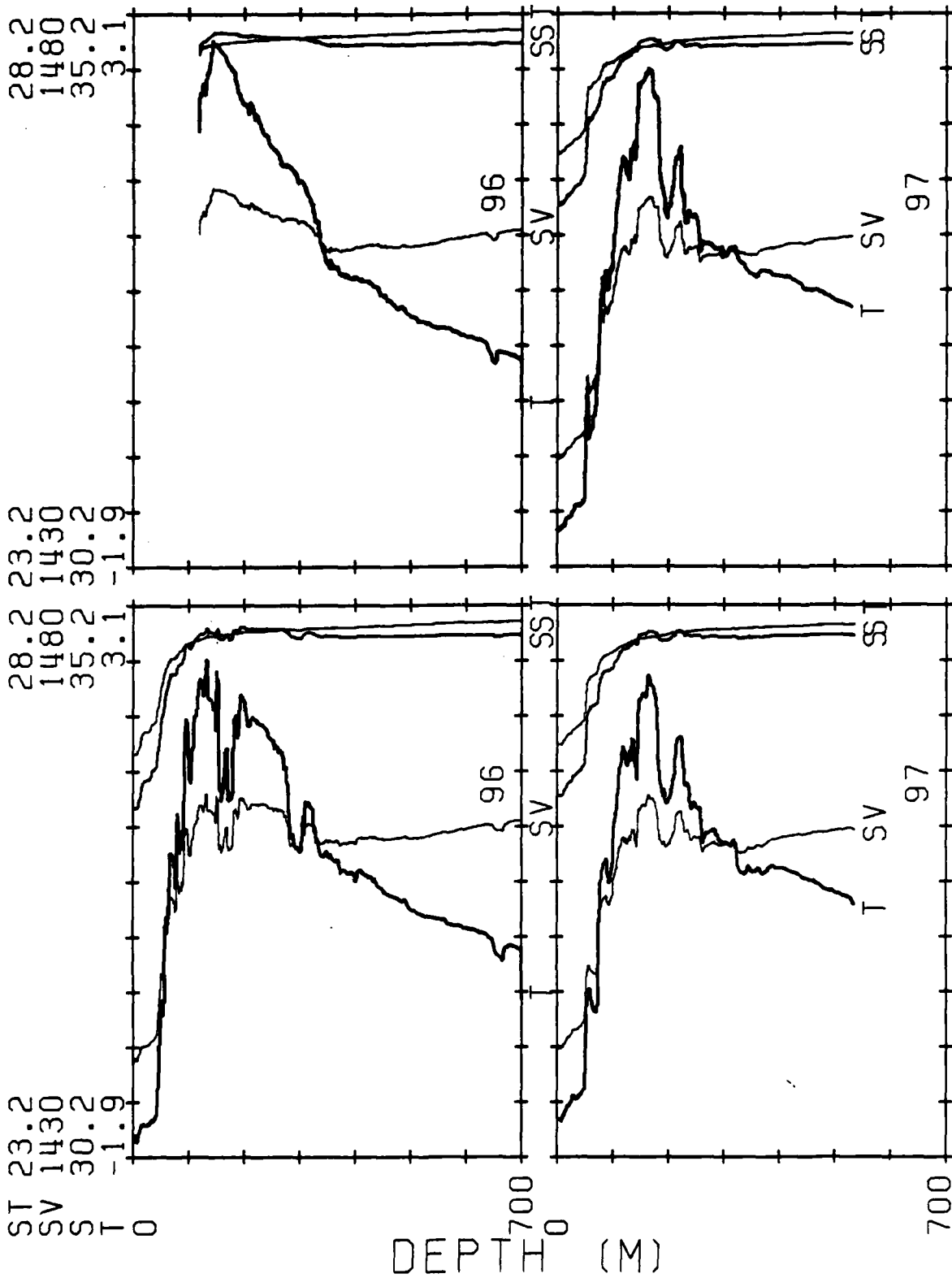


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SV 1430
S 30.2
T -1.9

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1480 1430
35.2 30.2
3.1 -1.9

MG/CC
M/SEC
P.P.T.
DEG C

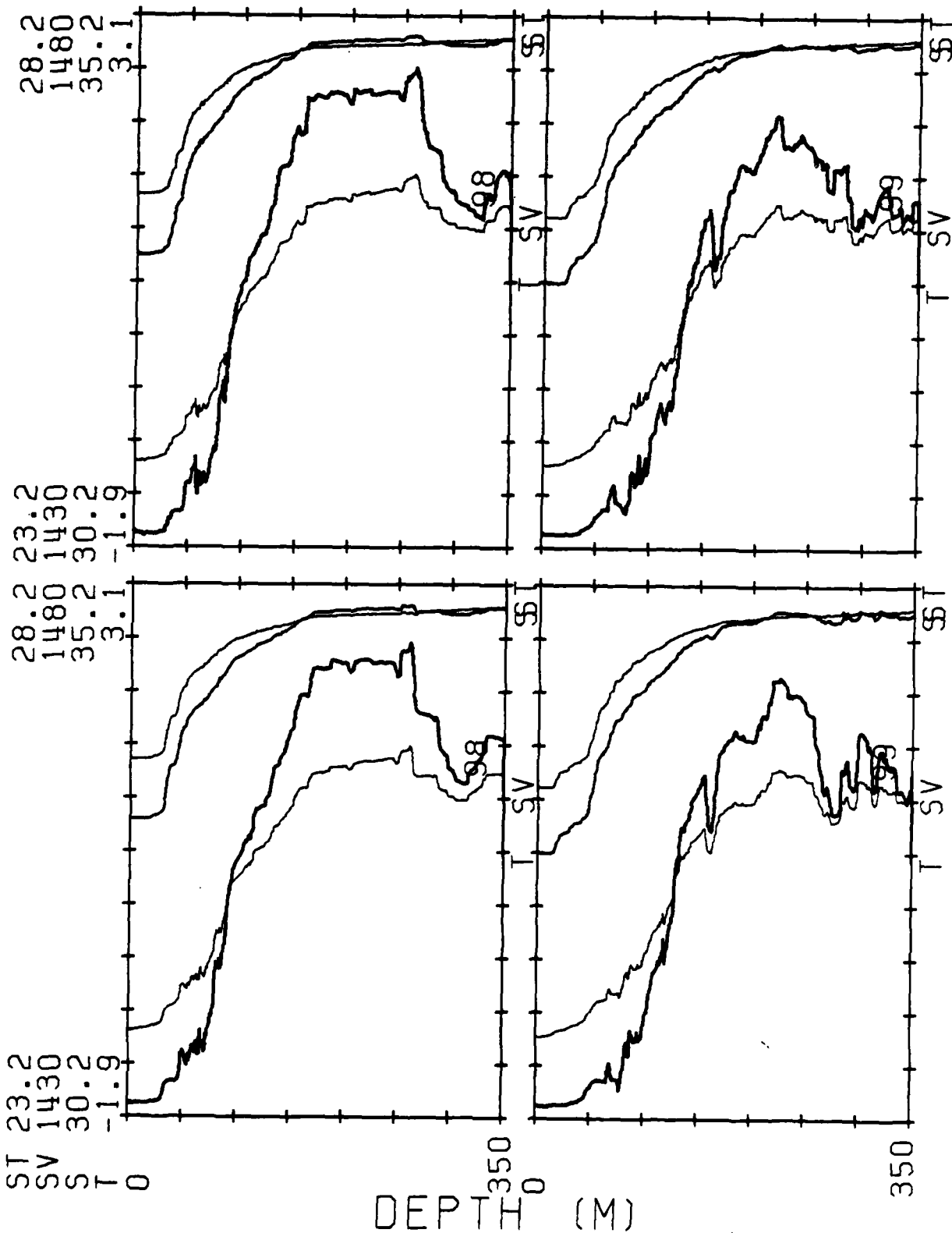
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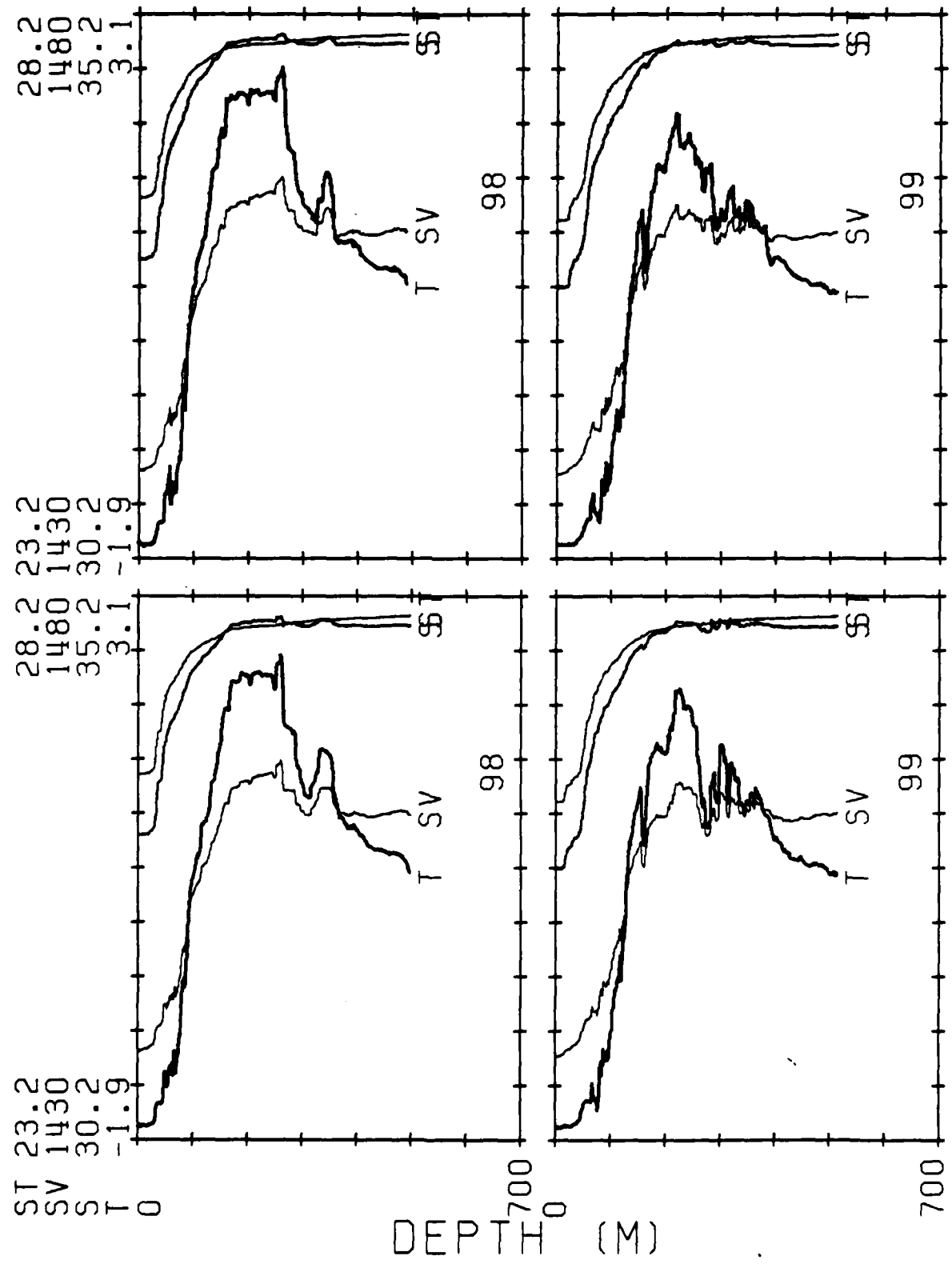
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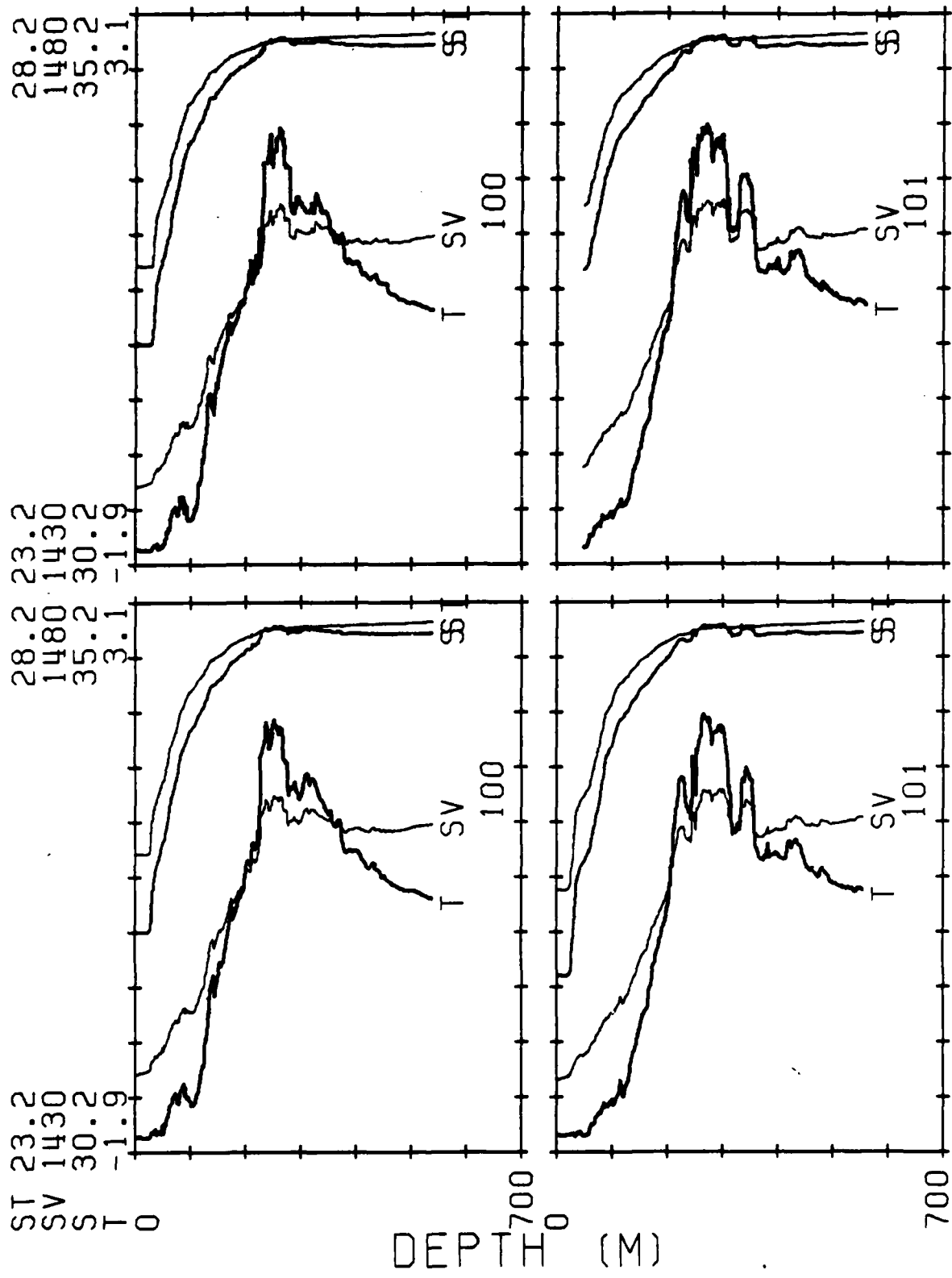
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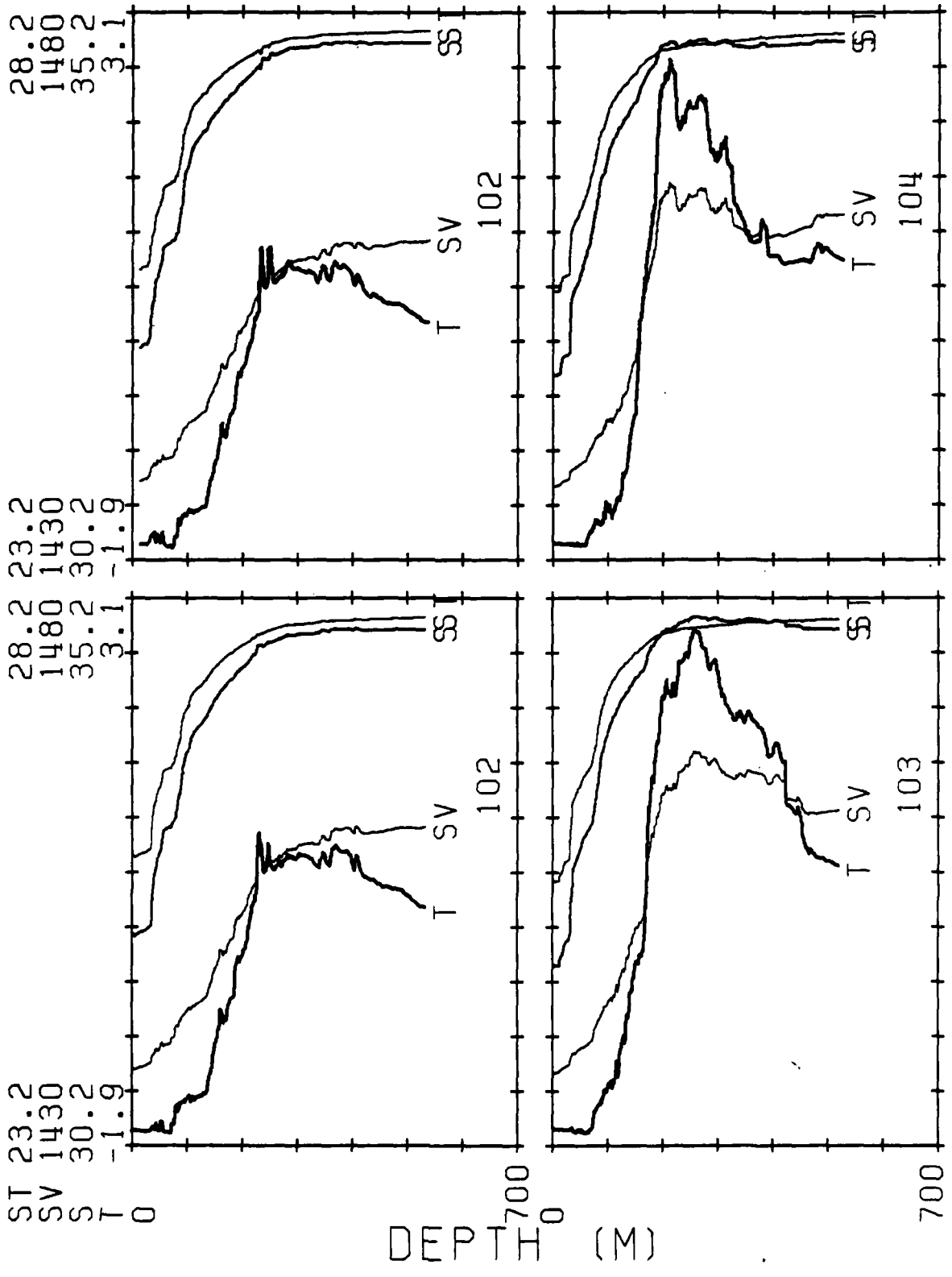
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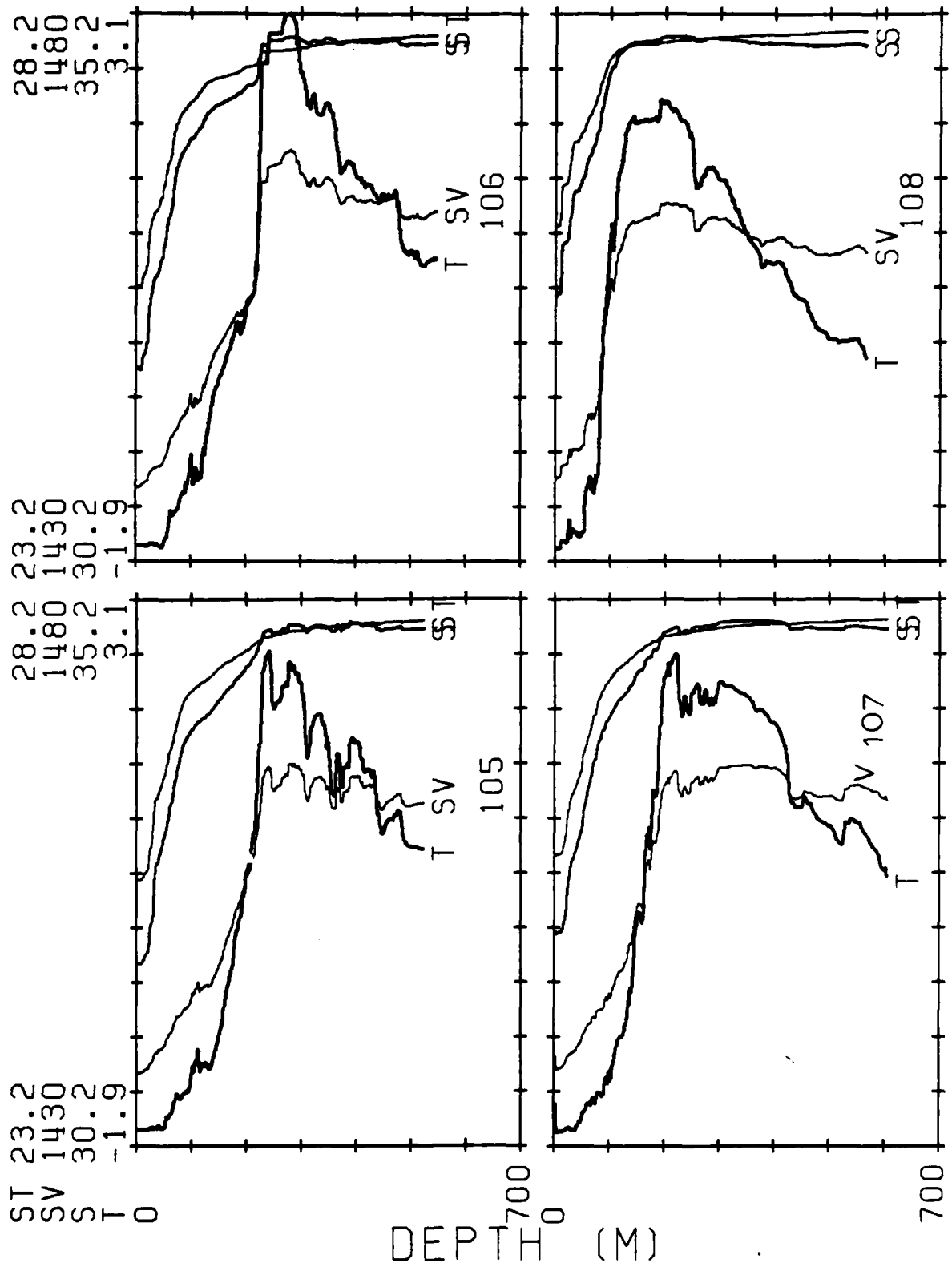
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MIZLANT81 C.T.D. STATIONS



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DEG C

MIZLANT81 C.T.D. STATIONS



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S 30.2
T -1.9

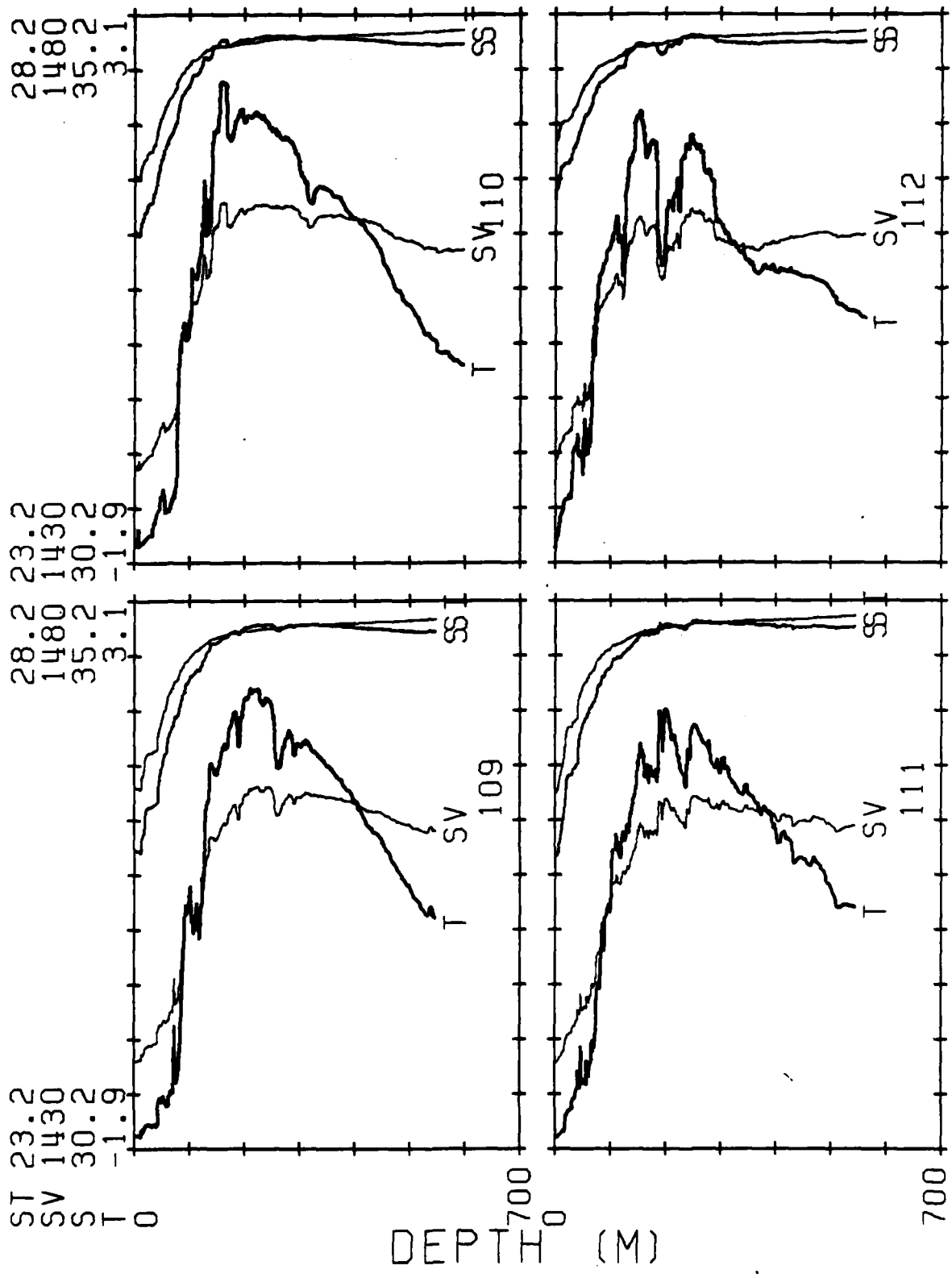
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S 30.2
T -1.9

ST 28.2
SV 1480
S 35.2
T 3.1

DEP 700
T 0
(M)

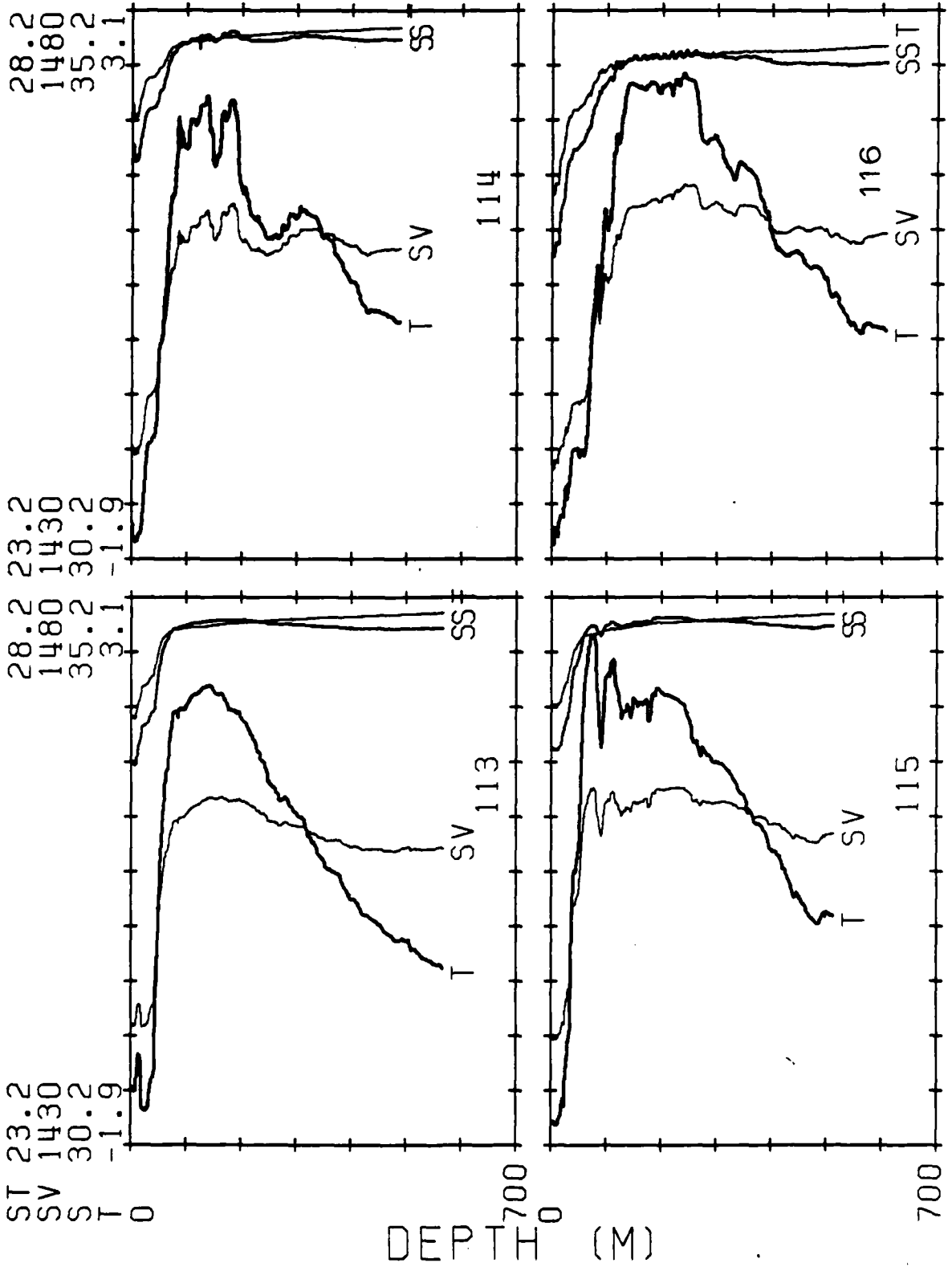
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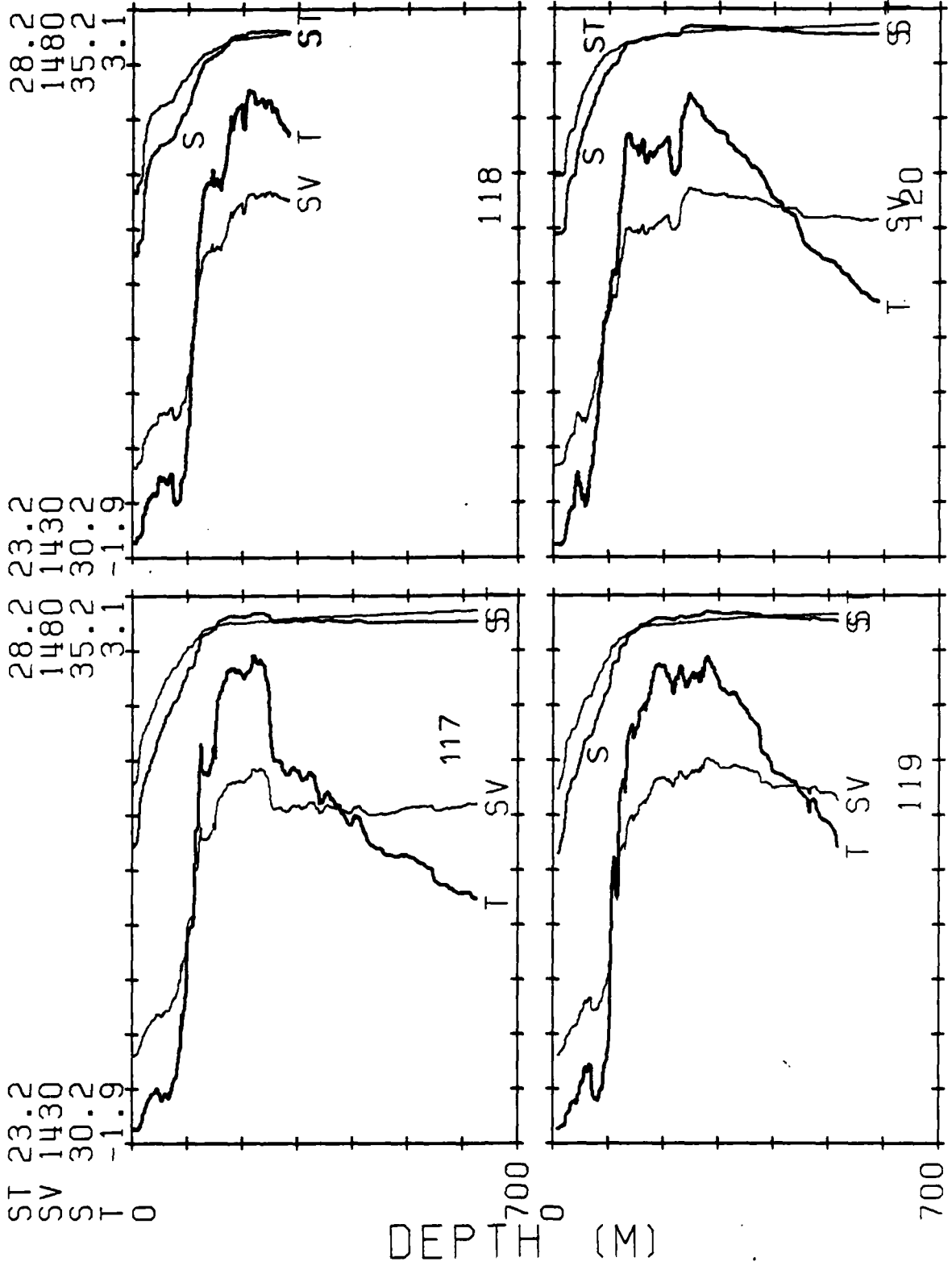
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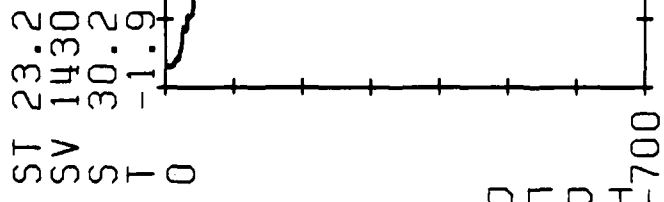
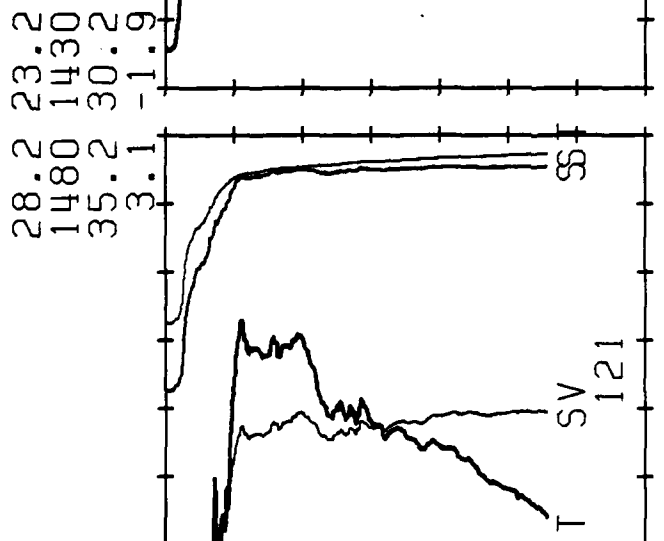
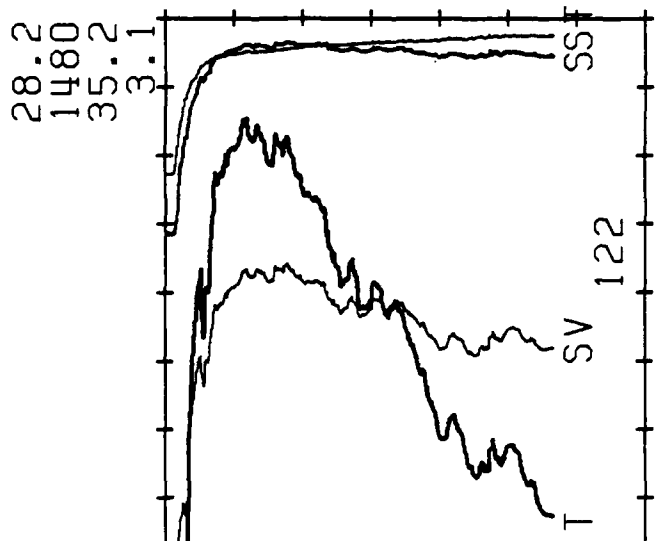
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MIZLANT81 C.T.D. STATIONS



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M/SEC
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DEG C

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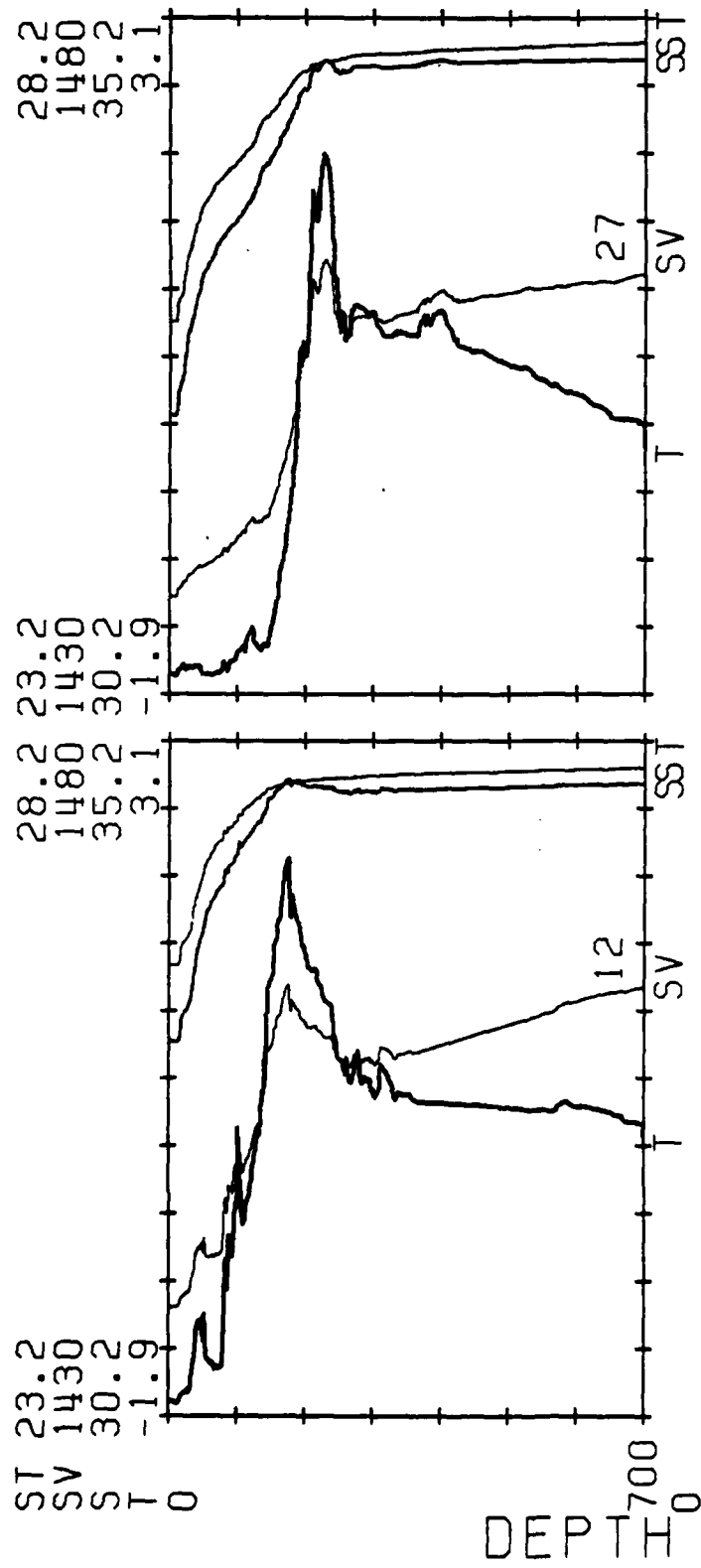


DEPTH 700 (M)

700

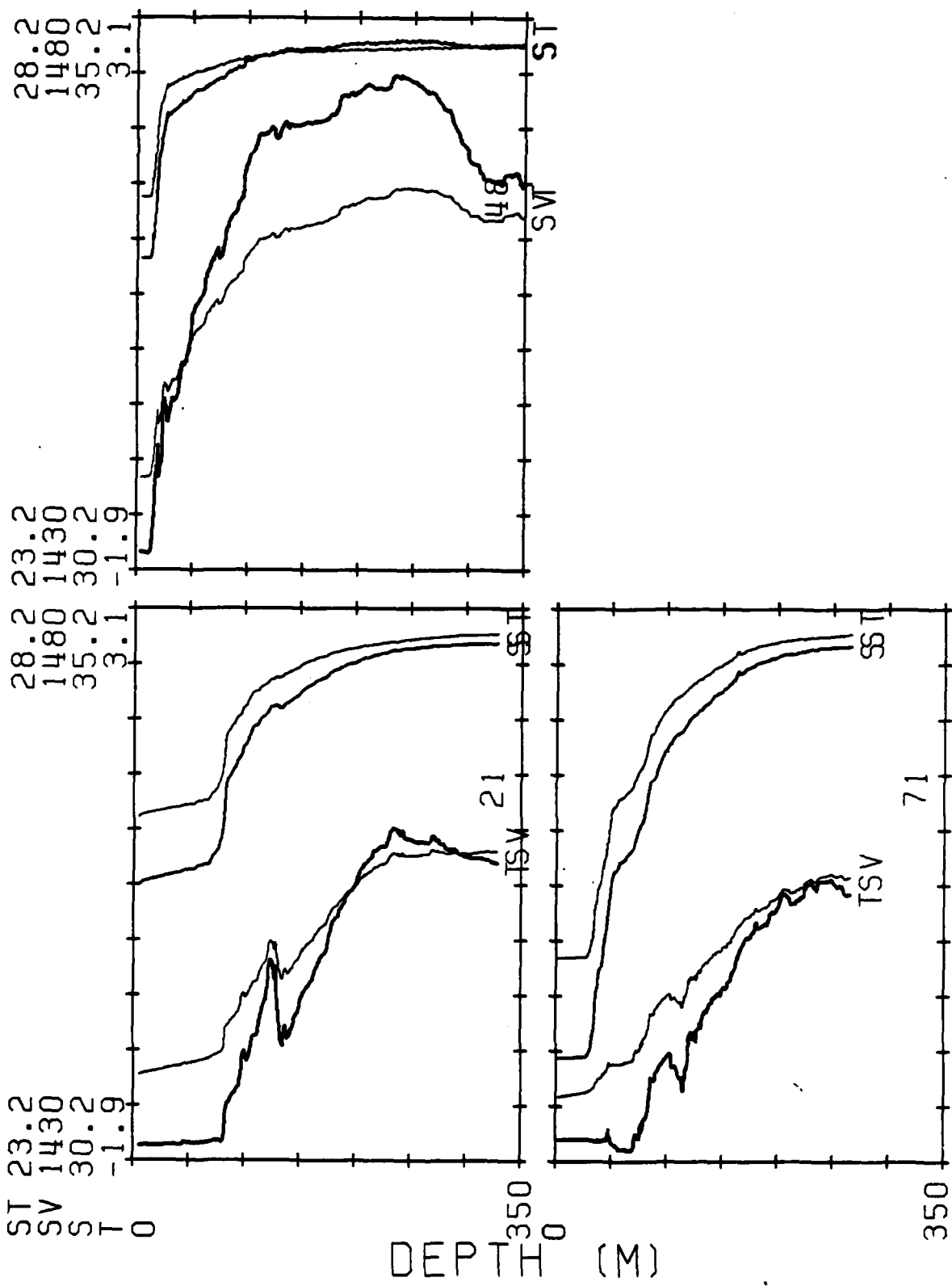
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MIZLANT81 C.T.D. STATIONS



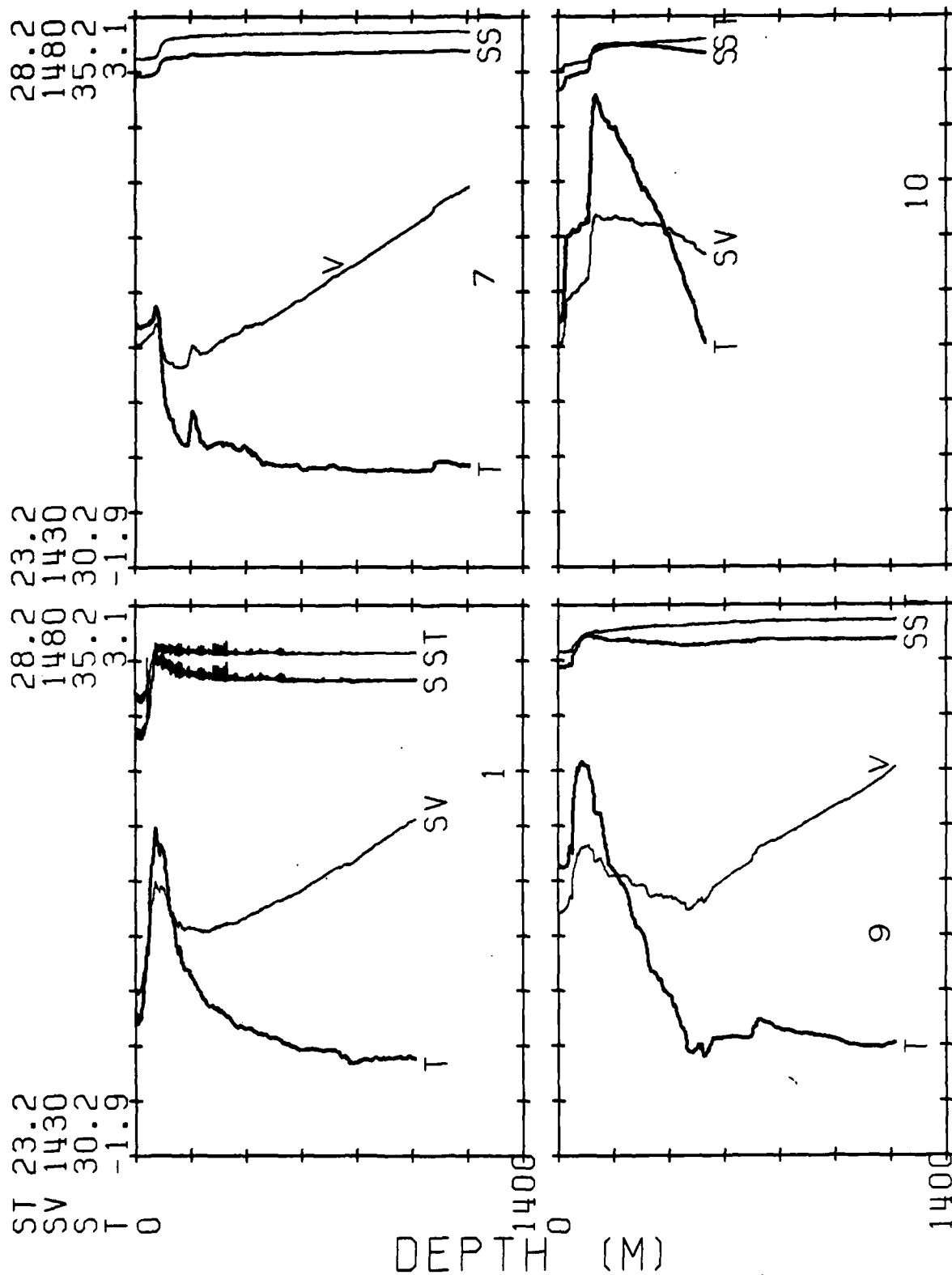
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DEG C

MIZLANT81 C.T.D. STATIONS



MG/CC
M/SEC
P.P.T.
DEG C

MIZLANT81 C.T.D. STATIONS



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Bethesda, Maryland 20084 1
37. Commandant
U.S. Coast Guard Headquarters
400 Seventh Street, S.W.
Washington, DC 20590 1
38. Commander
Pacific Area, U.S. Coast Guard
630 Sansome Street
San Francisco, California 94126 1
39. Commander
Atlantic Area, U.S. Coast Guard
159E, Navy Yard Annex
Washington, District of Columbia 20590 1

- | | | |
|-----|--|-------------|
| 40. | Commanding Officer
U.S. Coast Guard Oceanographic Unit
Building 159E, Navy Yard Annex
Washington, District of Columbia 20590 | 1 |
| 41. | Scientific Liaison Office
Office of Naval Research
Scripps Institute of Oceanography
La Jolla, California 92037 | 1 |
| 42. | SIO Library
Scripps Institute of Oceanography
P.O. Box 2367
La Jolla, California 92037 | 1 |
| 43. | School of Oceanography, WB-10
University of Washington
Attn: Dr. L.K. Coachman
Dr. K. Aagaard
Dr. S. Martin
Seattle, Washington 98195 | 1
1
1 |
| 44. | Library, School of Oceanography
Oregon State University
Corvallis, Oregon 97331 | 1 |
| 45. | CRREL
U.S. Army Corps of Engineers
Attn: Library
Hanover, New Hampshire 03755-1290 | 1 |
| 46. | Commanding Officer
Fleet Numerical Oceanography Center
Monterey, California 93940 | 1 |
| 47. | Commanding Officer
Naval Environmental Prediction Research Facility
Monterey, California 93940 | 1 |
| 48. | Defense Technical Information Center
Cameron Station
Alexandria, Virginia 22314 | 2 |
| 49. | Commander
Naval Oceanography Command
NSTL Station
Bay St. Louis, Mississippi 39529 | 1 |
| 50. | Commanding Officer
Naval Ocean Research and Development Activity
Attn: Technical Director
Dr. J.P. Welsh,
NSTL Station
Bay St. Louis, Mississippi 39529 | 1
1 |

51. Commanding Officer 1
Naval Polar Oceanography Center, Suitland
Washington, District of Columbia 20373
52. Director 1
Naval Oceanography Division
Naval Observatory
34th and Massachussetts Ave. NW
Washington, District of Columbia 20390
53. Commanding Officer 1
Naval Oceanographic Command
NSTL Station
Bay St. Louis, Mississippi 39522
54. Scott Polar Research Institute
University of Cambridge
Attn: Library 1
Sea Ice Group 1
Cambridge, England
CB2 1ER
55. Chairman 1
Department of Oceanography
U.S. Naval Academy
Annapolis, Maryland 21402
56. Dr. James Morison 1
Polar Science Center
4059 Roosevelt Way, NE
Seattle, Washington 98105
57. Dr. Kenneth Hunkins 1
Lamont-Doherty Geological Observatory
Palisades, New York 10964
58. Dr. David Paskowsky, Chief 1
Oceanography Branch
U.S. Department of the Coast Guard
Research and Development Center
Avery Point, Connecticut 06340
59. Science Applications, Inc. 1
Attn: Dr. Robin Muench
13400B Northrup Way
Suite 36
Bellevue, Washington 98005
60. Institute of Polar Studies
Attn: Library 1
103 Mendenhall
125 South Oval Mall
Columbus, Ohio 43210

61. Institute of Marine Science
University of Alaska
Attn: Library 1
Fairbanks, Alaska 99701
62. Department of Oceanography
University of British Columbia
Attn: Library 1
Vancouver, B.C. Canada
V6T 1W5
63. Geophysical Institute
University of Alaska
Attn: Dr. H.J. Niebauer 1
Fairbanks, Alaska 99701
64. Bedford Institute of Oceanography
Attn: Library 1
P.O. Box 1006
Dartmouth, Nova Scotia
Canada
B2Y 4A2
65. Carol Pease 1
Pacific Marine Environmental Lab/NOAA
7600 Sand Point Way N.E.
Seattle, Washington 98115
66. Department of Oceanography 1
Dalhousie University
Halifax, Nova Scotia
Canada
B3H 4J1
67. Mr. Richard Armstrong 2
MIZEX Data Manager
National Snow and Ice Data Center
Cooperative Institute for Research
in Environmental Sciences
Boulder, Colorado 80309
68. Research Administration 1
Code 012A
Naval Postgraduate School
Monterey, CA 93943

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