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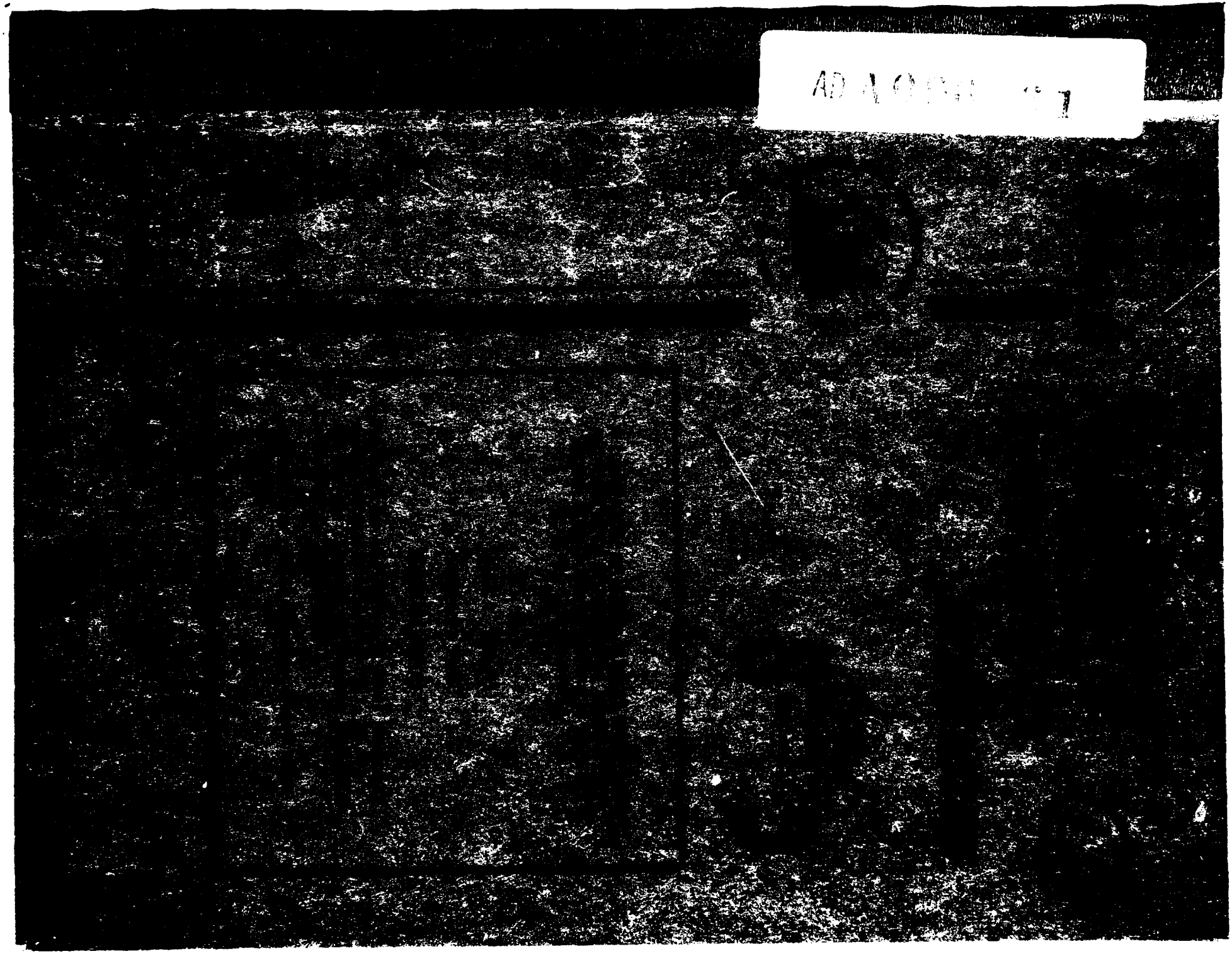

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2. Ocean current
3. Moorings

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Summaries are presented of current, pressure and temperature measurements from clusters A and B of the POLYMODE III experiment. These clusters had five moorings apiece and were deployed for 11.5 months. With a few exceptions, current meters were set at nominal depths of 200, 1500 and 4000 m and temperature/pressure recorders at 400 and 2800 m on each mooring. A site mooring was deployed at both cluster locations for an additional 17 months.

Displays include time series, histograms, progressive vector diagrams, scatter plots, spectra, and statistics.

WHOI-80-40

A COMPILATION OF MOORED CURRENT METER DATA AND ASSOCIATED OCEANOGRAPHIC OBSERVATIONS, VOLUME XXII (POLYMODE ARRAY III CLUSTERS A, B AND SITE MOORINGS) 1977-1979

by

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Woods Hole, Massachusetts 02543

September 1980

TECHNICAL REPORT

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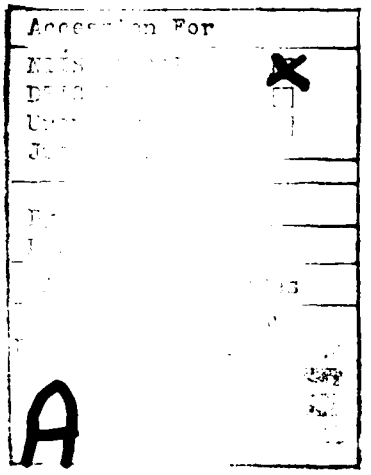

Approved for Distribution:

Valentine Worthington, Chairman
Department of Physical Oceanography

ABSTRACT

Summaries are presented of current, pressure and temperature measurements from clusters A and B of the POLYMODE III experiment. These clusters had five moorings apiece and were deployed for 11.5 months. With a few exceptions, current meters were set at nominal depths of 200, 1500 and 4000 m and temperature/pressure recorders at 400 and 2800 m on each mooring. A site mooring was deployed at both cluster locations for an additional 17 months.

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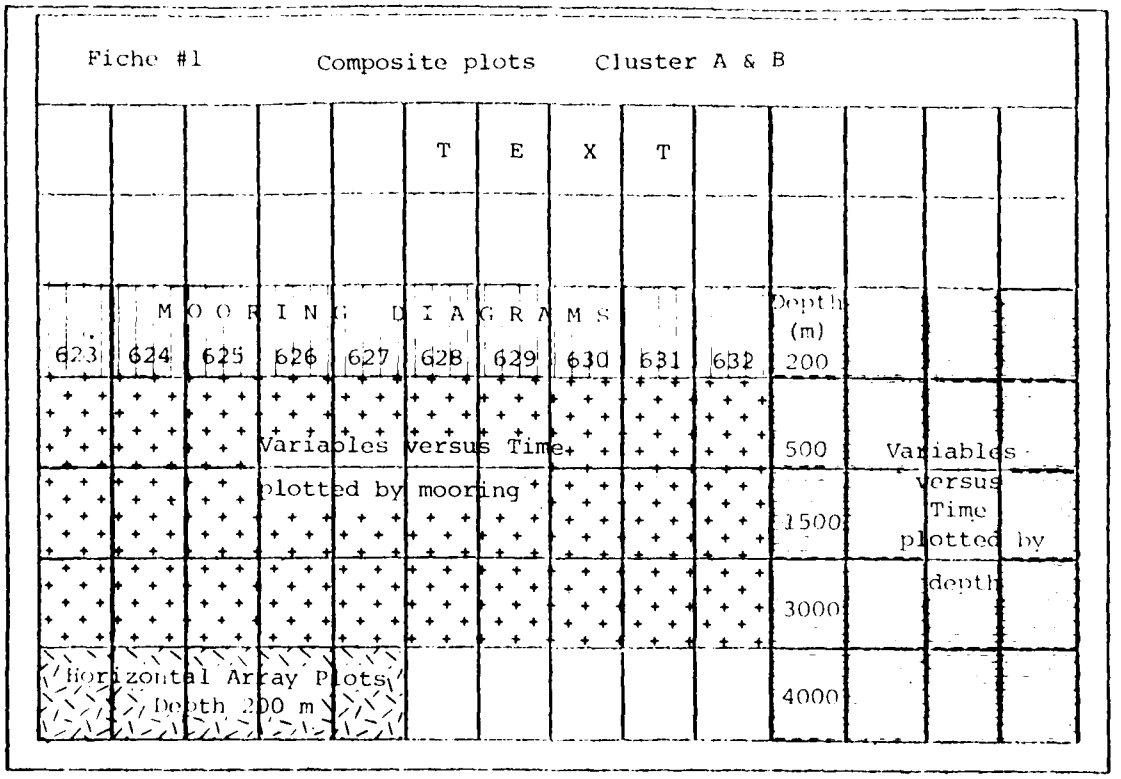
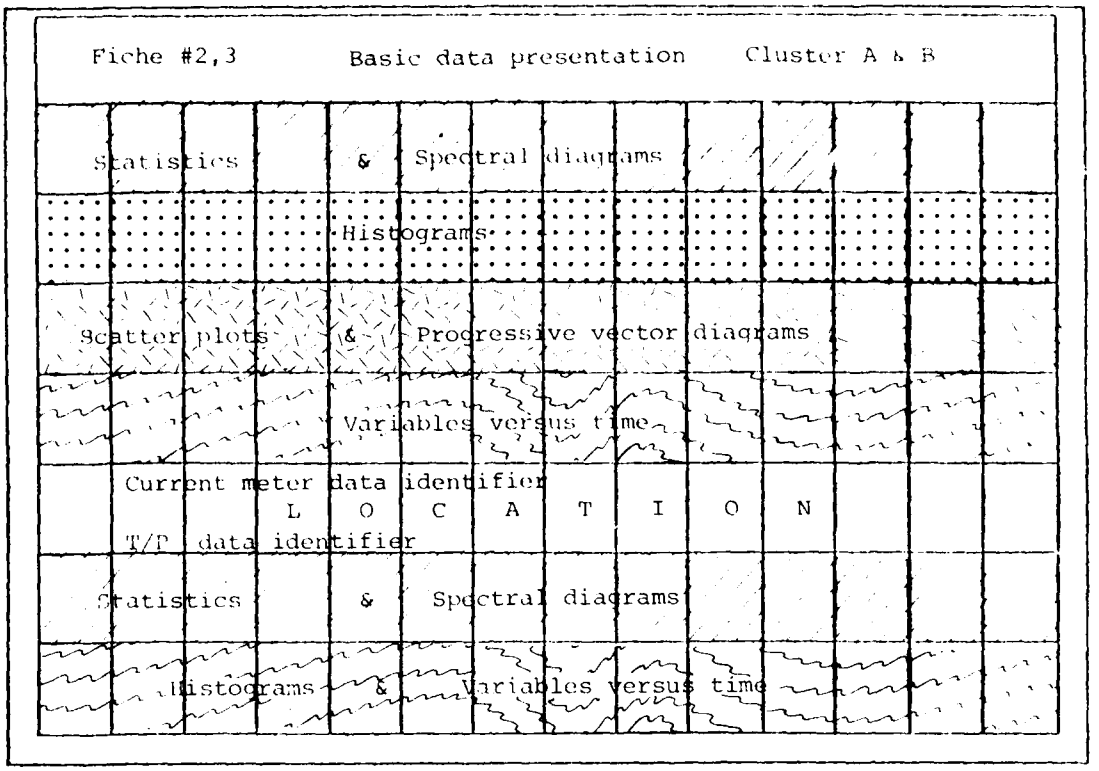
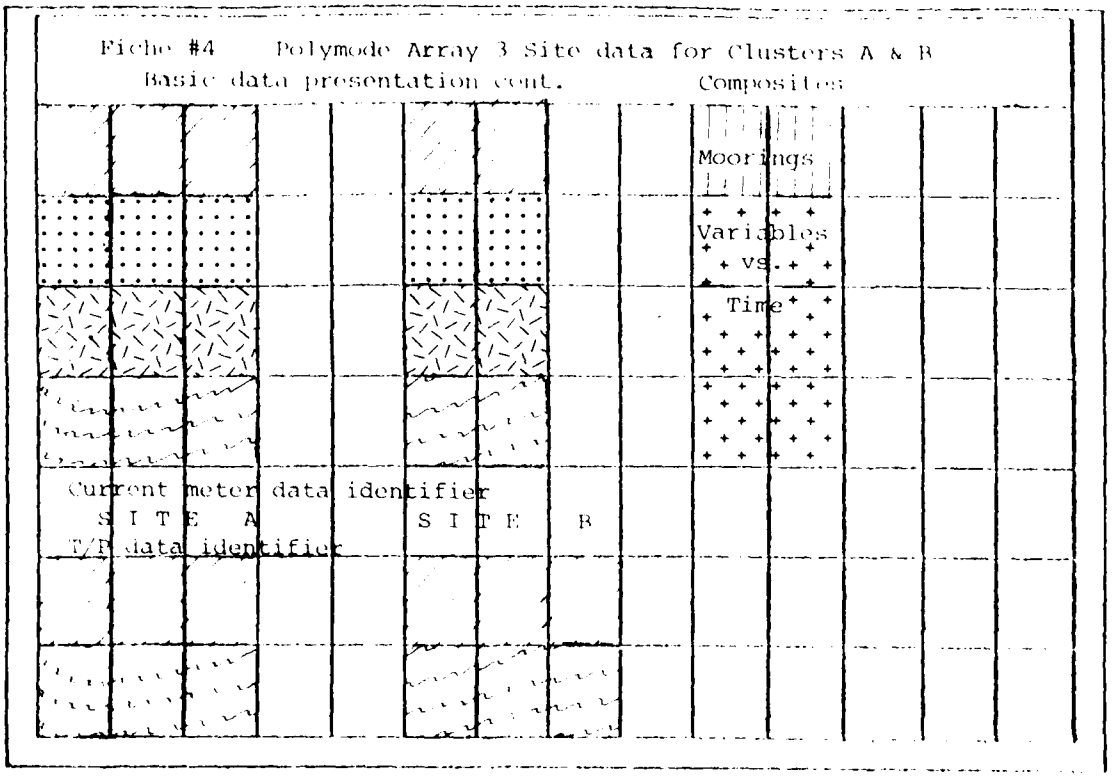
Organization of Fiche and Printed Pages

The complete report is produced on four fiche pages. The text and some composite figures of variables plotted vs. time as horizontal or vertical arrays are printed. The first fiche includes the text and composite plots from Clusters A and B. Fiche #2 and #3 contain various displays of the basic data: STATS, SPECTRA etc. from Cluster B and Cluster A respectively. Basic data displays and composite plots for both Cluster A site and Cluster B site moorings are presented on fiche #4.

Diagrams of Fiche Organization




Fiche #2,3 Basic data presentation Cluster A & B
Statistics & Spectral diagrams
Histograms
Scatter plots & Progressive vector diagrams
Variables versus time
Current meter data identifier
L O C A T I O N
T/P data identifier
Statistics & Spectral diagrams
Histograms & Variables versus time


Fiche #4 Polymode Array 3 Site data for Clusters A & B
Basic data presentation cont.
Composites
Moorings
Variables vs. Time
Current meter data identifier
S I T E A
S I T E B
T/P data identifier

ACKNOWLEDGMENTS

The Engineering, Operations and Data Processing sections of the W.H.O.I. Buoy Group designed, prepared, deployed and recovered the moorings, prepared the current meters, processed the data, and produced the data report. TP preparation was carried out under John Dahlen at the Draper Laboratory. TP data were processed by Charmaine King under the direction of Professor Carl Wunsch at M.I.T. Data analysis was by Lee-Lueng Fu and Professor Wunsch.

TP preparation and data processing were supported by National Science Foundation grants OCE 76-80210 and OCE 78-19833. Mooring deployments and recoveries, mooring and current meter preparation, and current meter data processing were funded by National Science Foundation grant OCE 76-24232 and under Office of Naval Research contract N00014-76-C-0197.

PREFACE

This is the twenty-third volume in a series of Technical Reports diplaying data recorded by moored instruments.

Volume XXIII presents data from POLYMODE Cluster A, Cluster B and the two Cluster site moorings. Data collected at the POLYMODE Cluster C location is presented by C. J. Koblinsky et al. (1979), Oregon State University Reference 79-12, OSU Data Report #75 entitled "A compilation of observations in the Atlantic North Equatorial Current".

W.H.O.I. Technical Report 79-88 contains an index of the data recovered by the Moored Array Project between 1973 and 1978, a bibliography of papers written by associated scientists, and diagrams of mooring locations and durations.

* *

Volume #	W.H.O.I. ref. #		Notes year expt.
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XIII	77-18	Tarbell, S. and A. W. Whitlatch	1970 Measurements
XIV	77-41	Tarbell, S., R. Payne and R. Walden	1976 mooring 592 Saint Croix
XV	77-56	Tarbell, S. and A. W. Whitlatch	1971 measurements
XVI	78-5	Tarbell, S. and A. Spencer	1971-1975 MODE Site
XVII	78-49	Tarbell, S., A. Spencer and R. E. Payne	1975-1977 POLYMODE Array II
XVIII	79-65	Tarbell, S., M. G. Briscoe and R. A. Weller	1978 JASIN
XIX	79-34	Spencer, A., C. Mills and R. Payne	1974-1975 POLYMODE Array I
XX	79-56	Spencer, A.	1974 Rise Array
XXI	79-85	Mills, C. and P. Rhines.	1978 W.B.U.C.
XXII	79-87	Tarbell, S. and R. Payne.	1973 measurements

INTRODUCTION

The POLYMODE program is an international cooperative scientific investigation of the dynamics and statistics of mesoscale motions in the sea, the energy sources of these motions, and their contribution to the general circulation of the ocean. POLYMODE includes theoretical investigations, numerical experiments, and field experiments. The largest element of the field program is the statistical-geographical experiment designed to determine the distribution of energy levels and space and time scales of the eddy field throughout the western North Atlantic using current meter arrays, SOFAR float arrays, and hydrographic and XBT work.

Three current meter arrays were set. The locations are shown in Figure 1. Array I was deployed to define the statistics of the mesoscale motions to the east and north of the MODE-I site (28°N, 70°W), and to resolve the time and length scales in that region. Data from Array I were described in a previous report (Spencer, et al., 1979).

The goals of Array II were more closely defined. They involved a comparison of the eddy statistics in a region further to the north and east with those from the first array; an examination of the vertical structure of the eddy field, the contributions of the Reynolds stress to momentum and vorticity budgets for the mean flow, horizontal heat advection, and energy transfer terms; and a comparison with numerical models and ideas about the general circulation. The Array II data were also described in an earlier report in this series (Tarbell, et al., 1978).

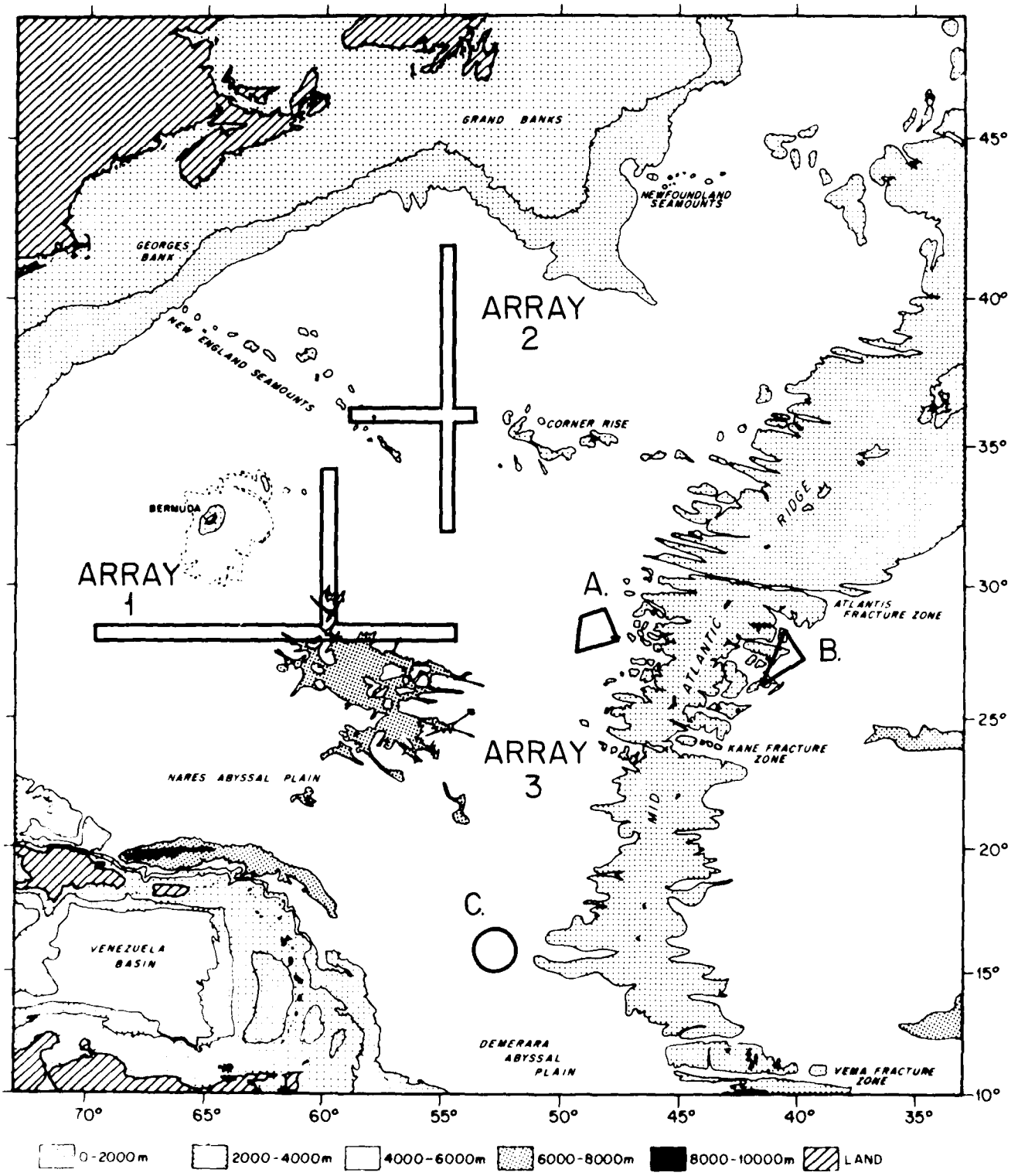


Figure 1. Location of POLYMODE Arrays 1, 2 and 3

Array III was composed of three clusters. Cluster C was designed to look at the baroclinic instability of the North Equatorial Countercurrent as an eddy-producing mechanism. The moorings in this cluster were set and retrieved, and the data processed by Nova University personnel.

Clusters A and B, the subject of this report, were located on the western and eastern sides of the Mid-Atlantic Ridge. They were designed to examine differences in the eddy field and the mean flow on either side of this mid-ocean feature, and to compare the eddy statistics in this region with similar statistics in previously studied regions. The complete clusters were set for 11.5 months. One mooring in each cluster was redeployed for an additional 17 months (site moorings) to gain additional information on long period statistics. We might add that the 17 months is the longest mooring duration that the Buoy Group has attempted.

Locations of the moorings in clusters A and B are shown in Figure 1, relative mooring positions in Figure 2. Mooring details are given in Table 1.

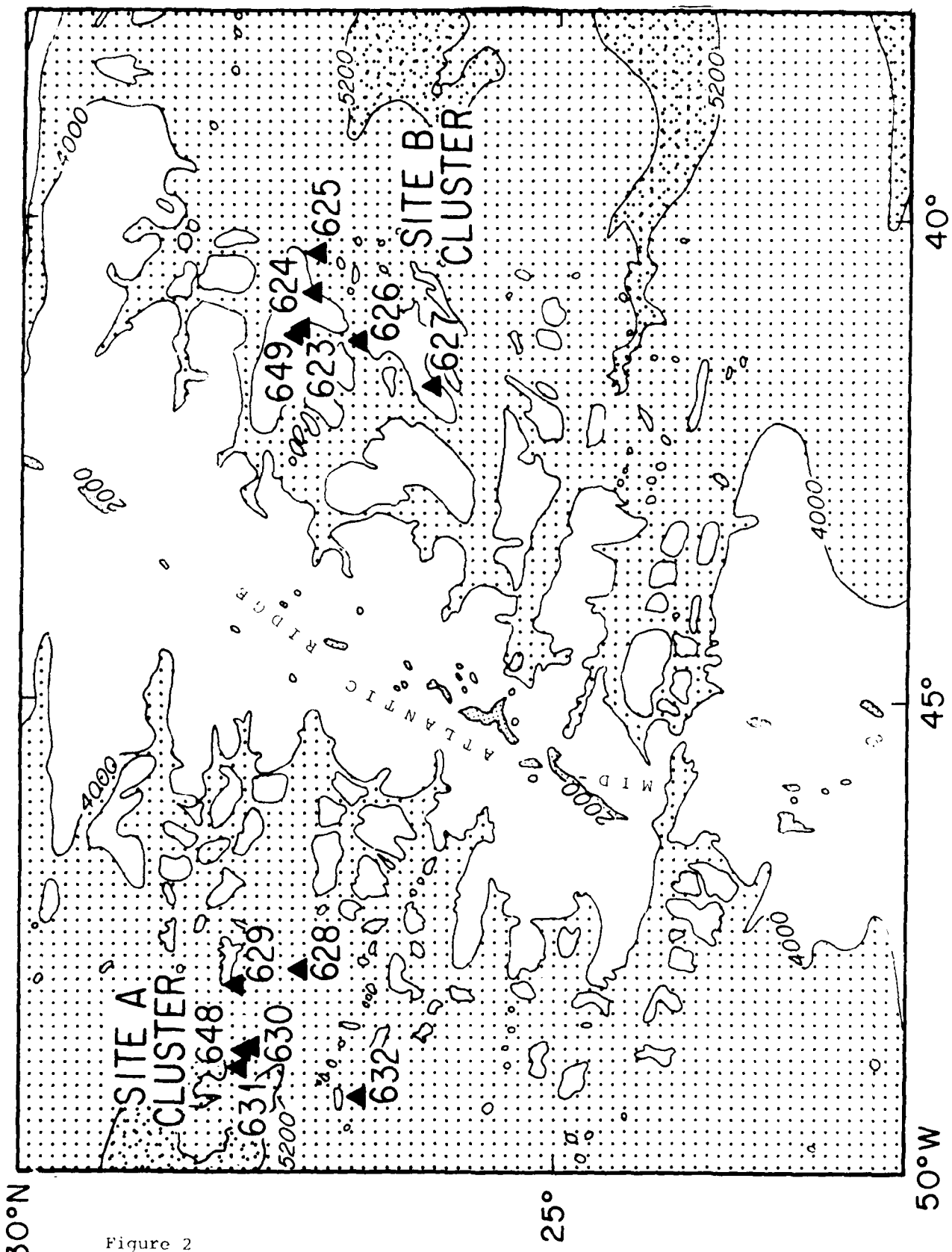


Figure 2
Mooring positions of Cluster A & B (623-632) and the later Site A & B (648-649) moorings.

TABLE 1

Mooring and instrument information, depth measured in meters, data sampling measured in seconds (5.27/3600 is a burst sampled series with bursts of data every 3600 seconds). Variables include East component, North component, Direction, Speed, Temperature, Pressure and Time.

*MOORING NO.	*TYPE	*DEPTH	*LATITUDE	LONG.	*DAYS	SET /RECOVERED	* COMMENTS
*DATA NO.		*DEPTH	*INSTR.	* SAMPLING	*DAYS	* VARIABLES	
623	INT	4251	27 24.8N	41 07.7W	349	77- VI -11/78- V -26	CLUSTER B
6231		128	V-5113	900	346	ENDSTT	
6232		496	TP#20	1920	348	TPT	
6233		843	TP#44	1920	345	TPT	
6234		1426	M-142T	5.27/3600	345	ENDSTT	
6235		2801	TP#07	1920	295	TPT	
6237		3927	M-256T	5.27/3600	345	ENDSTT	
6238		4307	TP#62	1920	345	TPT	MOUNTED ON RELEASE
624	INT	4372	27 17.5N	40 45.5W	347	77- VI -12/78- V -25	CLUSTER B
6241		214	TP#27	1920	344	TPT	
6242		529	M-198C	5.27/3600	344	ENDSTT	
6243		1528	M-207T	5.27/3600	344	ENDSTT	
6244		2829	TP#28	1920	344	TPT	
6245		4028	M-260T	5.27/3600	175	ENDSTT	CHANNEL A ONLY
625	INT	4723	27 14.5N	40 21.1W	347	77- VI -14/78- V -25	CLUSTER B
6251		189	V-0106	900	343	ENDSTT	
6252		483	TP#5	1920	343	TPT	
6253		1488	M-206C	5.27/3600	343	ENDSTT	
6254		2807	TP#29	1920	343	TPT	
6255		3990	M-261T	5.27/3600	343	ENDSTT	
626	INT	4315	26 52.7N	41 12.8W	346	77- VI -13/78- V -25	CLUSTER B
6261		215	V-0434	900	101	ENDSTT	MOTOR DRIVER BOARD
6262		507	TP#37	1920	153	TPT	
6263		1514	M-212T	5.27/3600	342	ENDSTT	
6264		2821	TP#45	1920	342	TPT	
6265		4015	M-227C	5.27/3600	342	ENDSTT	
627	INT	3857	26 09.8N	41 40.7W	344	77- VI -14/78- V -24	CLUSTER B
6271		206	V-0111	900	341	ENDSTT	
6272		531	TP#54	1920	341	TPT	
6273		1505	M-213T	5.27/3600	341	ENDSTT	
6274		2800	TP#51	1920	190	TPT	
6275		3407	M-269C	5.27/3600	341	ENDSTT	WATER IN CASE

Table 1 (cont.)

628 INT	4961	27 25.6N	47 50.0W	340	77- VI -16/78- V -22 CLUSTER A
6282	505	M-240T	5.27/3600	3?	ENDSTT ROTOR QUIT APRIL 15
6283	1489	M-271T	5.27/3600	300	ENDSTT
6284	2807	TP#10	1920	337	TPT
6285	3994	M-272C	5.27/3600	337	ENDSTT NO ROTOR AUG.15 T? JAN.15
629 INT	4954	28 01.0N	48 03.3W	339	77- VI -17/78- V -22 CLUSTER A
6291	203	V-0435	900	336	ENDSTT
6292	505	TP#47	1920	336	TPT
6293	1500	M-257T	5.27/3600	336	ENDSTT
6294	2807	TP#11	1920	273	TPT
6295	4006	M-273T	5.27/3600	336	ENDST CLOCK DRIFTS 13H.
630 INT	4895	27 51.7N	48 39.4W	338	77- VI -17/78- V -21 CLUSTER A
6301	200	V-0184	900	335	ENDSTT
6302	542	TP#50	1920	335	TPT
6304	1498	M-215T	5.27/3600	335	ENDSTT
6305	2800	TP#17	1920	335	TPT
6306	3498	TP#6	1920	335	TPT
6308	4908	TP#61	1920	335	TPT
631 INT	5106	27 55.8N	48 52.1W	337	77- VI -18/78- V -18 CLUSTER A
6311	212	V-5105	900	334	ENDSTT
6312	546	TP#13	1920	334	TPT
6313	1510	M-276T	5.27/3600	334	ENDSTT NO COMPASS VALUES
6314	2857	TP#3	1920	334	TPT
6315	4016	M-262T	5.27/3600	334	ENDSTT
632 INT	4881	26 51.8N	49 13.5W	336	77- VI -18/78- V -20 CLUSTER A
6321	190	V-0436	900	334	ENDSTT
6323	1488	M-264T	5.27/3600	165	ENDSTT NO ROTOR VALUES AFTER DEC. 2
6324	2796	TP#24	1920	333	TPT
6325	3993	M-266T	5.27/3600	333	ENDSTT
648 INT	4881	27 51.4N	48 40.8W	515	78- V -22/79- X -18 CLUSTER A SITE
6481	178	V-0109	900	513	ENDSTT
6482	478	TP#73	1920	513	TPT
6483	828	TP#35	1920	513	TPT
6484	1479	V-0117	900	513	ENDSTT
6485	2779	TP#39	1920	513	TPT
6486	3478	TP#46	1920	513	TPT
6487	3978	V-0118	900	513	ENDSTT
649 INT	4268	27 25.6N	41 09.4W	513	78- V -26/79- X -20 CLUSTER B SITE
6491	216	V-0108	900	511	ENDSTT
6492	516	TP#74	1920	512	TPT
6493	866	TP#30	1920	512	TPT
6494	1517	M-175C	5.27/3600		Flooded
6495	2818	TP#40	1920	512	TPT
6496	3417	TP#81	1920	512	TPT
6497	4018	V-0108	900	511	ENDSTT

Instrumentation

The instruments represented in this data report are the Vector Averaging Current Meter (VACM), the EG&G Model 850 and the Temperature-Pressure Recorder (TP).

Both current meters use a Savonius rotor to measure water speed and a vane and internal compass to measure direction. In the VACM, east and north components are calculated from the compass and vane values 8 times per rotor revolution. The components are accumulated over the recording interval resulting in vector averaged velocities. In the 850 a series of 5.27 second samples of speed and instantaneous direction samples are recorded at the beginning of each recording interval. The VACM and 850 have a thermistor embedded in their end caps just above the vane. Temperature accuracy is approximately .01°C (Payne et al., 1976). Resolution is $.07 \times 10^{-3}$°C for the VACM and 3.6×10^{-3}°C for the 850 current meter.

The suffix "t" on an 850 instrument designation (M-261t) means that the instrument has been modified to measure temperature. The suffix "c" (M-206c) means that it has had complementary metal oxide semiconductor (CMOS) circuitry installed and also measures temperature.

The TP was developed at the Draper Laboratory of M.I.T and has been used extensively since 1973. Temperatures have a resolution of .001°C and an accuracy of .01°C (Wunsch and Dahlen, 1974). Pressures are accurate to about .03% of full scale for each sensor.

All three types of instruments contain crystal oscillators with an accuracy of ± 1 second per day to set the time base. The VACM and TP record on Phillips-type cassettes with Sea-Data recorders. The 850 records on endless loop magnetic tape cartridges.

Data Processing

Current meter data processing was done at Woods Hole Oceanographic Institution (W.H.O.I.), TP data processing by Prof. Wunsch's data processors at the Massachusetts Institute of Technology (M.I.T.).

The data on the current meter cassettes and cartridges were transcribed to 9-track computer compatible tapes, converted to scientific units, edited to remove launch and retrieval transients, and linearly interpolated across missing or erroneous data cycles.

The data are identified by a mooring number (here 623-632, 648, 649), a sequential instrument position numbered from the top of the mooring down (e.g., 6481 is the top instrument on mooring 648), a letter to indicate the data version (e.g., 6481B has been through two editing steps; $ indicates the record required no editing), and a number to indicate the data interval in seconds for that version (e.g., 6481B900 is the 15 minute (or 900 second) basic data series). 1H after the letter would indicate a one-hour averaged version, 24 GAU indicates a 24 hour subsampled version of a Gaussian filtered (24 hour half width) series.

Data Quality

Table 2 contains a list of record numbers in which the instruments malfunctioned and an indication of the problem.

In general the VACMs behaved very well. Out of 13 instruments there was only one malfunction, a tape recorder failure.

Out of 23 850 current meters, 10 returned good records. The other 13 experienced a variety of problems, a few of which resulted in complete loss of data.

A total of 34 TPs was deployed; 15 of these returned good data; 8 appear to have a long term drift in pressure over the length of the record although 6 of these remain within sensor specifications. In two pressure records the drift rate changed rather abruptly part way through the record. A variety of problems was involved in the other eleven malfunctions.

TABLE 2

INSTRUMENT PROBLEMS

Data Name	Instrument	Problem
6235	TP	Minor pressure drift
6236	TP	No data
6237	850	Short, bad temperature
6238	TP	Minor pressure drift
6245	850	Short-channel A
6252	TP	Minor drift in pressure
6255	850	Clock lost 3 hours, temperature malfunction
6261	VACM	Short-tape recorder malfunction
6262	TP	Short
6274	TP	Short, temperature only
6275	850	Temperature only, water in case
6281	TP	No data
6282	850	Clock malfunction-record split into 2 pieces
6283	850	Water in case-rotor stopped 15 April
6284	TP	Minor pressure drift
6285	850	No rotor values 15 August-15 January
6294	TP	Minor pressure drift
6295	850	Clock fast, temperature bad from 1 March
6303	TP	No data
6305	TP	Temperature only
6306	TP	Minor pressure drift, rate decreases
6307	850	No data
6308	TP	Minor pressure drift
6313	850	No compass entire record
6314	TP	Minor pressure drift, rate decreases
6315	850	Bad temperature
6322	TP	No data
6323	850	Short record-rotor died 2 December
6325	850	Very low speeds
6483	TP	Minor pressure drift
6485	TP	Short record
6494	850	Flooded, no data
6495	TP	Short record
6496	TP	Almost no data, not included in this report

Data Presentation

The presentations in this report are time series, progressive vector plots, spectra, mean statistics, histograms and scatter plots. Additional details are below. Presentations for individual data files are presented only in the microfiche portion.

Time Series

The presentations use either the basic series or a 24 hour series. To make the 24 hour series, the basic series is first filtered using a symmetrical running Gaussian filter with a half width of 24 hours. The filtering is sequential and the resultant time series is 48 hours shorter than the input time series. A simple running hat filter is then applied to form a series with one data point per 24 hours, the interval centered on noon.

Variables versus time and current vectors ("stick plots") versus time are presented. The former are based on the basic series, the latter on the 24 hour series.

There are several composite plots containing all the data of a single variable, temperature, for example, from a single mooring or a particular level. The units for each plot are specified in the title. On these composite plots the numbers which appear in several places on the y scale are the reference points for each successive plot. Each occurrence sets a reference for one of the curves with successive appearances of the number referring to the curves in the same vertical order.

Progressive Vector Diagrams

Based on the basic series, the current vectors are placed tail-to-head so as to show the path that a perfect particle in a perfectly homogeneous fluid would have traveled. The plots are useful for giving an idea of flow regimes and low frequency behavior. Symbols denote the beginning of a month.

Spectra

The horizontal kinetic energy (HKE) and (where available) the temperature series are displayed as spectra computed from the basic series.

The horizontal kinetic energy spectrum is half the sum of the spectra of the east and north components: it has the advantage of not being tied to a particular coordinate system.

The HKE and temperature spectra have units of $(cm^2/sec^2)/cph$ or $(°C)^2/cph$, respectively. The spectra are all one-sided, i.e., the area under the spectrum is equal to the variance of the original record. The spectra are presented as log-log plots ("not variance preserving").

The VACM spectra are all calculated based on averaging across four data segments of 4000 points each, followed by frequency-band averaging across three frequencies with a recording interval of 900 s. This gives a lowest frequency of $(666.7h)^{-1}$ and a highest frequency of $(0.5h)^{-1}$. The 850 spectra are based on averaging across a single data segment of up to 4000 points, followed by frequency band averaging across eight frequencies. With a recording interval of 1800 s this gives a lowest frequency of as low as $(500\ h)^{-1}$ and a maximum frequency of $(1\ h)^{-1}$. No data windowing or prewhitening has been done on the initial cluster setting but data from the site mooring (648, 649) were prewhitened.

TIMSAN, the W.H.O.I. program (Hunt, 1977) used to produce the spectra, additionally averages the spectra in increasing groups at the higher frequencies to prevent having to plot thousands of points; this gives few degrees of freedom (d.o.f.) at the lowest frequencies, many at the highest frequencies. For spectra calculated from 4 pieces with 3 frequencies averaged, there are 24 d.o.f. in the 30 lowest frequencies and 1200 d.o.f. in the two highest frequencies; the 95% confidence limits corresponding to these two extremes are (.61, 1.94) and (.97, 1.03).

Mean Statistics

The statistics for each variable for the time period shown are given for the basic series, also the east and north covariance, correlation, and vector statistics.

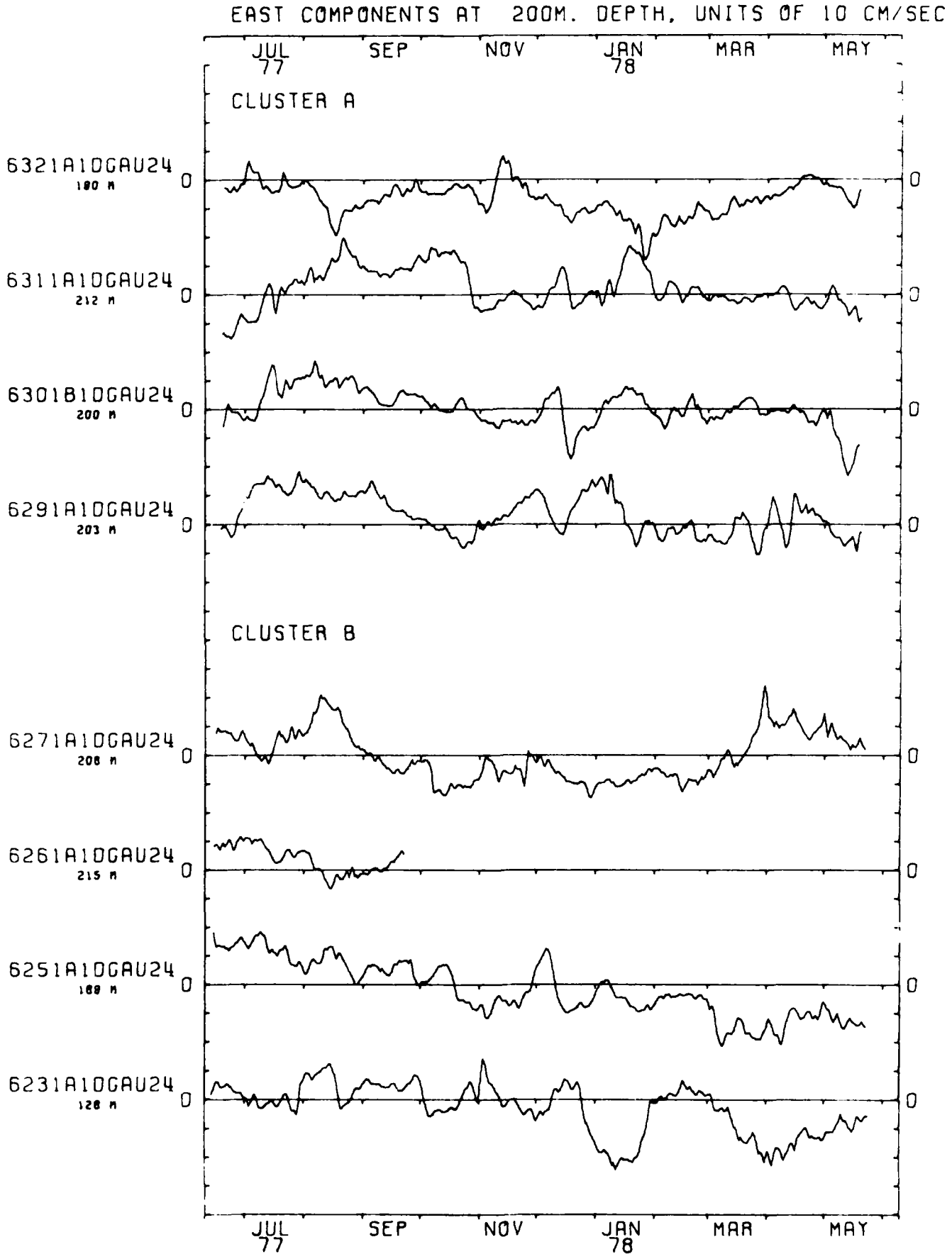
For reference note that a Gaussian random variable would have a kurtosis of 3 and a skewness of zero.

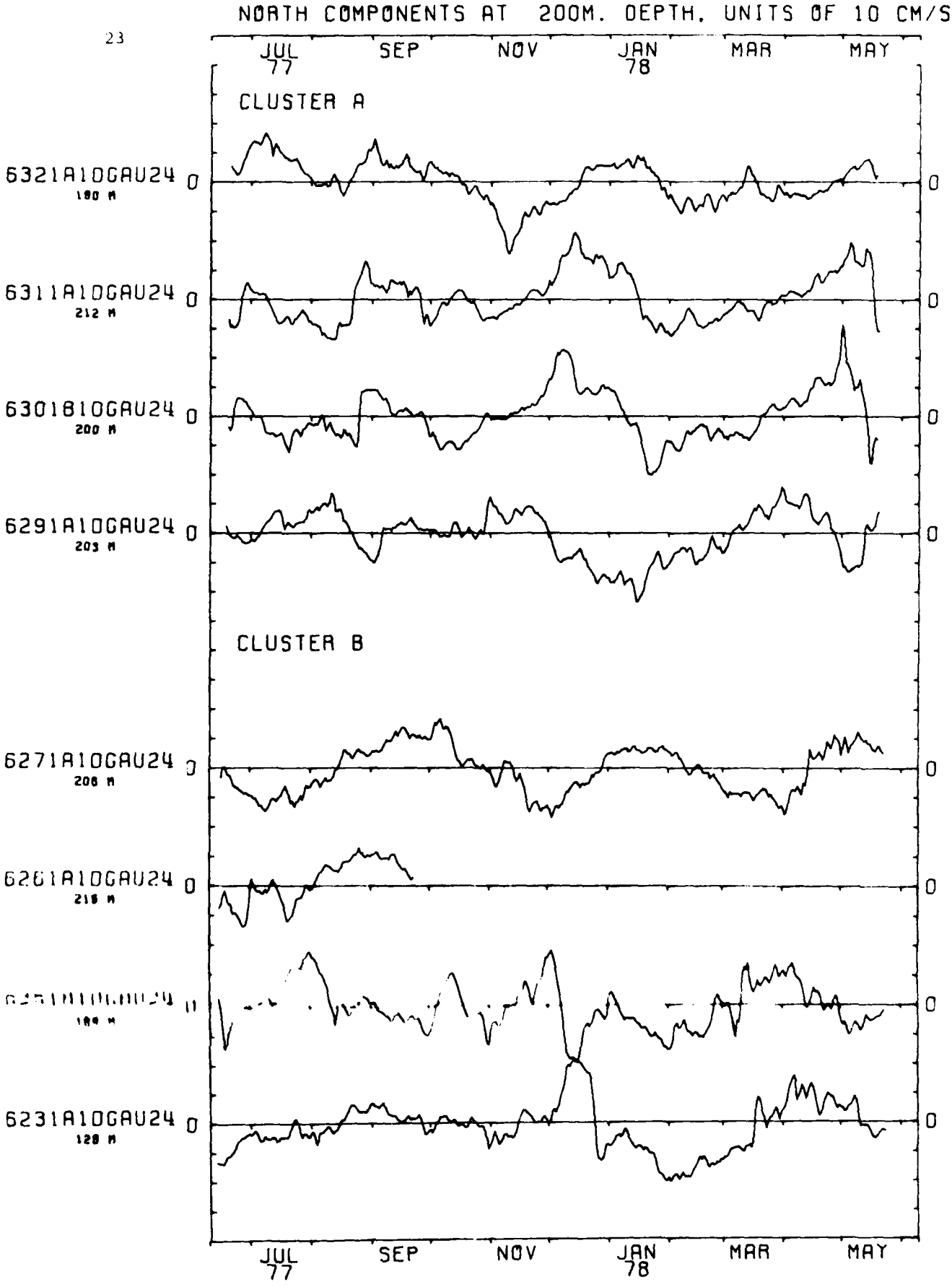
References

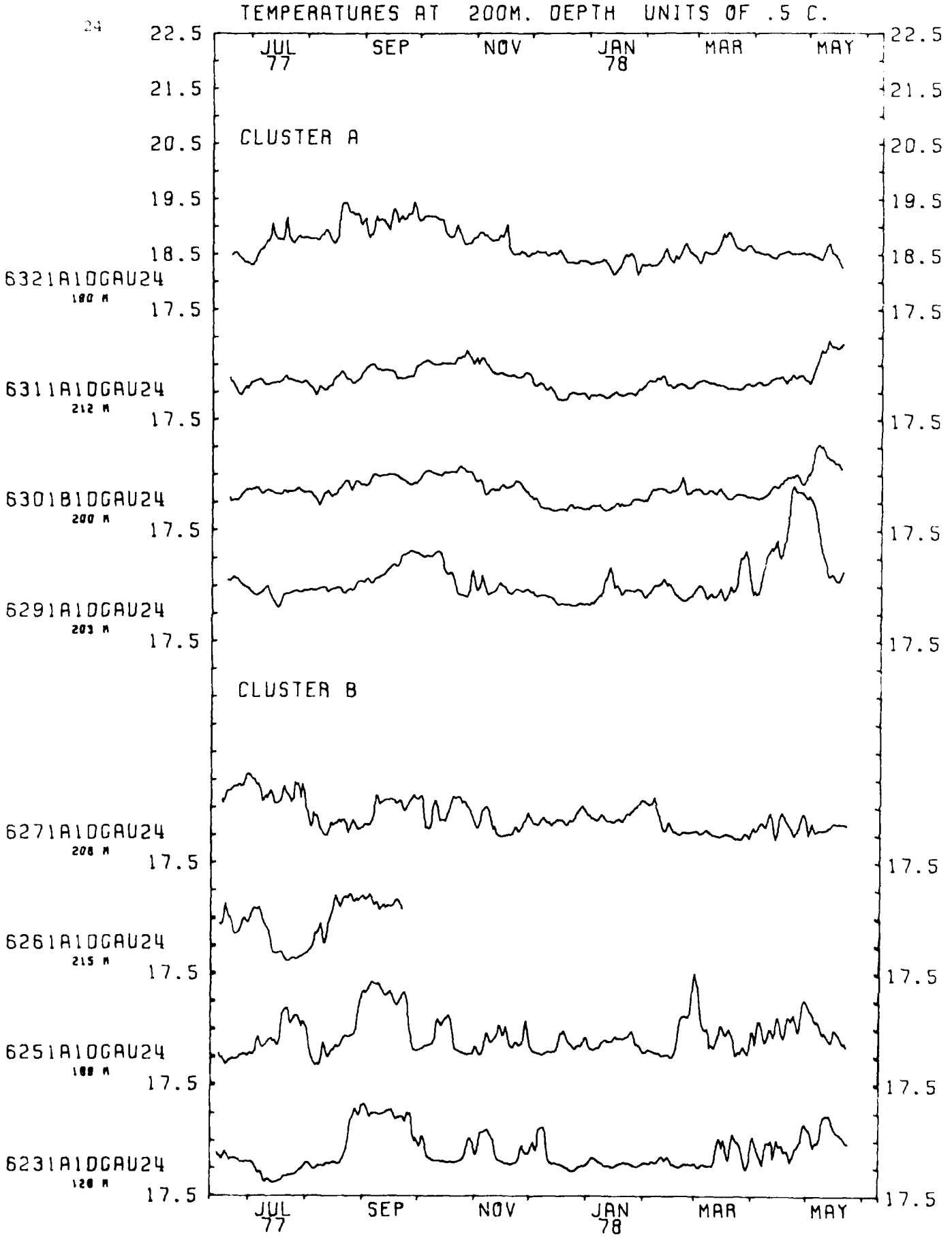
Hunt, M., 1977, A program for spectral analysis of time series. Woods Hole Oceanographic Institution Technical Memorandum W.H.O.I. 2-77.

Payne, R. E., A. L. Bradshaw, J. P. Dean and K. E. Schleicher, 1976, Accuracy of temperature measurements with the VACM. Woods Hole Oceanographic Institution Technical Report W.H.O.I. 76-94.

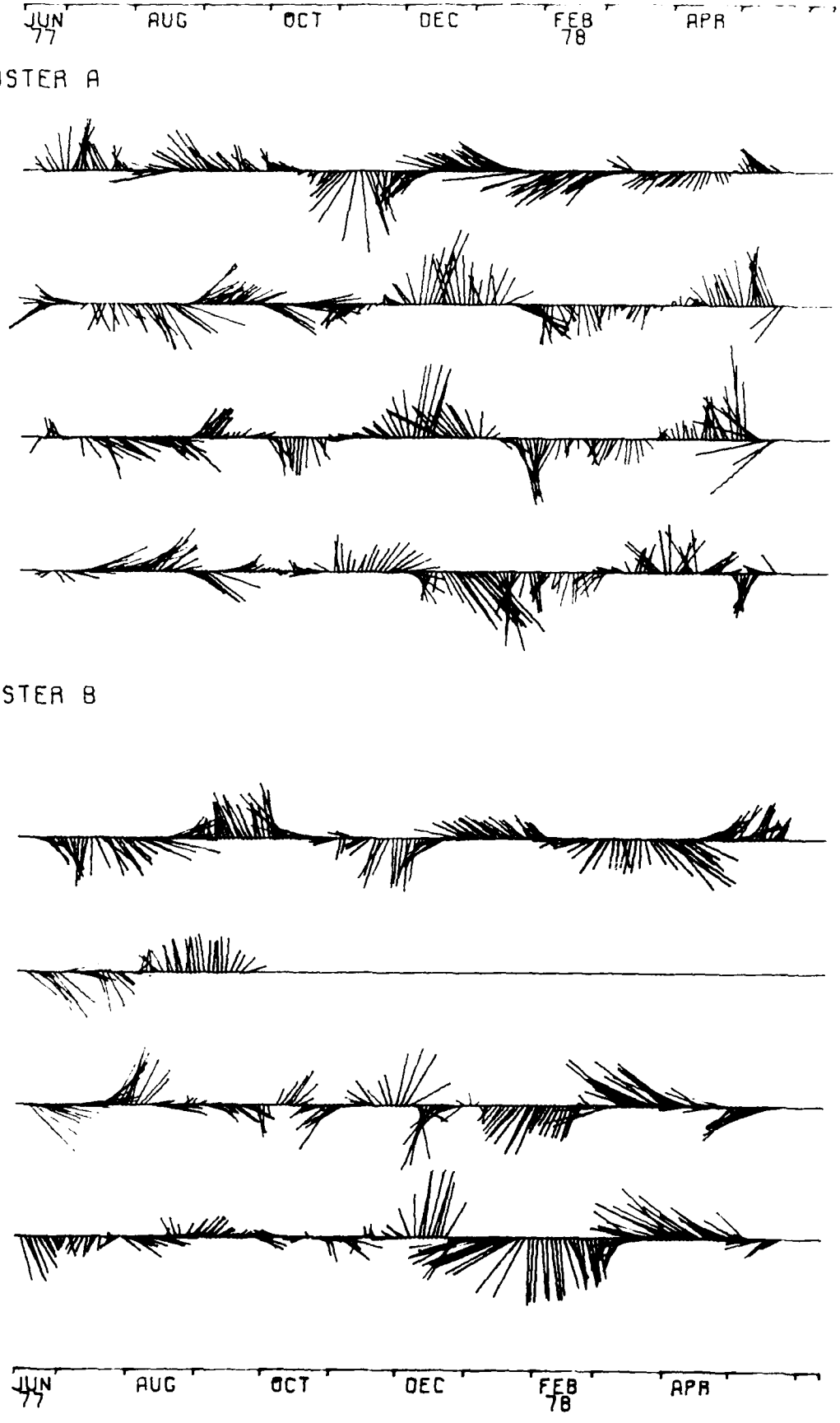
Wunsch, C. and J. Dahlen, 1974, A moored temperature and pressure recorder. Deep-Sea Research, 21, 145-154.

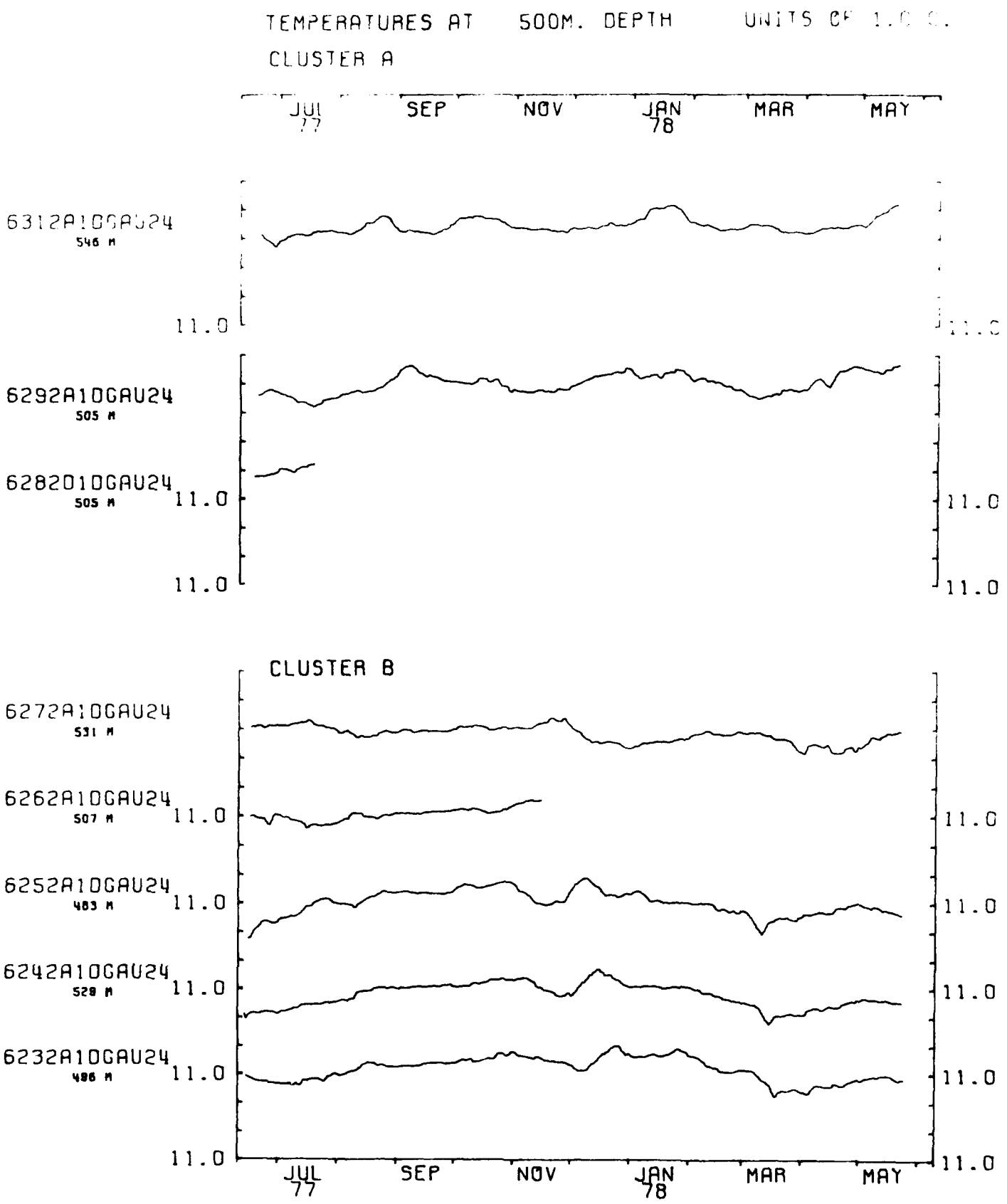

EAST COMPONENTS AT 200M. DEPTH, UNITS OF 10 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
CLUSTER A
6321A1DGAU24
180 M
6311A1DGAU24
212 M
6301B1DGAU24
200 M
6291A1DGAU24
203 M
CLUSTER B
6271A1DGAU24
208 M
6261A1DGAU24
215 M
6251A1DGAU24
188 M
6231A1DGAU24
128 M
0


NORTH COMPONENTS AT 200M. DEPTH. UNITS OF 10 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
CLUSTER A
6321A10GAU24
180 M
6311A10GAU24
212 M
6301B10GAU24
200 M
6291A10GAU24
203 M
CLUSTER B
6271A10GAU24
208 M
6261A10GAU24
215 M
6231A10GAU24
128 M
0


TEMPERATURES AT 200M. DEPTH UNITS OF .5 C.
22.5
21.5
20.5
19.5
18.5
17.5
JUL
77
SEP
NOV
JAN
78
MAR
MAY
CLUSTER A
6321A1DGAU24
180 M
6311A1DGAU24
212 M
6301B1DGAU24
200 M
6291A1DGAU24
203 M
CLUSTER B
6271A1DGAU24
208 M
6261A1DGAU24
215 M
6251A1DGAU24
188 M
6231A1DGAU24
128 M

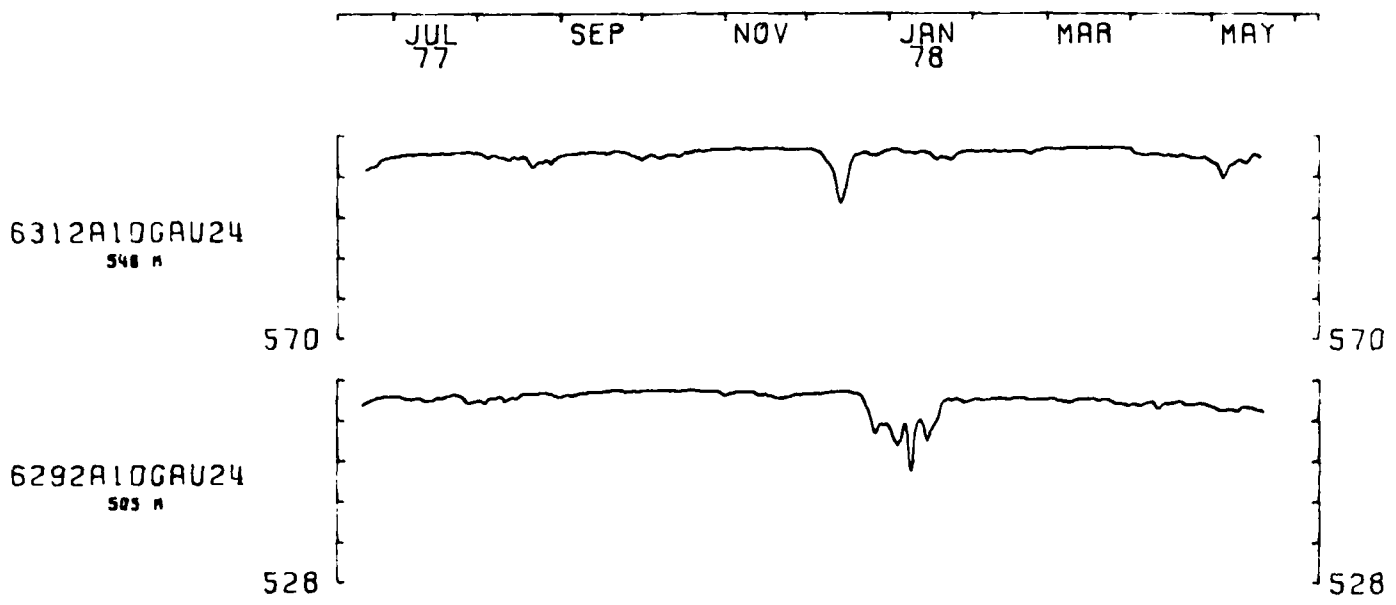
NORTH IS UP 200M. DEPTH. UNITS OF 10 CM/SEC



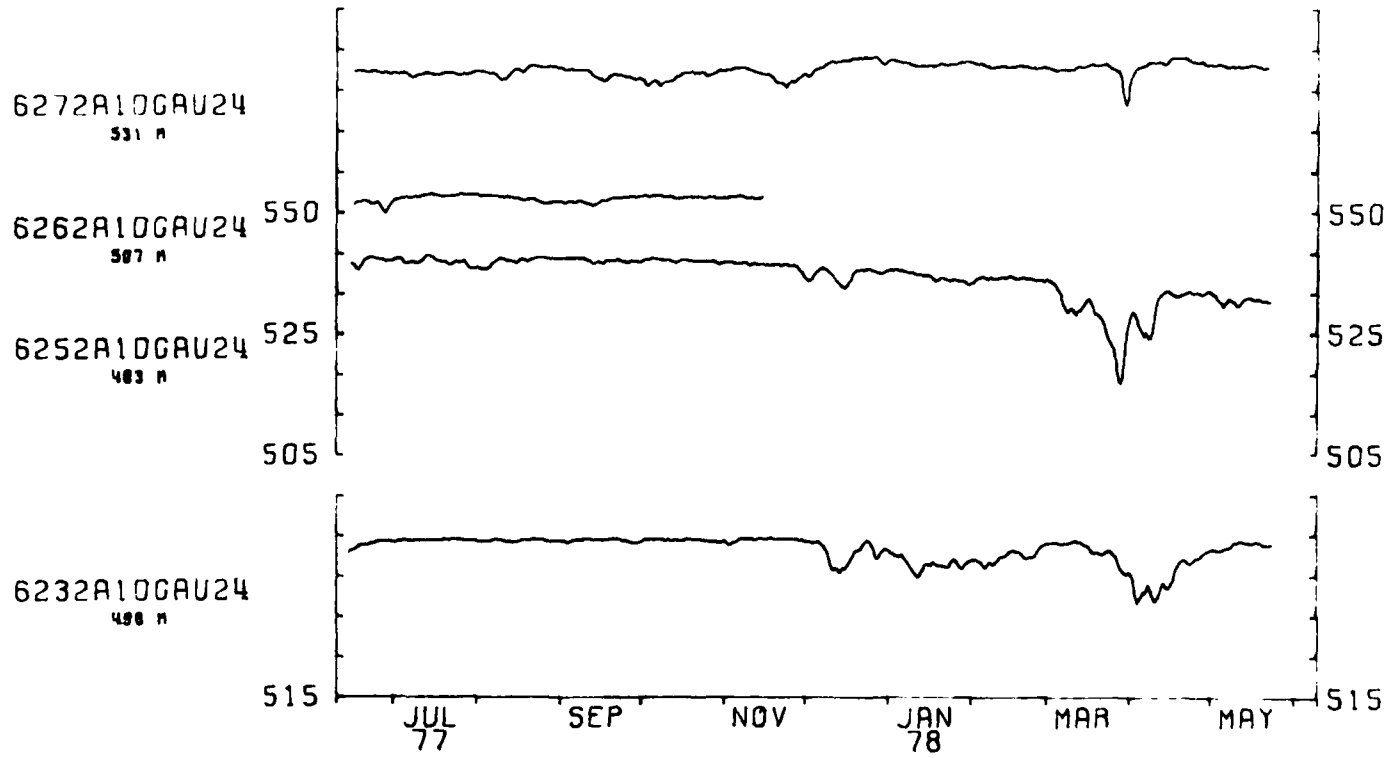

TEMPERATURES AT 500M. DEPTH UNITS OF 1.0 C.
CLUSTER A
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6312A1DGAU24
546 M
11.0
11.0
6292A1DGAU24
505 M
6282D1DGAU24
505 M
11.0
11.0
11.0
11.0
CLUSTER B
6272A1DGAU24
531 M
6262A1DGAU24
507 M
11.0
11.0
6252A1DGAU24
483 M
11.0
11.0
6242A1DGAU24
528 M
11.0
11.0
6232A1DGAU24
486 M
11.0
11.0
11.0
11.0
JUL 77
SEP
NOV
JAN 78
MAR
MAY

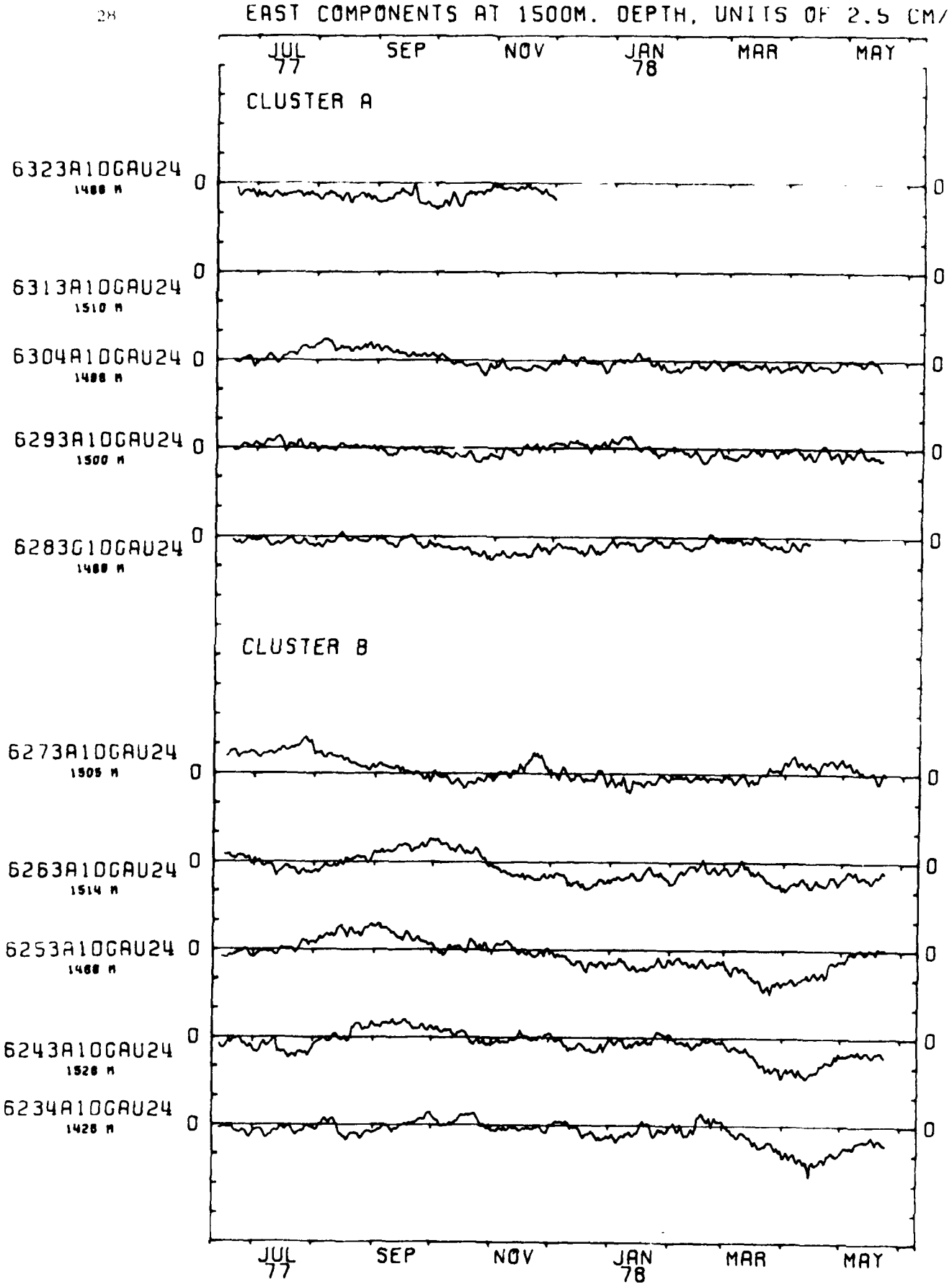
PRESSURES AT 500M. DEPTH UNITS OF 4 OBS.

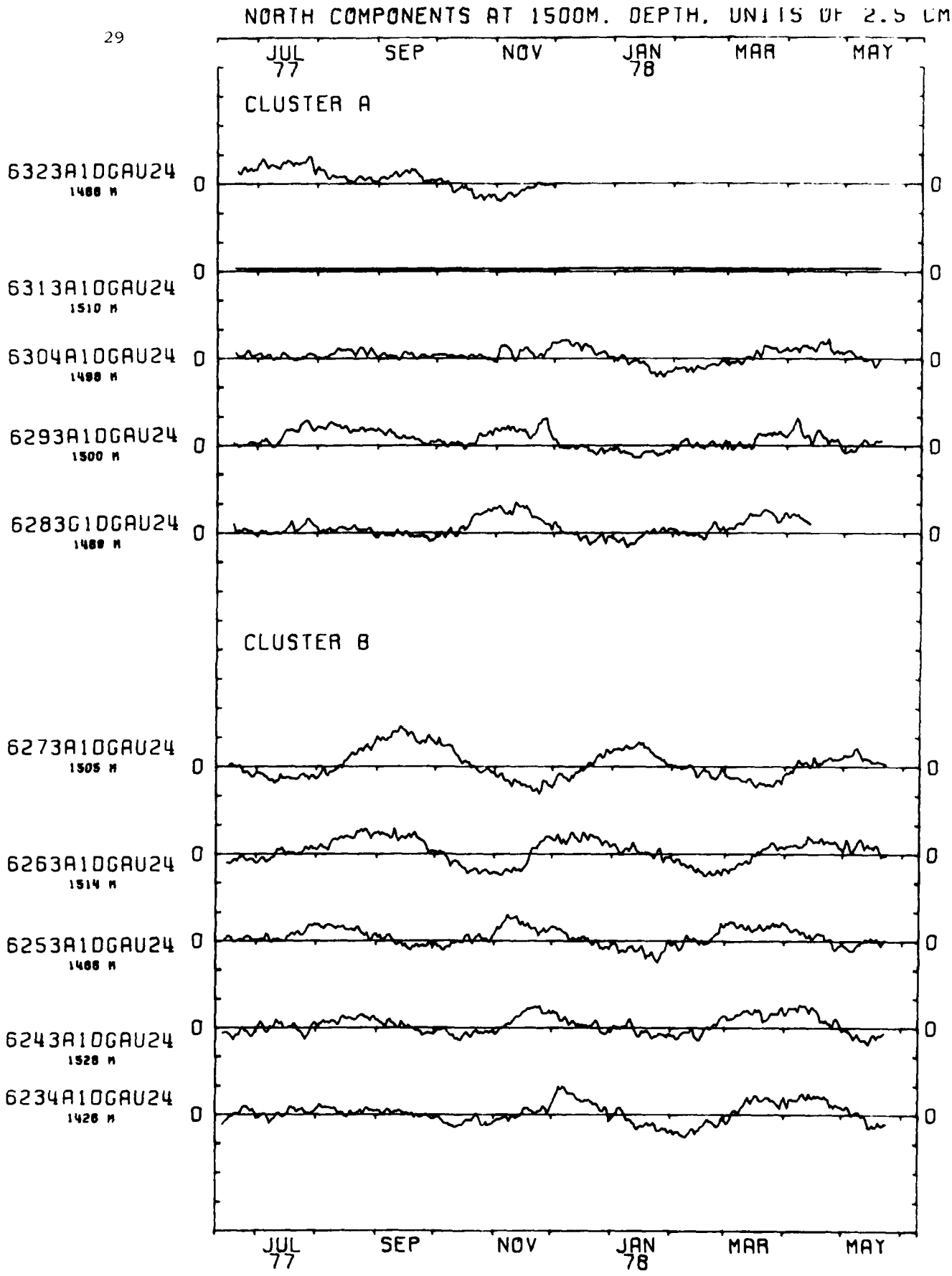
CLUSTER A

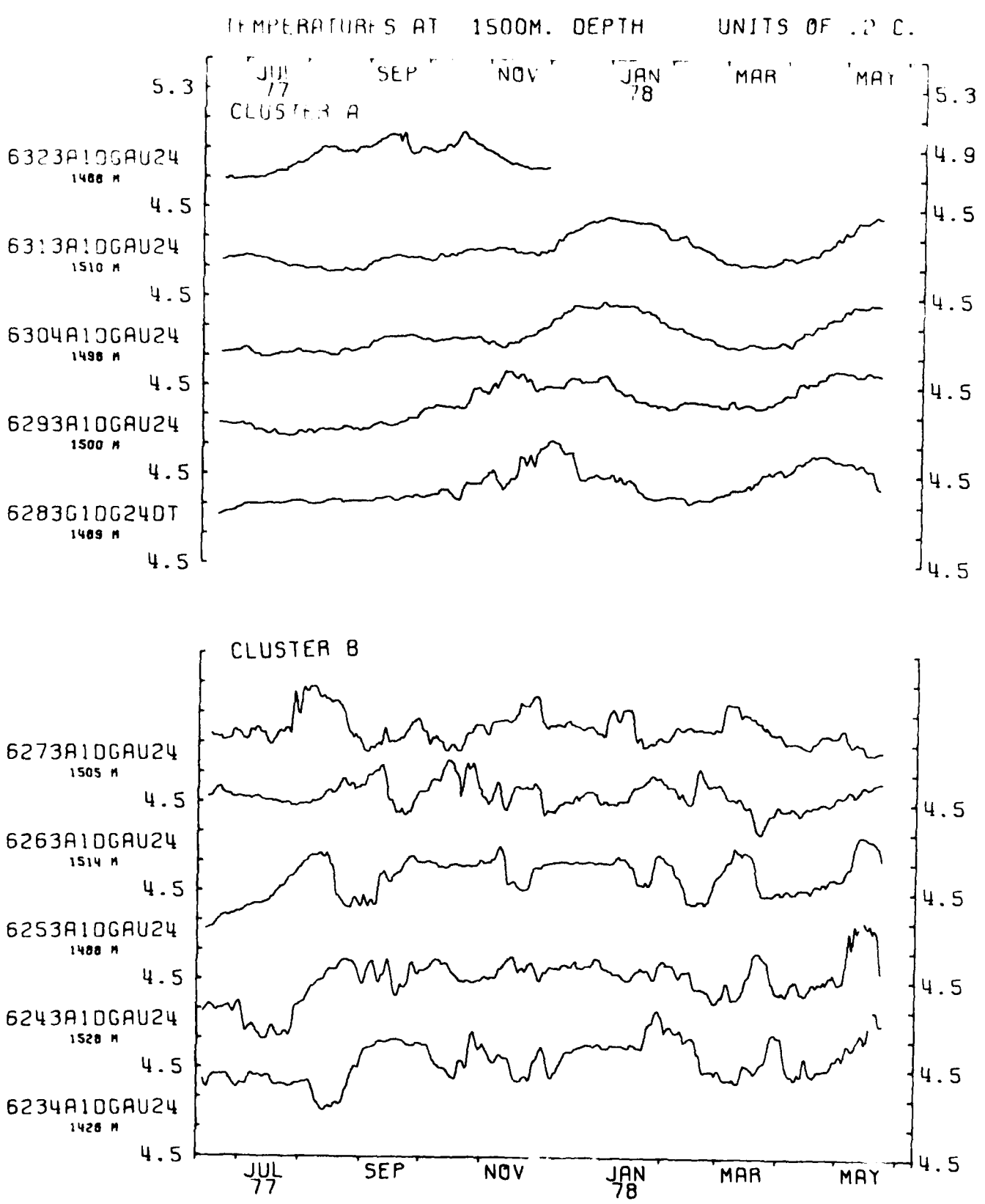


CLUSTER B

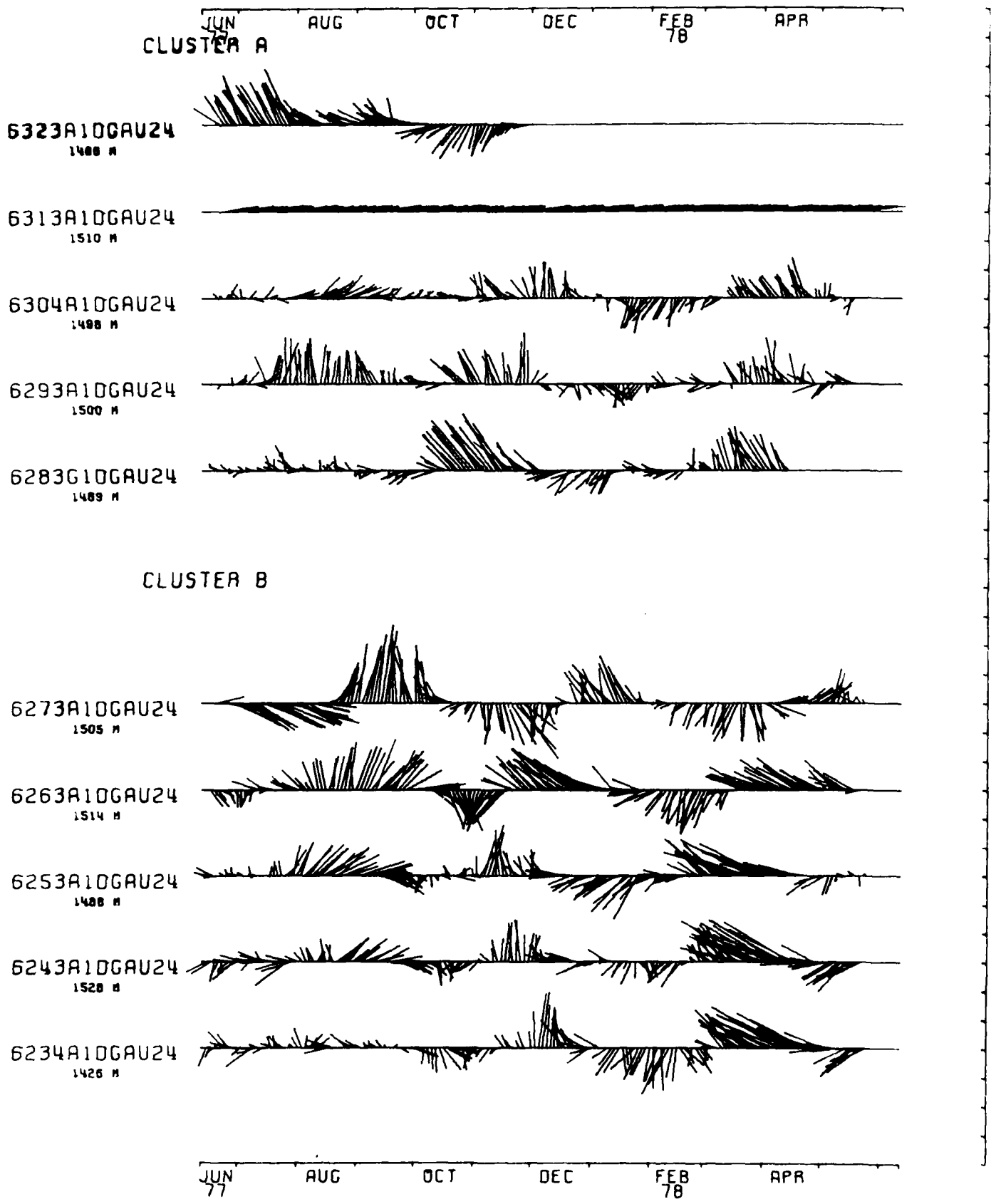


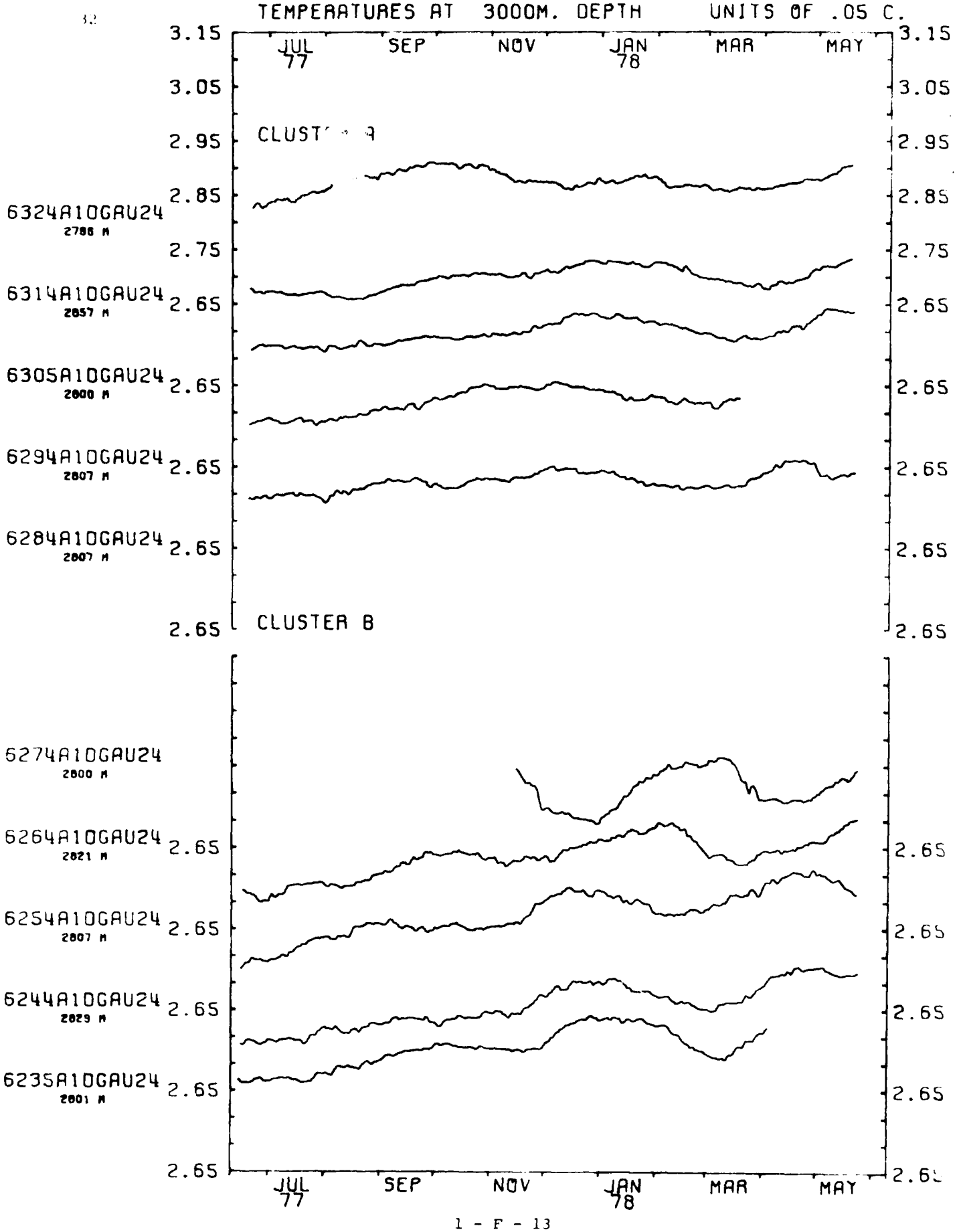

EAST COMPONENTS AT 1500M. DEPTH, UNITS OF 2.5 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
CLUSTER A
6323A10GAU24
1488 M
6313A10GAU24
1510 M
6304A10GAU24
1488 M
6293A10GAU24
1500 M
6283C10GAU24
1488 M
CLUSTER B
6273A10GAU24
1505 M
6263A10GAU24
1514 M
6253A10GAU24
1468 M
6243A10GAU24
1528 M
6234A10GAU24
1428 M
0


NORTH COMPONENTS AT 1500M. DEPTH. UNITS OF 2.5 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
CLUSTER A
6323A1DGAU24
1488 M
6313A1DGAU24
1510 M
6304A1DGAU24
1498 M
6293A1DGAU24
1500 M
6283C1DGAU24
1489 M
CLUSTER B
6273A1DGAU24
1505 M
6263A1DGAU24
1514 M
6253A1DGAU24
1488 M
6243A1DGAU24
1528 M
6234A1DGAU24
1428 M
0

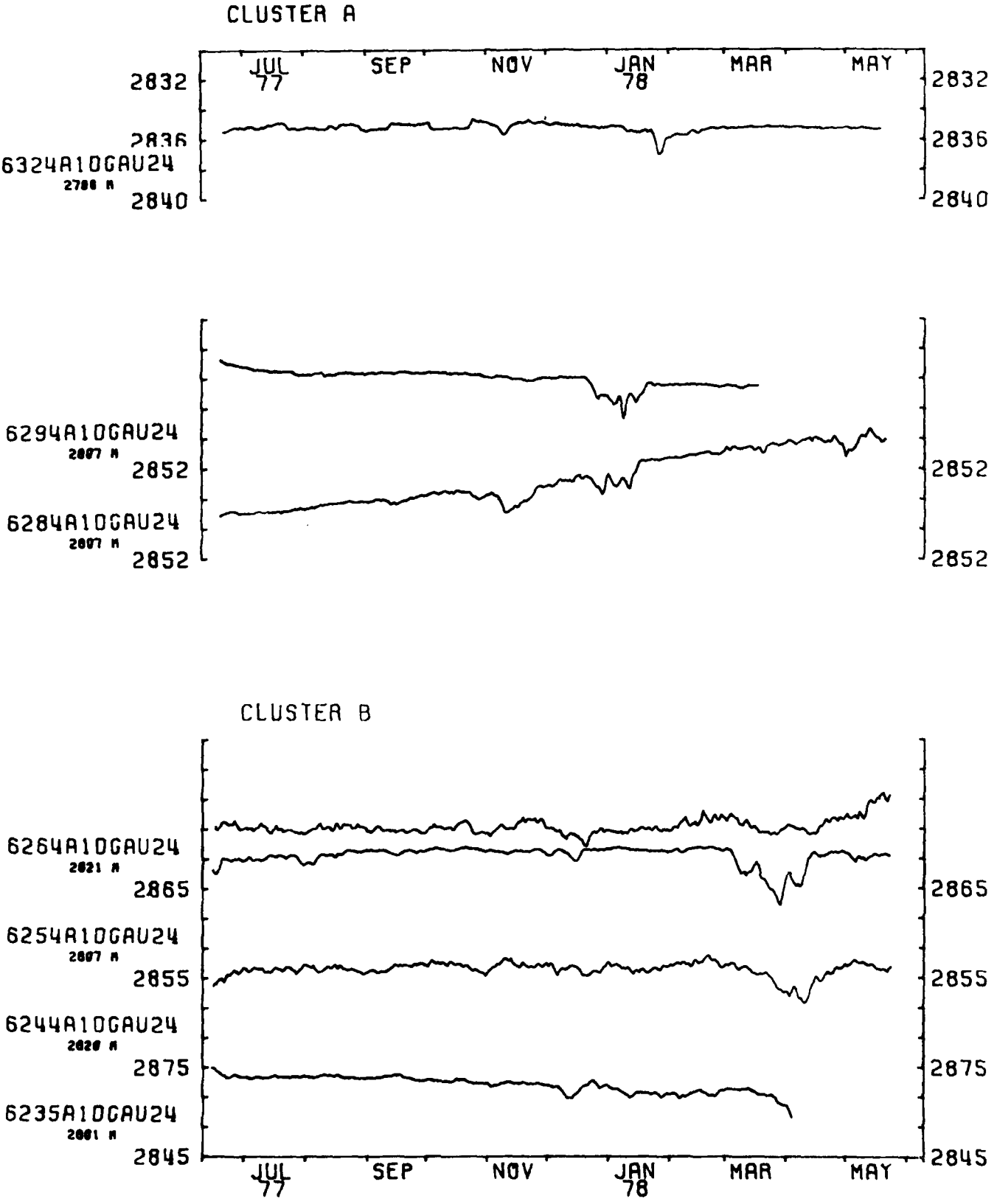

TEMPERATURES AT 1500M. DEPTH UNITS OF .?° C.
JUL 77
SEP
NOV
JAN 78
MAR
MAY
CLUSTER A
6323A1DGAU24
1488 M
6313A1DGAU24
1510 M
6304A1DGAU24
1498 M
6293A1DGAU24
1500 M
6283G1DG24DT
1489 M
5.3
4.9
4.5
CLUSTER B
6273A1DGAU24
1505 M
6263A1DGAU24
1514 M
6253A1DGAU24
1488 M
6243A1DGAU24
1528 M
6234A1DGAU24
1428 M

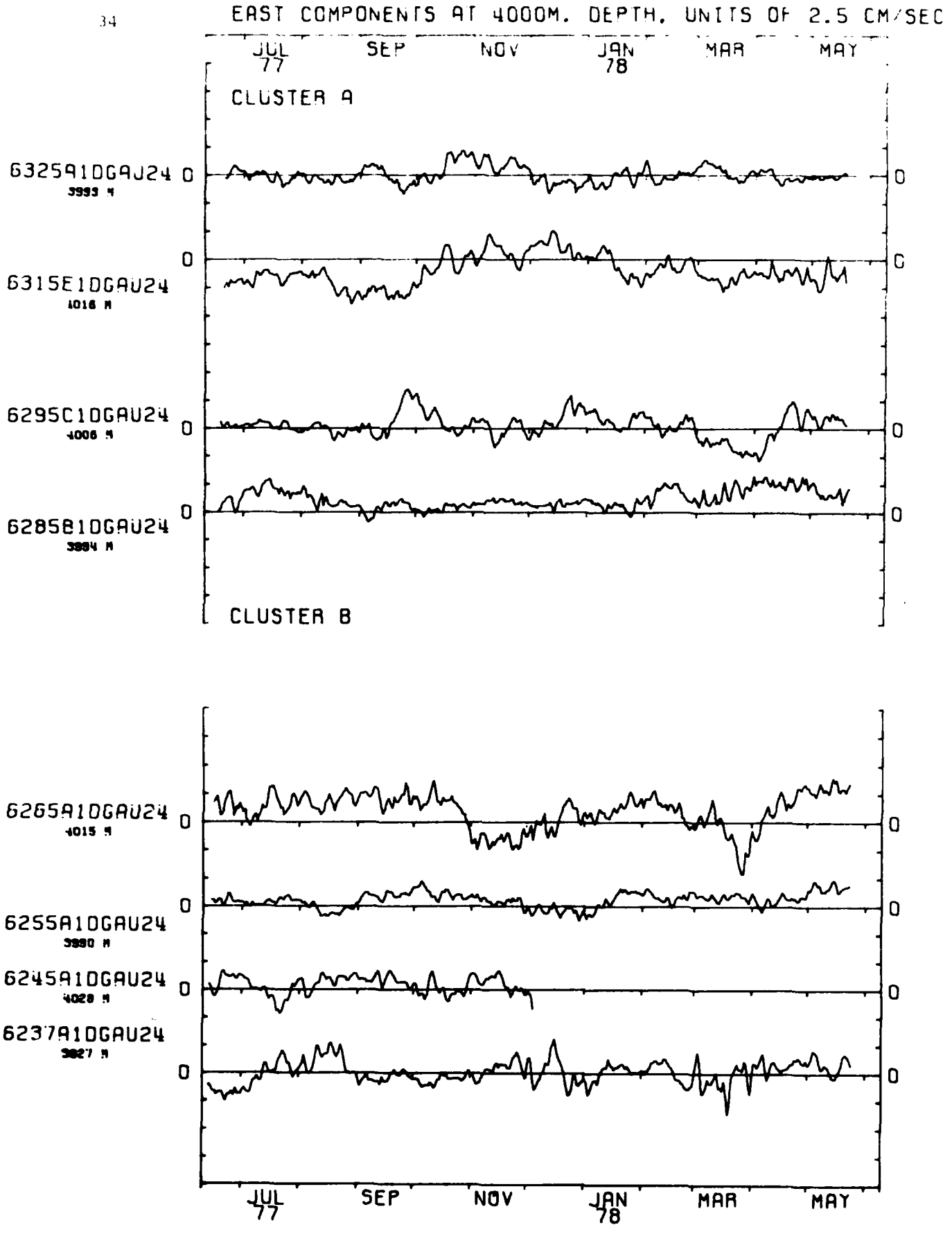
NORTH IS UP 1500M. DEPTH, UNITS OF 2.5 CM/SEC



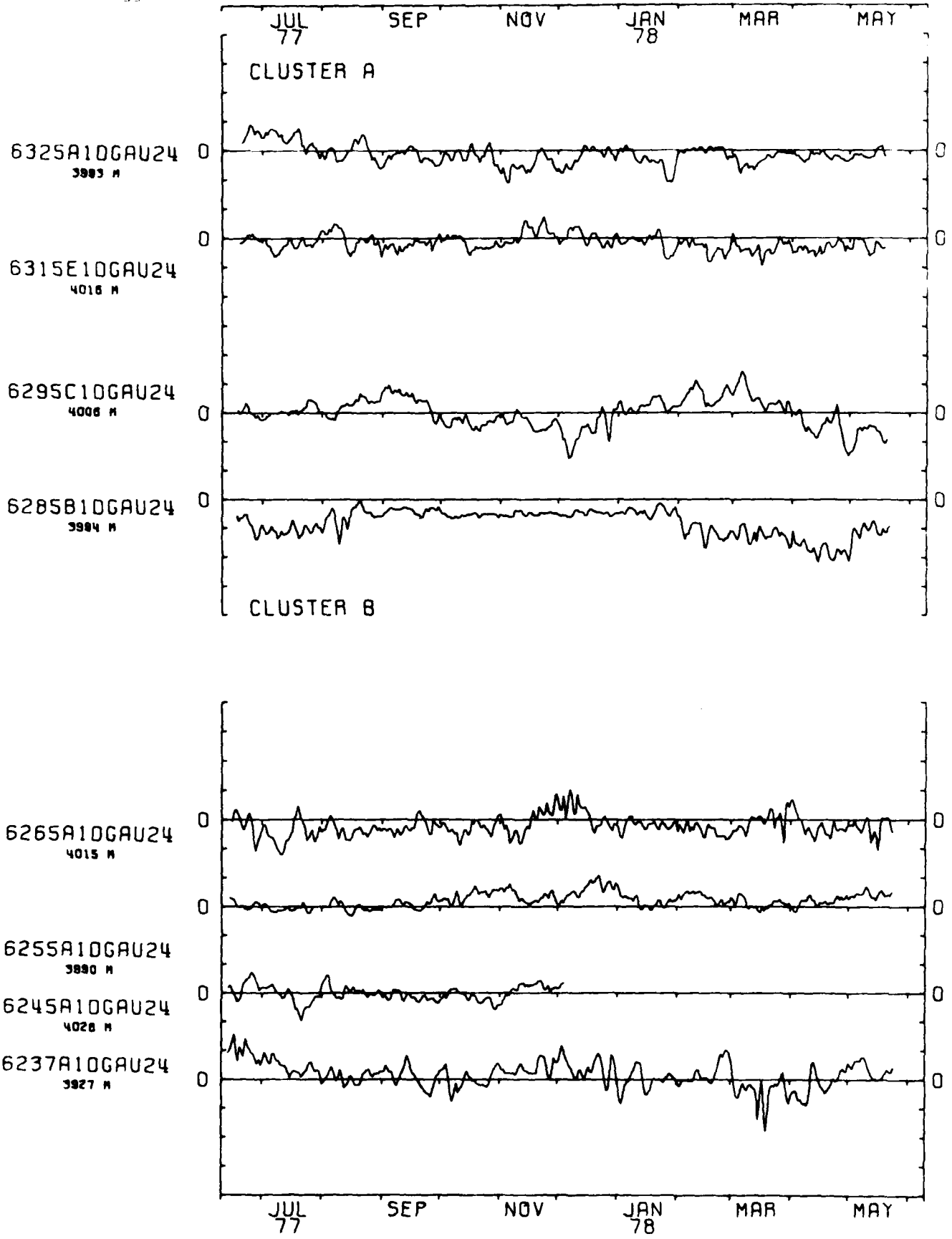

TEMPERATURES AT 3000M. DEPTH UNITS OF .05 C.
JUL 77
SEP
NOV
JAN 78
MAR
MAY
3.15
3.05
2.95
2.85
2.75
2.65
CLUSTER A
6324A10GAU24
2786 M
6314A10GAU24
2857 M
6305A10GAU24
2800 M
6294A10GAU24
2807 M
6284A10GAU24
2807 M
CLUSTER B
6274A10GAU24
2800 M
6264A10GAU24
2821 M
6254A10GAU24
2807 M
6244A10GAU24
2829 M
6235A10GAU24
2801 M

PRESSURES AT 3000M. DEPTH UNITS OF 2 DBS.



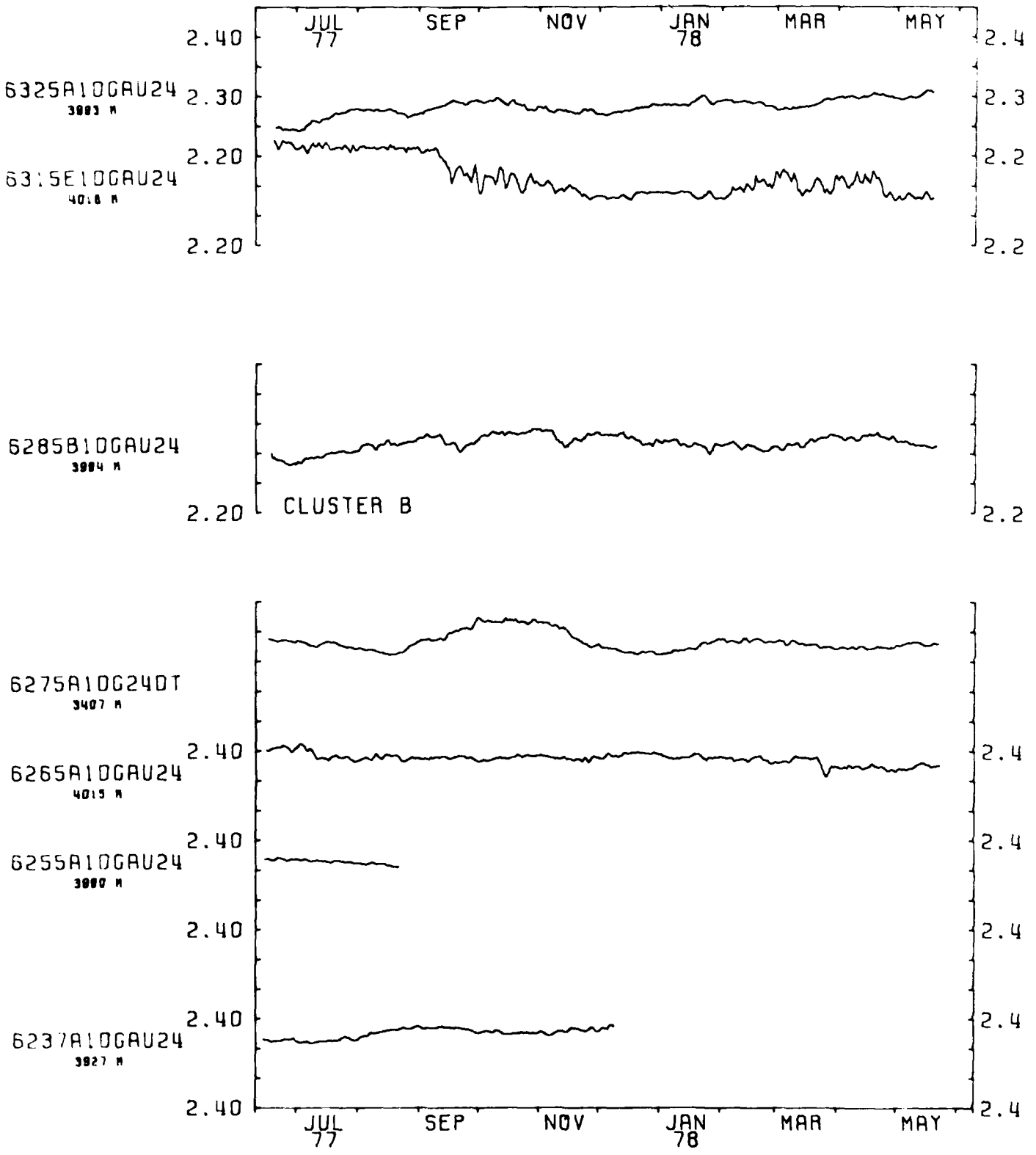

EAST COMPONENTS AT 4000M. DEPTH. UNITS OF 2.5 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
CLUSTER A
6325A1DGAU24
3993 M
6315E1DGAU24
4016 M
6295C1DGAU24
4006 M
6285B1DGAU24
3984 M
CLUSTER B
6265A1DGAU24
4015 M
6255A1DGAU24
3980 M
6245A1DGAU24
4028 M
6237A1DGAU24
3827 M
0

NORTH COMPONENTS AT 4000M. DEPTH. UNITS OF 2.5 CM/SEC



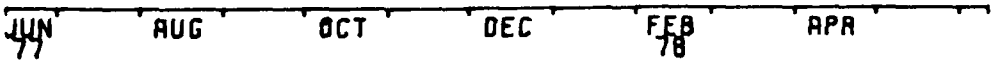
TEMPERATURES AT 4000M. DEPTH UNITS OF .05 C.

CLUSTER A



37

NORTH IS UP 4000M. DEPTH. UNITS OF 2.5 CM/SEC



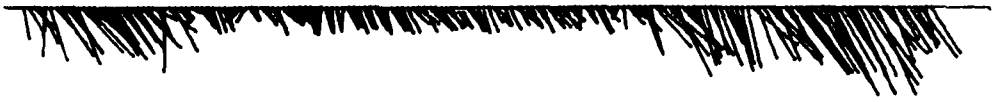
CLUSTER A

6325A1DGAU24
3983 M

6315E1DGAU24
4018 M

6295C1DGAU24
4008 M

6285B1DGAU24
3984 M

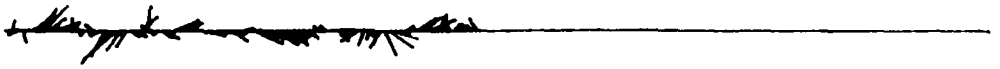


CLUSTER B

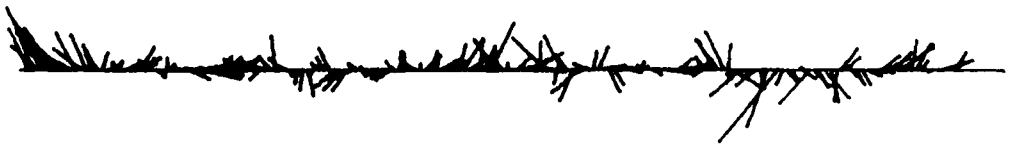
6265A1DGAU24
4018 M

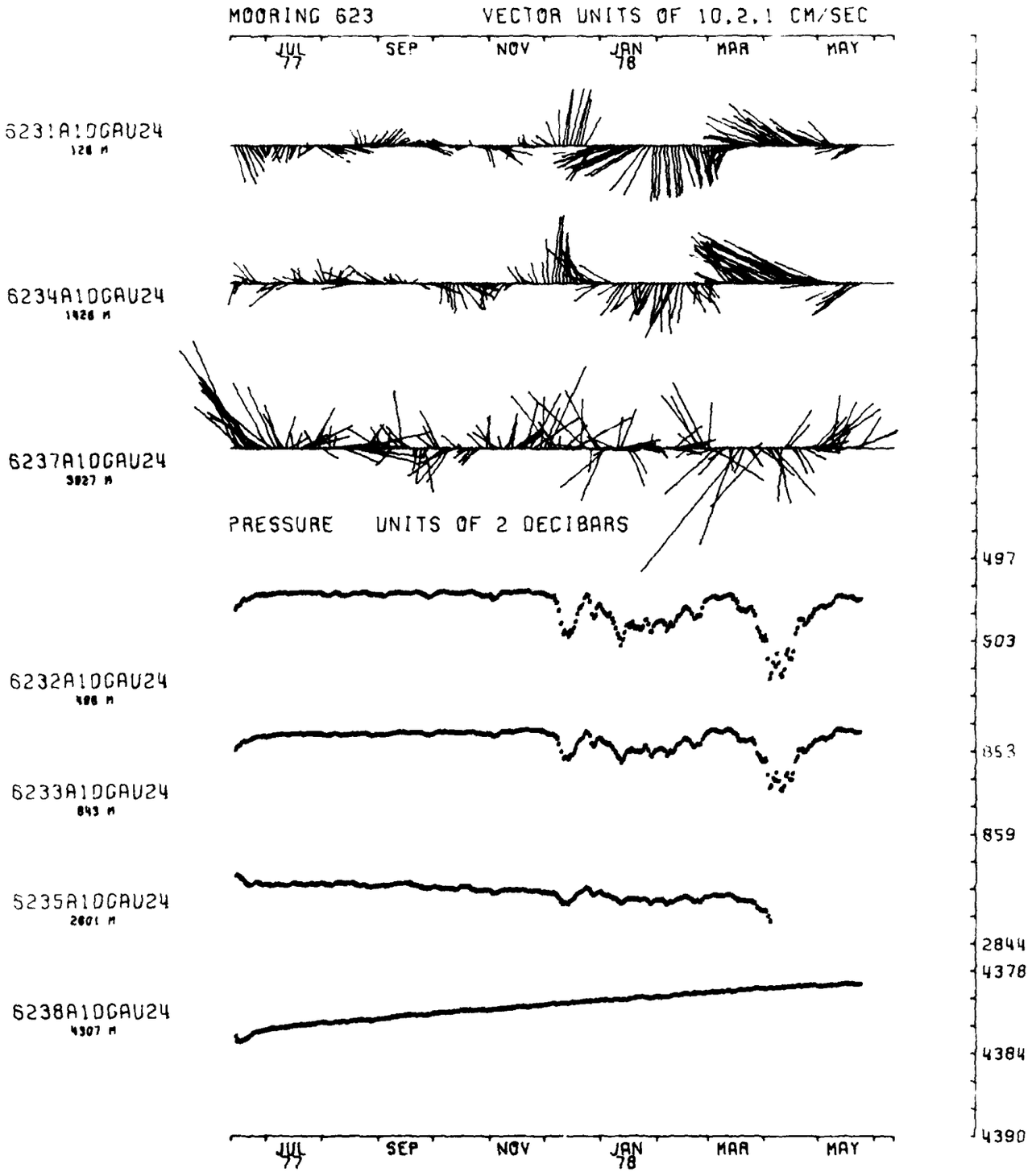
6255A1DGAU24
3980 M

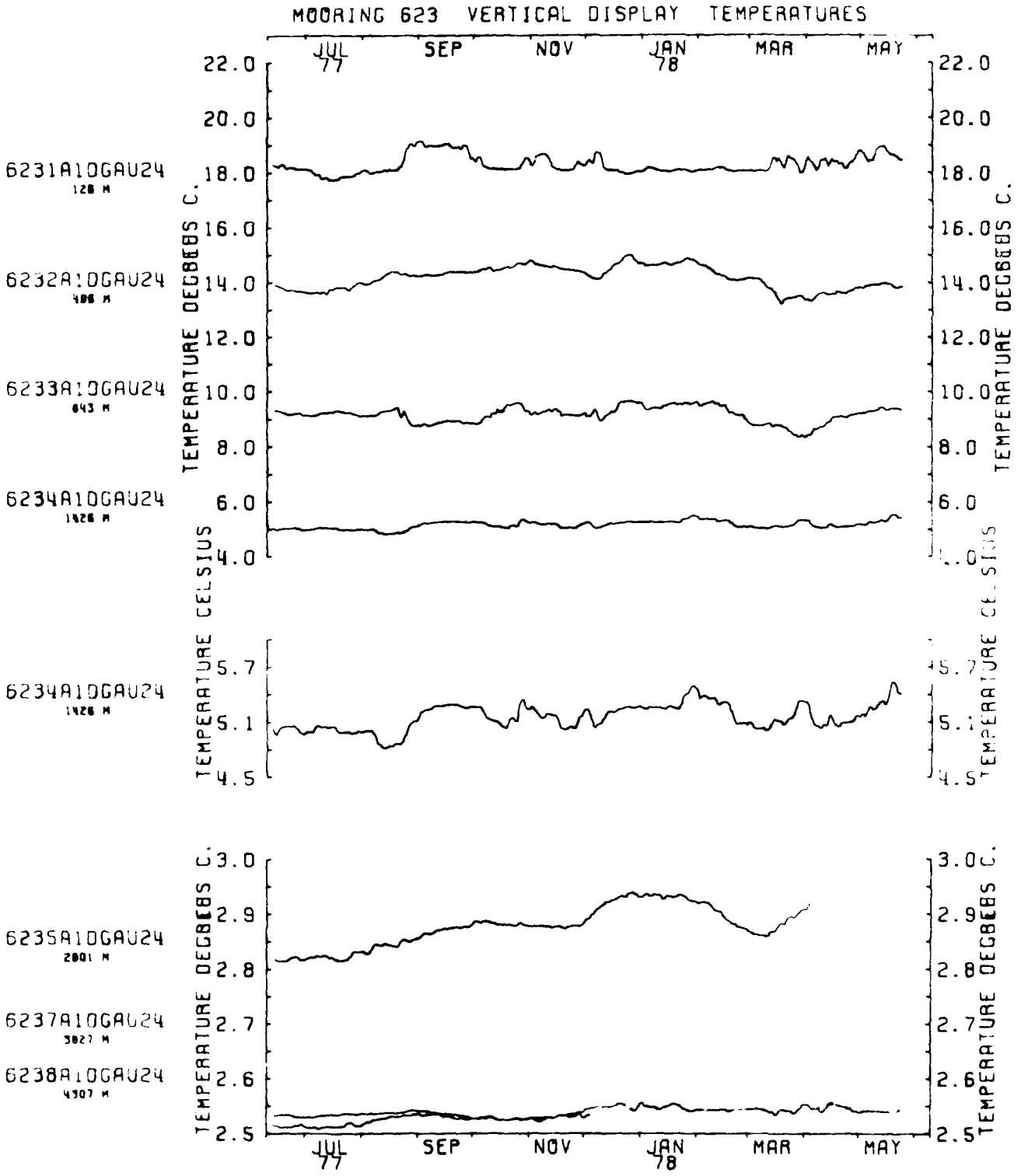
6245A1DGAU24
4026 M

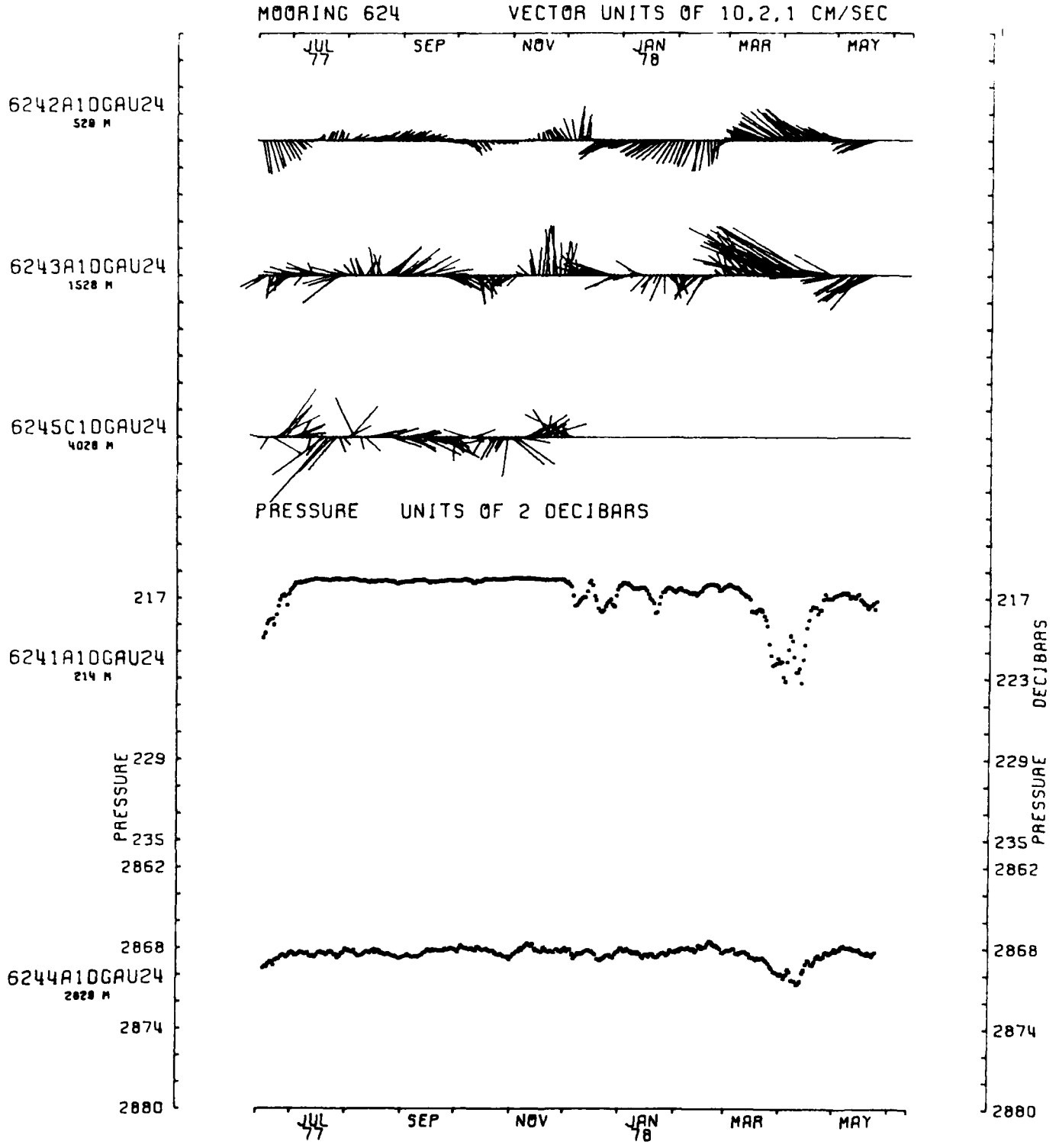


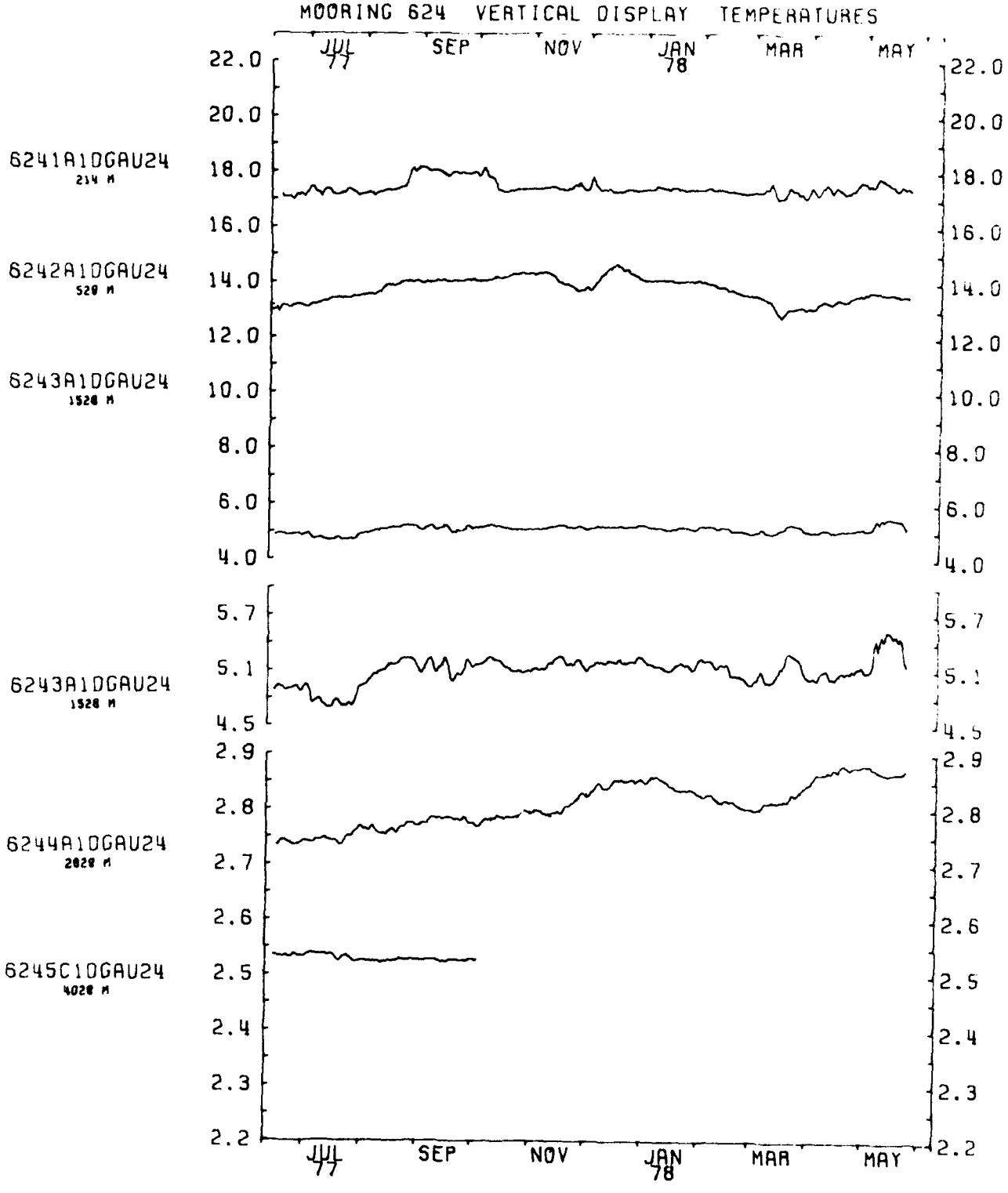
6237A1DGAU24
3987 M

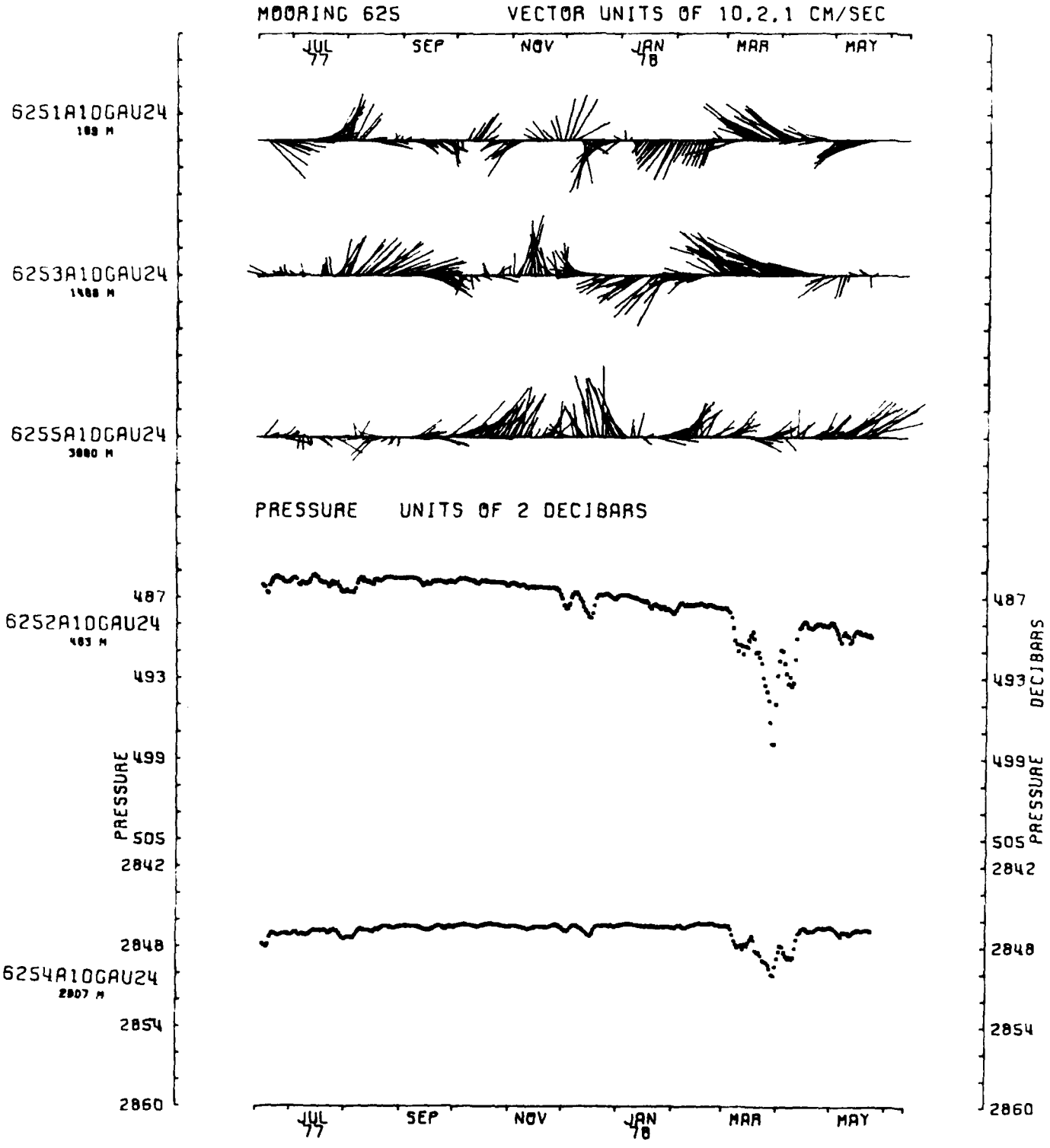


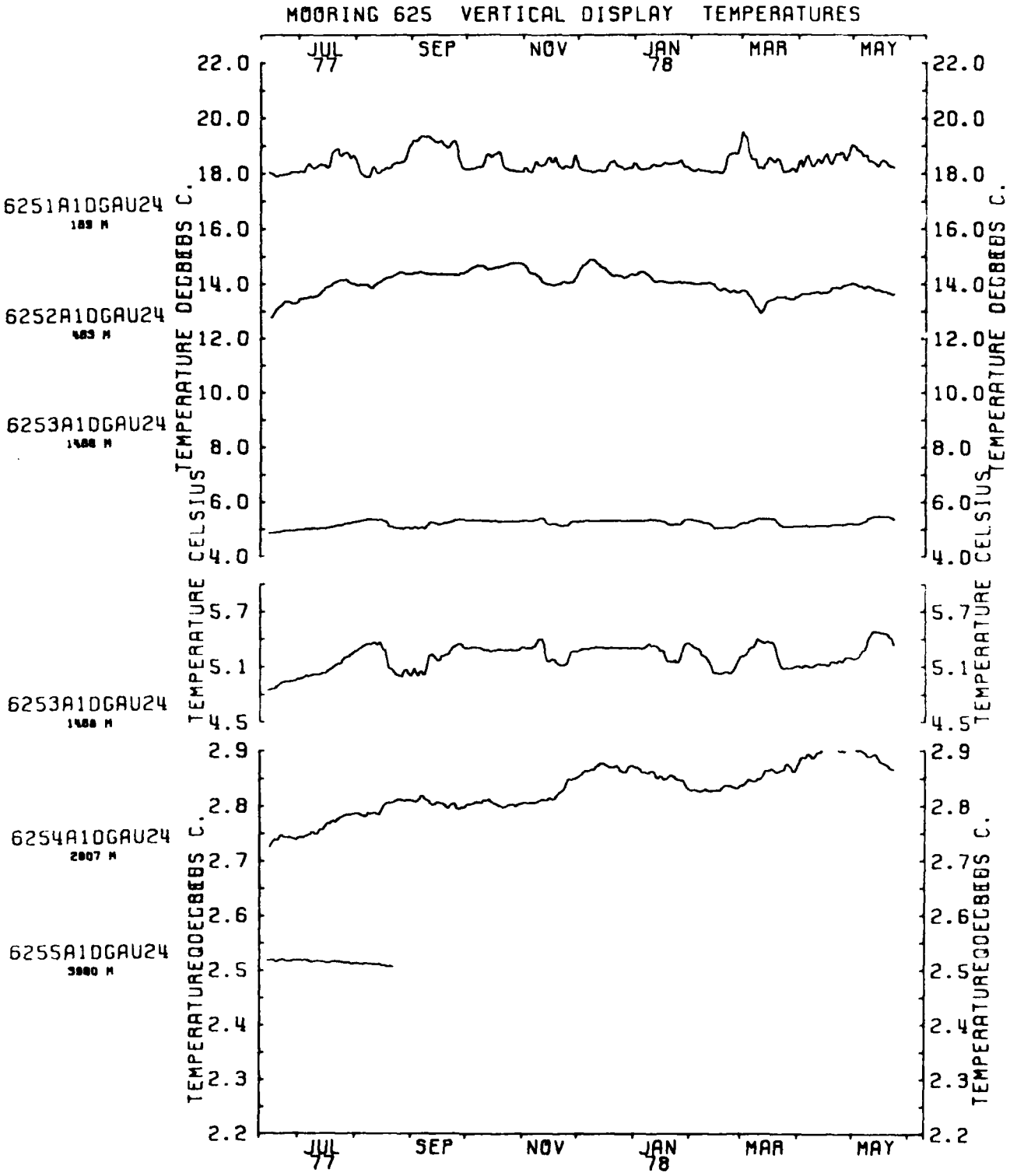

MOORING 623
VECTOR UNITS OF 10.2.1 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6231A1DGAV24
128 M
6234A1DGAV24
1926 M
6237A1DGAV24
3927 M
PRESSURE UNITS OF 2 DECIBARS
6232A1DGAV24
496 M
6233A1DGAV24
843 M
6235A1DGAV24
2601 M
6238A1DGAV24
4307 M
497
503
853
859
2844
4378
4384
4390

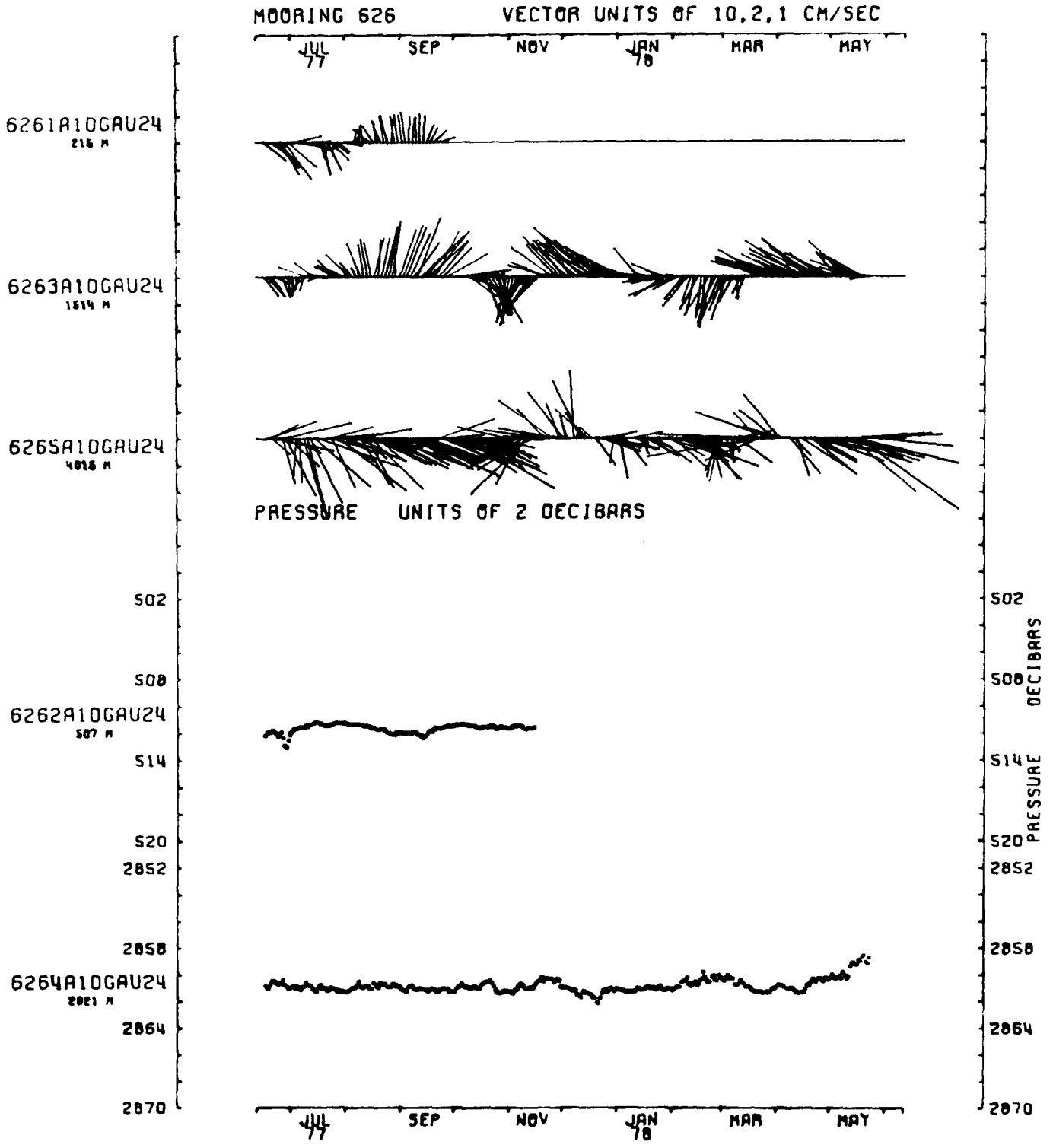

MOORING 623 VERTICAL DISPLAY TEMPERATURES
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6231A1DGAU24
128 M
6232A1DGAU24
486 M
6233A1DGAU24
843 M
6234A1DGAU24
1826 M
6234A1DGAU24
1826 M
6235A1DGAU24
2801 M
6237A1DGAU24
3827 M
6238A1DGAU24
4307 M
TEMPERATURE DEGREES C.
TEMPERATURE CELSIUS
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
5.7
5.1
4.5
3.0
2.9
2.8
2.7
2.6
2.5

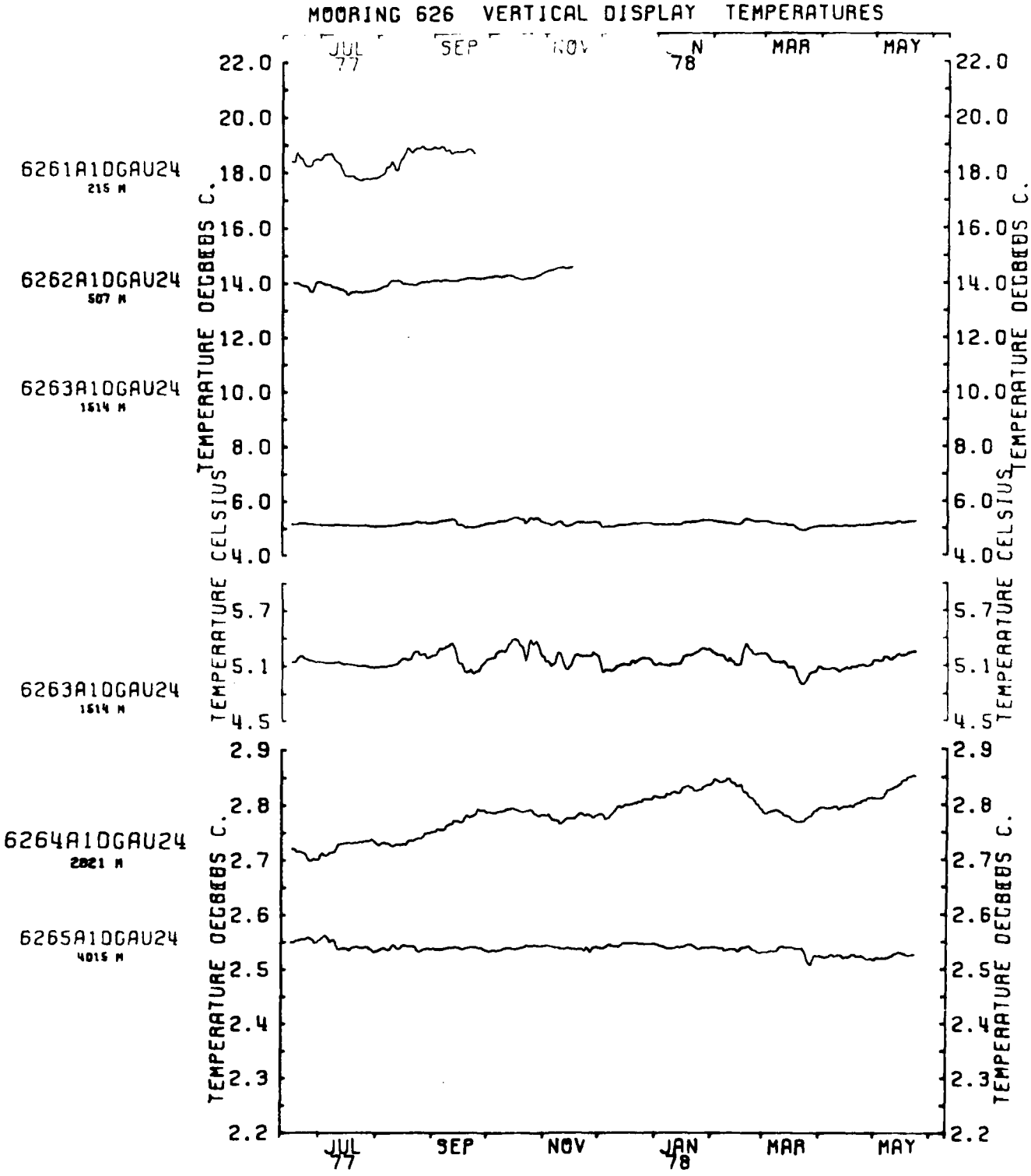

MOORING 624
VECTOR UNITS OF 10,2,1 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6242A1DGAU24
520 M
6243A1DGAU24
1528 M
6245C1DGAU24
4028 M
PRESSURE UNITS OF 2 DECIBARS
217
6241A1DGAU24
214 M
229
235
2862
2868
6244A1DGAU24
2828 M
2874
2880
PRESSURE
DECIBARS

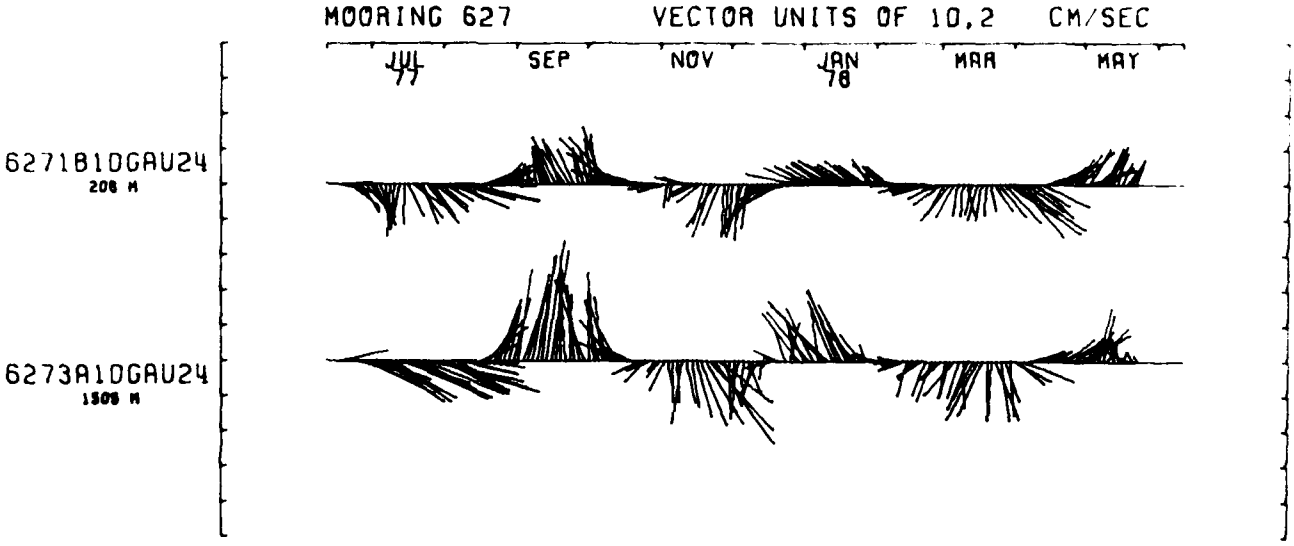

MOORING 624 VERTICAL DISPLAY TEMPERATURES
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6241A1DGAU24
214 M
6242A1DGAU24
520 M
6243A1DGAU24
1528 M
6243A1DGAU24
1528 M
6244A1DGAU24
2028 M
6245C1DGAU24
4028 M
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
5.7
5.1
4.5
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2

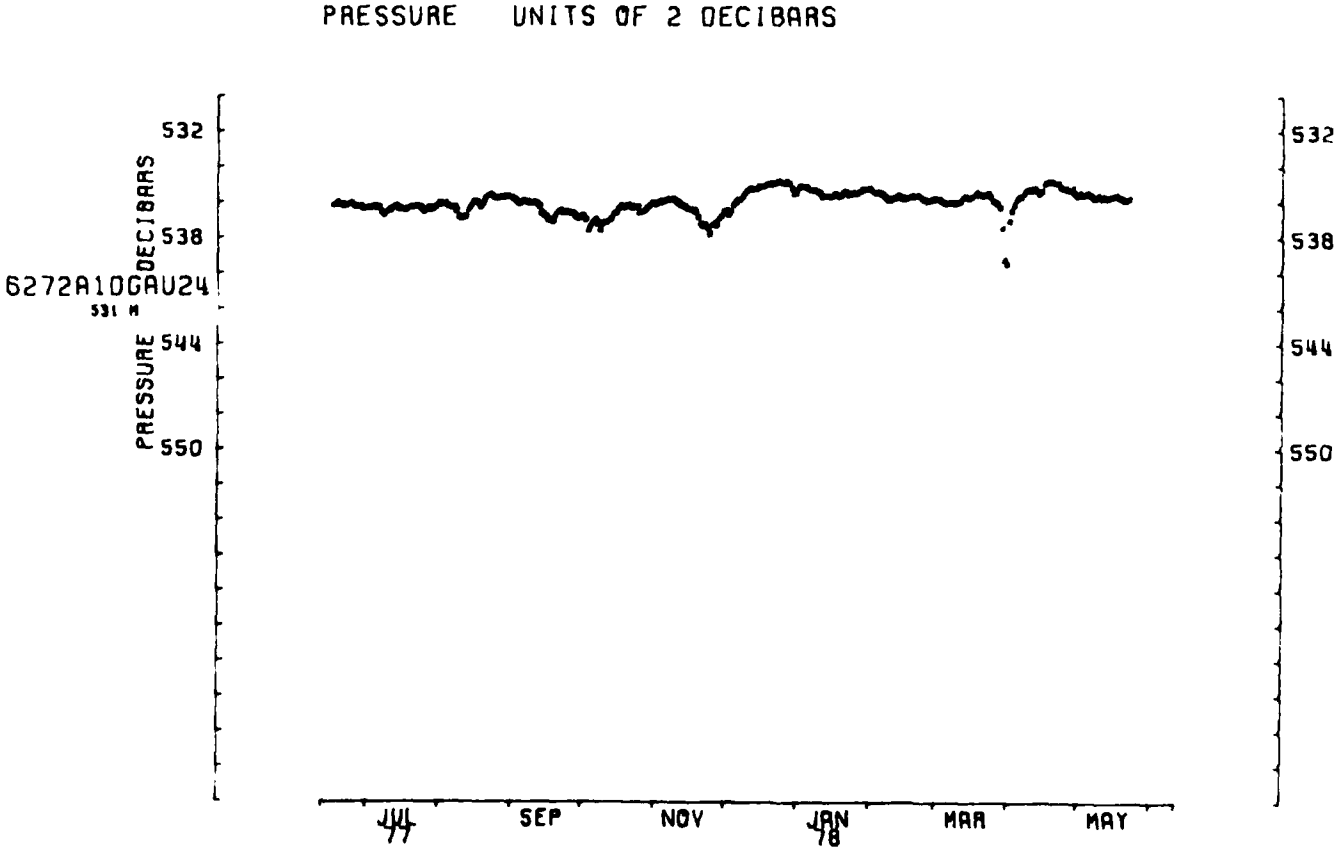

MOORING 625
VECTOR UNITS OF 10,2,1 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6251A10GAU24
169 M
6253A10GAU24
1488 M
6255A10GAU24
3080 M
PRESSURE UNITS OF 2 DECIBARS
487
6252A10GAU24
493 M
493
499
PRESSURE
505
2842
2848
6254A10GAU24
2907 M
2854
2860
DECIBARS

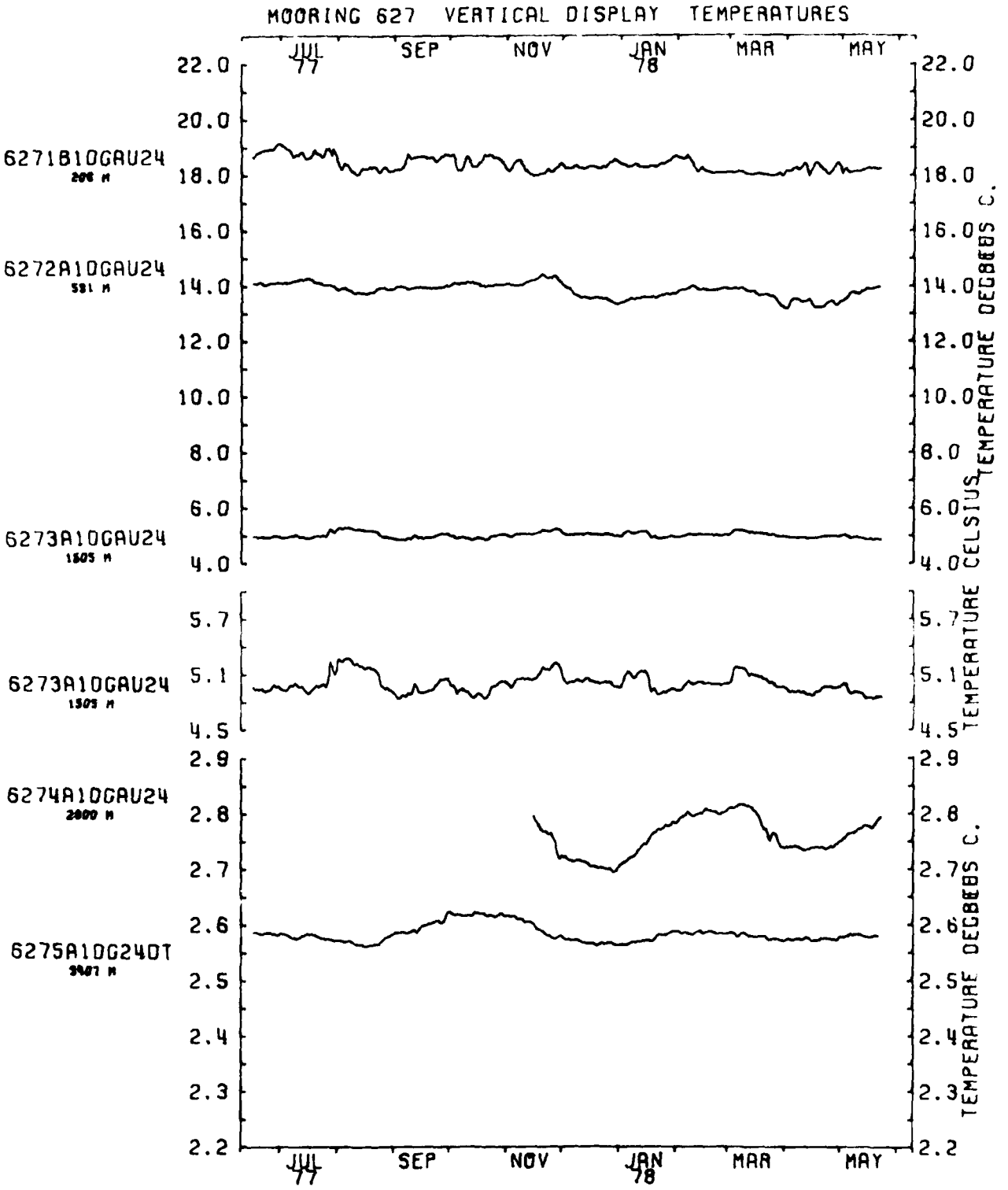

MOORING 625 VERTICAL DISPLAY TEMPERATURES
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6251A1DGAU24
189 M
6252A1DGAU24
483 M
6253A1DGAU24
1488 M
6253A1DGAU24
1488 M
6254A1DGAU24
2807 M
6255A1DGAU24
3980 M
TEMPERATURE CELSIUS DEGREES C.
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
5.7
5.1
4.5
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2

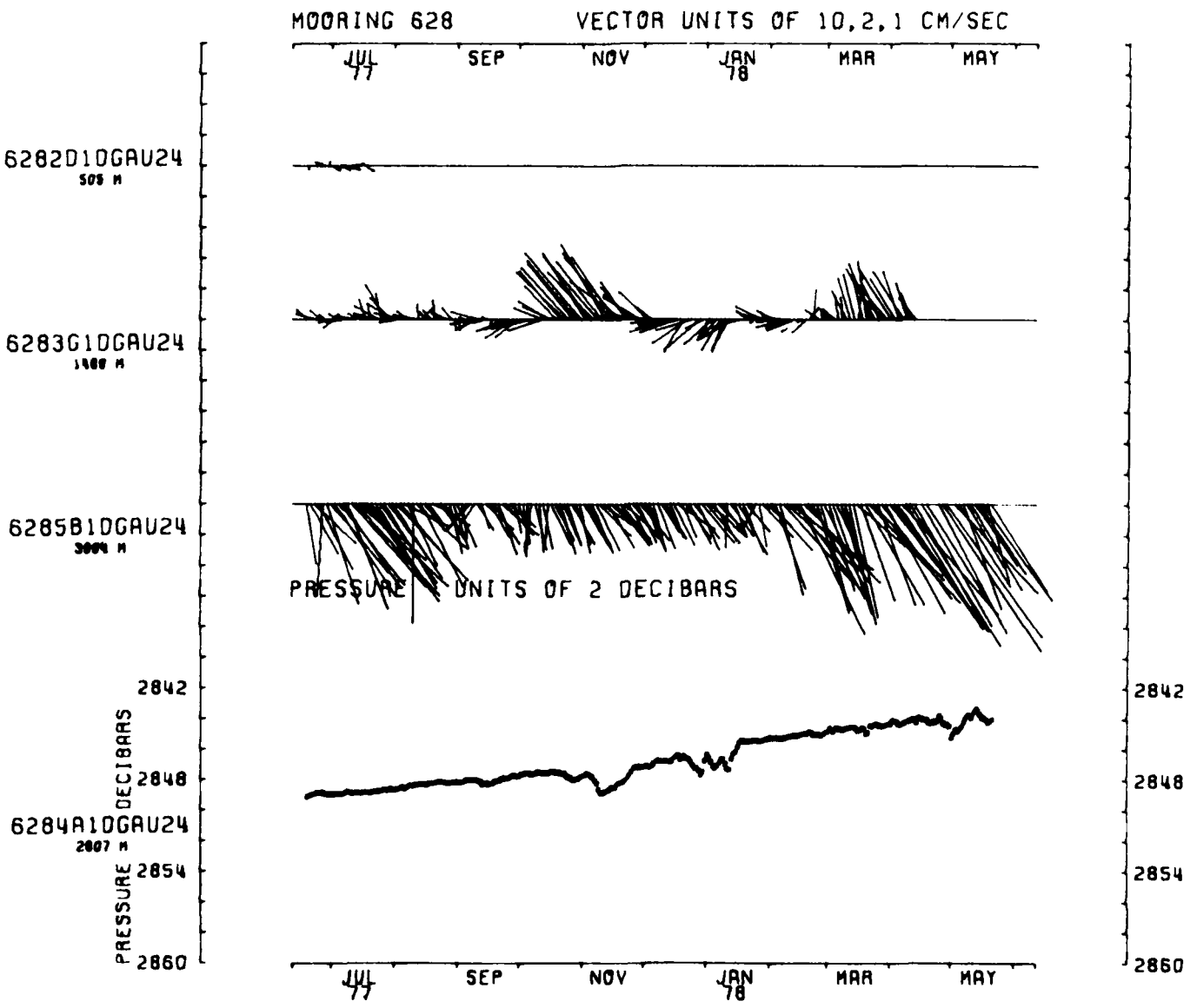

MOORING 626
VECTOR UNITS OF 10,2,1 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6261A10GAU24
215 M
6263A10GAU24
1514 M
6265A10GAU24
4015 M
PRESSURE UNITS OF 2 DECIBARS
502
508
6262A10GAU24
507 M
514
520
2852
2858
6264A10GAU24
2021 M
2864
2870
DECIBARS
PRESSURE


MOORING 626 VERTICAL DISPLAY TEMPERATURES
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6261A1DGAU24
215 M
6262A1DGAU24
507 M
6263A1DGAU24
1514 M
6263A1DGAU24
1514 M
6264A1DGAU24
2821 M
6265A1DGAU24
4015 M
TEMPERATURE CELSIUS
TEMPERATURE DEGREES C.
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
5.7
5.1
4.5
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2


MOORING 627
VECTOR UNITS OF 10.2 CM/SEC
77
SEP
NOV
JAN
78
MAR
MAY
6271B1DGAU24
208 M
6273A1DGAU24
1508 M


PRESSURE UNITS OF 2 DECIBARS
PRESSURE DECIBARS
532
538
544
550
6272A1DGAU24
531 M
77
SEP
NOV
JAN
78
MAR
MAY


MOORING 627 VERTICAL DISPLAY TEMPERATURES
JUL 77
SEP
NOV
JAN 78
MAR
MAY
6271B10GAU24
206 M
6272A10GAU24
531 M
6273A10GAU24
1505 M
6273A10GAU24
1505 M
6274A10GAU24
2000 M
6275A10G24DT
2507 M
TEMPERATURE CELSIUS
TEMPERATURE DEGREES C.
TEMPERATURE DEGREES C.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SEP
NOV
JAN 78
MAR
MAY
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505 M
6283G1DGAU24
1488 M
6285B1DGAU24
3004 M
PRESSURE UNITS OF 2 DECIBARS
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2807 M
PRESSURE DECIBARS
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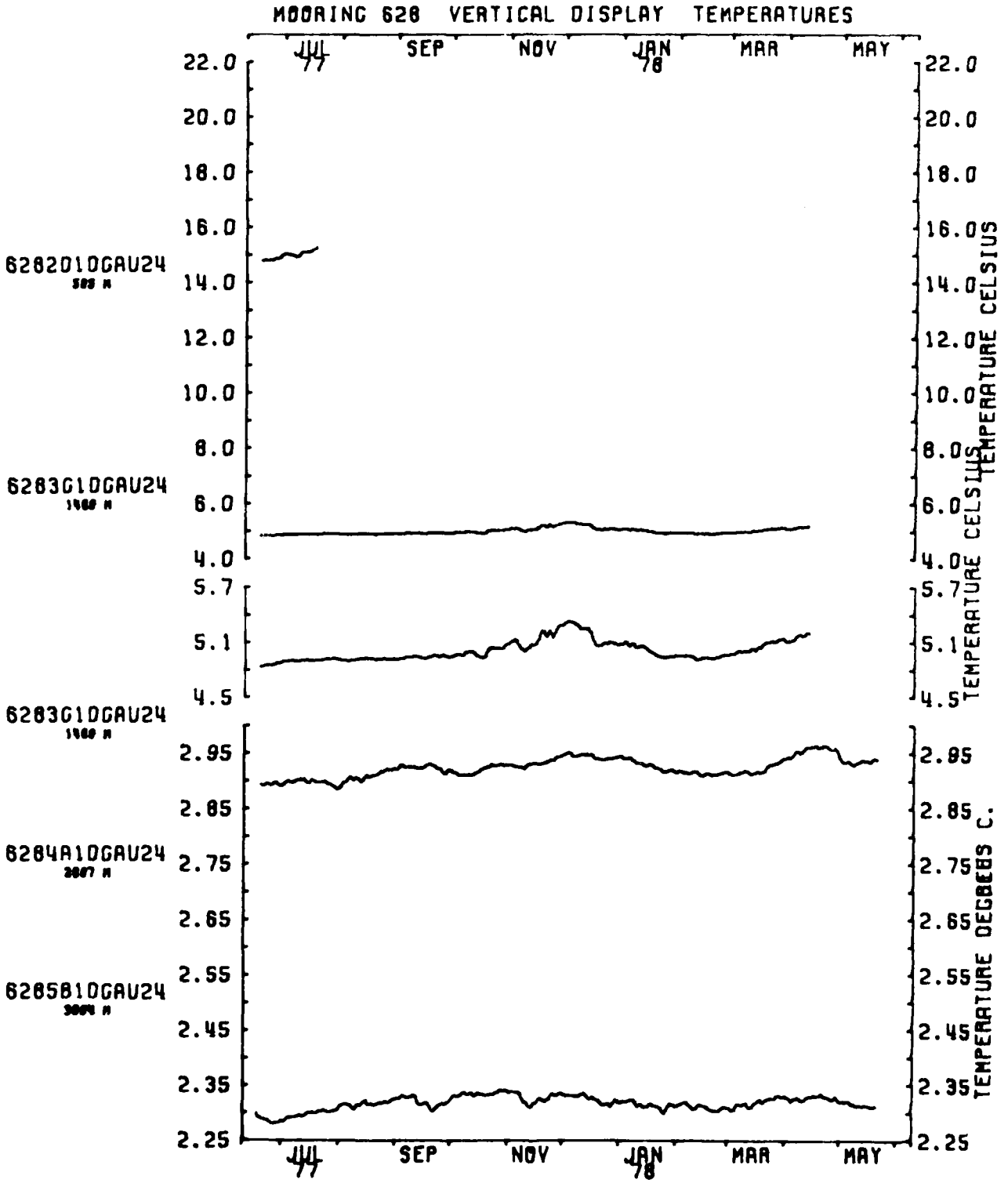
2848
2854
2860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SEP
NOV
JAN
MAR
MAY
77
78
6282D1DGAU24
6283G1DGAU24
6283G1DGAU24
6284A1DGAU24
6285B1DGAU24
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
5.7
5.1
4.5
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2.75
2.65
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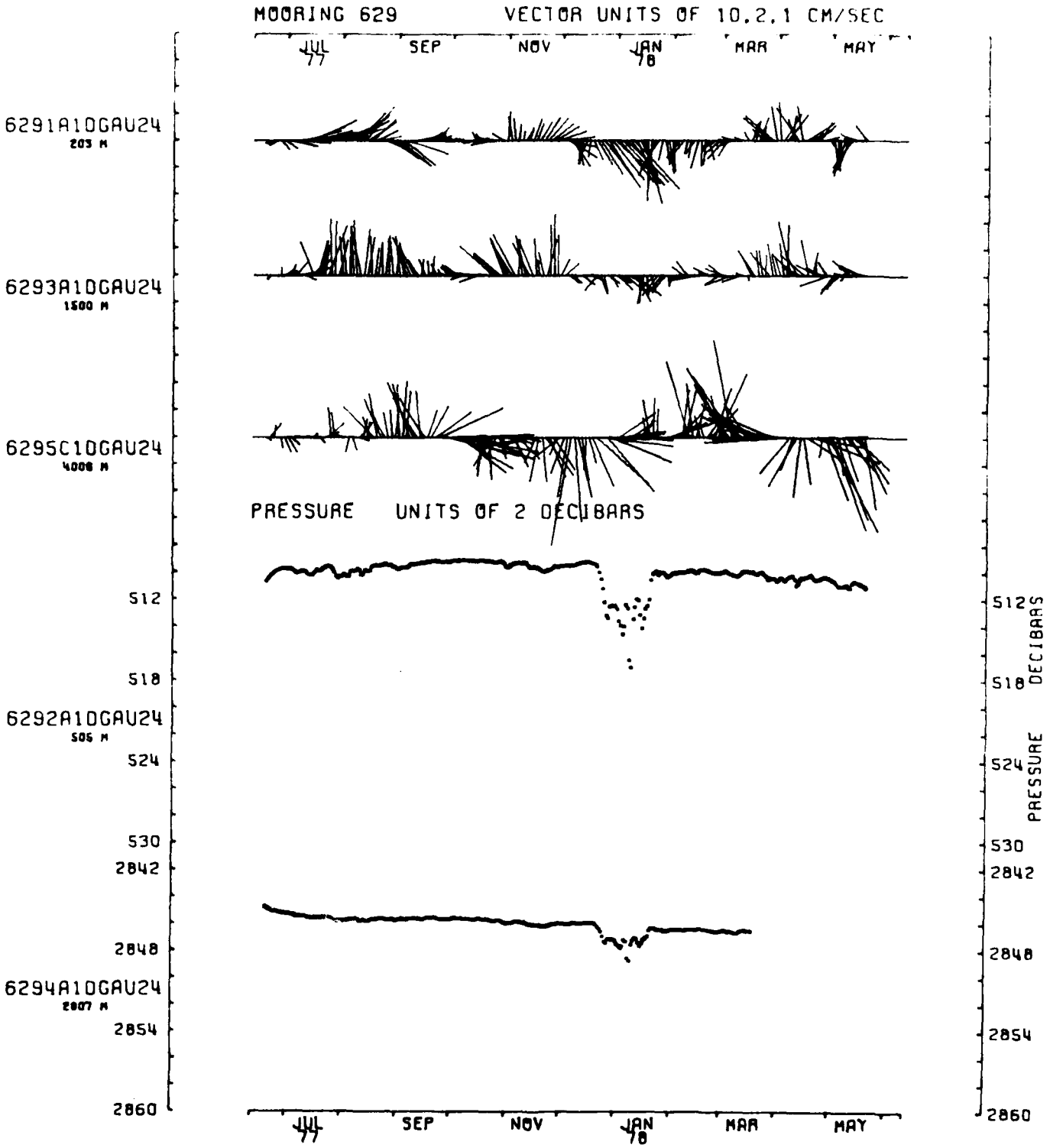
2.35
2.25
TEMPERATURE CELSIUS
TEMPERATURE DEGREES C.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VECTOR UNITS OF 10.2.1 CM/SEC
JUL 77
SEP
NOV
JAN 78
MAR
MAY
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203 M
6293A1DGAU24
1500 M
6295C1DGAU24
4008 M
PRESSURE UNITS OF 2 DECIBARS
512
518
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505 M
524
530
2842
2848
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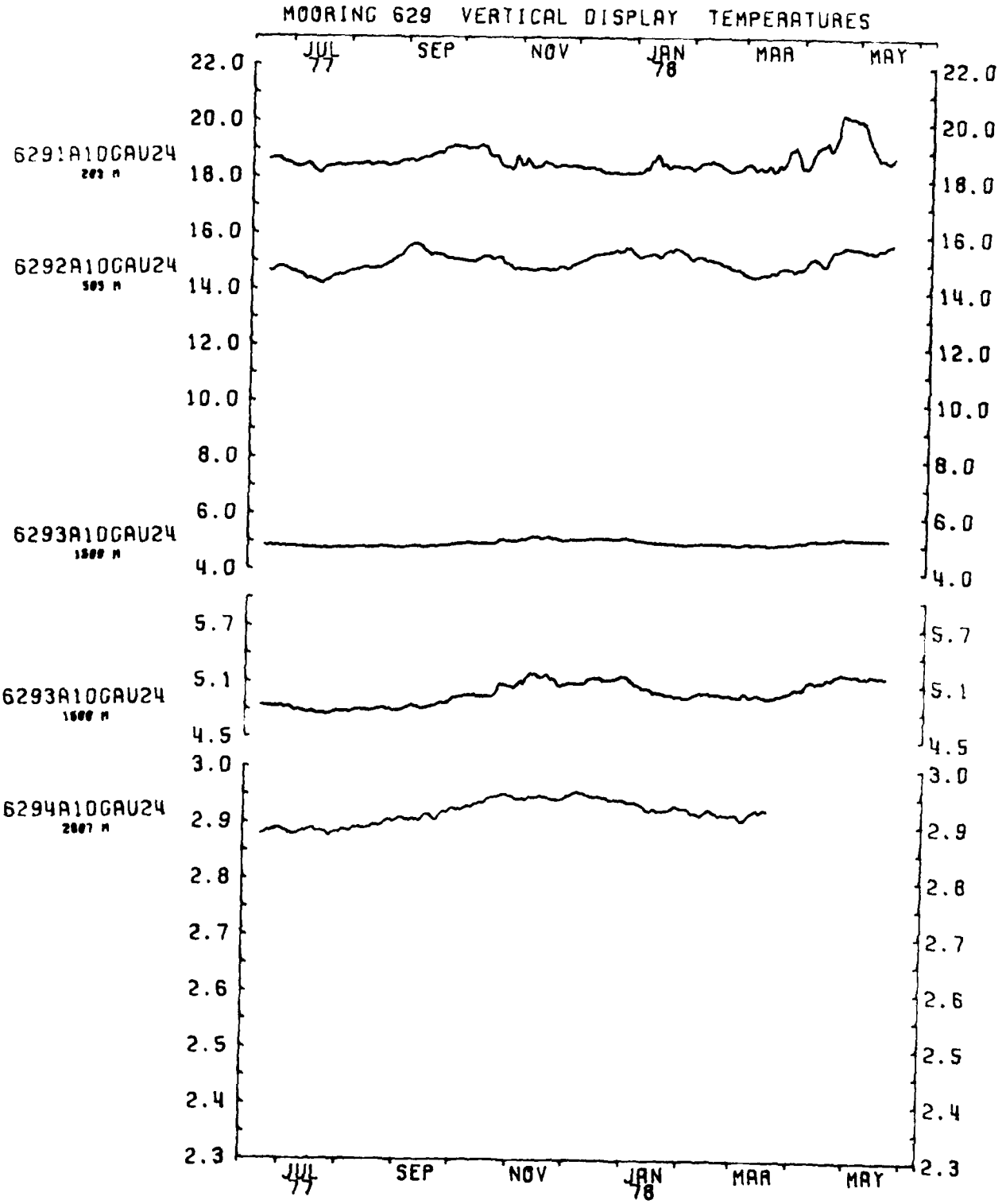
2907 M
2854
2860
PRESSURE DECIBARS


MOORING 629 VERTICAL DISPLAY TEMPERATURES
JUL 77
SEP
NOV
JAN 78
MAR
MAY
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203 M
6292A1DGAU24
505 M
6293A1DGAU24
1500 M
6293A1DGAU24
1500 M
6294A1DGAU24
2507 M
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
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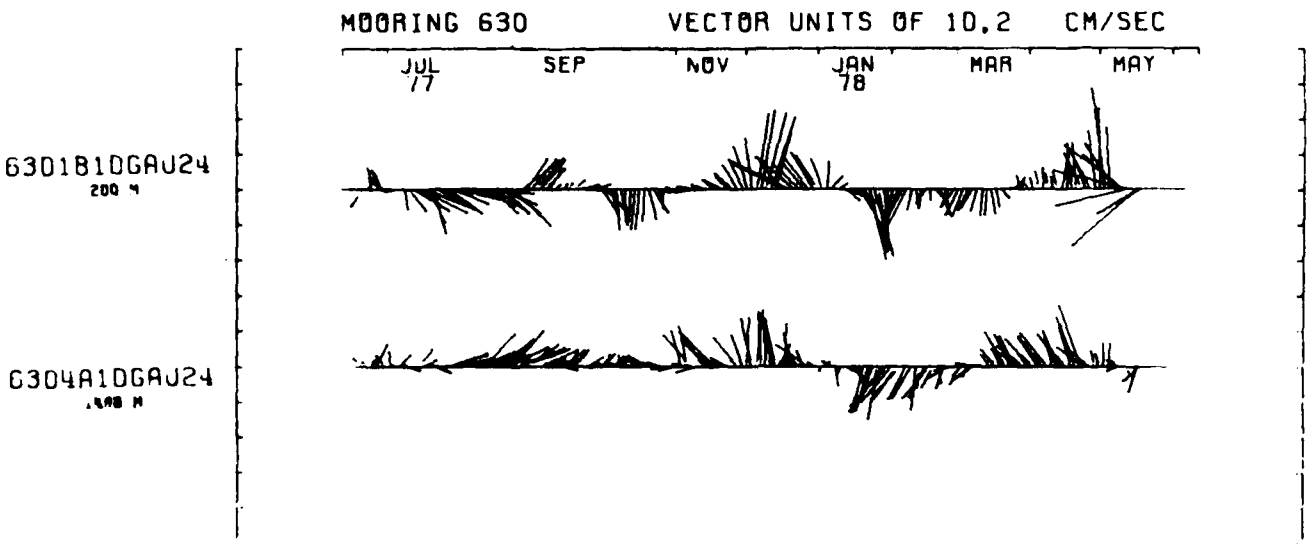
2.3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SEP
NOV
JAN 78
MAR
MAY
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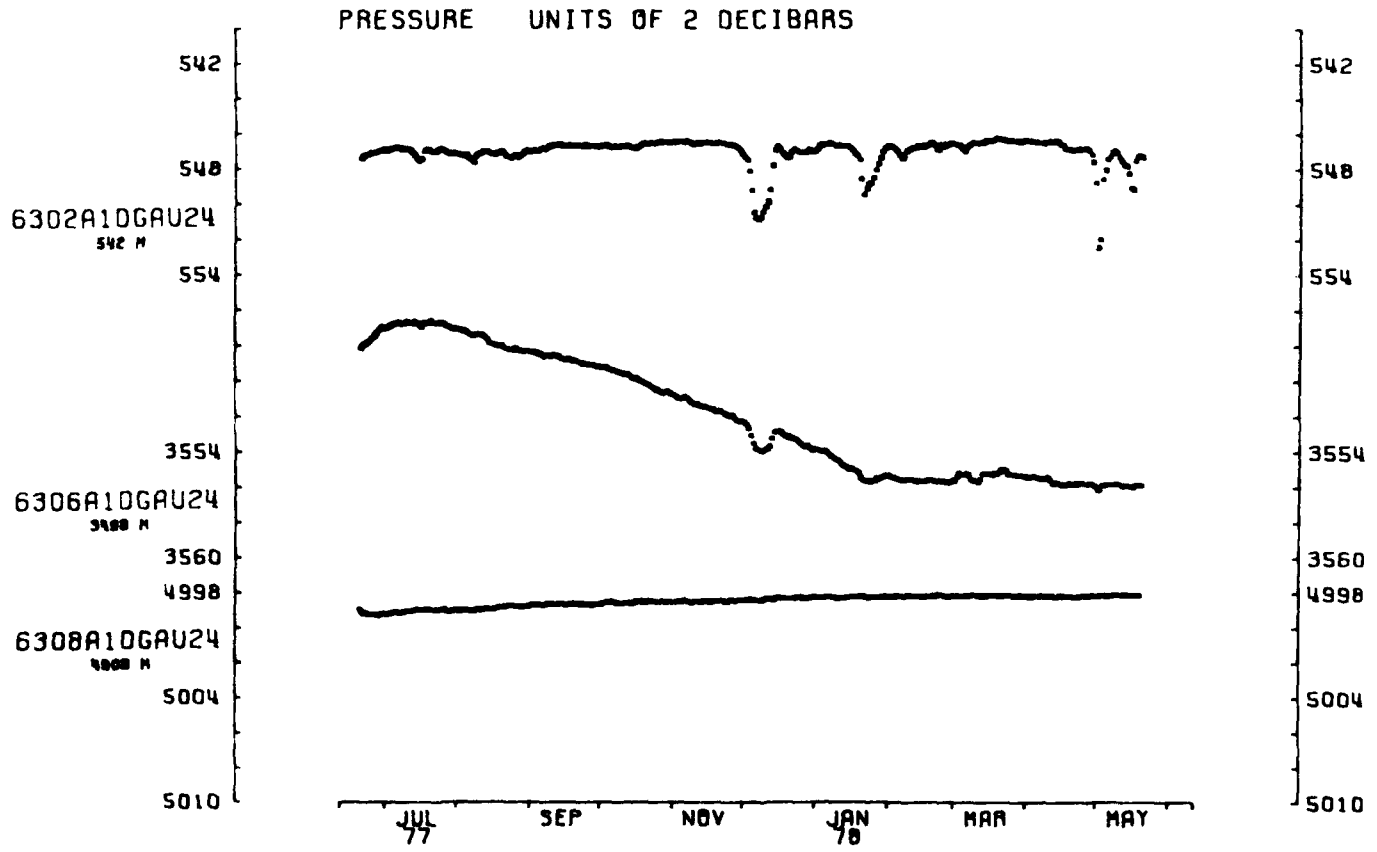
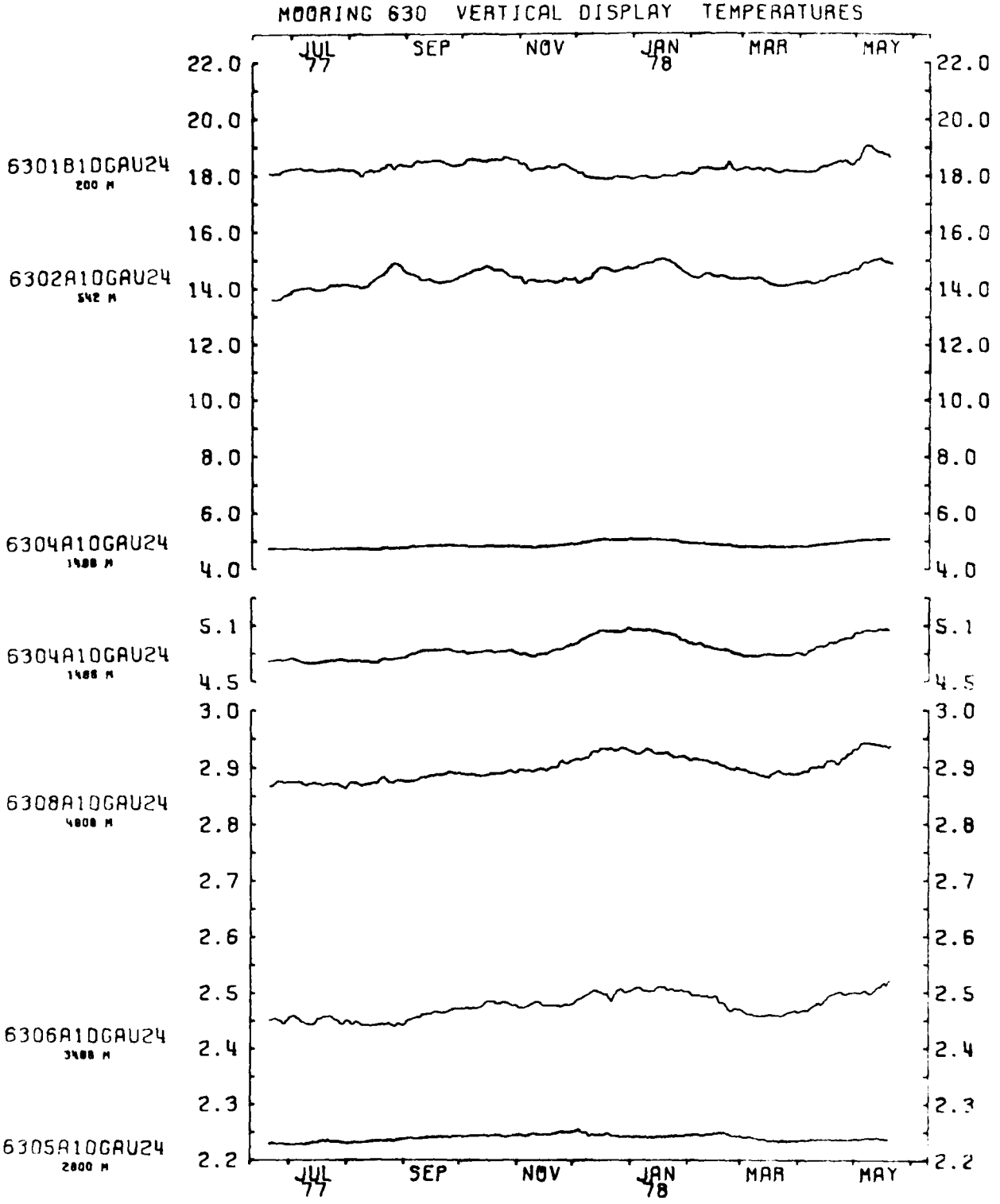

PRESSURE UNITS OF 2 DECIBARS
542
548
6302A1DGAU24
542 M
554
3554
6306A1DGAU24
3560
4998
6308A1DGAU24
5004
5010
JUL 77
SEP
NOV
JAN 78
MAR
MAY


MOORING 630 VERTICAL DISPLAY TEMPERATURES
JUL 77
SEP
NOV
JAN 78
MAR
MAY
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542 M
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1488 M
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1488 M
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4808 M
6306A10GAU24
3488 M
6305A10GAU24
2800 M
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20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
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2.8
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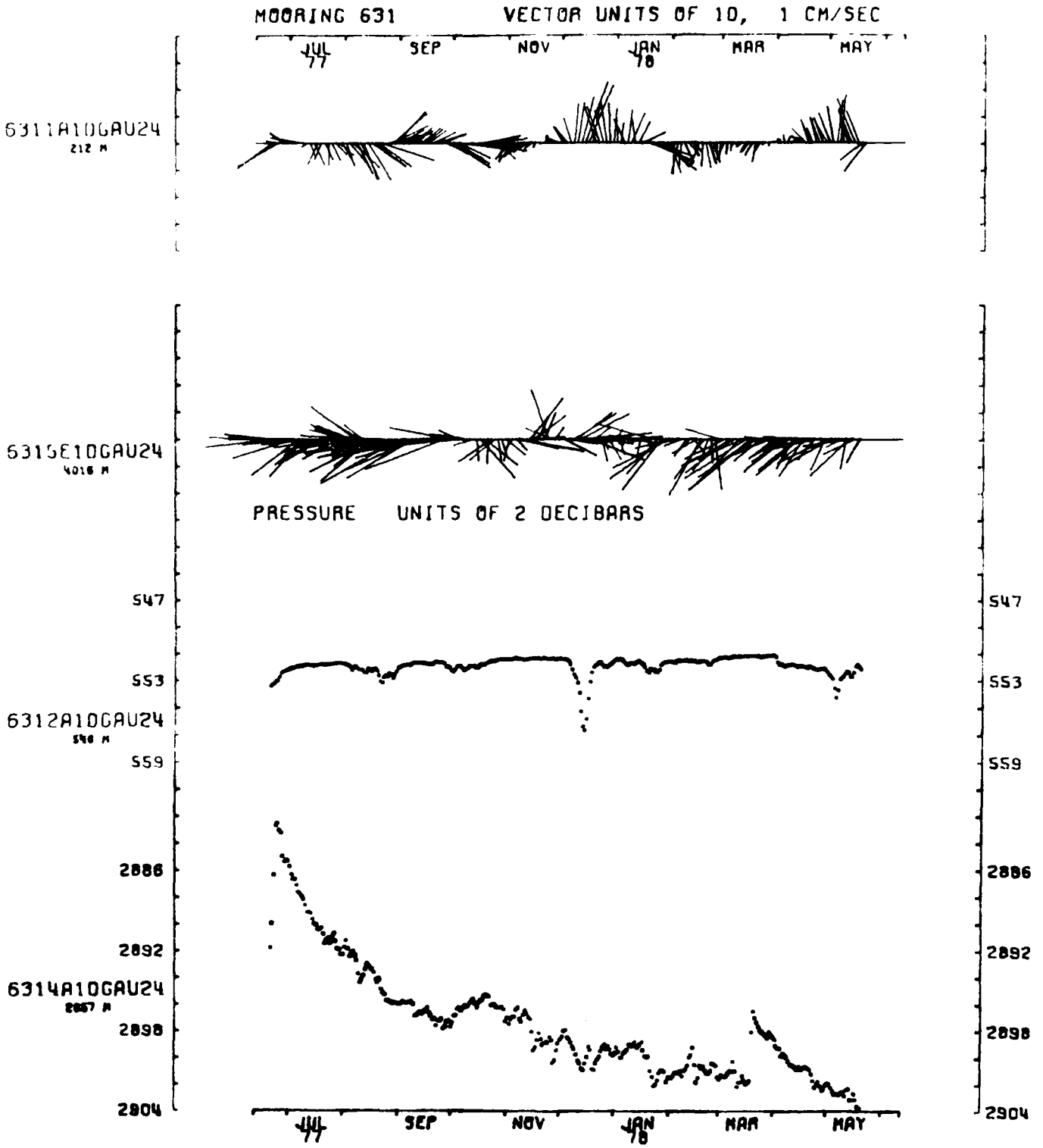
2.4
2.3
2.2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VECTOR UNITS OF 10, 1 CM/SEC
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SEP
NOV
JAN 78
MAR
MAY
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212 M
6315E1DGAU24
4016 M
PRESSURE UNITS OF 2 DECIBARS
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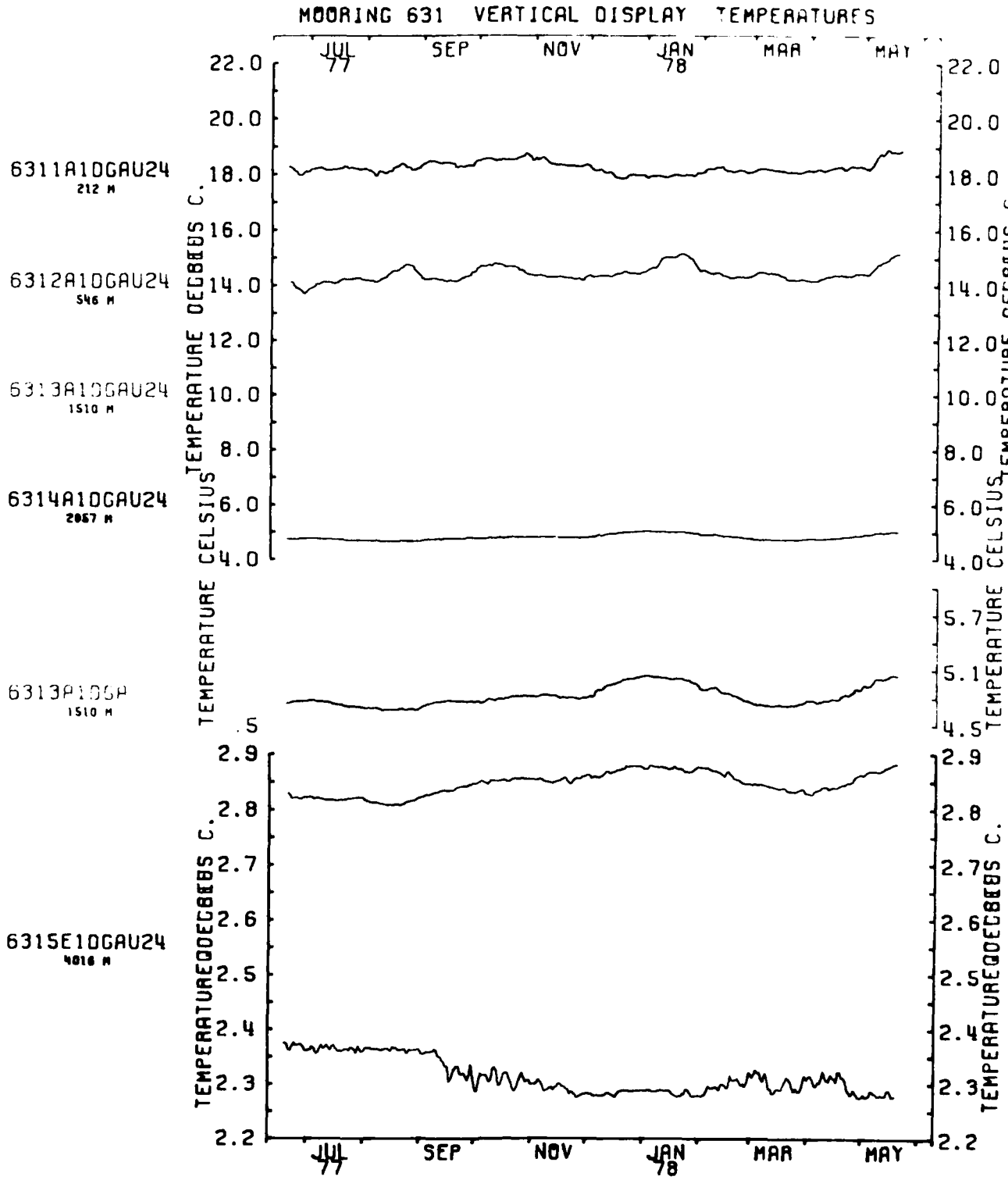
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SEP
NOV
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MAR
MAY
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1510 M
6314A1DGAU24
2057 M
6313P1DGP
1510 M
6315E1DGAU24
4016 M
TEMPERATURE CELSIUS
TEMPERATURE DEGREES C.
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
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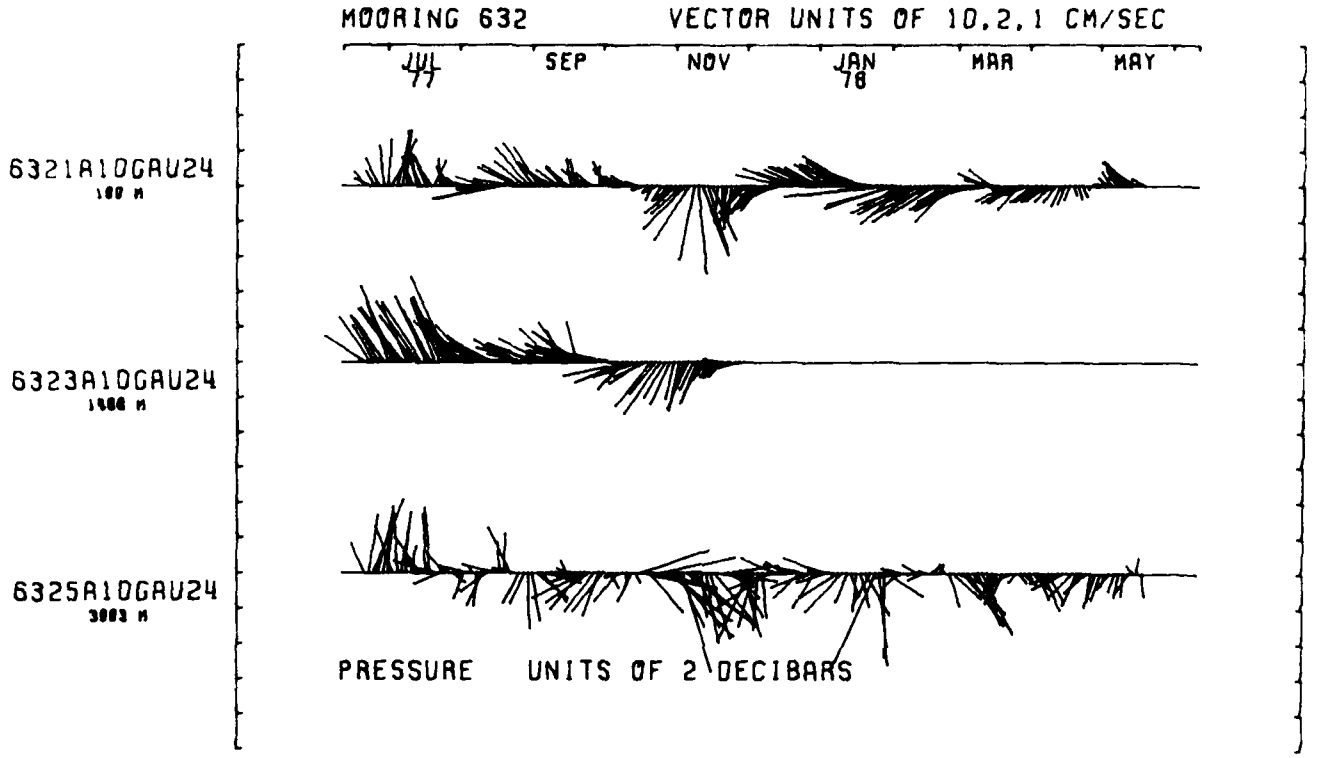
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VECTOR UNITS OF 10,2,1 CM/SEC
SEP
NOV
JAN
78
MAR
MAY
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1506 M
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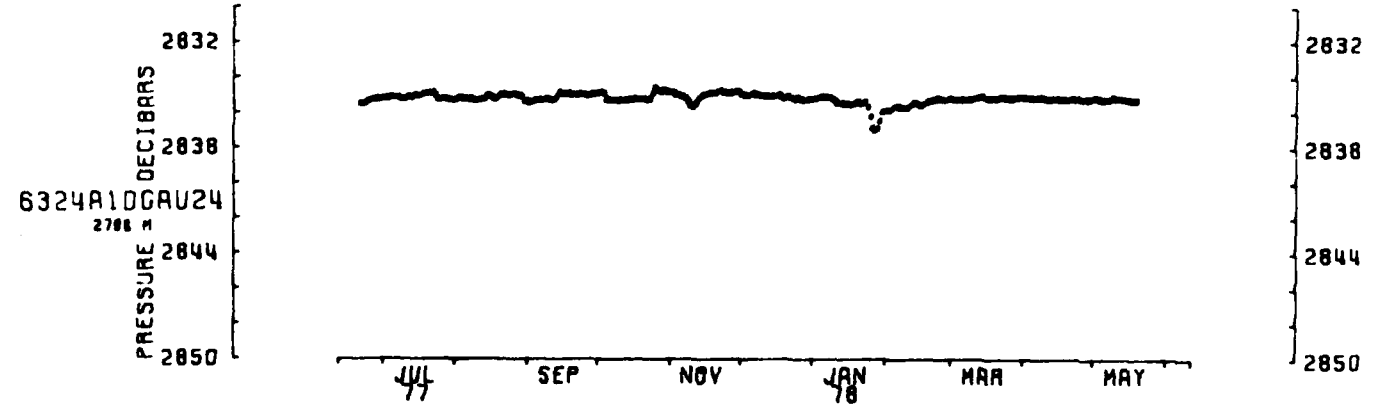
3003 M
PRESSURE UNITS OF 2 DECIBARS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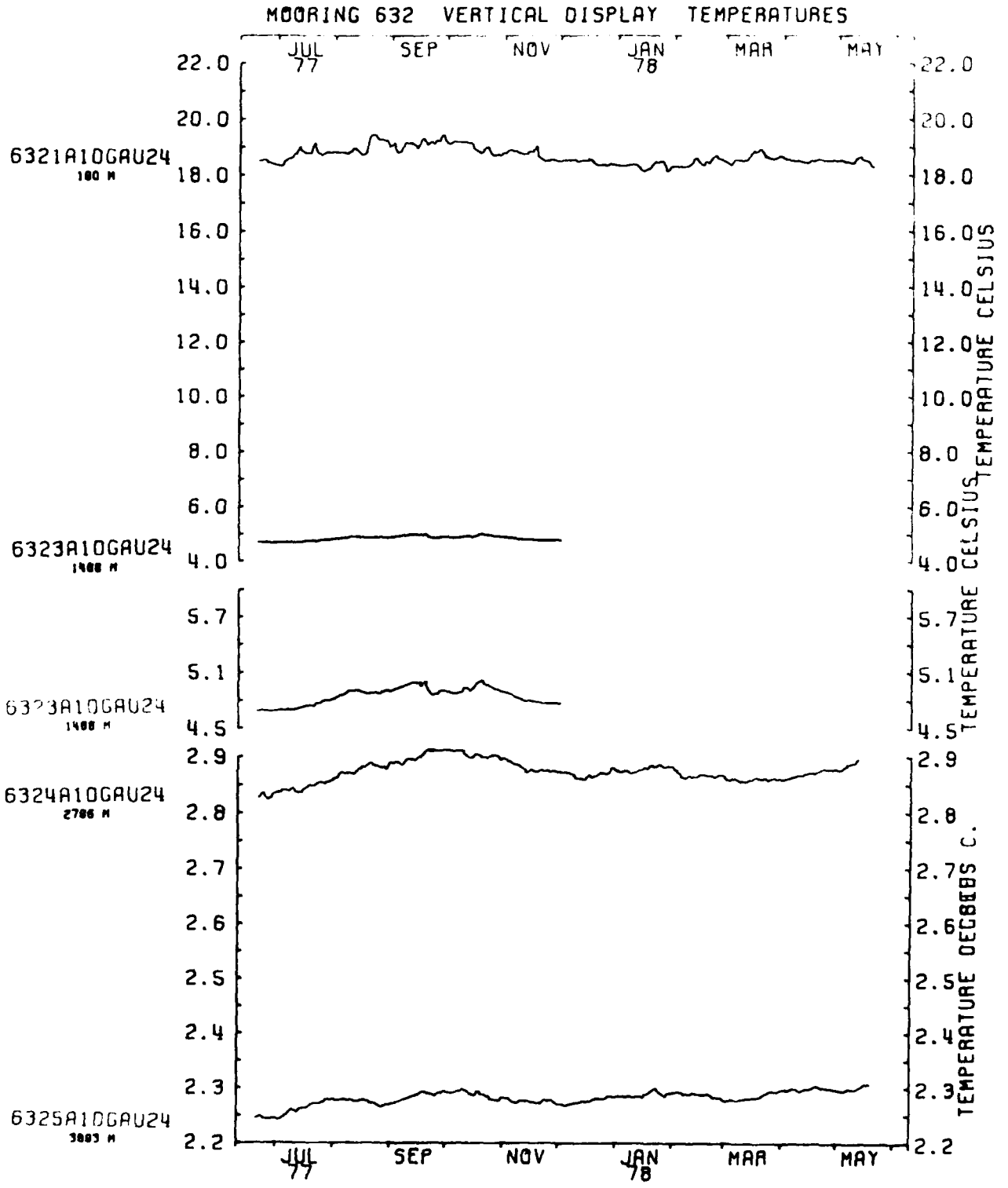
2706 M
SEP
NOV
JAN
78
MAR
MAY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SEP
NOV
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MAR
MAY
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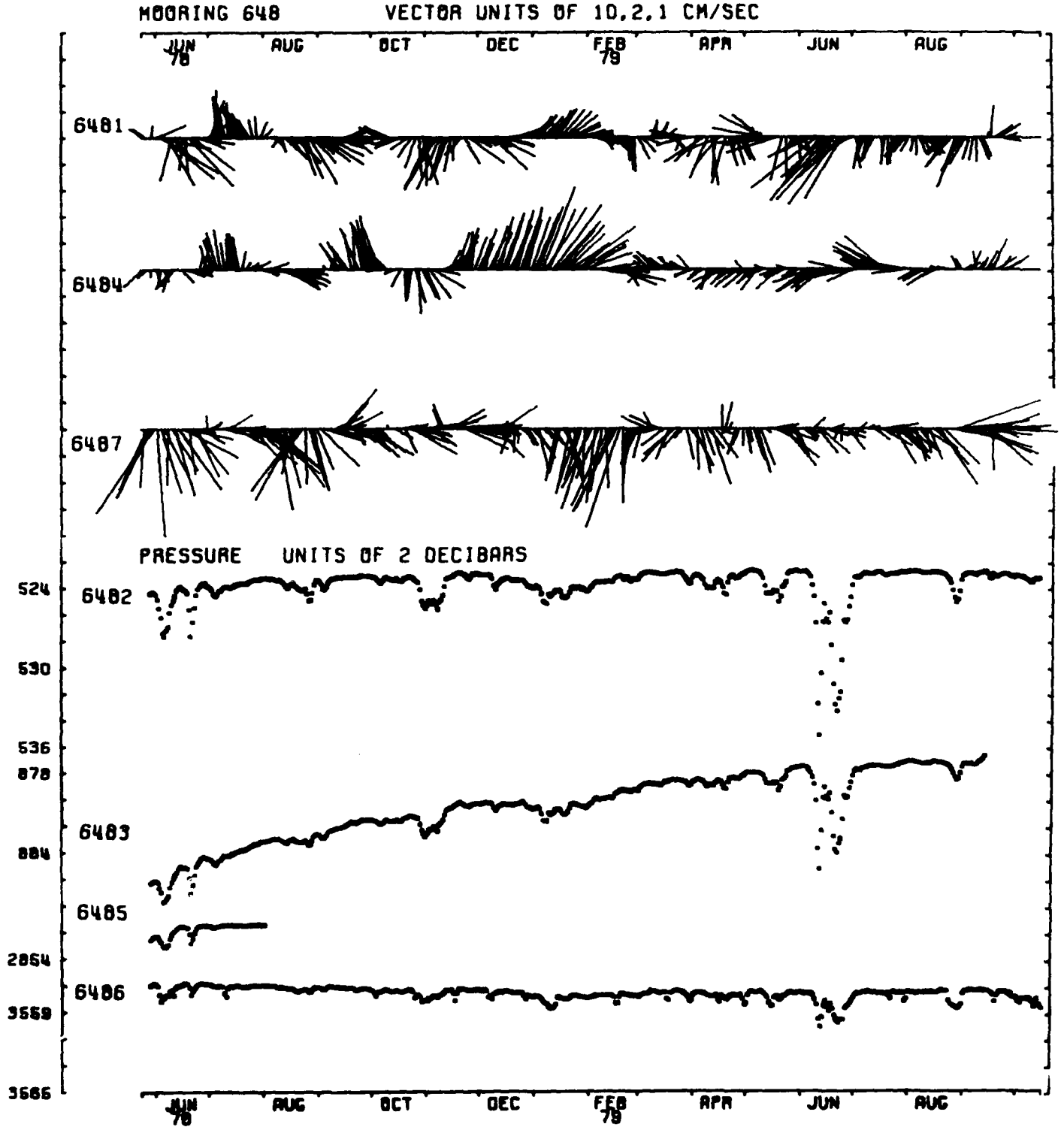
TEMPERATURE DEGREES C.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AUG
OCT
DEC
FEB 79
APR
JUN
AUG
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6484
6487
PRESSURE UNITS OF 2 DECIBARS
524
6482
530
536
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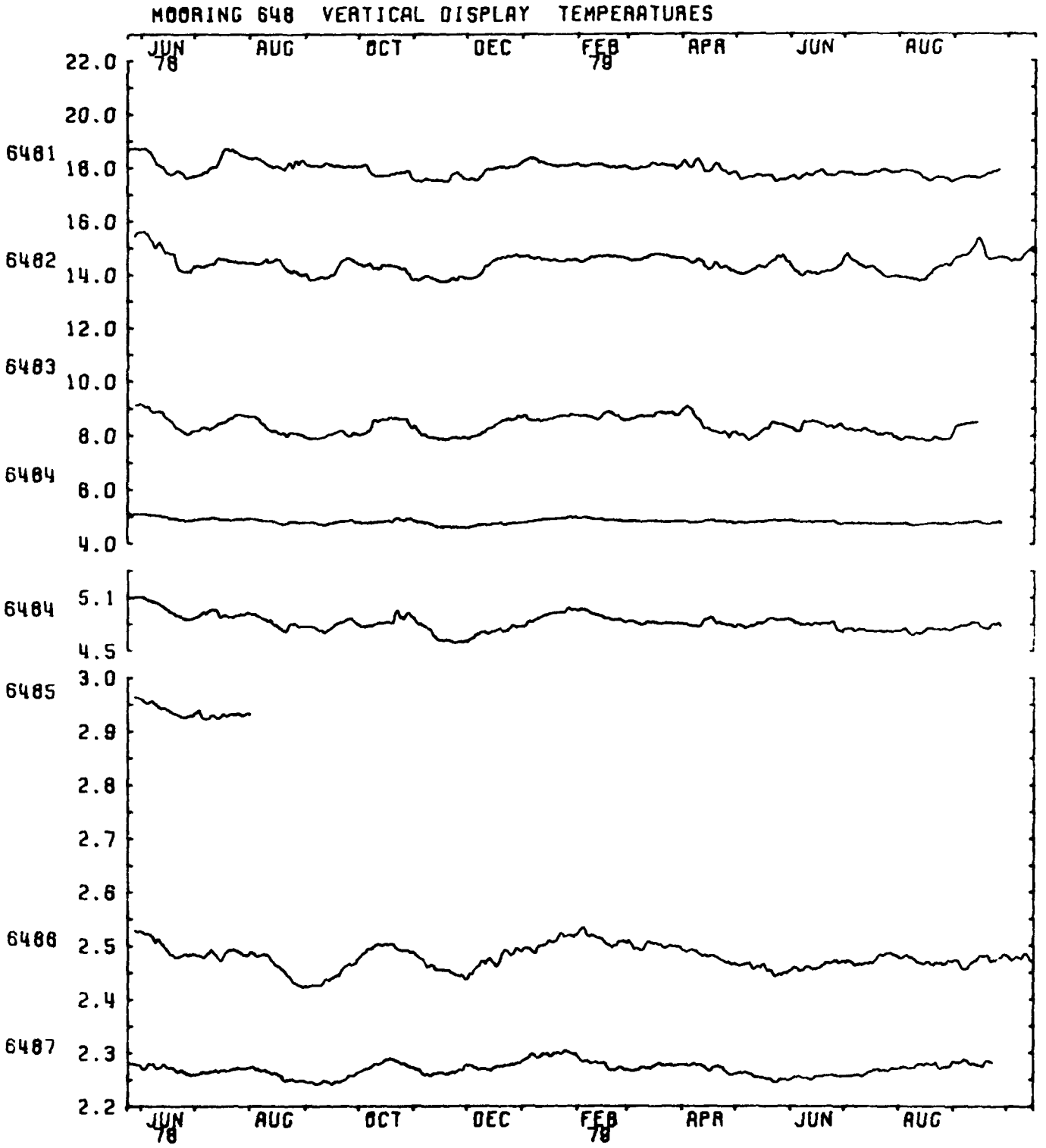
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OCT
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6485
6486
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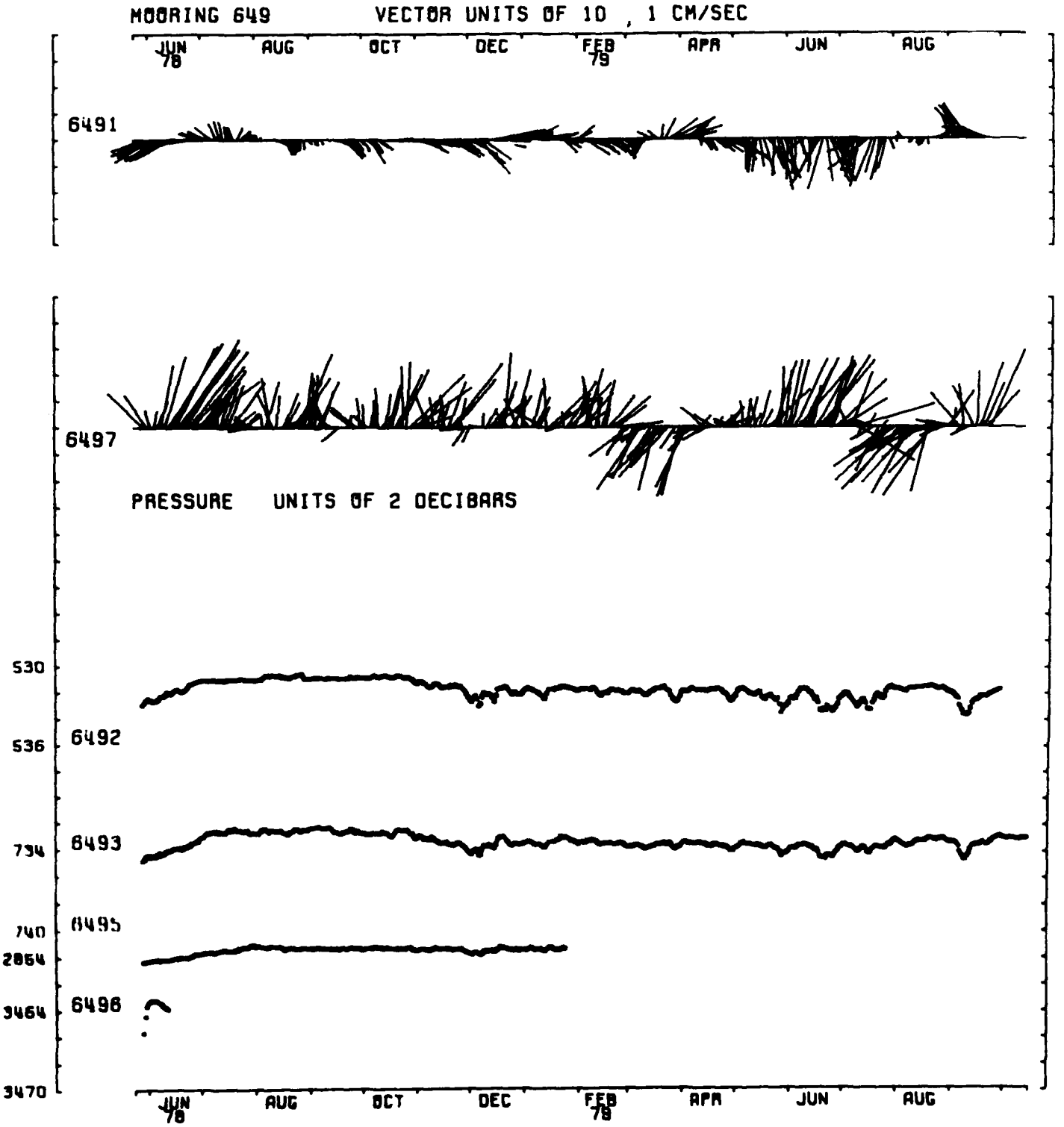
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6497
PRESSURE UNITS OF 2 DECIBARS
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6492
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OCT
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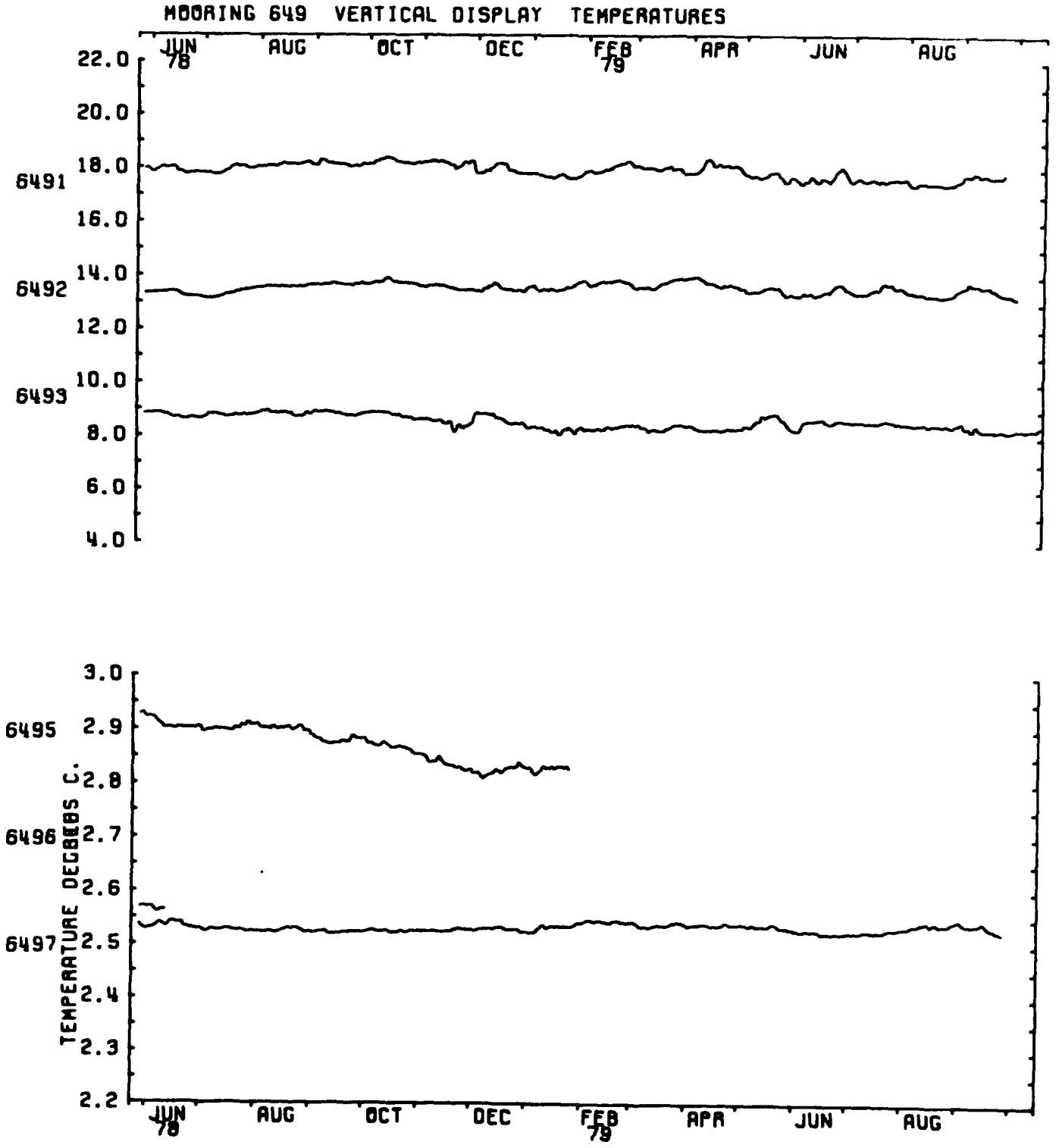
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JUN 78
AUG
OCT
DEC
FEB 79
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AUG
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6496
6497
TEMPERATURE DEGREES C.

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1. Current meter
2. Ocean current
3. Moorings

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Summaries are presented of current, pressure and temperature measurements from clusters A and B of the POLYMODE III experiment. These clusters had five moorings apiece and were deployed for 11.5 months. With a few exceptions, current meters were set at nominal depths of 200, 1500 and 4000 m and temperature/pressure recorders at 400 and 2800 m on each mooring. A site mooring was deployed at both cluster locations for an additional 17 months.

Displays include time series, histograms, progressive vector diagrams, scatter plots, spectra, and statistics.

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