

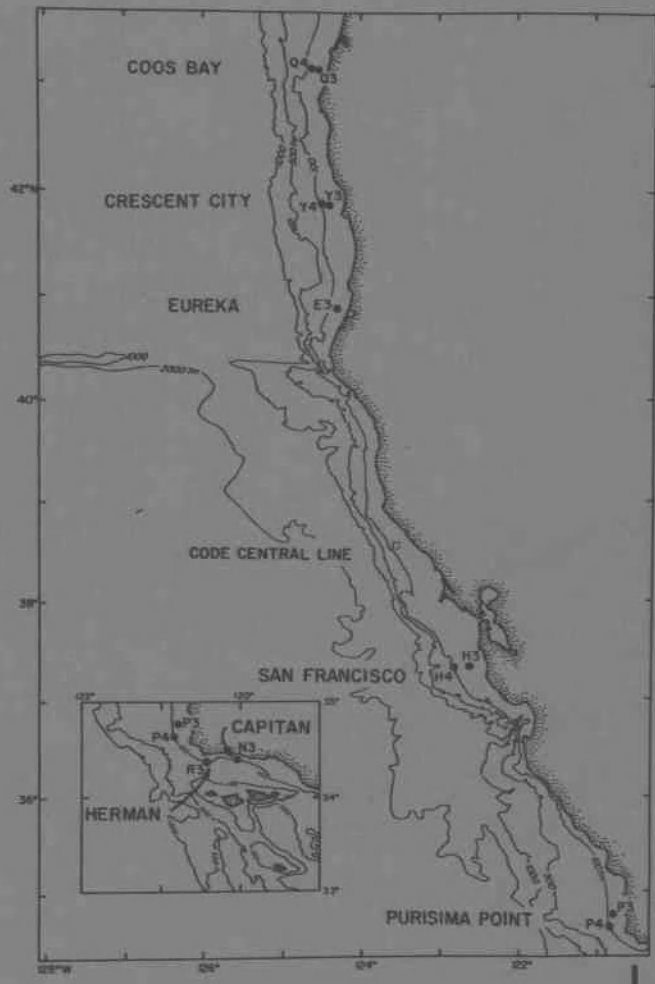
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# OCEANOGRAPHY



**CURRENT METER OBSERVATIONS  
OVER THE CONTINENTAL SHELF  
OFF OREGON AND CALIFORNIA  
FEBRUARY 1981 - JANUARY 1984**

by

Donald W. Denbo  
Kurt Polzin  
John S. Allen  
Adriana Huyer  
Robert L. Smith

Data Report 112  
Reference 84-12  
November 1984

National Science Foundation  
OCE-8026131, OCE-8405232

OREGON STATE UNIVERSITY

College of Oceanography  
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Corvallis, Oregon 97331

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## Abstract

A large-scale west coast shelf experiment called SuperCODE was conducted off Oregon and California between February 1981 and April 1984. Current and temperature measurements were made from subsurface arrays off Coos Bay ( $43^{\circ}\text{N}$ ), Crescent City ( $42^{\circ}\text{N}$ ), Eureka ( $41^{\circ}\text{N}$ ), Half Moon Bay ( $37.5^{\circ}\text{N}$ ) and Purisima Point ( $34.7^{\circ}$ ), between February 1981 and September 1982. Some additional measurements were made in the Santa Barbara Channel during May - September 1982 and off Coos Bay and Eureka during September 1982 - January 1983. This report summarizes the results of the measurements by presenting statistics, scatter diagrams, progressive vector diagrams and time series plots of hourly and the six-hourly low-passed data.

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## Introduction

A large-scale west coast shelf experiment (with the unofficially adopted name of SuperCODE) was conducted off Oregon and northern California between February 1981 and April 1984. The objectives of this experiment were:

- 1) to study the large scale (200-1000 km) response of currents on the California and Oregon shelves to large scale atmospheric forcing on time scales of several days (wind events) to several months (seasonal variability);
- 2) to study the latitudinal variations in the basic characteristics of the shelf flow field and in the response of the currents on the shelf to the known latitudinal variations in the atmospheric forcing;
- 3) to make current measurements which span in space and in time the measurements made as part of the intensive Coastal Ocean Dynamics Experiments CODE-1 and CODE-2, centered at 38.7°N during April - August of 1981 and of 1982, (Allen, et. al, 1983), to obtain information on the large space and time scales of variability in which these local dynamics experiments are embedded.

As part of this experiment, current and hydrographic measurements were made at different locations along the California and Oregon coasts during February 1981 - April 1983. Because of the occurrence of the 1982-83 El Niño, some

SuperCODE current and hydrographic observations were extended until January 1984. This report summarizes the results of the SuperCODE current measurements. The CTD data are presented elsewhere (Fleischbein et al., 1981; 1982; 1983a,b).

SuperCODE current measurements were initially planned at four locations along the California and Oregon coast ( $43^{\circ}\text{N}$ ,  $42^{\circ}\text{N}$ ,  $37.5^{\circ}\text{N}$ ,  $34.7^{\circ}\text{N}$ ), with two moorings at each location, from April 1981 to September 1982. Additional current measurements at  $38.7^{\circ}\text{N}$  during the same time period from the long-term component of CODE (R. C. Beardsley, Woods Hole Oceanographic Institution) form part of the total alongshore array. The two SuperCODE moorings at each alongshore position were designed to measure currents and temperatures below the surface layer at midshelf (90 m water depth; current meters at 35 m, 65 m depths) and at the shelf break (150 m water depth; current meters at 35 m, 65 m depths and 25 m above the bottom). Aanderaa current meters on taut subsurface moorings were utilized. The locations of the SuperCODE moorings are shown in Figure 1 and a time history diagram summarizing the data collected is shown in Figure 2. Schematics of the moorings are shown in Figures 3 and 4. Both of the moorings at Crescent City ( $42^{\circ}\text{N}$ ) and the deep mooring at  $37.5^{\circ}\text{N}$  were repeatedly hit by fishermen. Thus, attempts to maintain these moorings were abandoned in early 1982. To make up for the subsequent lack of measurements at Crescent City, a single mid-shelf mooring was deployed off Eureka ( $41^{\circ}\text{N}$ ) from February 1982 to April 1983.

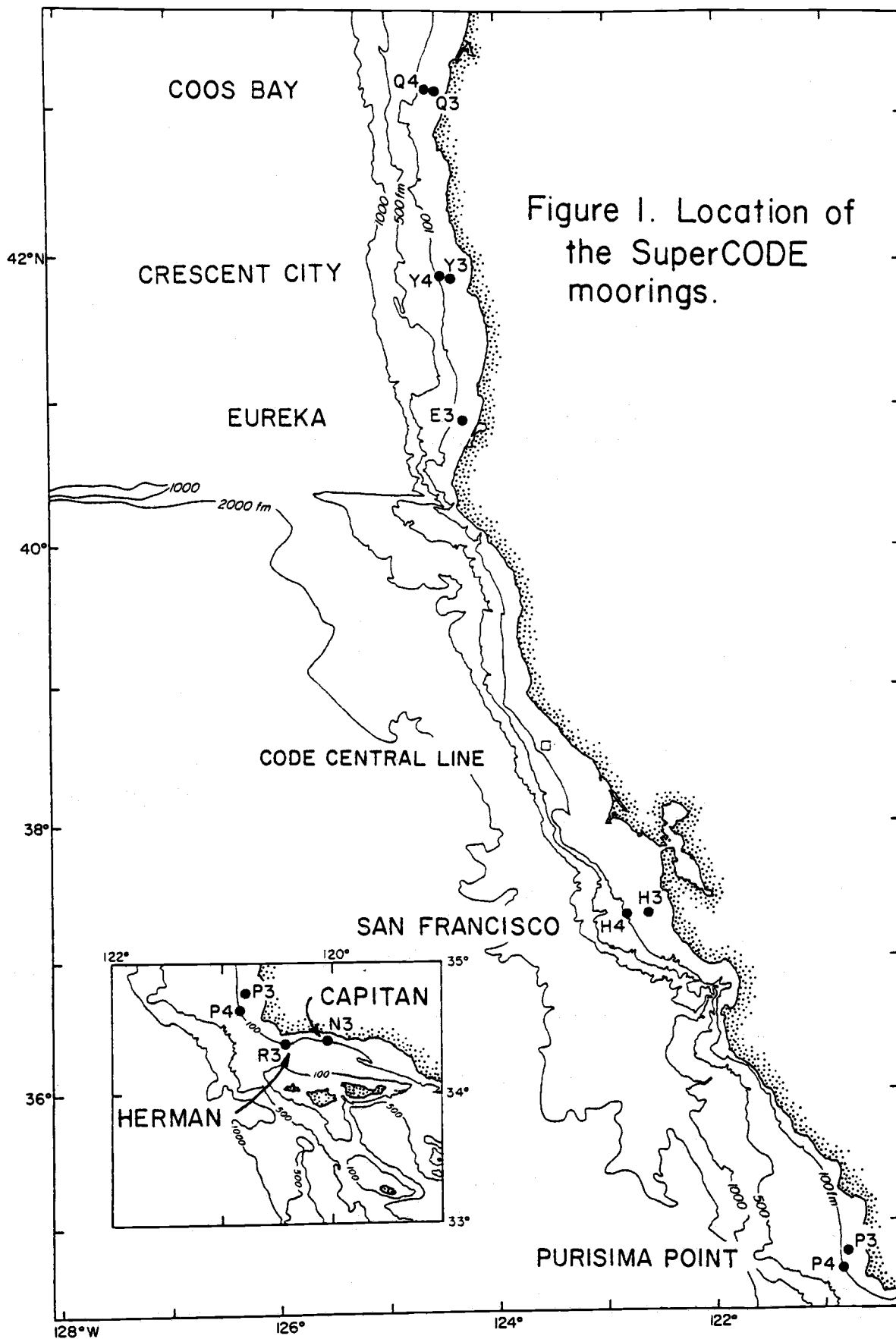


Figure 1. Location of the SuperCODE moorings.



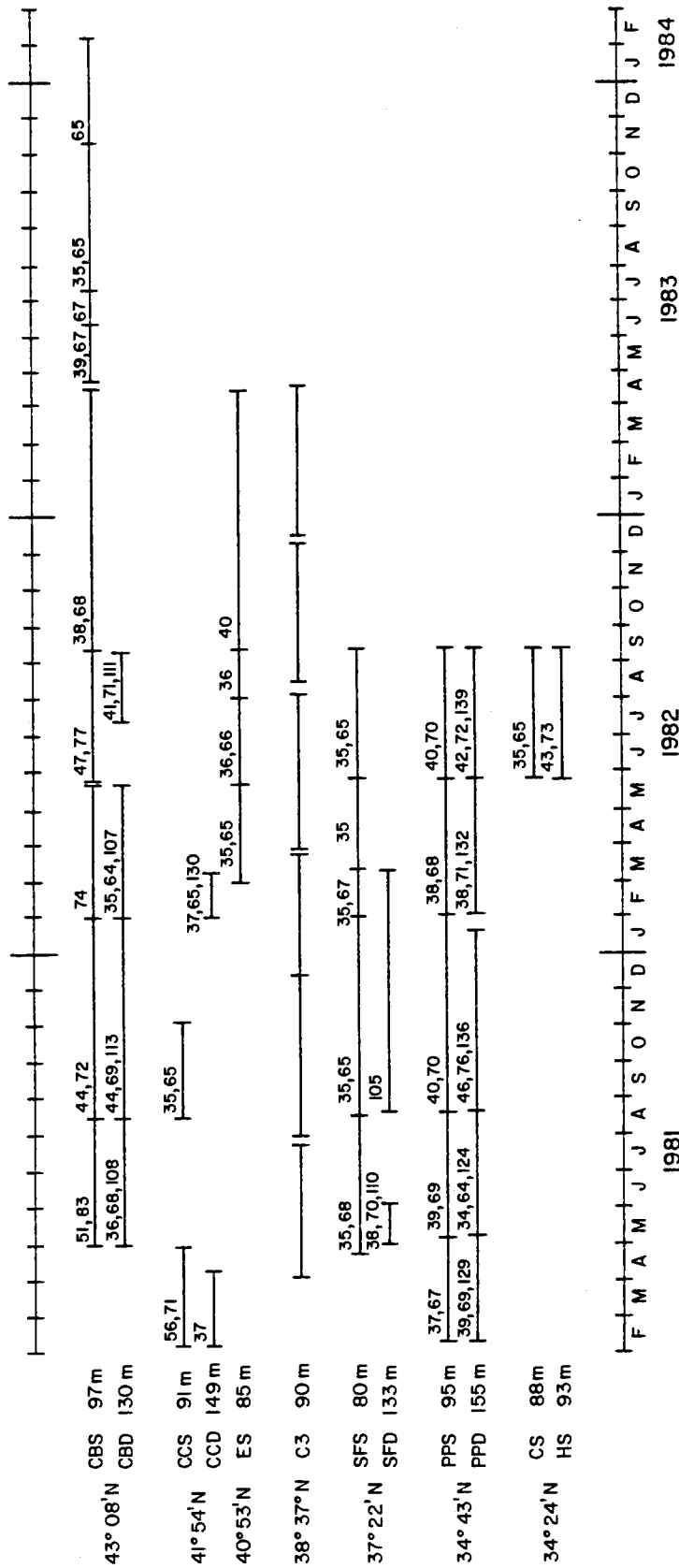


Figure 2. Deployment and recovery time history for SuperCODE measurements

MOORING SCHEMATIC  
SUPERCODE SHALLOW

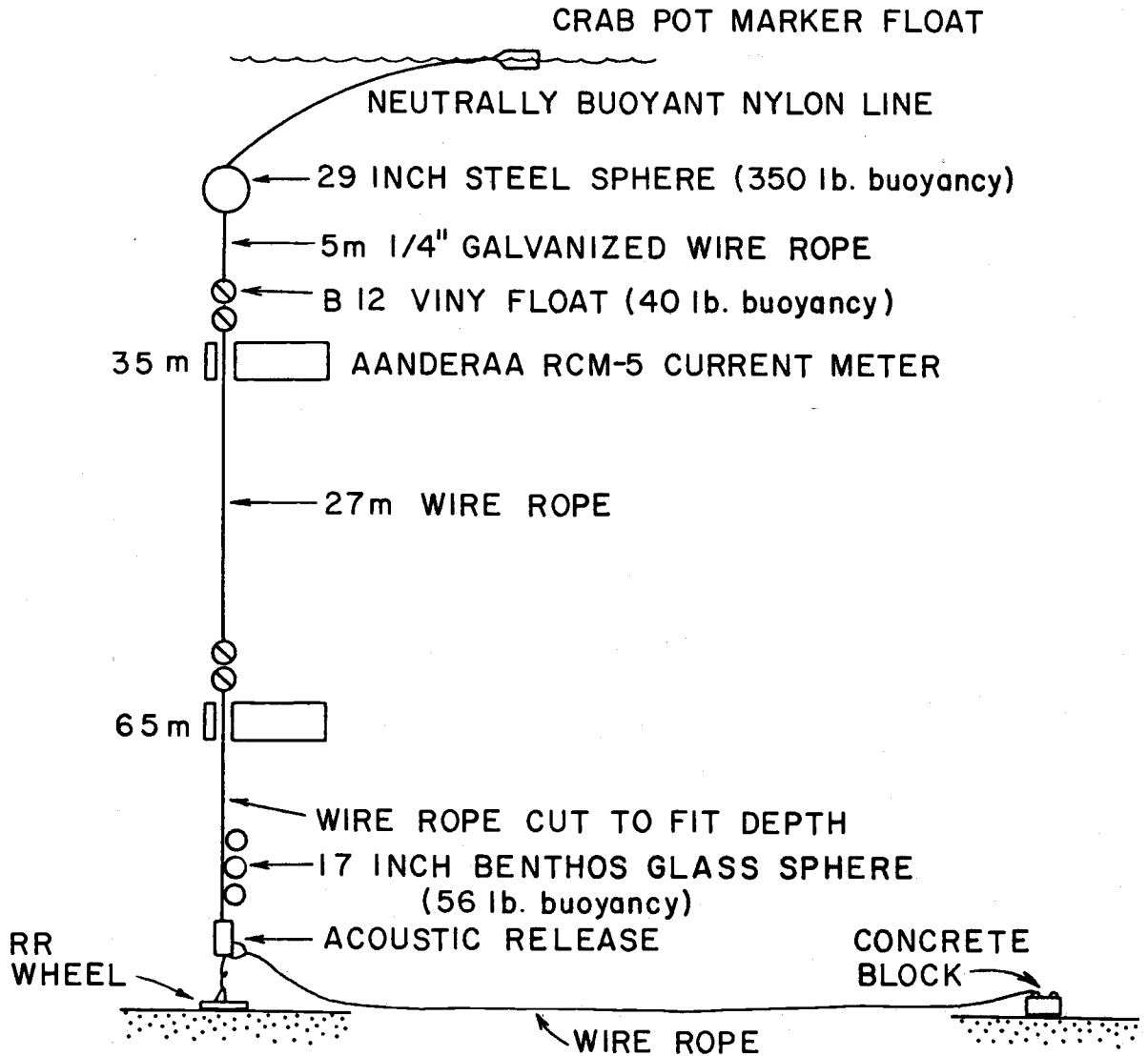


Figure 3. Schematic for shallow current meter moorings used during SuperCODE

MOORING SCHEMATIC  
 SUPERCODE DEEP

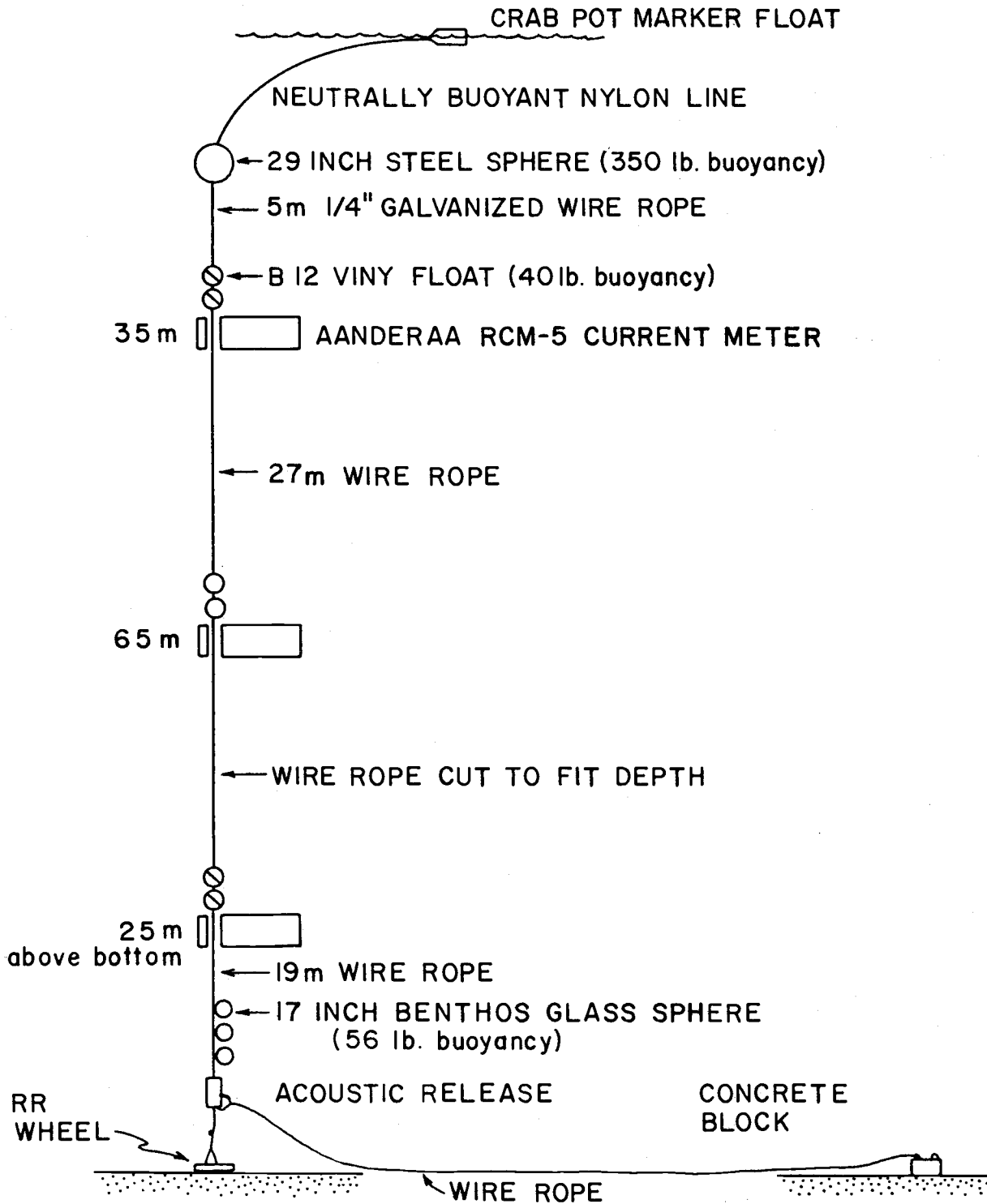


Figure 4. Schematic for deep current meter moorings used during SuperCODE.

In addition, a single shallow mooring at Coos Bay was redeployed in April and July 1983 and was recovered in January 1984.

In this data report, the mooring and instrument locations are designated by a four-character code; this designation follows the format used in the CODE data reports (Beardsley and Rosenfeld, 1983). The first letter signifies the general area in which the mooring was deployed: Q represents Coos Bay, Y Crescent City, E Eureka, H San Francisco, P Purisima Point, R Herman, and N Capitan. The second character, a number "3" or "4", signifies either a shallow or a deep mooring; a "3" indicates a mooring located near the 90 meter isobath, and a "4" the 150 meter isobath. The actual depths at which the moorings were deployed are tabulated at the beginning of the data presentation. The third character, always an "S", indicates a subsurface mooring. The last number represents the relative position of the instrument on that particular mooring, increasing in order of increasing depth. For example, Q3S1 represents the top instrument on the Coos Bay Shallow mooring and P4S2 designates the second instrument on the Purisima Point Deep mooring. Table 1 contains a summary of the four-character code, nominal depth and mooring name.

Table 1. Summary of the four-character instrument code, nominal depth and mooring name used during SuperCODE.

INSTRUMENT CODE	NOMINAL DEPTH (m)	MOORING NAME
Q3S1	35	Coos Bay Shallow
Q3S2	65	
Q4S1	35	Coos Bay Deep
Q4S2	65	
Q4S3	105	
Y3S1	35	Crescent City Shallow
Y3S2	65	
Y4S1	35	Crescent City Deep
Y4S2	65	
Y4S3	125	
E3S1	35	Eureka Shallow
E3S2	65	
H3S1	35	San Fransisco Shallow
H3S2	65	
H4S1	35	San Fransisco Deep
H4S2	65	
H4S3	100	
P3S1	35	Purisima Point Shallow
P3S2	65	
P4S1	35	Purisima Point Deep
P4S2	65	
P4S3	125	
N3S1	35	Capitan Shallow
N3S2	65	
R3S1	35	Herman Shallow
R3S2	65	

All current meters were equipped with speed, direction, and temperature sensors. Some current meters were also equipped with pressure and/or conductivity sensors. Only the results of the velocity and temperature measurements are presented in this report. A summary of the dates and locations of the measurements appears in the Table 2. An explanation of the data processing and calibration procedures is given in the Appendix.

The data return is summarized in Table 2. No data were recovered from eight of the 87 instruments deployed. Two incurred tape failures at the outset and the other six were lost after being torn from their moorings by fishing boats. An additional nineteen have short records due to being hit by fishing boats. Although some of these moorings were merely moved to a different location, all data were truncated at the time of the encounter. For various other reasons, there are five other instrument sets in which the data records are short.

In this report, we present both hourly data (filtered with a half-power point of 2.9 hours) and six-hourly low-passed data (with a half-power point of 46.6 hours) in which tidal and inertial oscillations are removed. Details of the filtering operations are given in the Appendix. Basic statistics and complete plots are included for both the hourly and the six-hourly low-passed data. The statistics presented are means, standard deviations and principal axes. The units are

Table 2. Moored instrumentation deployed during SuperCODE.

STATION/ MOORING	WATER DEPTH (m)	INST. DEPTH (m)	LATITUDE N	LONGITUDE W	MOORING SET	MOORING RETRIEVED	DATA COLLECTED	TAPE NUMBER
DEPLOYMENT A								
Y3S1	97	41	41 54.1	124 26.8	02/05/81	05/01/81	U,V,T,P,C	746/41
Y3S2	97	71					U,V,T,P,C	1543/20
Y4S1	146	37	41 52.9	124 30.2	02/05/81	04/09/81	U,V,T,P	499/53
Y4S2	146	67				LOST	U,V,T,P,C	XXX/8
Y4S3	146	127				LOST	U,V,T,P	748/50
P3S1	91	37	34 44.6	120 47.1	02/07/81	05/06/81	U,V,T,P	751/39
P3S2	91	67					U,V,T	688/57
P4S1	155	39	34 42.9	120 50.7	02/07/81	05/06/81	U,V,T,P	755/36
P4S2	155	69					U,V,T	1237/22
P4S3	155	129					U,V,T	2280/16
DEPLOYMENT B								
Q3S1	97	51	43 8.2	124 34.1	04/29/81	08/13/81	U,V,T,P,C	3621/10
Q3S2	97	83					U,V,T,P,C	1968/23
Q4S1	130	36	43 7.9	124 37.4	04/29/81	08/13/81	U,V,T,P,C	1541/22
Q4S2	130	68					U,V,T,P,C	1542/21
Q4S3	130	108					U,V,T	3123/19
Y3S1	90	35	41 53.2	124 26.2	05/01/81	LOST	U,V,T,P,C	2276/18
Y3S2	90	65				LOST	U,V,T,P,C	1544/23
Y4S1	148	31	41 53.4	124 30.5	05/01/81	05/22/81	U,V,T,P,C	4044/10
Y4S2	148	63				07/02/81	U,V,T,P,C	4045/12
Y4S3	148	121						1241
H3S1	75	35	37 22.2	122 30.9	04/22/81	08/16/81	U,V,T,P	2759/4
H3S2	75	68					U,V,T,P	2760/4
H4S1	132	38	37 22.4	122 50.7	05/07/81	06/04/81	U,V,T,P	5211/5
H4S2	132	70					U,V,T,P	756/38
H4S3	132	100					U,V,T	3615/5
P3S1	96	39	34 44.6	120 47.1	05/06/81	08/17/81	U,V,T,P	4916/10
P3S2	96	69					U,V,T	4921/7
P4S1	143	34	34 42.3	120 50.6	05/06/81	08/17/81	U,V,T,P	1534/17
P4S2	143	64					U,V,T	4411/7
P4S3	143	124					U,V,T	3125/19

STATION/ MOORING	DATA RETURN
DEPLOYMENT A	
Y3S1	PRESSURE SENSOR CALIBRATIONS DRIFTED
Y3S2	COMPLETE
Y4S1	ALL DATA TRUNCATED (1)
Y4S2	NOT RECOVERED (1)
Y4S3	NOT RECOVERED (1)
P3S1	LATTER U,V SUSPECT. CAUSE:FOULING
P3S2	COMPLETE
P4S1	COMPLETE
P4S2	COMPLETE
P4S3	COMPLETE
DEPLOYMENT B	
O3S1	COMPLETE
O3S2	TWO SMALL SECTIONS OF SUSPICIOUS CONDUCTIVITY
Q4S1	COMPLETE
Q4S2	COMPLETE
Q4S3	COMPLETE
Y3S1	NOT RECOVERED (1)
Y3S2	NOT RECOVERED (1)
Y4S1	ALL DATA TRUNCATED (1)
Y4S2	ALL DATA TRUNCATED (2)
Y4S3	TAPE FAILURE, NO DATA RECOVERED
H3S1	COMPLETE
H3S2	COMPLETE
H4S1	ALL DATA TRUNCATED (1)
H4S2	P SHORT; ALL DATA TRUNCATED (1)
H4S3	ALL DATA TRUNCATED (1)
P3S1	COMPLETE
P3S2	COMPLETE
P4S1	P,T SHORT
P4S2	U,V SHORT
P4S3	COMPLETE



Table 2. Moored instrumentation deployed during SuperCODE.  
(continued)

STATION/ MOORING	WATER DEPTH (m)	INST. DEPTH (m)	LATITUDE N	LONGITUDE W	MOORING SET	MOORING RETRIEVED	DATA COLLECTED	TAPE NUMBER
DEPLOYMENT C								
03S1	97	44	43 8.5	124 33.7	08/13/81	01/28/82	U,V,T,P,C	5645/5
03S2	97	72					U,V,T,P,C	5646/5
04S1	131	44	43 7.8	124 37.5	08/13/81	01/28/82	U,V,T,P,C	5644/5
04S2	131	69					U,V,T,P,C	5643/5
04S3	131	113					U,V,T,P	1323/17
Y3S1	93	35	41 54.4	124 27.0	08/14/81	11/03/82	U,V,T,C	2519/4
Y3S2	93	65					U,V,T,C	1965/10
Y4S1	148	32	41 53.8	124 30.8	08/14/81	01/29/82	U,V,T,C	760/15
Y4S2	148	62					U,V,T,C	1495/9
Y4S3	148	122					U,V,T,P	408/5
H3S1	81	35	37 21.8	122 38.8	08/16/81	01/30/82	U,V,T	1966/6
H3S2	81	65					U,V,T,P	1759/10
H4S1	134	35	37 22.5	122 50.9	08/16/81	LOST	U,V,T,P	1321/18
H4S2	134	65				LOST	U,V,T,P,C	3621/11
H4S3	134	105				03/06/82	U,V,T	842/15
P3S1	95	40	34 45.3	120 47.3	08/17/81	01/31/82	U,V,T	1326/18
P3S2	95	70					U,V,T,P	1319/11
P4S1	157	46	34 42.4	120 50.9	08/17/81	01/31/82	U,V,T	2265/13
P4S2	157	76					U,V,T,P	762/18
P4S3	157	136					U,V,T	2266/13
DEPLOYMENT D								
03S1	96	42	43 9.2	124 33.9	01/28/82	05/19/82	U,V,T,P,C	4044/15
03S2	96	74					U,V,T,P,C	4045/15
04S1	126	35	43 9.1	124 37.8	01/28/82	05/19/82	U,V,T,P,C	5647/5
04S2	126	64					U,V,T,P,C	5648/5
04S3	126	107					U,V,T,P	3481/10
Y3S1	89	35	41 54.0	124 26.3	01/29/82	02/08/82	U,V,T,P,C	1541/27
Y3S2	89	65					U,V,T,P	1968/30
Y4S1	150	37	41 54.2	124 31.0	01/29/82	03/07/82	U,V,T,P,C	746/47
Y4S2	150	65				05/20/82	U,V,T,P,C	5649/5
Y4S3	150	130					U,V,T,P	407/4
E3S1	86	35	40 52.5	124 20.3	02/27/82	05/21/82	U,V,T	841/13
E3S2	86	65					U,V,T,P	756/42
H3S1	82	35	37 21.6	122 39.0	01/30/82	05/22/82	U,V,T,P	1542/28
H3S2	82	67					U,V,T,P	1543/25
P3S1	95	38	34 45.0	120 47.2	01/31/82	05/23/82	U,V,T,P	3615/9
P3S2	95	68					U,V,T,P	755/40
P4S1	153	38	34 42.1	120 50.9	01/31/82	05/23/82	U,V,T,P	2759/8
P4S2	153	71					U,V,T,P	2760/9
P4S3	153	132					U,V,T,P	5211/9

STATION/ MOORING	DATA RETURN
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## DEPLOYMENT C

03S1	U,V MISSING DATA (3)
03S2	U,V MISSING DATA (4)
04S1	COMPLETE
04S2	U,V MISSING DATA (5)
04S3	COMPLETE
Y3S1	ALL DATA TRUNCATED (1)
Y3S2	ALL DATA TRUNCATED (1); U,V MISSING DATA (6)
Y4S1	ALL DATA TRUNCATED (2)
Y4S2	ALL DATA TRUNCATED (2)
Y4S3	ALL DATA TRUNCATED (2)
H3S1	COMPLETE
H3S2	COMPLETE
H4S1	NOT RECOVERED (1)
H4S2	NOT RECOVERED (1)
H4S3	ALL DATA TRUNCATED (1)
P3S1	COMPLETE
P3S2	PRESSURE SUSPECT DUE TO QUESTIONABLE SENSOR
P4S1	U,V SHORT; ALL DATA TRUNCATED (2)
P4S2	ALL DATA TRUNCATED (2)
P4S3	ALL DATA TRUNCATED (2)

## DEPLOYMENT D

03S1	ALL DATA SHORT
03S2	COMPLETE
04S1	CONDUCTIVITY CALIBRATION DRIFTED
04S2	COMPLETE
04S3	COMPLETE
Y3S1	ALL DATA TRUNCATED (1)
Y3S2	ALL DATA TRUNCATED (1)
Y4S1	P MISSING DATA (7), CALIBRATION DRIFTED; ALL DATA TRUNCATED (1)
Y4S2	U,V SHORT
Y4S3	COMPLETE
E3S1	COMPLETE
E3S2	P FAILED
H3S1	ALL DATA SHORT,P FAILED
H3S2	COMPLETE
P3S1	COMPLETE
P3S2	U,V,P SHORT
P4S1	COMPLETE
P4S2	COMPLETE
P4S3	COMPLETE

Table 2. Moored instrumentation deployed during SuperCODE.  
(continued)

STATION/ MOORING	WATER DEPTH (m)	INST. DEPTH (m)	LATITUDE N	LONGITUDE W	MOORING SET	MOORING RETRIEVED	DATA COLLECTED	TAPE NUMBER
DEPLOYMENT E								
Q3S1	99	47	43 9.5	124 35.2	05/19/82	09/08/82	U,V,T,P,C	5646/9
Q3S2	99	77					U,V,T,P,C	5645/9
Q4S1	133	41	43 8.9	124 38.0	07/07/82	09/08/82	U,V,T,P,C	5644/11
Q4S2	133	71					U,V,T,C	760/18
Q4S3	133	111					U,V,T	688/62
E3S1	84	36	40 52.4	124 19.5	05/21/82	09/10/82	U,V,T,C	1495/12
E3S2	84	66					U,V,T,P,C	1541/31
H3S1	83	35	37 22.0	122 38.8	05/22/82	09/11/82	U,V,T	1966/11
H3S2	83	65					U,V,T,P	408/9
P3S1	95	40	34 45.9	120 46.9	05/23/82	09/12/82	U,V,T	6088/3
P3S2	95	70					U,V,T,P	762/23
P4S1	155	42	34 42.9	120 50.7	05/23/82	09/12/82	U,V,T,P	1759/15
P4S2	155	72					U,V,T	6087/3
P4S3	155	139					U,V,T,P	1964/23
N3S1	86	35	34 24.2	120 2.6	05/24/82	09/12/82	U,V,T,C	1965/14
N3S2	86	65					U,V,T	751/43
R3S1	93	43	34 23.6	120 24.9	05/24/82	09/12/82	U,V,T	2281/16
R3S2	93	73					U,V,T,P	1319/15
DEPLOYMENT E								
Q3S1	100	38	43 9.7	124 34.5	09/08/82	04/15/83	U,V,T,P,C	5647/9
Q3S2	100	68					U,V,T,P,C	5648/9
E3S1	91	40	40 52.4	124 19.9	09/10/82	04/14/83	U,V,T,P,C	4045/20
E3S2	91	70						4044/19
DEPLOYMENT G								
Q3S1	99	39	43 9.5	124 34.6	04/15/83	07/12/83	U,V,T,P,C	1495/18
Q3S2	99	67					U,V,T,P,C	4045/21
DEPLOYMENT H								
Q3S1	97	35	43 9.5	124 34.4	07/12/83	01/31/84	U,V,T,P	1968/35
Q3S2	97	65					U,V,T,P,C	746/54

STATION/ MOORING	DATA RETURN
DEPLOYMENT E	
03S1	COMPLETE
03S2	NUMEROUS SECTIONS OF LOW CONDUCTIVITY BRIDGED
04S1	COMPLETE
04S2	COMPLETE
04S3	COMPLETE
E3S1	CONDUCTIVITY LOW IN TWO SMALL SECTIONS
E3S2	ALL DATA SHORT
H3S1	COMPLETE
H3S2	COMPLETE
P3S1	COMPLETE
P3S2	U,V FAILED
P4S1	U,V MISSING DATA (8), BRIDGED (9)
P4S2	COMPLETE
P4S3	COMPLETE
N3S1	U,V MISSING DATA (10), BRIDGED (11)
N3S2	COMPLETE
R3S1	U,V MISSING DATA (12)
R3S2	COMPLETE
DEPLOYMENT F	
03S1	COMPLETE
03S2	COMPLETE
E3S1	COMPLETE
E3S2	TAPE FAILURE, NO DATA RECOVERED
DEPLOYMENT G	
03S1	ALL DATA SHORT; U,V,T,P,C MISSING DATA (13)
03S2	COMPLETE
DEPLOYMENT H	
03S1	ALL DATA SHORT, P FAILED
03S2	COMPLETE

Table 2. Moored instrumentation deployed during SuperCODE  
(continued)

NOTES

- (1) MOORING BROKE UP AFTER BEING STRUCK BY FISHING BOAT  
(2) MORING WAS MOVED AFTER BEING STRUCK BY FISHING BOAT

MISSING DATA AND BRIDGE TIMES

(3)	08/27/81 0000 - 09/08/81 0600	294 hrs
(4)	09/24/81 0000 - 10/26/81 1200	780 hrs
(5)	09/13/81 1300 - 10/19/81 0600	857 hrs
(6)	10/17/81 1200 - 10/21/81 0600	90 hrs
(7)	01/30/82 0300 - 02/02/82 1100	80 hrs
(8)	08/05/82 0300 - 08/10/82 0000	117 hrs
(9)	06/11/82 0200 - 06/11/82 1300	11 hrs
(10)	07/20/82 0200 - 08/05/82 0500	387 hrs
(11)	08/16/82 1700 - 08/17/82 0300	10 hrs
(12)	08/03/82 1400 - 08/06/82 2200	80 hrs
(13)	05/17/83 1900 - 05/24/83 1700	166 hrs

DATA SHORT => INDIVIDUAL METER FAILED DURING DEPLOYMENT, PARTIAL DATA RECORD  
 DATA FAILED => INDIVIDUAL METER FAILED AT THE TIME OF DEPLOYMENT, NO RECORD  
 ALL DATA SHORT => EQUIPMENT FAILURE DURING DEPLOYMENT, PARTIAL RECORD

always cm/sec for velocity and °C for temperature. The principal axes (Kundu and Allen, 1976) are specified by the number of degrees rotation, positive clockwise from north, of the major principal axis.

The data report is organized by mooring group location in order of decreasing latitude, i.e. all data from Coos Bay, appears for the complete time in which that mooring group was deployed followed by all data from Crescent City, etc. The data is divided into 8 distinct time periods (A - H) corresponding to the installation and retrieval of the instruments for maintenance (Table 2). A bathymetric map of the surrounding area showing the exact mooring locations, marked with an A - H to denote deployment period, is presented before the data from that mooring group. The order of data presentation is as follows: statistics of the hourly data; scatter plots and progressive vector diagrams of hourly data; time series of hourly velocity components and temperature; statistics of the six-hourly low-passed data; time series of the six-hourly current vectors (one which encompasses the entire SuperCODE time period and others by deployment period); and time series of six-hourly velocity components and temperature. The hourly time series plots are presented in 3 month sections. All others, with the exception of the entire time period vector plots, are presented by deployment period.

The scale for the velocity components and velocity vectors, in both the hourly and six hourly plots, is 1 tic equals 10 cm/s. For the temperature plots, 1 tic represents 0.5°C. Scaling for the time axes was kept constant for all the hourly data and constant at a different value for all the six hourly data. One small tic on the time axis represents 5 days. The scatter plots and the progressive vector diagrams were auto-scaled to fit within a certain size boundary as their range varied by a factor of 50.

The co-ordinate system, with two exceptions, is north - south; u being positive east and v positive north. The mean currents at Capitan and Herman are to the west, and the data for the vector time series at those locations are rotated by -90 degrees, i.e. west appears at the top of the plot. In all other plots for Captitan and Herman, the north - south convention for u and v is kept.

A total of eight u,v records had sections of bad data. These records and times are noted in the data synopsis (Table 2). The gaps were excluded from calculations of the statistics. In the progressive vector diagrams, the start and stop times of missing data are shown on the plots. The gaps are by convention spaced either 250 or 75 km in either the north-south or east-west direction. The progressive vector diagrams are marked with an asterik (\*) every 360 data points (once every fifteen days). Asterisks that would occur during

periods of missing data are suppressed. The first asterisk to appear after a data gap occurs at some multiple of fifteen days from the date of the last asterisk. In the scatter plots, data points below the threshold level, which for the Aanderaa meters in this experiment is 1.5 cm/sec, are not plotted. The vector time series are plotted from the six-hourly low-passed data at a twelve hourly sampling rate; the vector time series for the entire SuperCODE time period are plotted at a daily sampling rate.



### Acknowledgments

The SuperCODE experiment was funded by the National Science Foundataion through Grants OCE-8026131 and OCE-8405232. The current measurements were made by the OSU bouy group under R. D. Pillsbury. Robert Still was on most of the mooring cruises. Dennis Root and Joseph Bottero performed the initial data processing. The Sea Grant Marine Extension Agents and Advisors in Oregon and California provided liason with the fishing community; we are indebted to Paul Heikkila, Ed Melvin, John Richards, Chris Toole and Jim Waldvogel for their assistance.

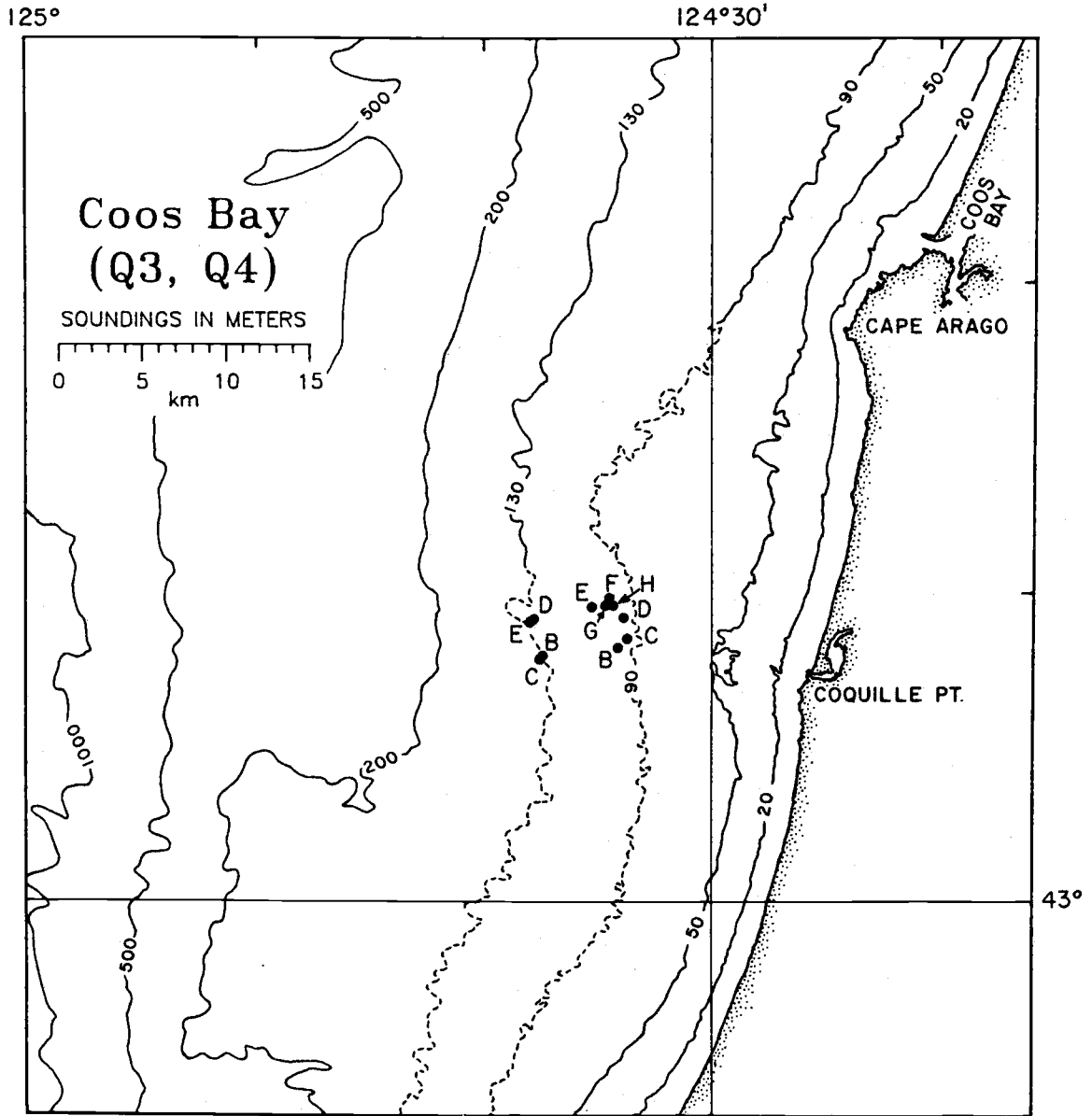
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COOS BAY





## SAMPLING INTERVAL = 60 MINUTES

STATION	START TIME (GMT)	MIN	MAX	MEAN	STD	STOP TIME	
Q3S1	APR 30,1981 0000	U	-27.7	18.8	-0.3	6.8	AUG 13,1981 1300
		V	-42.1	27.0	-2.8	13.0	AUG 13,1981 1300
		T	7.1	9.8	8.1	0.4	AUG 13,1981 1300
Q3S1	AUG 14,1981 0400	U	-36.7	53.4	1.8	10.8	DEC 22,1981 1800
		V	-49.9	89.4	8.2	20.1	DEC 22,1981 1800
		T	7.9	14.0	10.6	1.6	JAN 28,1982 1000
Q3S1	JAN 29,1982 0300	U	-28.5	22.7	-5.9	10.0	FEB 4,1982 1100
		V	-53.2	30.3	-19.1	21.9	FEB 4,1982 1100
		T	9.7	10.2	10.0	0.1	FEB 4,1982 1100
Q3S1	MAY 20,1982 0400	U	-33.2	20.4	-1.7	7.6	SEP 8,1982 0900
		V	-70.9	40.0	-1.7	14.1	SEP 8,1982 0900
		T	7.2	10.8	8.6	0.7	SEP 8,1982 0900
Q3S1	SEP 8,1982 1908	U	-49.4	58.5	2.6	12.8	APR 15,1983 1508
		V	-82.4	75.3	8.5	23.6	APR 15,1983 1508
		T	8.6	14.5	11.7	1.1	APR 15,1983 1508
Q3S1	APR 26,1983 2300	U	-36.7	17.9	-0.7	7.9	JUN 13,1983 2000
		V	-70.6	33.7	-6.2	20.6	JUN 13,1983 2000
		T	8.0	12.1	10.0	1.4	JUN 13,1983 2000
Q3S1	JUL 12,1983 1659	U	-23.4	31.6	0.6	8.3	NOV 4,1983 0859
		V	-45.9	63.2	4.6	15.6	NOV 4,1983 0859
		T	8.6	16.3	10.3	1.2	NOV 4,1983 0859
Q3S2	APR 30,1981 0000	U	-29.7	19.5	-0.7	6.4	AUG 13,1981 1300
		V	-30.5	33.3	2.6	10.2	AUG 13,1981 1300
		T	6.2	8.4	7.5	0.4	AUG 13,1981 1300
Q3S2	AUG 14,1981 0400	U	-38.8	31.4	-0.2	7.8	JAN 28,1982 1000
		V	-41.1	75.2	6.2	16.0	JAN 28,1982 1000
		T	7.6	13.5	9.7	1.5	JAN 28,1982 1000
Q3S2	JAN 29,1982 0300	U	-47.0	26.1	-0.9	8.5	MAY 19,1982 1300
		V	-53.0	60.7	1.3	17.8	MAY 19,1982 1300
		T	6.7	10.3	9.0	0.9	MAY 19,1982 1300
Q3S2	MAY 20,1982 0400	U	-27.3	19.8	-1.0	6.8	SEP 8,1982 0900
		V	-43.7	34.5	2.2	11.5	SEP 8,1982 0900
		T	6.8	9.8	8.1	0.6	SEP 8,1982 0900
Q3S2	SEP 8,1982 1909	U	-34.4	40.4	1.2	10.7	APR 15,1983 1509
		V	-51.3	74.4	8.8	19.6	APR 15,1983 1509
		T	8.0	14.2	11.2	1.2	APR 15,1983 1509

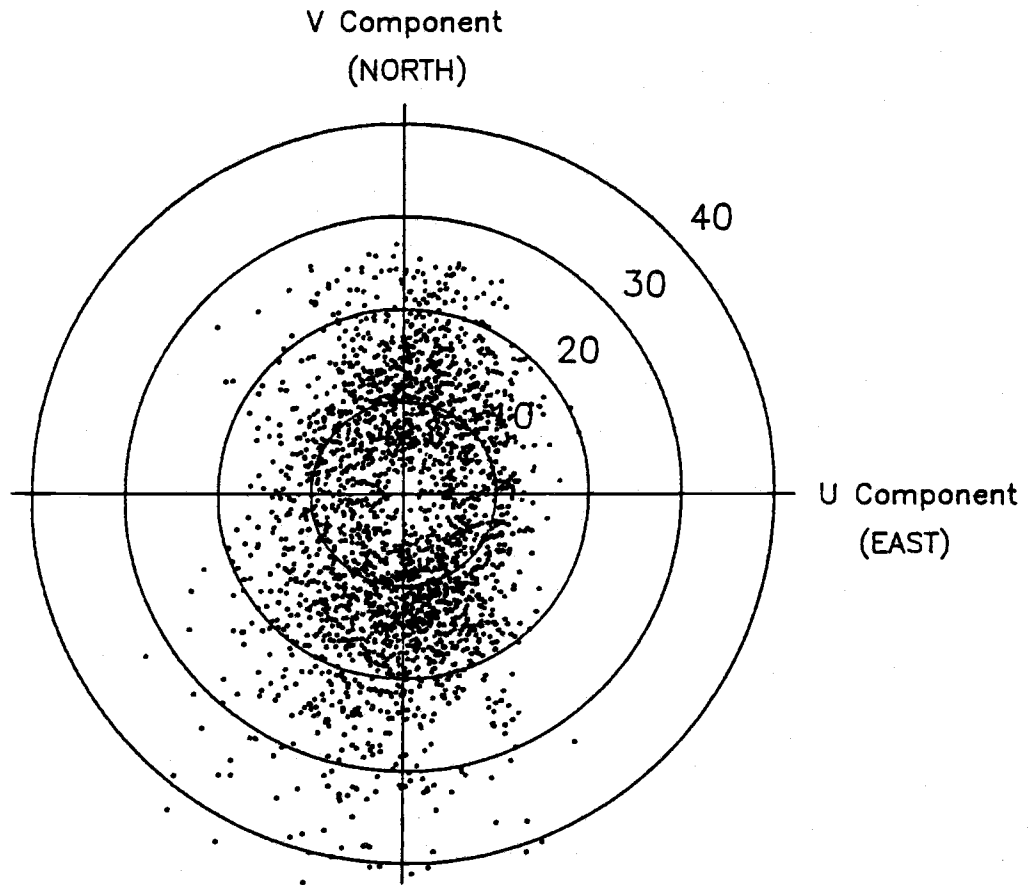
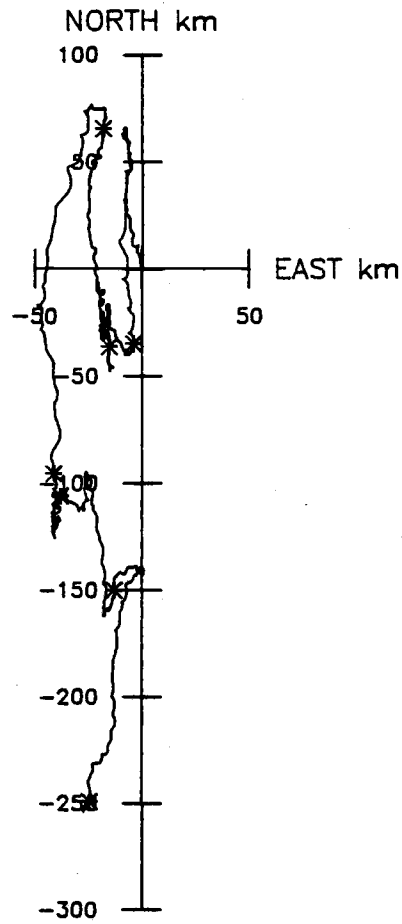
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			V	-46.7	46.7	3.8	15.5	JUL 12, 1983	0900
			T	7.2	11.1	8.8	0.9	JUL 12, 1983	0900
Q3S2	JUL 12, 1983	1757	U	-29.5	36.7	1.0	9.1	JAN 31, 1984	1457
			V	-46.5	56.1	7.4	16.8	JAN 31, 1984	1457
			T	8.3	14.4	10.6	1.5	JAN 31, 1984	1457
Q4S1	APR 30, 1981	0400	U	-33.2	28.7	-1.8	10.0	AUG 13, 1981	0900
			V	-58.3	36.2	-11.8	15.6	AUG 13, 1981	0900
			T	7.6	10.5	8.8	0.5	AUG 13, 1981	0900
Q4S1	AUG 14, 1981	0100	U	-45.7	61.1	1.5	12.6	JAN 28, 1982	1500
			V	-71.0	117.1	4.4	21.2	JAN 28, 1982	1500
			T	7.9	13.7	10.7	1.5	JAN 28, 1982	1500
Q4S1	JAN 29, 1982	0500	U	-51.3	63.5	-4.9	15.3	MAY 19, 1982	0900
			V	-78.3	98.7	-13.6	29.7	MAY 19, 1982	0900
			T	8.6	10.4	9.8	0.3	MAY 19, 1982	0900
Q4S1	JUL 8, 1982	1200	U	-23.6	22.7	-2.2	8.8	SEP 8, 1982	1200
			V	-39.6	32.6	-6.1	12.7	SEP 8, 1982	1200
			T	8.0	11.3	9.1	0.5	SEP 8, 1982	1200
Q4S2	APR 30, 1981	0400	U	-22.1	21.1	0.2	7.6	AUG 13, 1981	0800
			V	-43.2	25.8	-2.2	13.4	AUG 13, 1981	0800
			T	7.0	9.2	7.9	0.4	AUG 13, 1981	0800
Q4S2	AUG 14, 1981	0100	U	-41.1	37.6	1.4	10.2	JAN 28, 1982	1500
			V	-48.3	103.0	5.7	19.4	JAN 28, 1982	1500
			T	7.7	13.6	9.8	1.5	JAN 28, 1982	1500
Q4S2	JAN 29, 1982	0500	U	-40.5	51.1	-3.3	12.9	MAY 19, 1982	0900
			V	-70.4	80.0	-8.3	26.0	MAY 19, 1982	0900
			T	7.4	10.3	9.5	0.5	MAY 19, 1982	0900
Q4S2	JUL 8, 1982	1200	U	-20.9	16.8	-1.4	6.8	SEP 8, 1982	1300
			V	-27.8	41.8	0.6	11.2	SEP 8, 1982	1300
			T	7.8	9.9	8.6	0.3	SEP 8, 1982	1300
Q4S3	APR 30, 1981	0400	U	-22.6	20.8	-0.7	6.3	AUG 13, 1981	0800
			V	-33.6	30.6	4.3	12.0	AUG 13, 1981	0800
			T	5.9	8.0	7.2	0.3	AUG 13, 1981	0800
Q4S3	AUG 14, 1981	0100	U	-34.8	29.0	-0.2	8.2	JAN 28, 1982	1500
			V	-43.2	87.5	7.6	13.2	JAN 28, 1982	1500
			T	7.1	13.2	8.8	1.0	JAN 28, 1982	1500



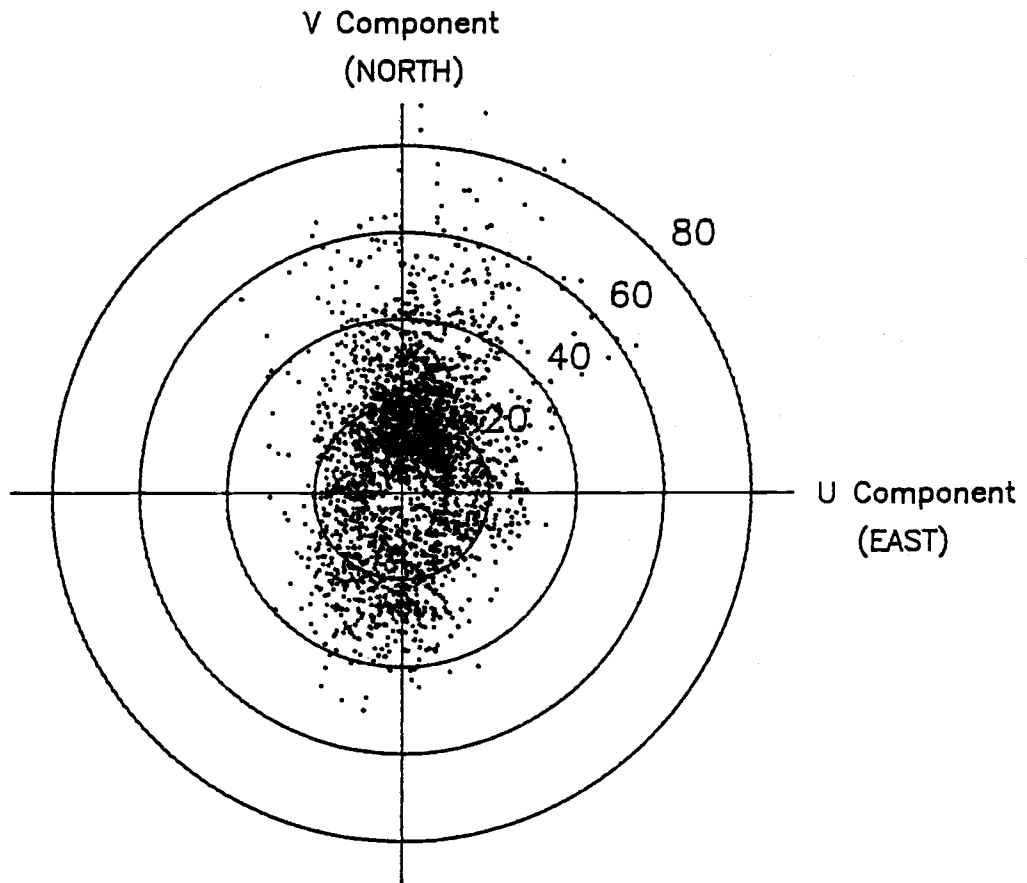
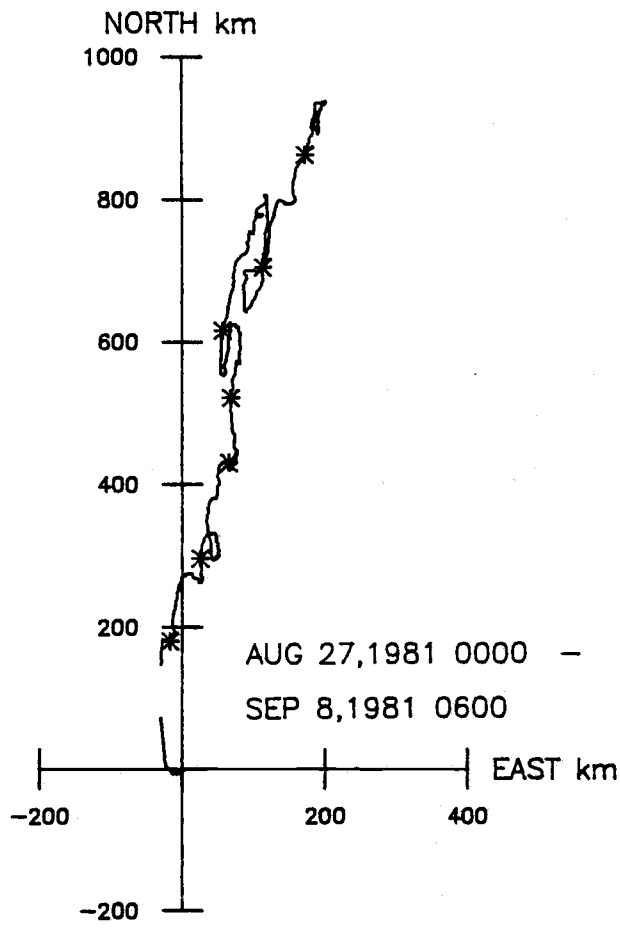
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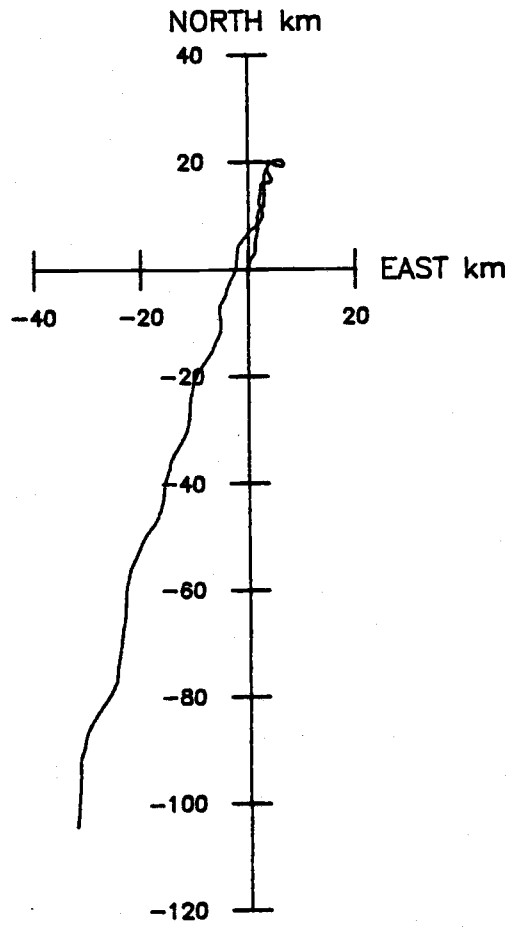
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			V	-57.9	62.9	2.4	17.6	MAY 19, 1982	1000
			T	6.1	10.2	8.6	0.8	MAY 19, 1982	1000
Q4S3	JUL 8, 1982	1200	U	-22.4	15.4	-1.2	5.9	SEP 8, 1982	1200
			V	-41.9	39.3	3.8	11.9	SEP 8, 1982	1200
			T	7.5	8.7	8.1	0.3	SEP 8, 1982	1200



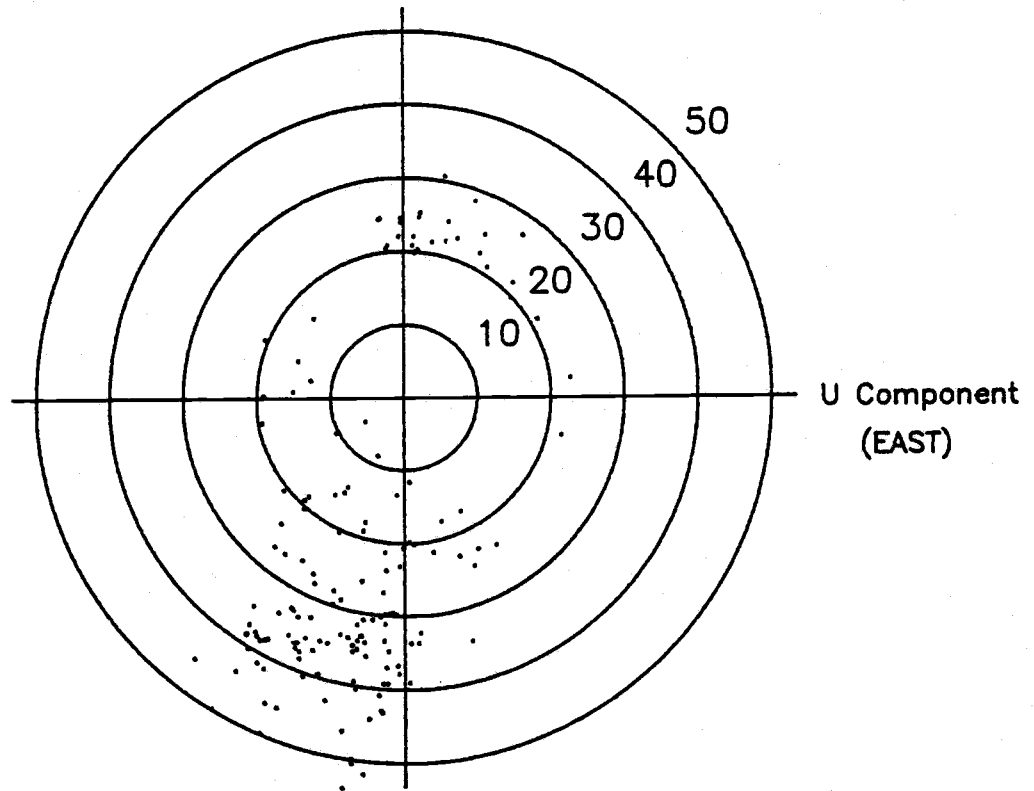
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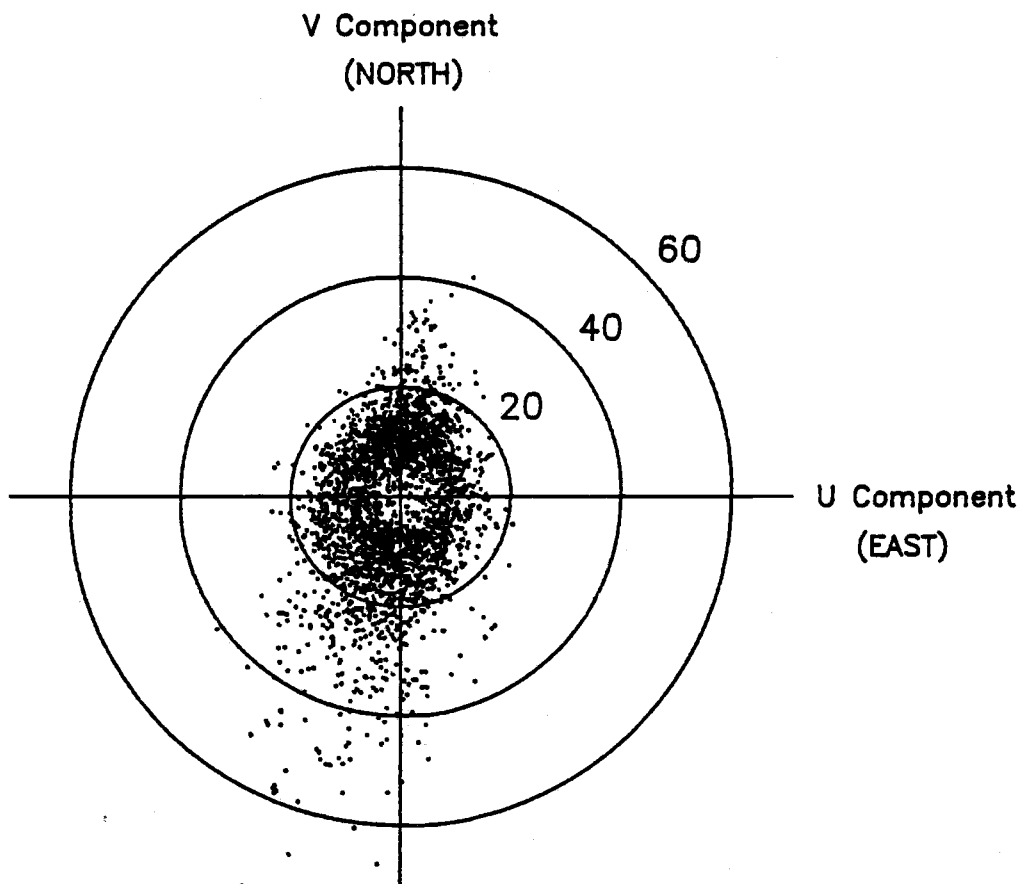
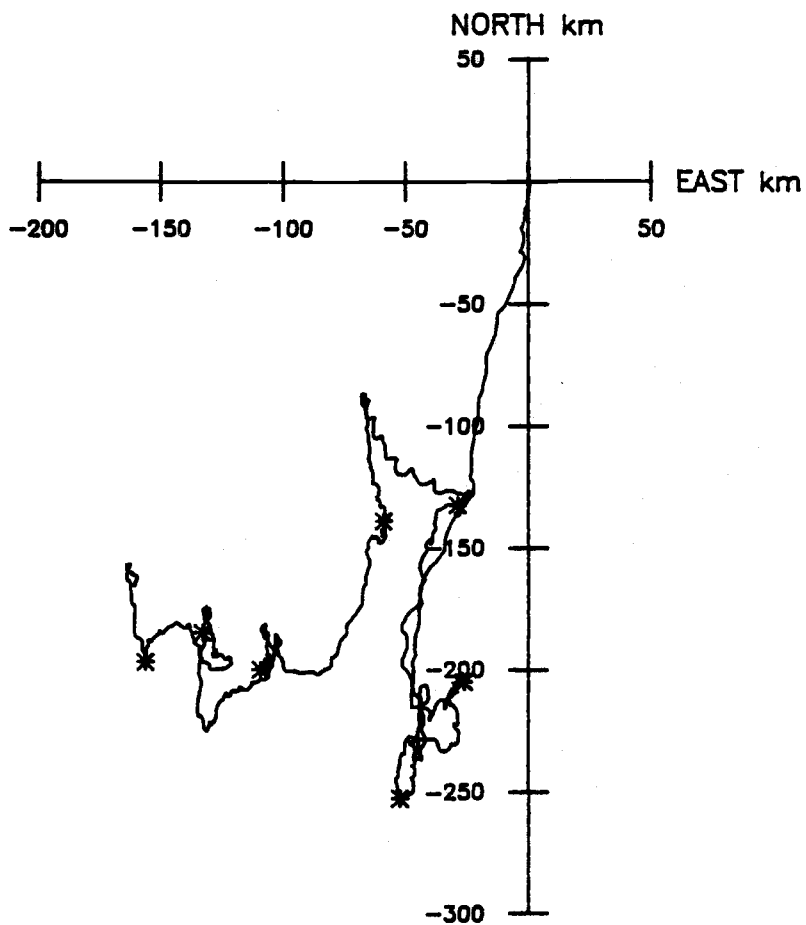


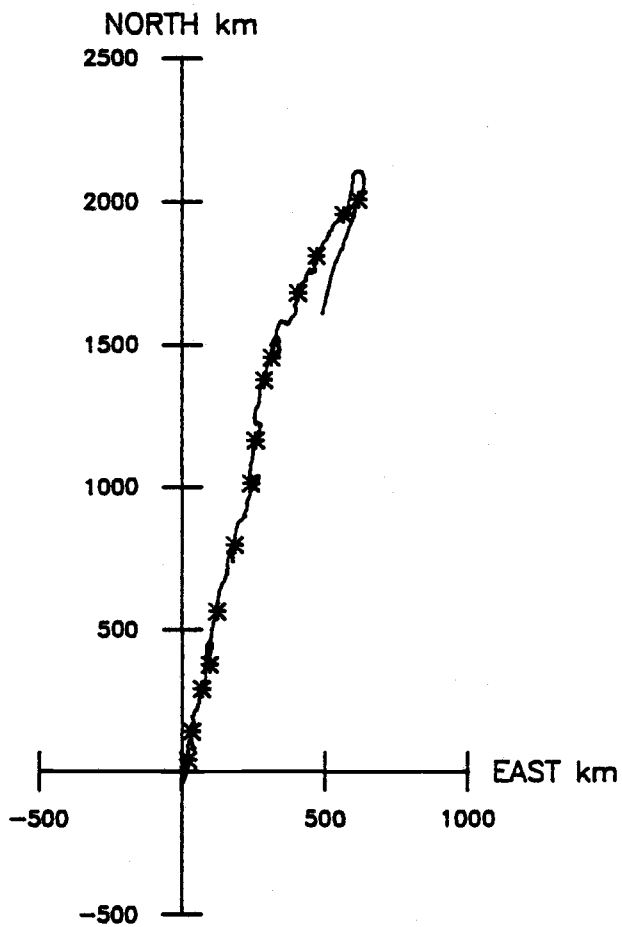
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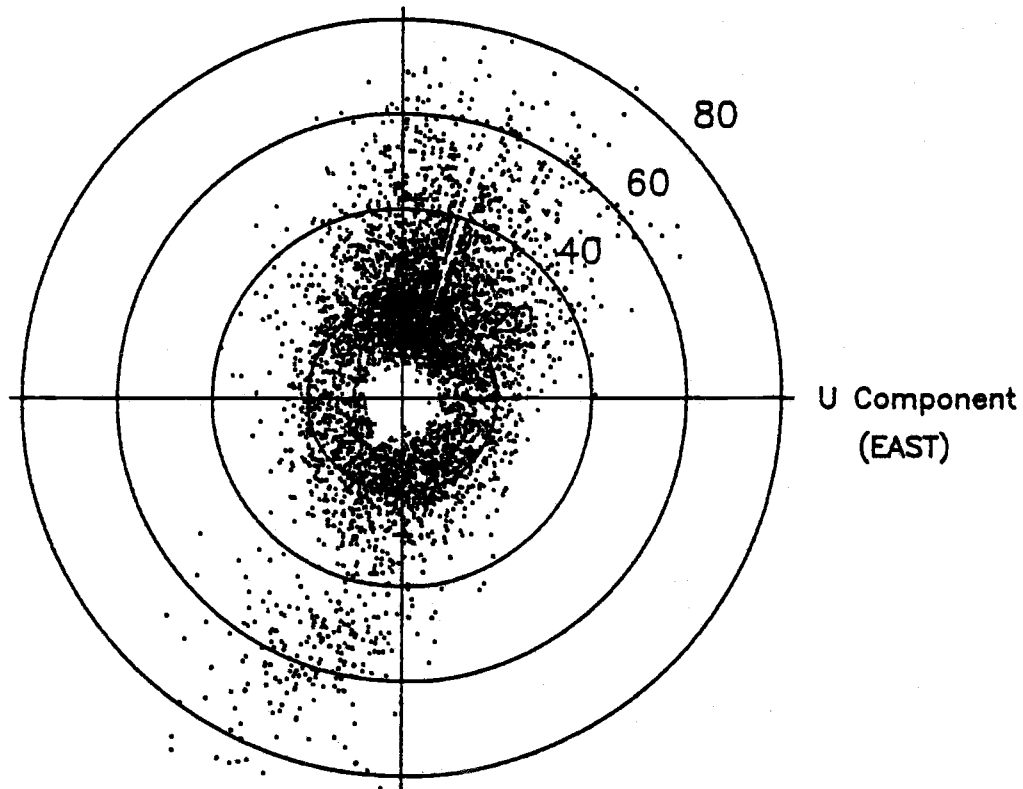
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JAN 29, 1982 0300 - FEB 4, 1982 1100



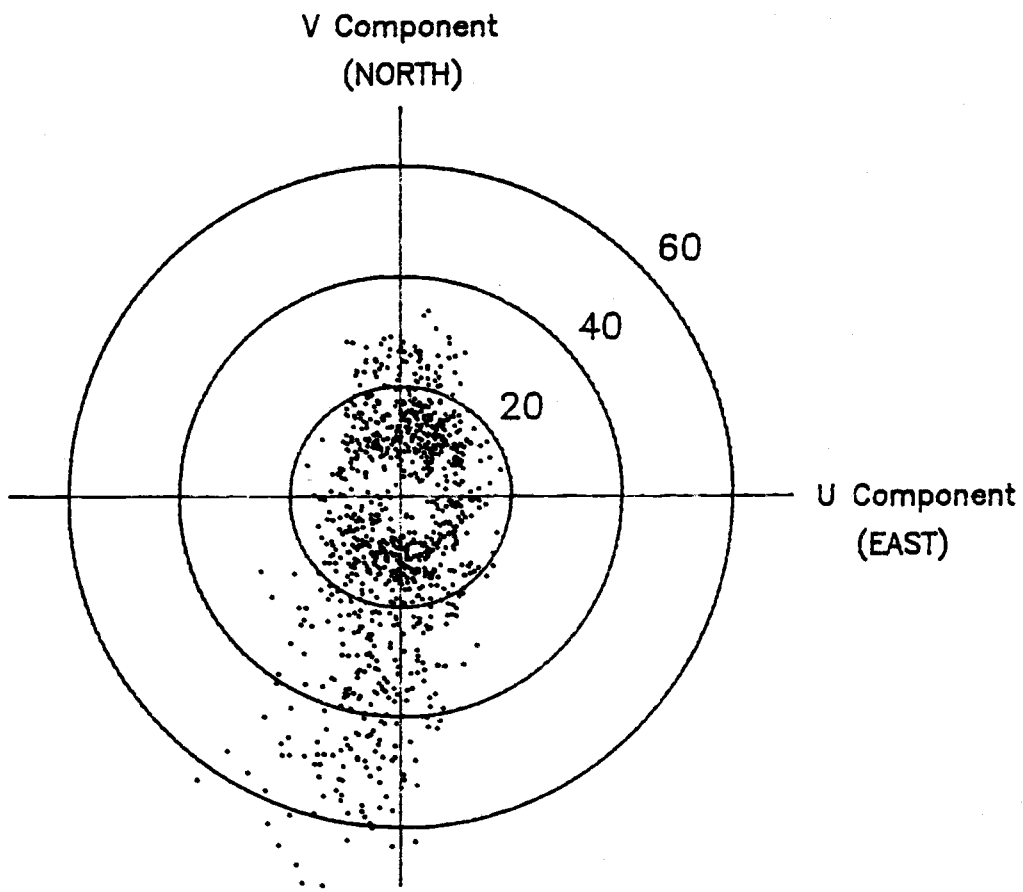
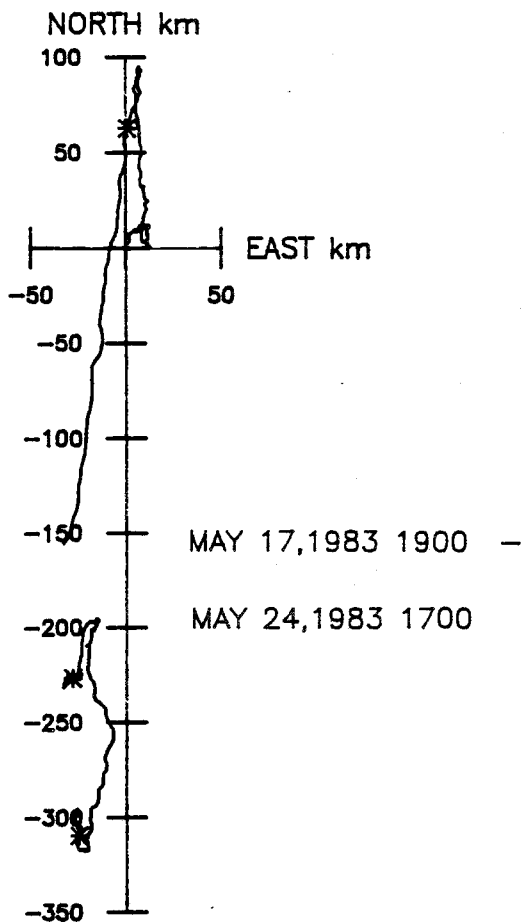


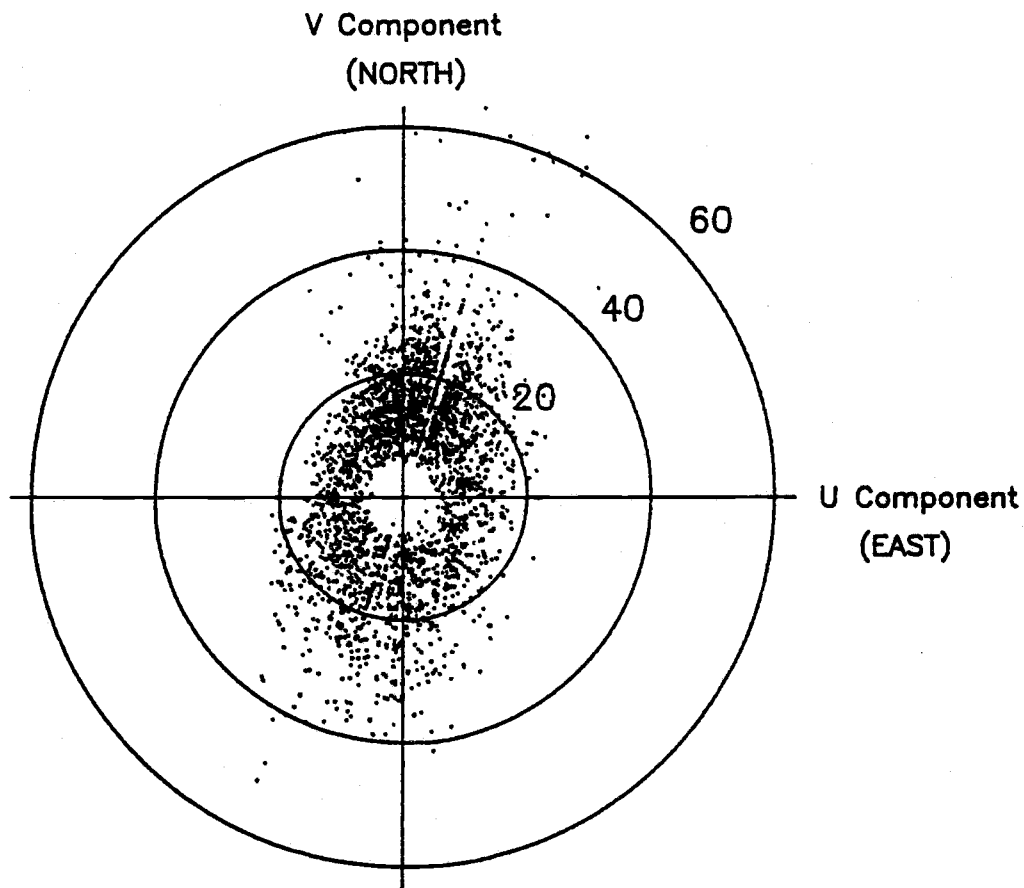
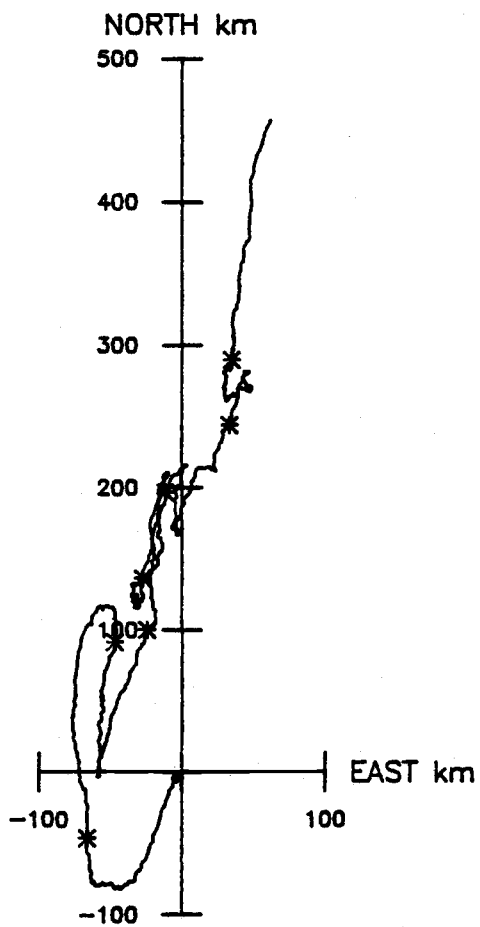
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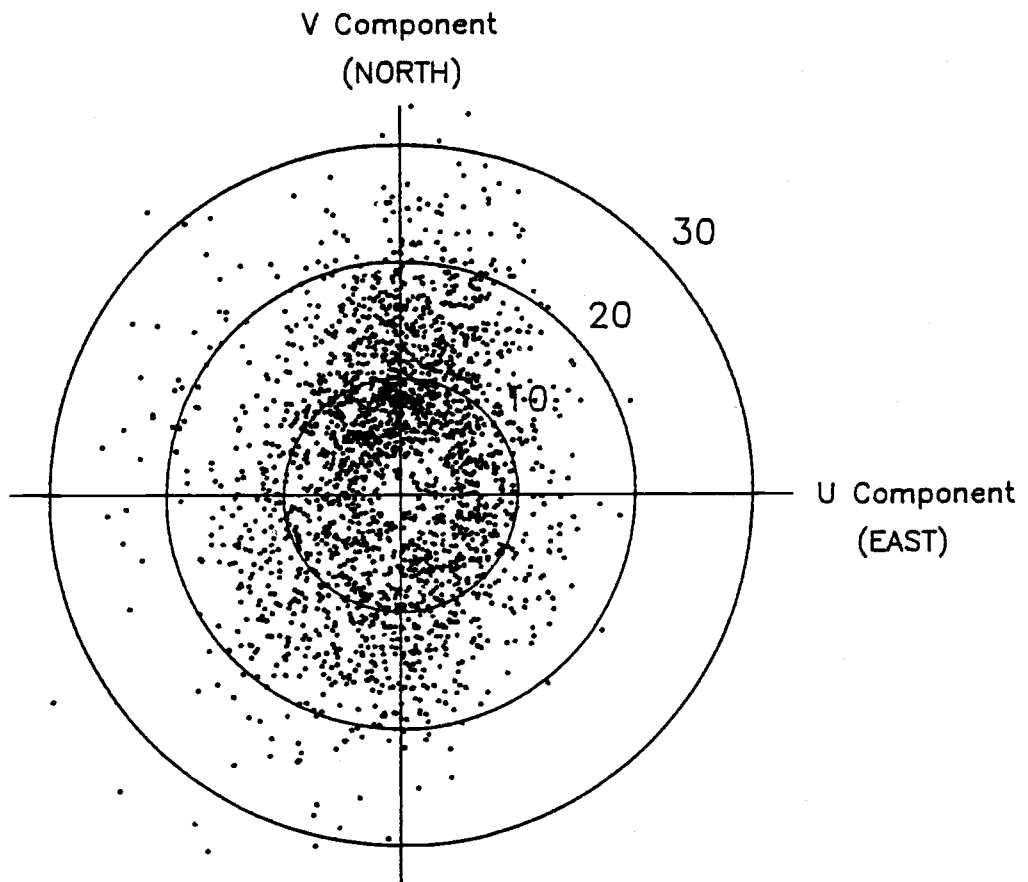
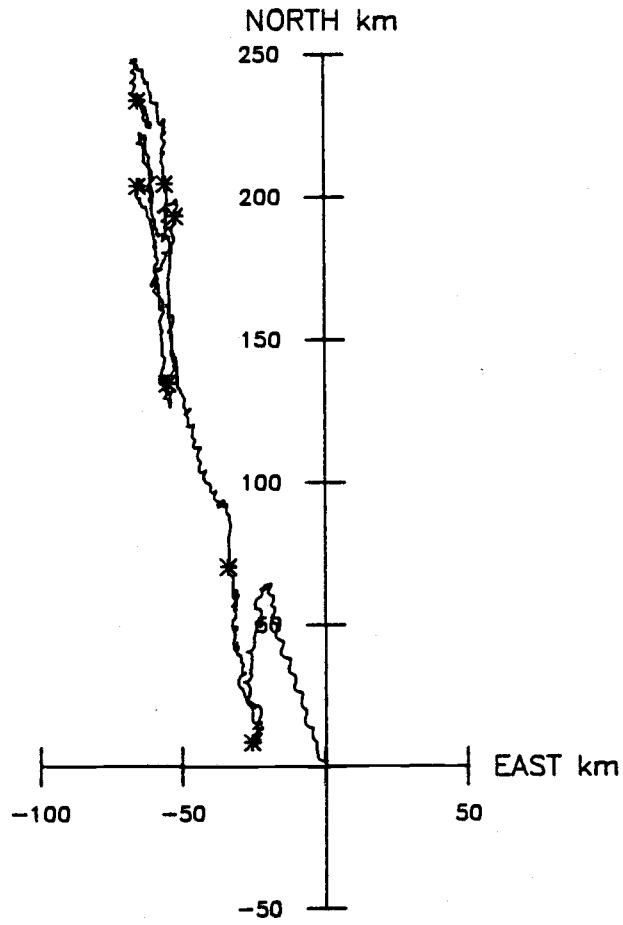
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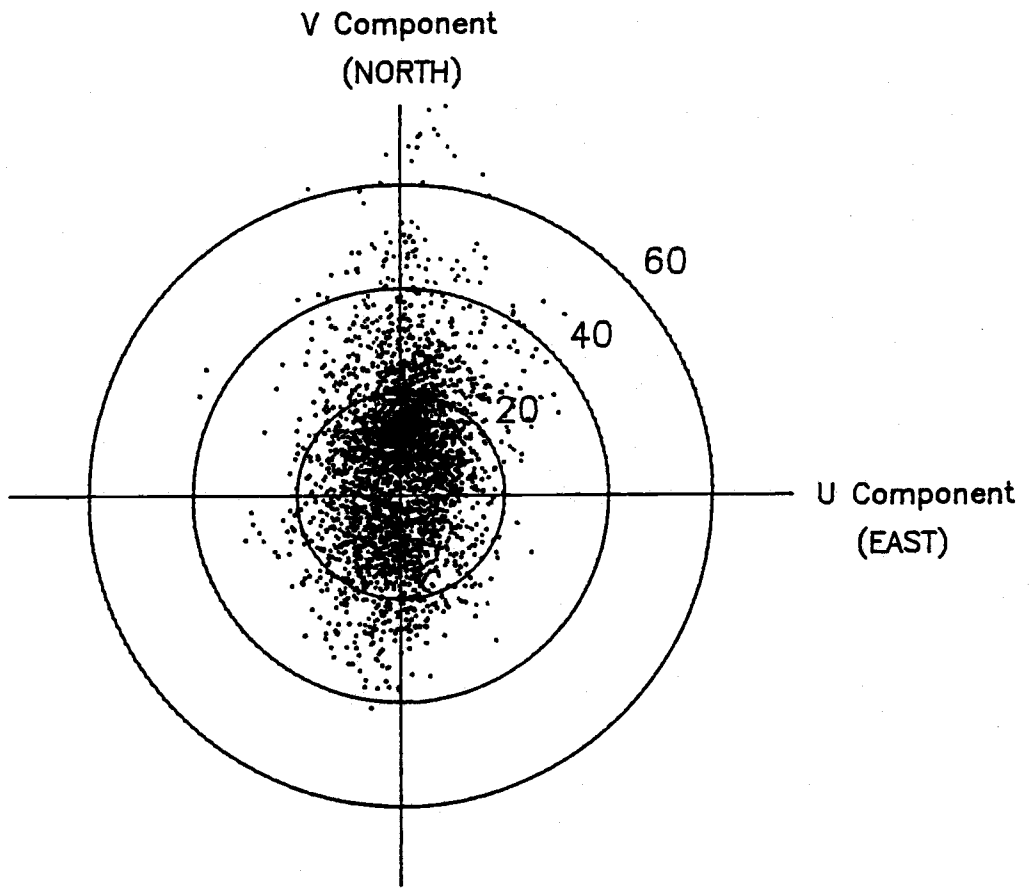
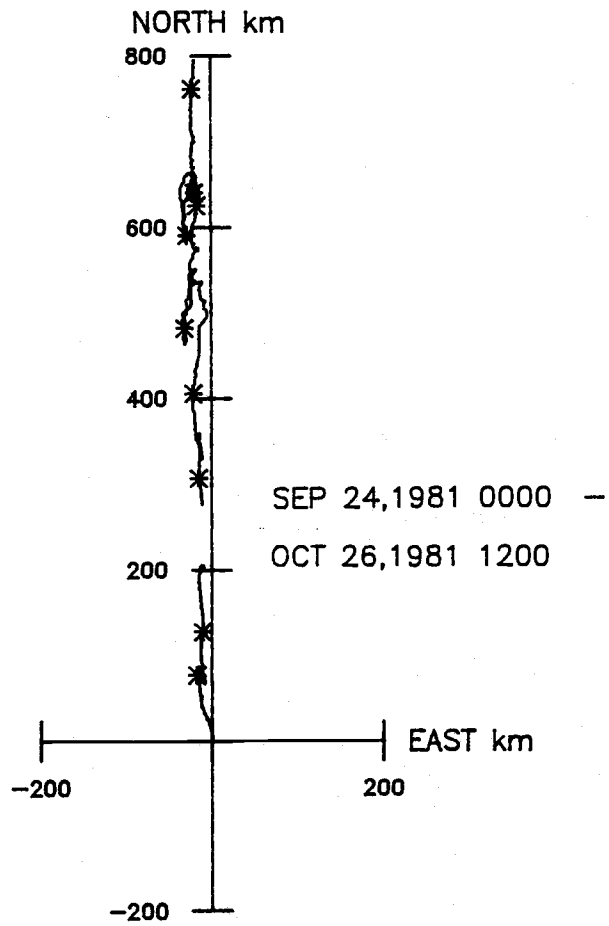
SEP 8,1982 1908 - APR 15,1983 1508

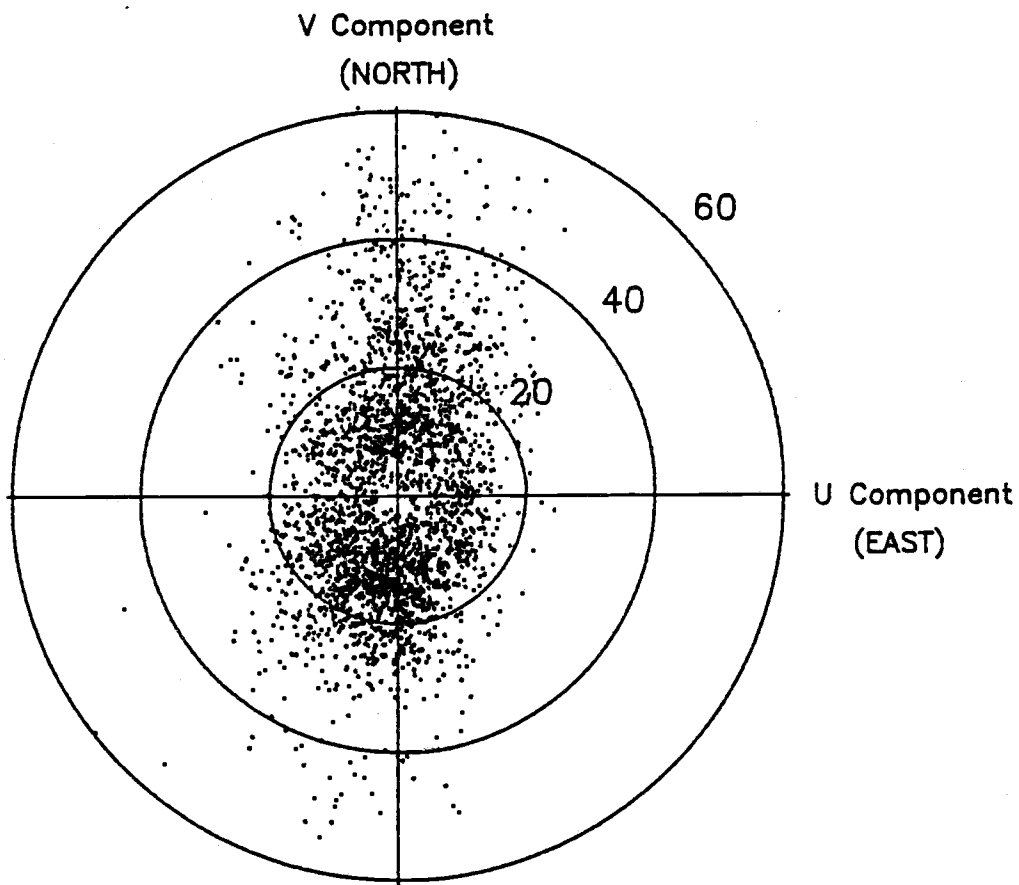
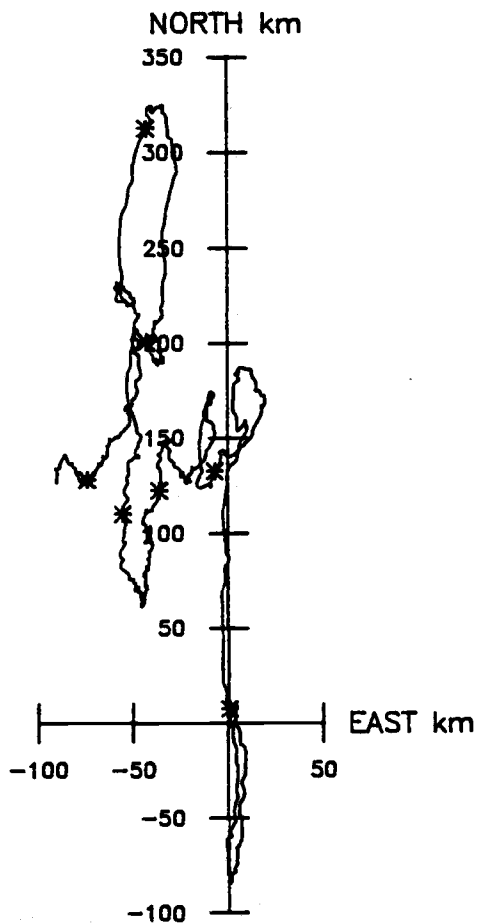


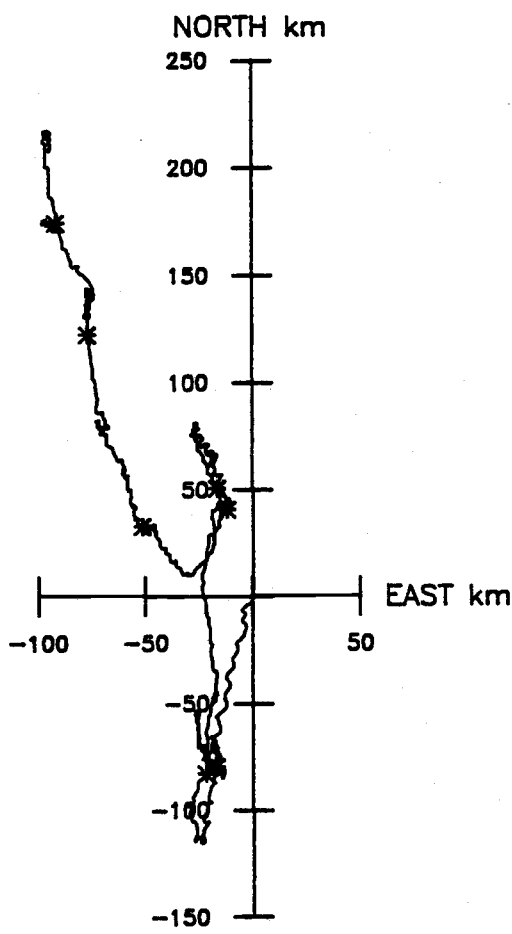




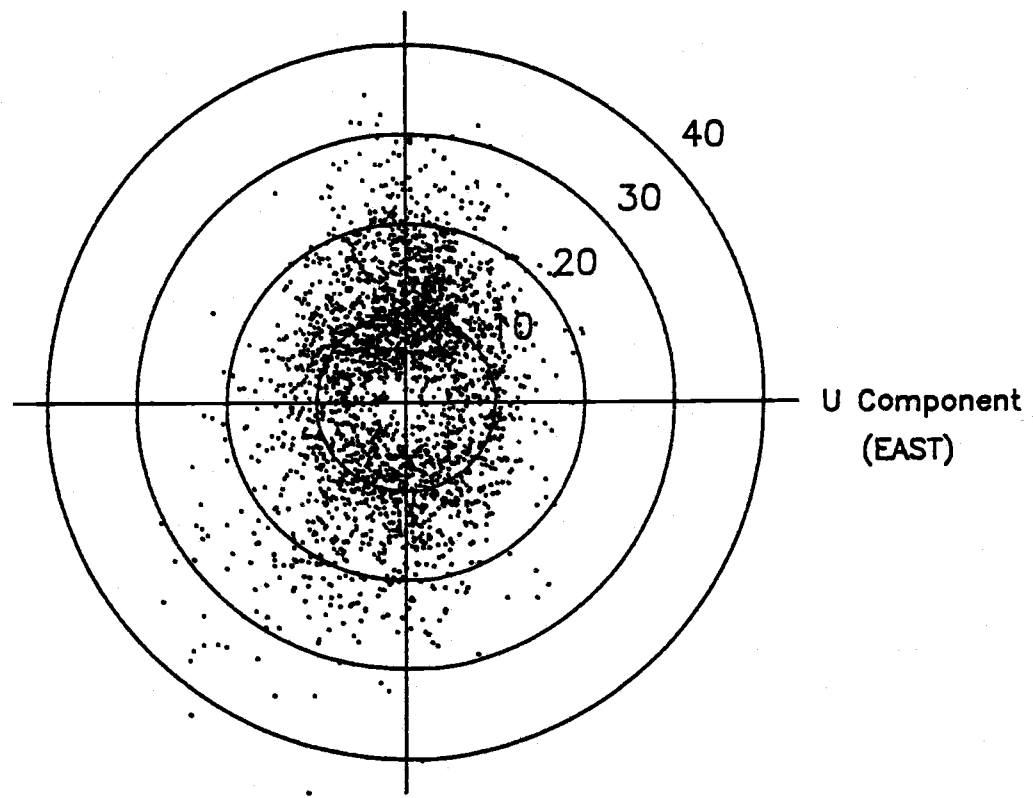




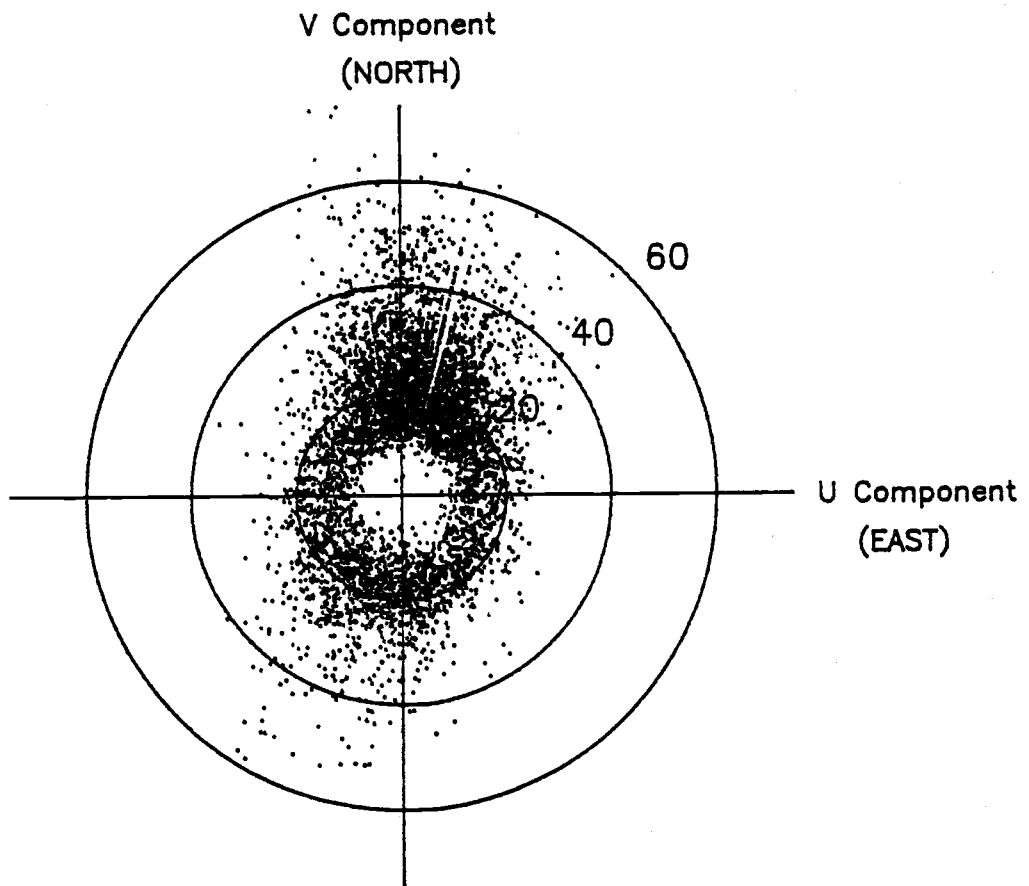
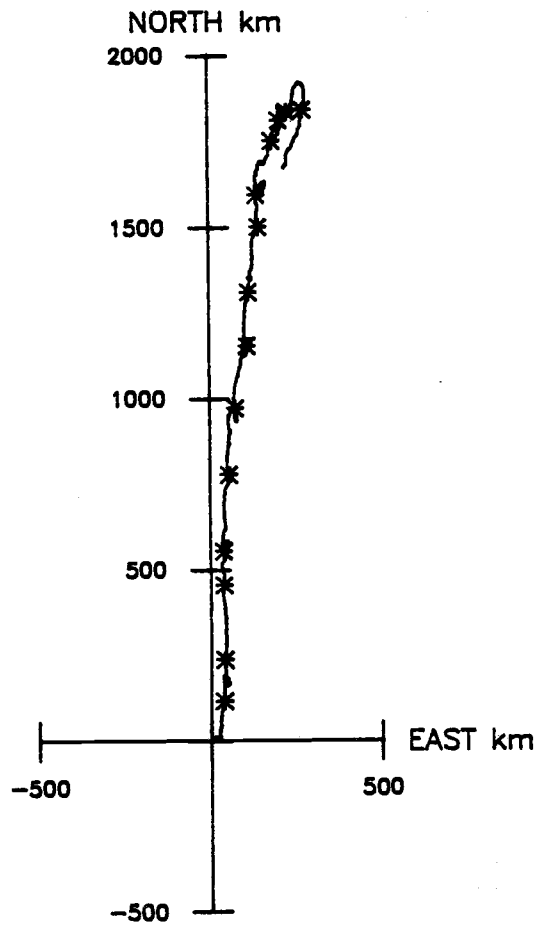


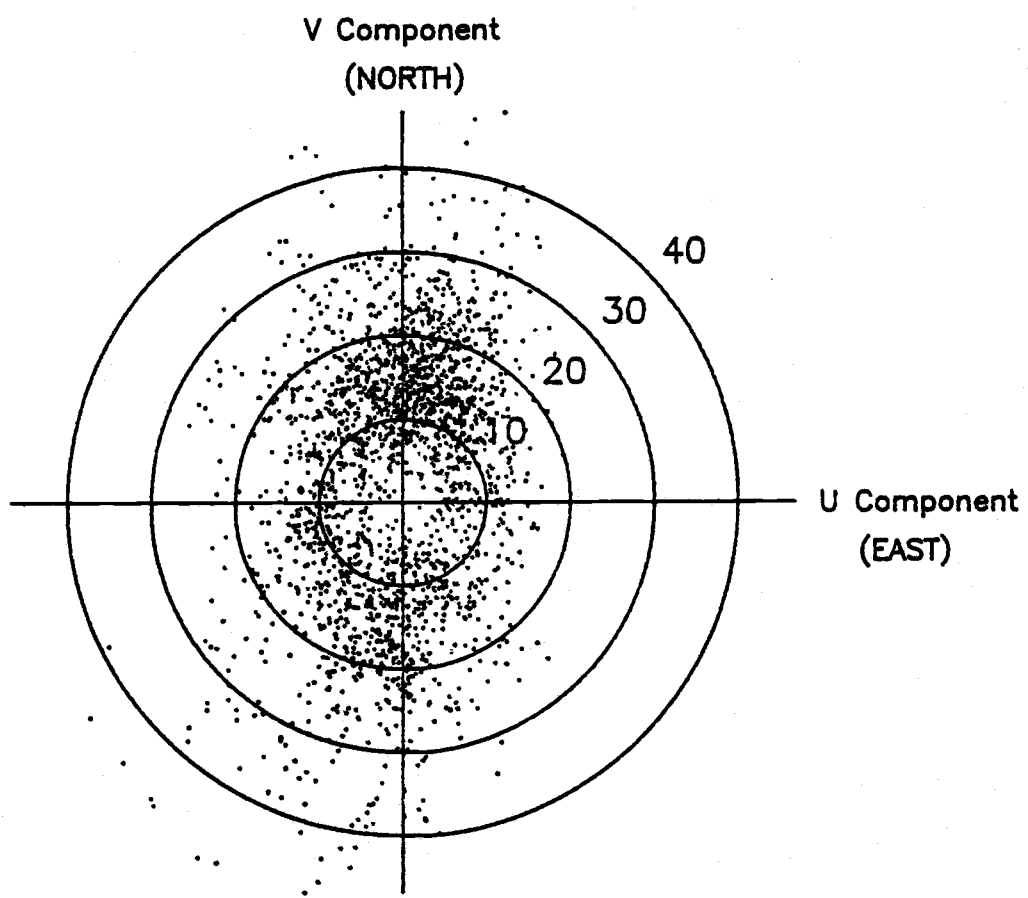
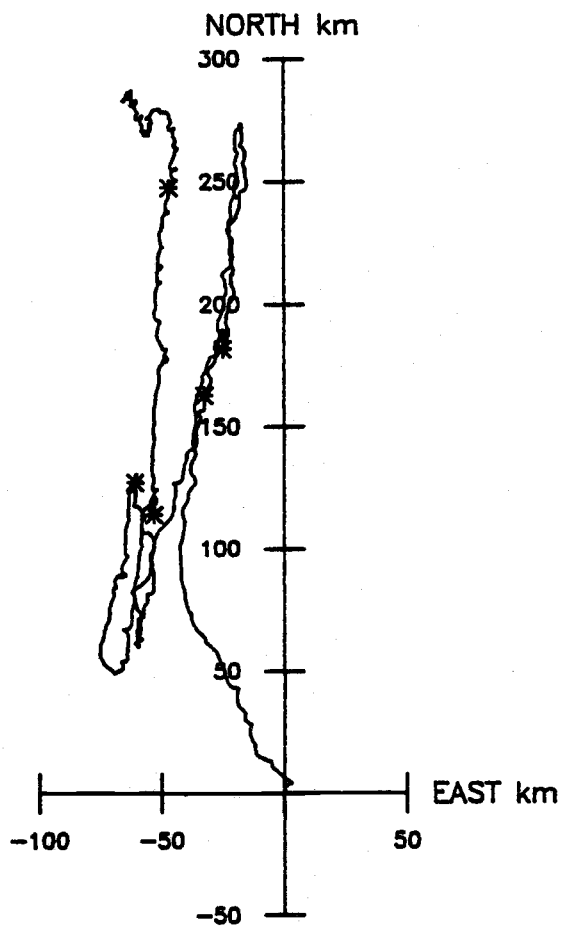


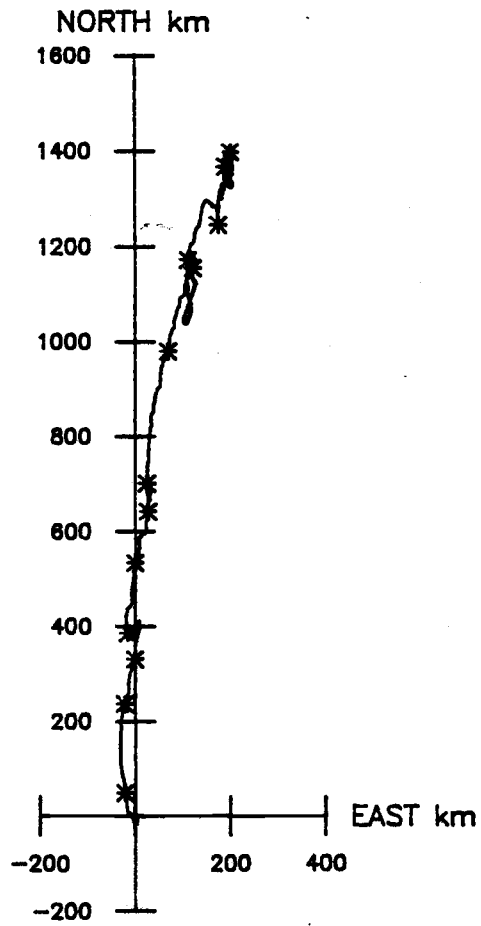
V Component  
(NORTH)



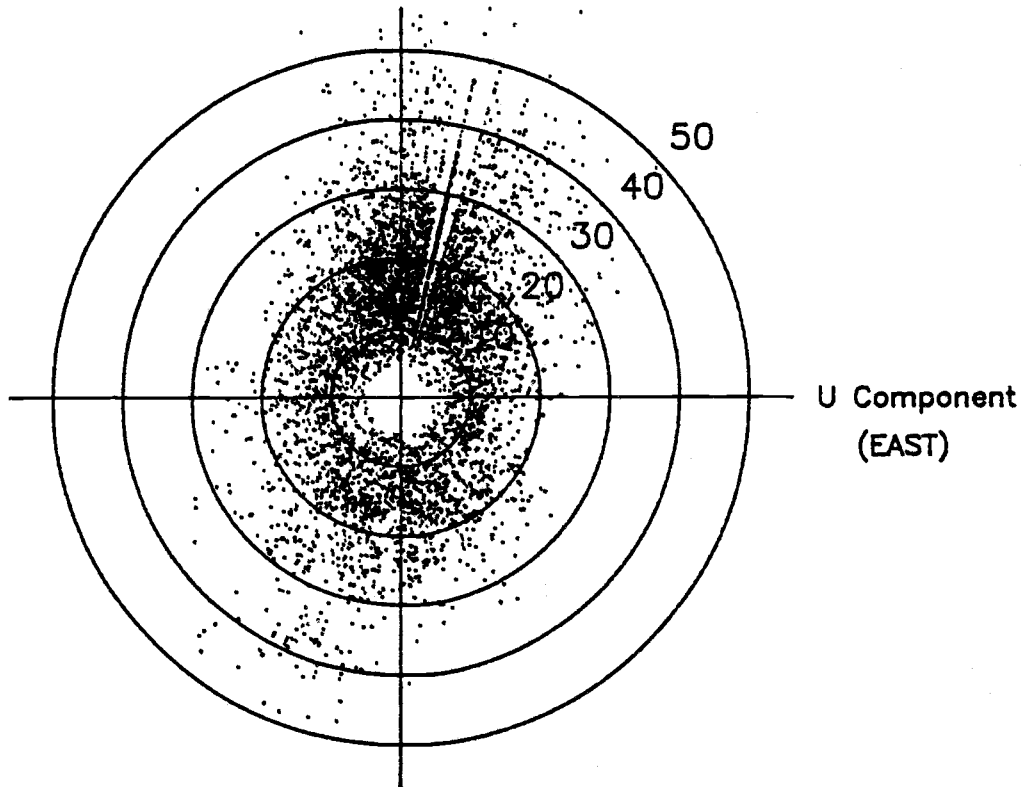
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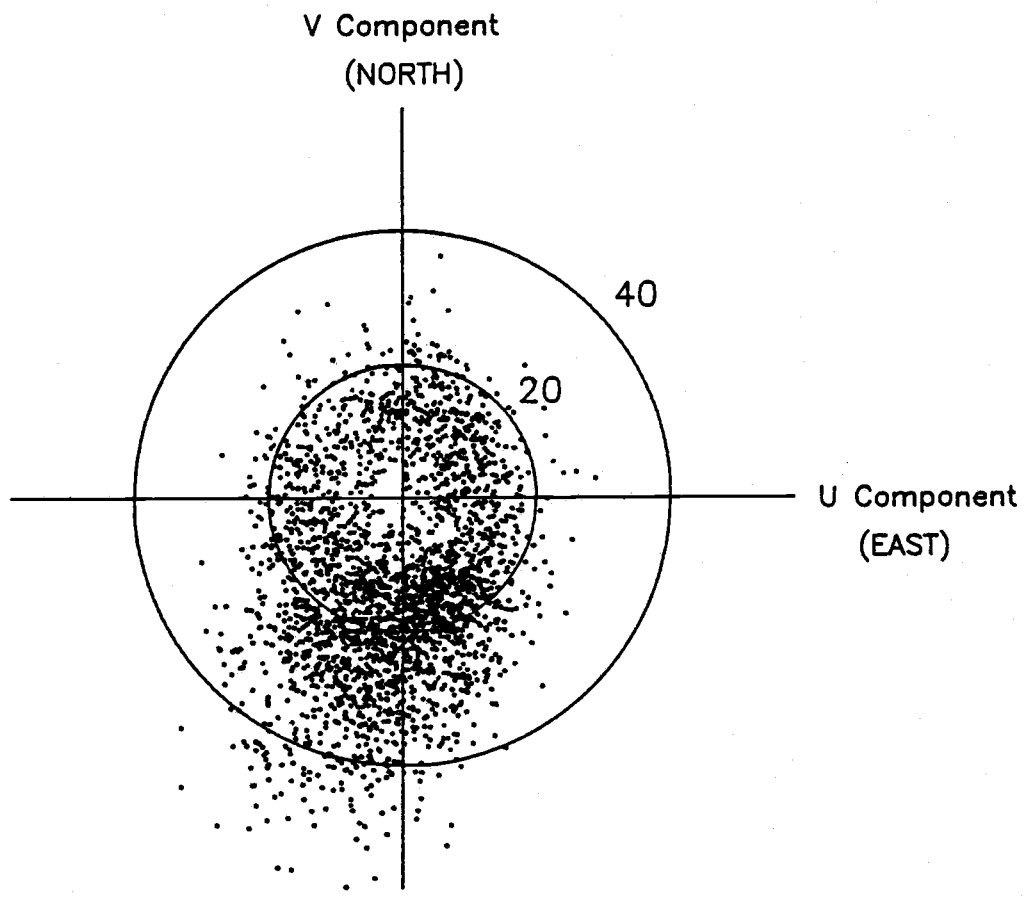
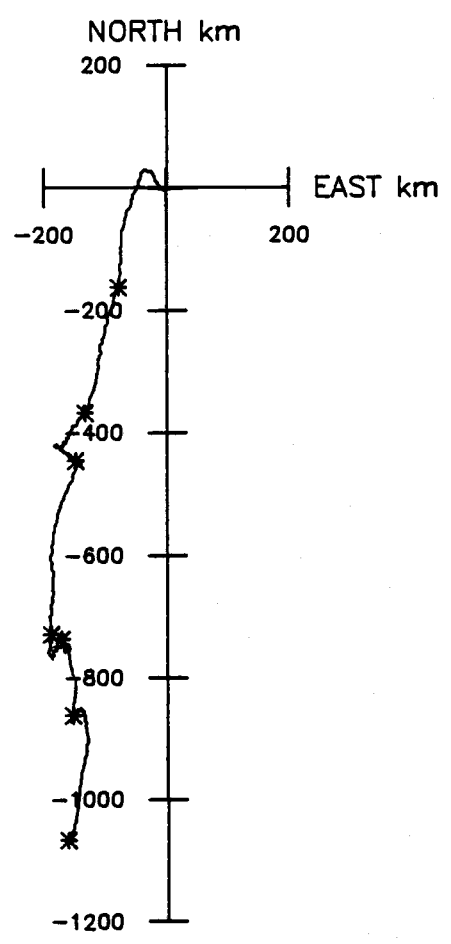






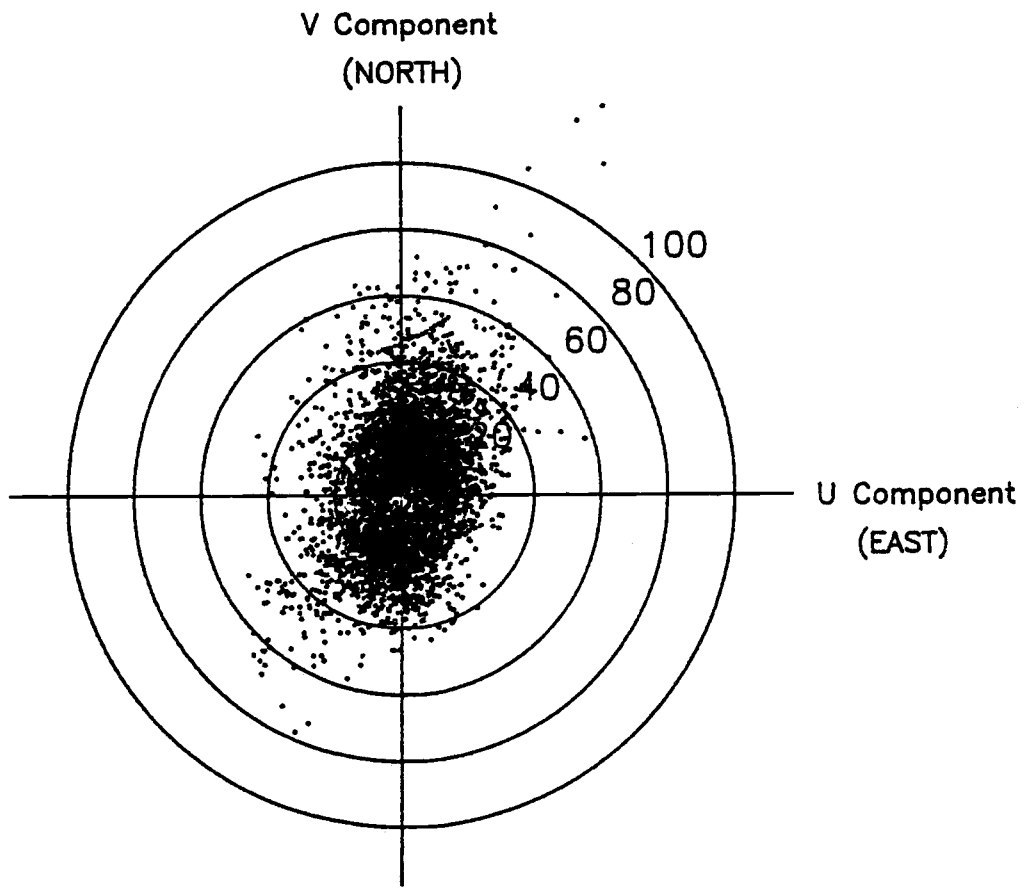
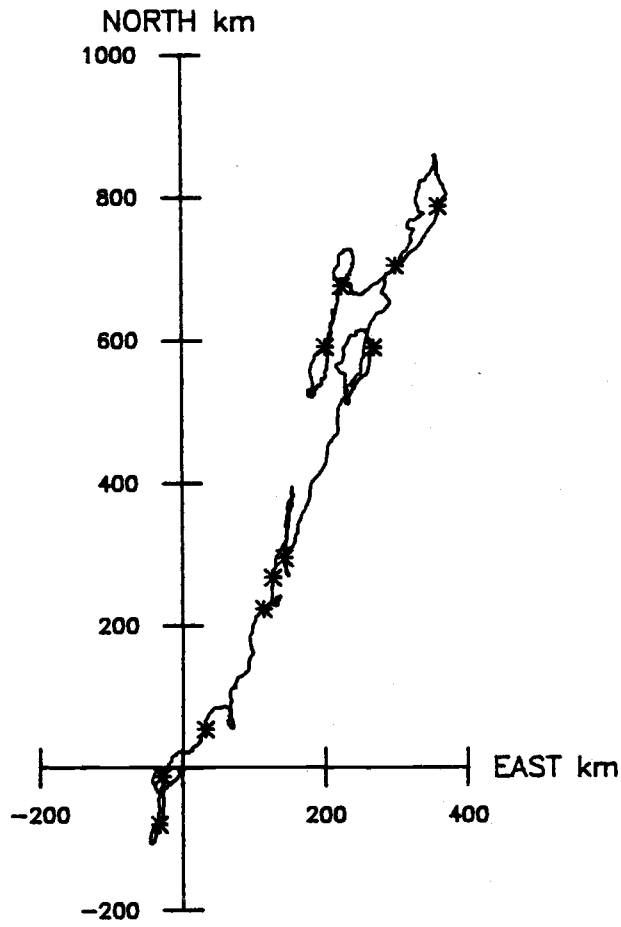
V Component  
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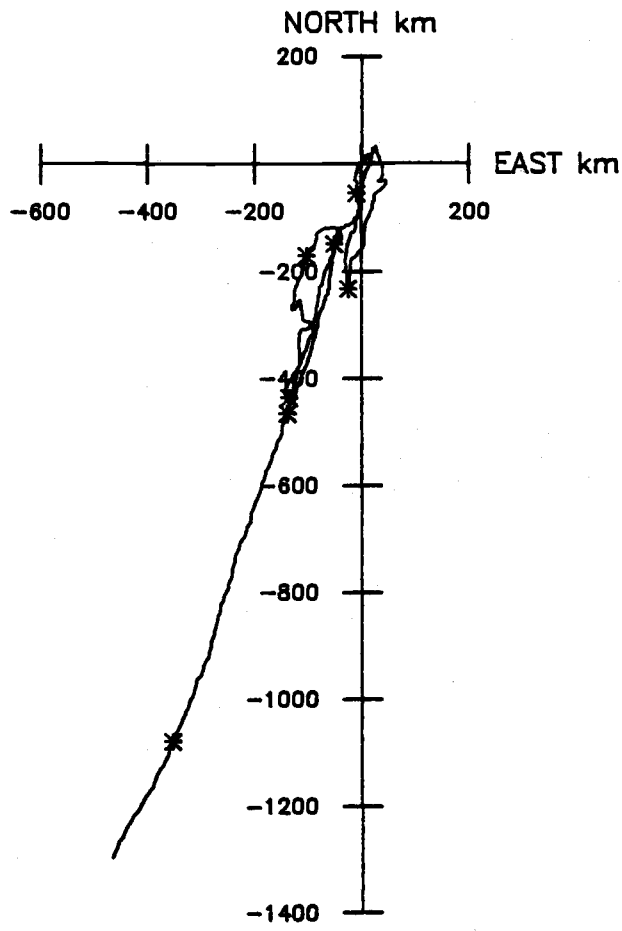




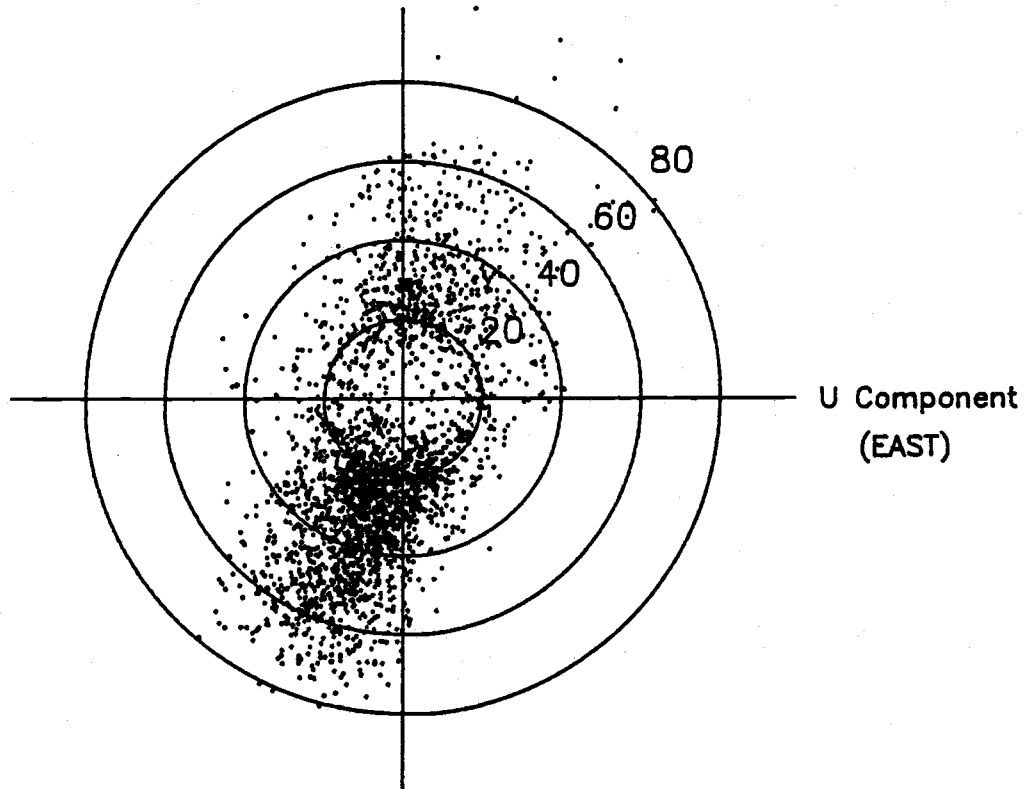
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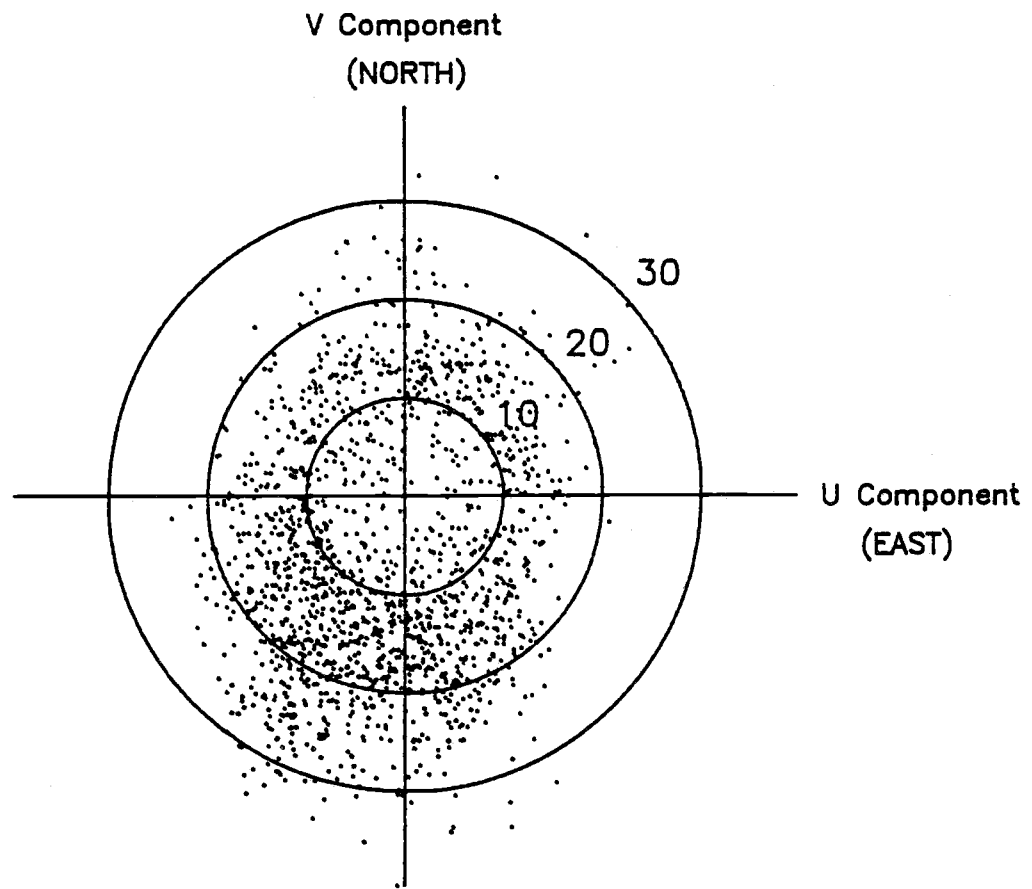
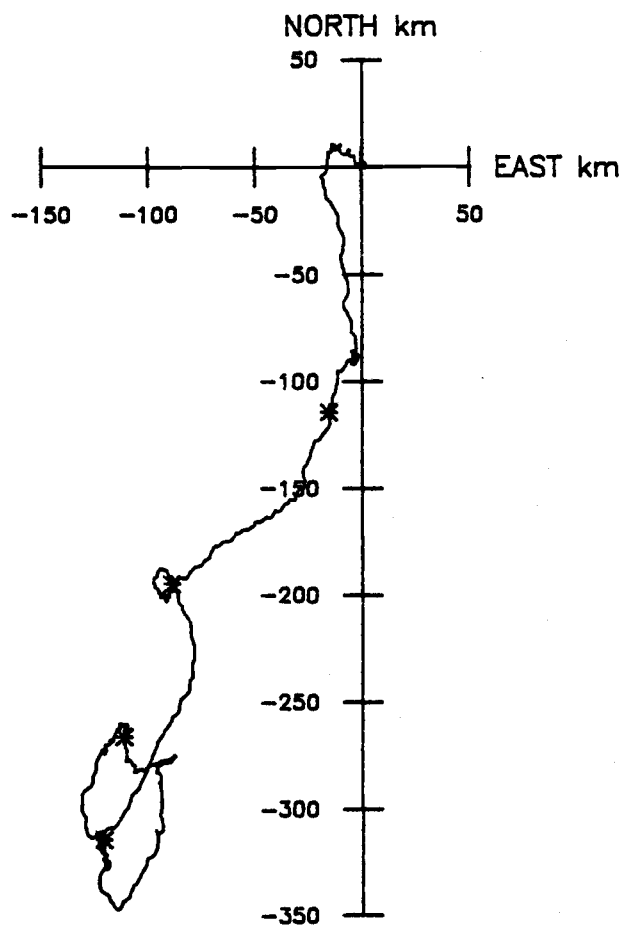


V Component  
(NORTH)

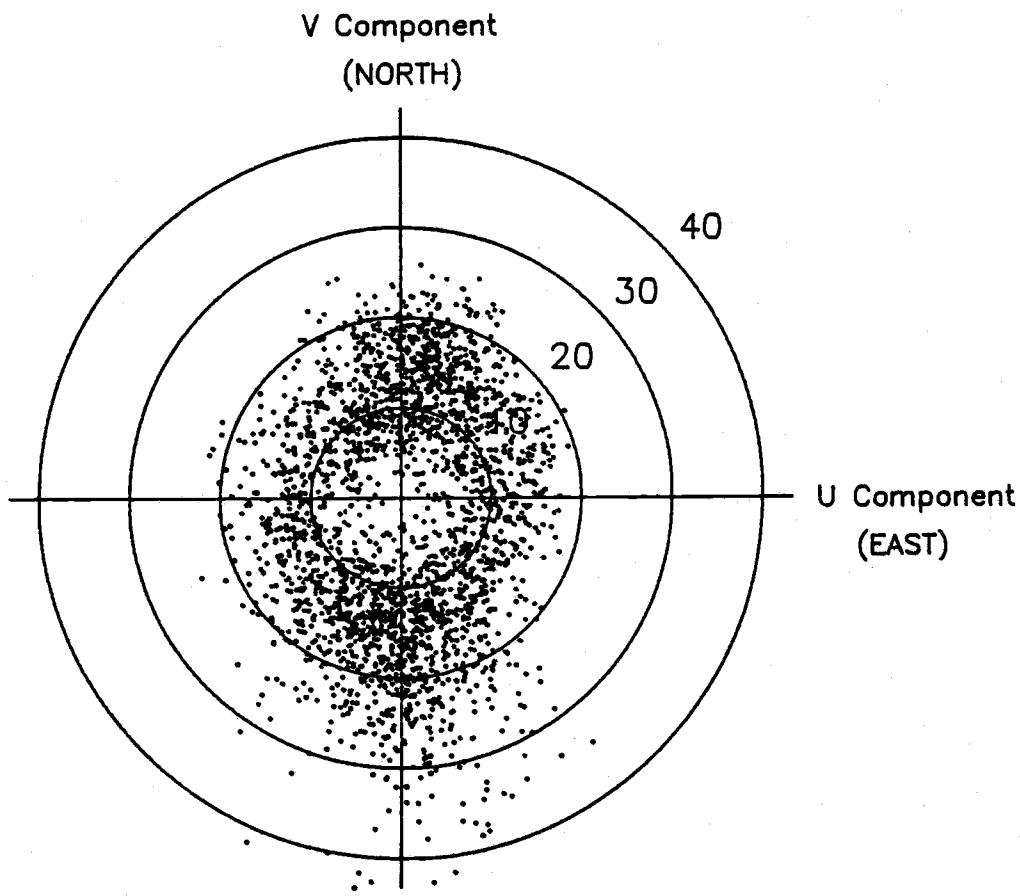
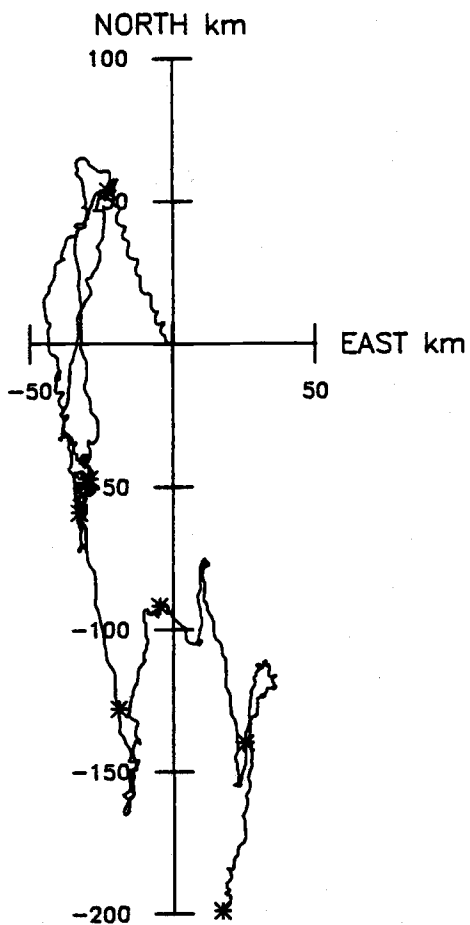


Q4S1

JAN 29, 1982 0500 - MAY 19, 1982 0900



Q4S1 JUL 8,1982 1200 - SEP 8,1982 1200

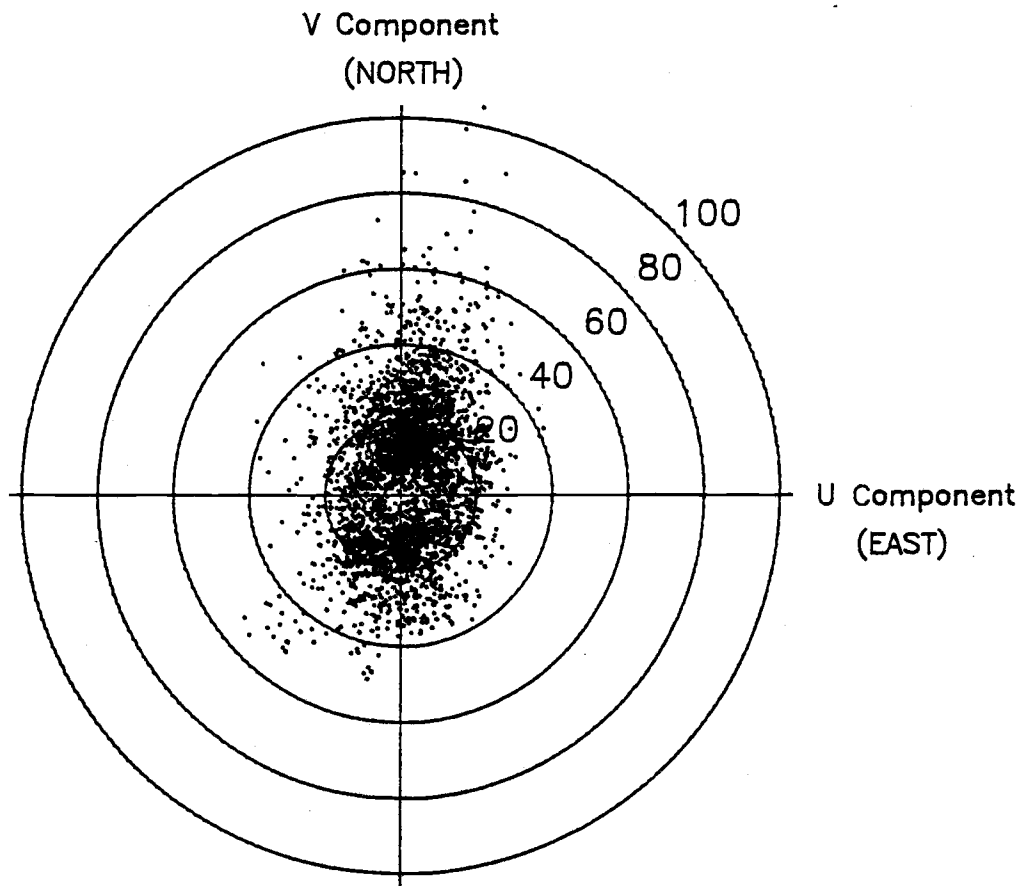
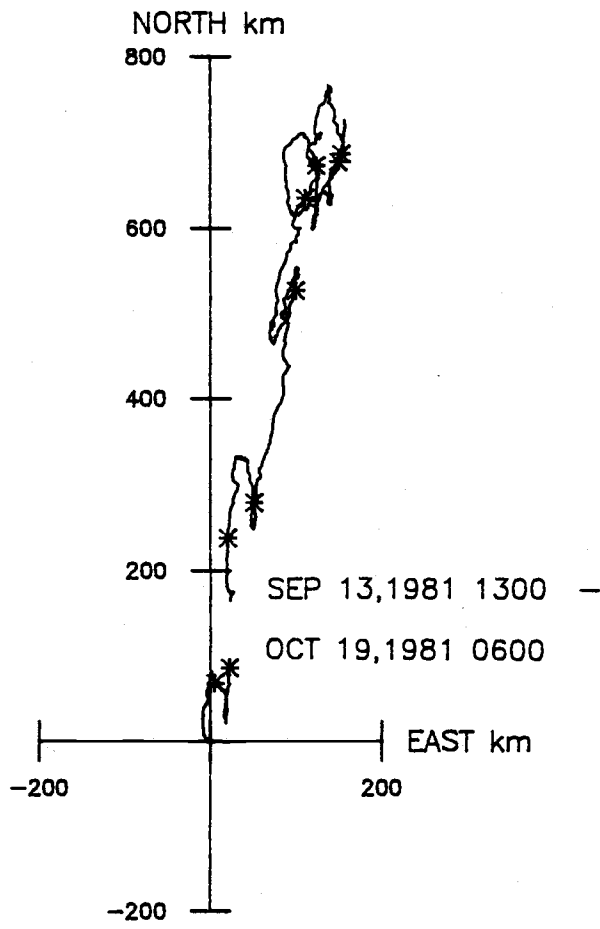


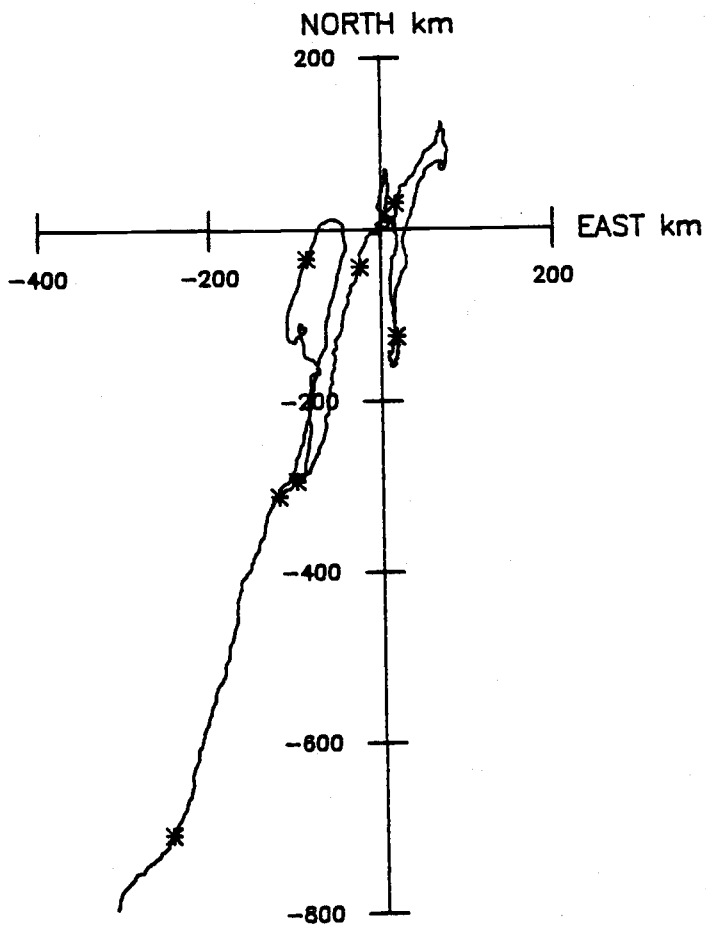
Q4S2

APR 30, 1981 0400

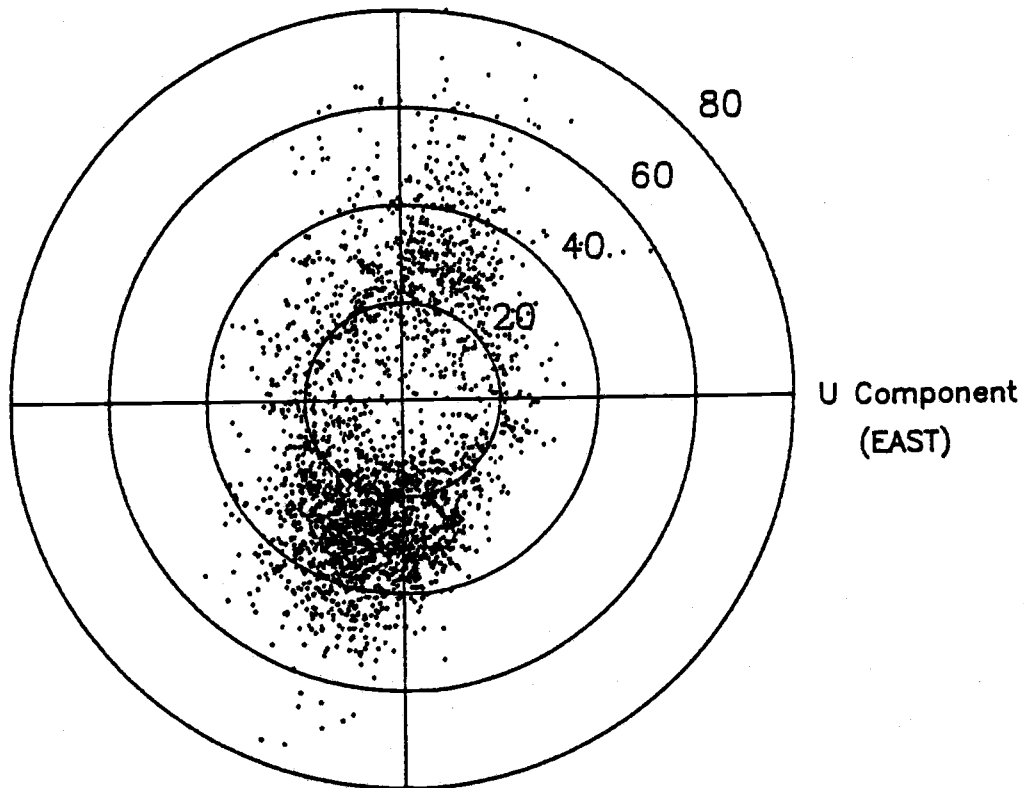
-

AUG 13, 1981 0800



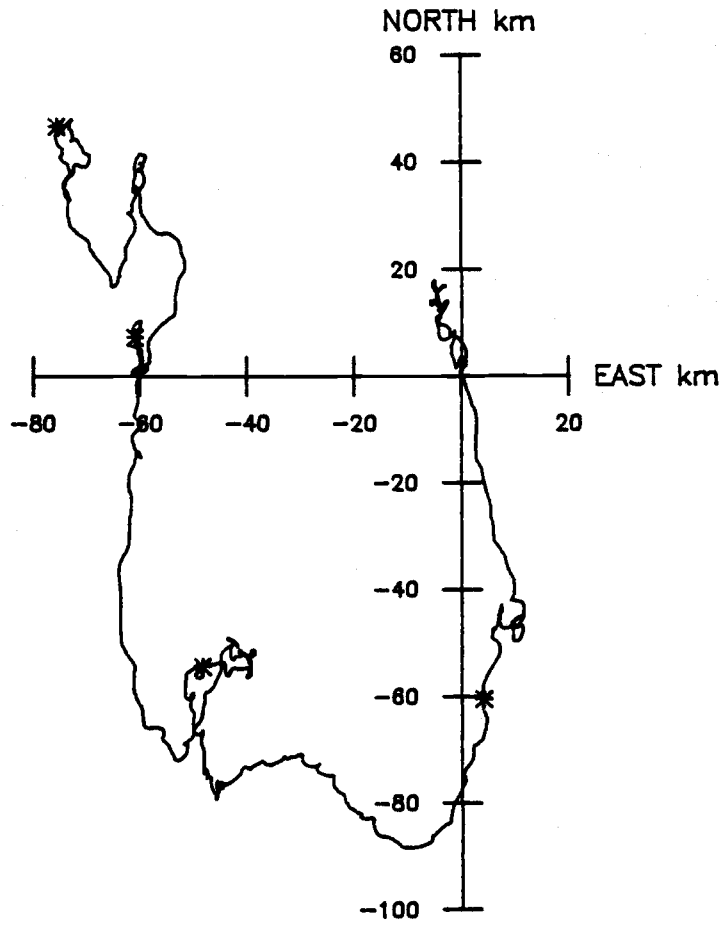


V Component  
(NORTH)

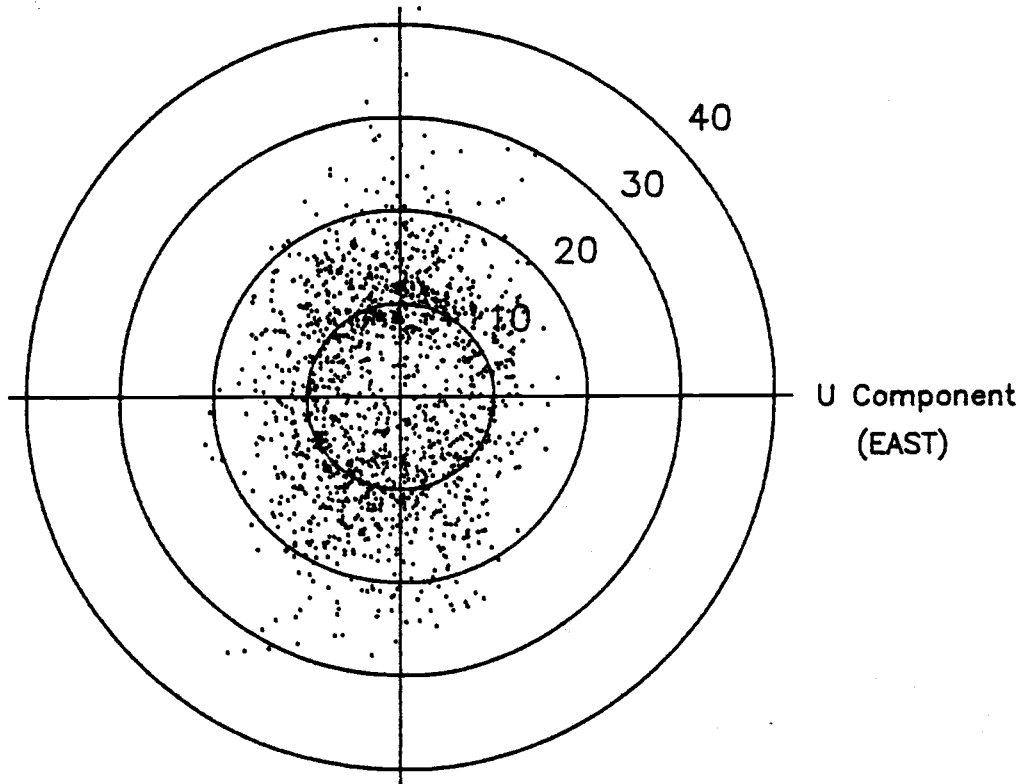


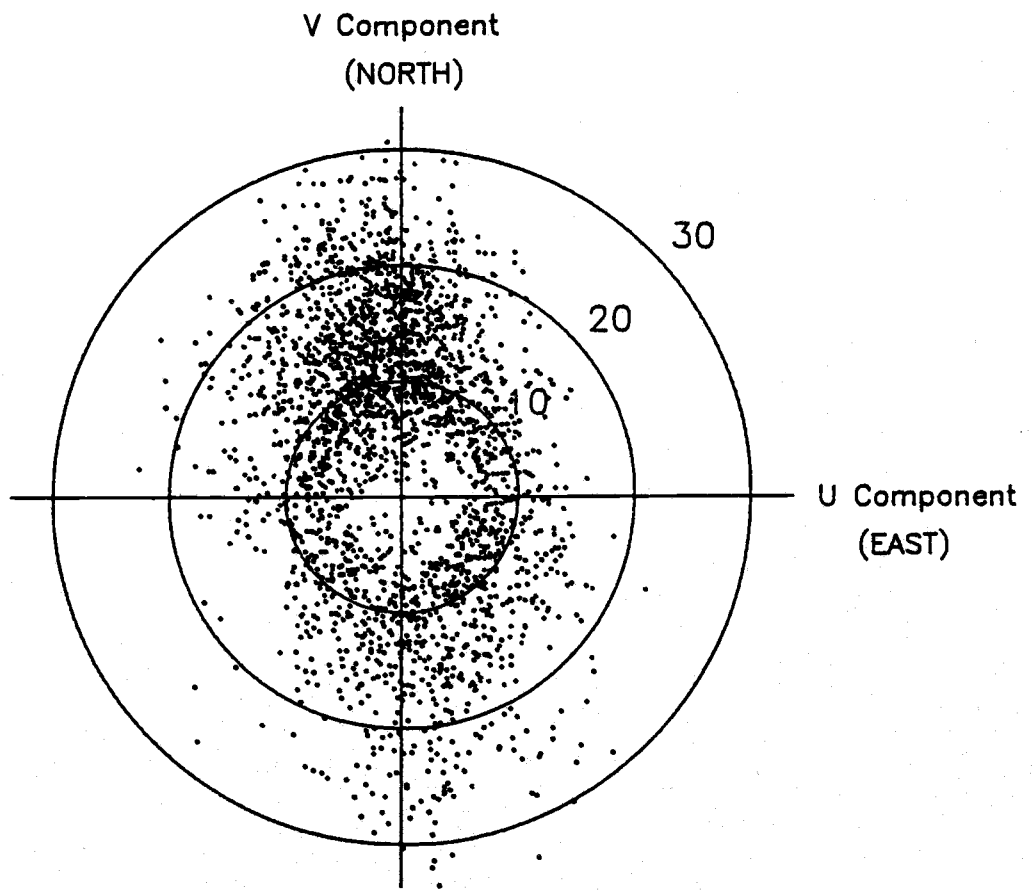
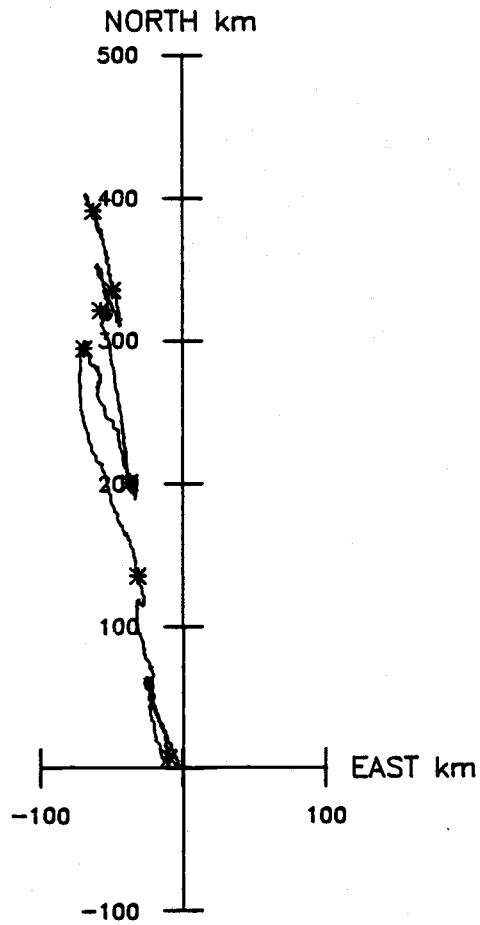
Q4S2

JAN 29, 1982 0500 - MAY 19, 1982 0900



V Component  
(NORTH)



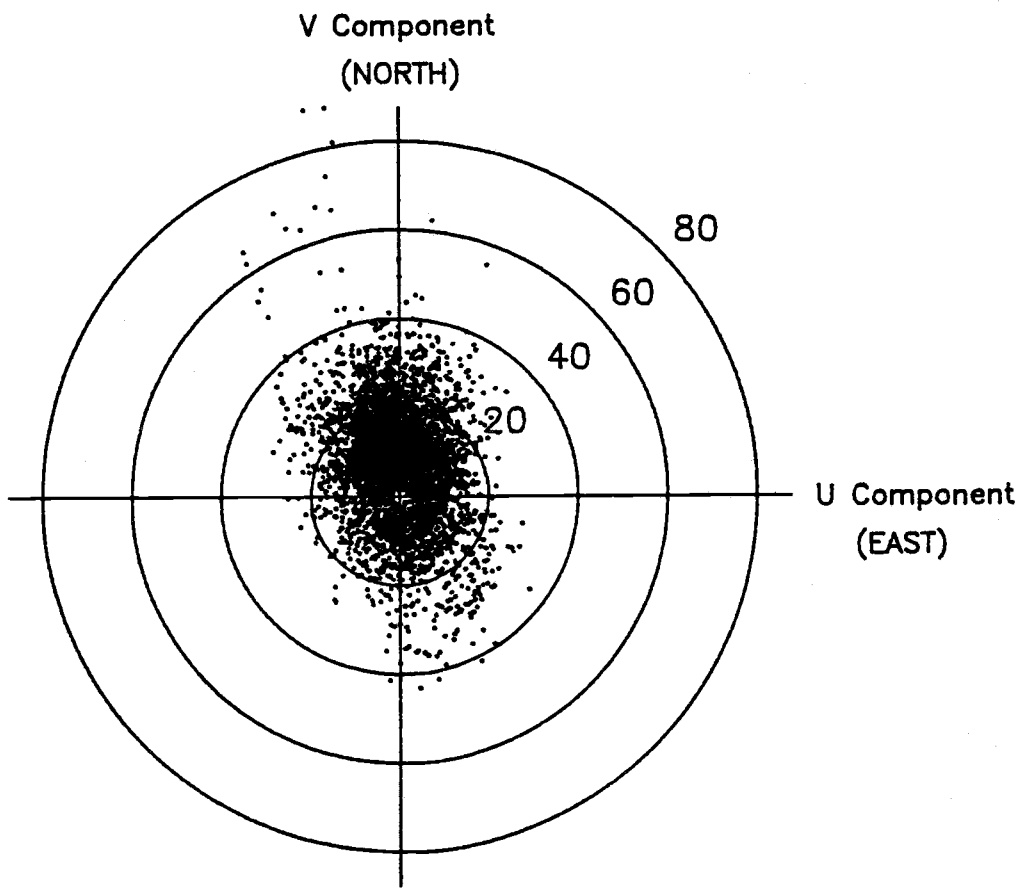
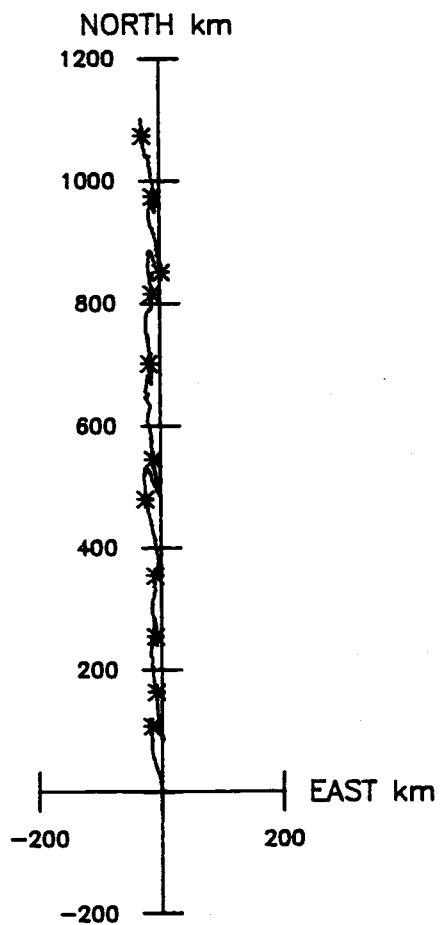


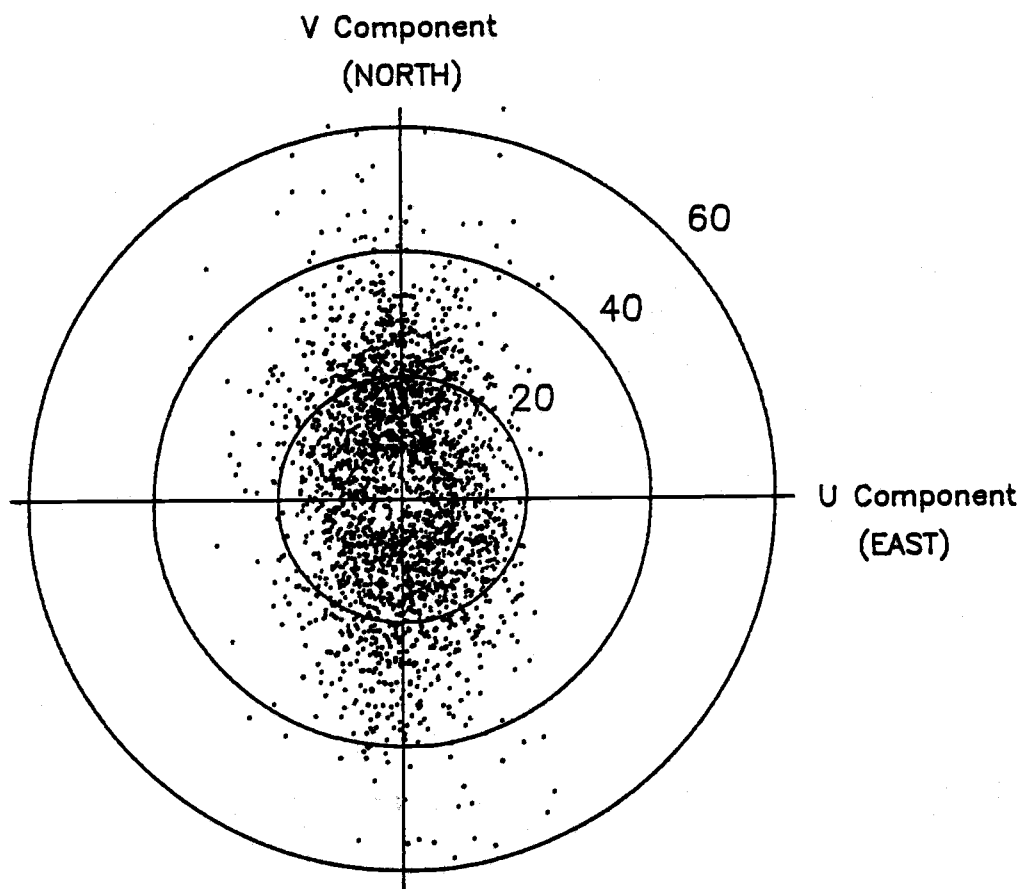
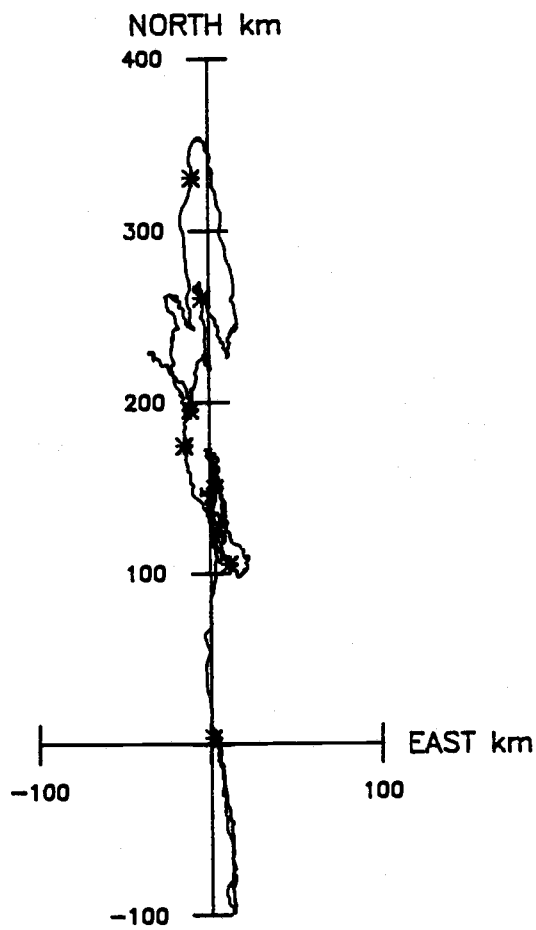
Q4S3

APR 30, 1981 0400

- AUG 13, 1981 0800

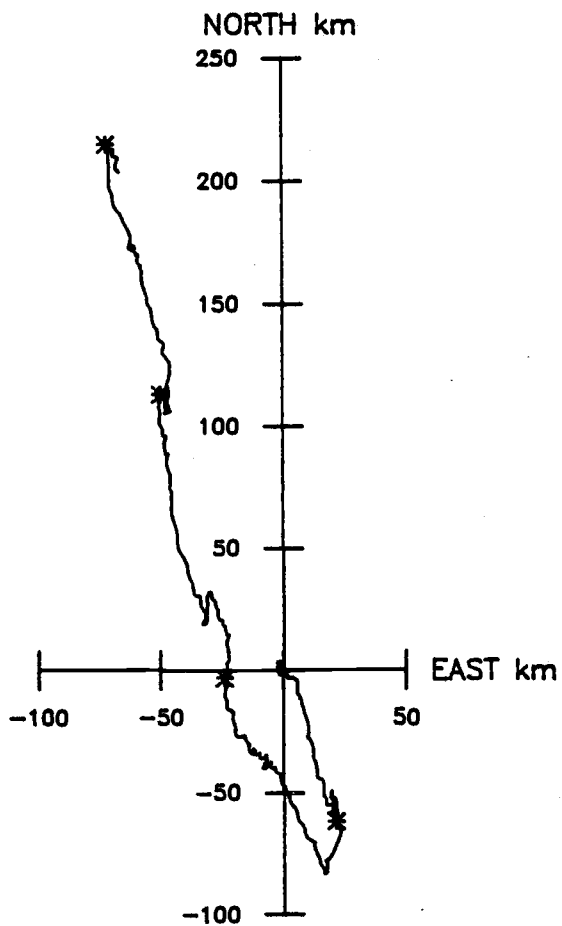




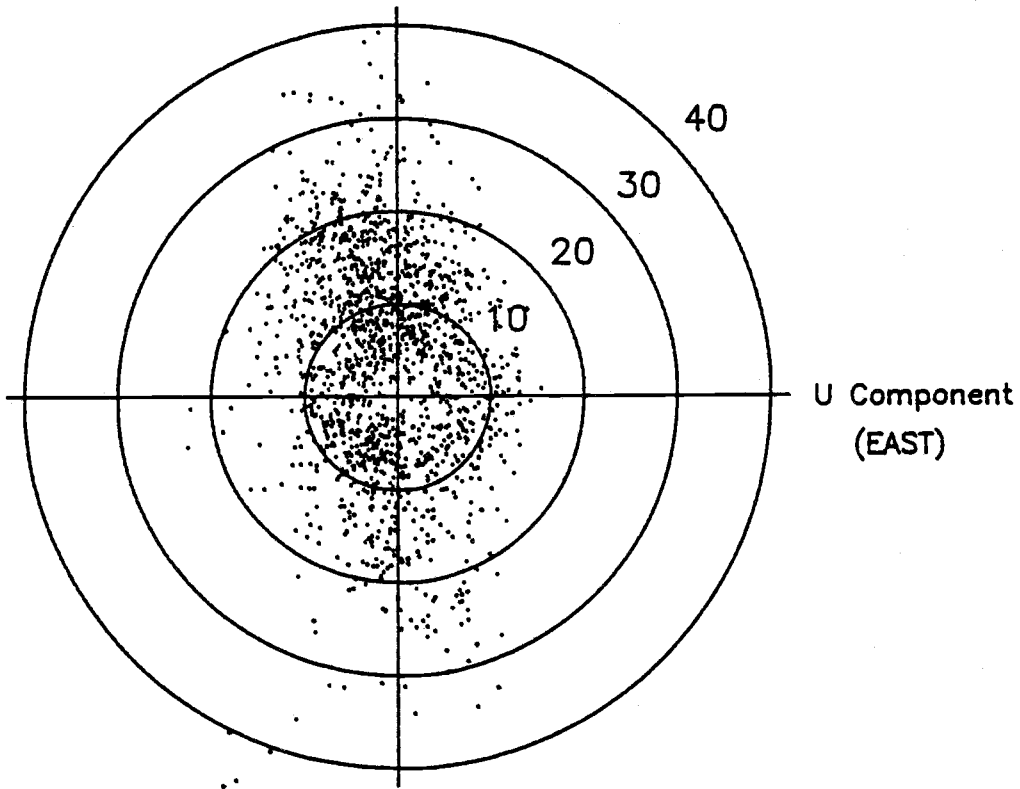


Q4S3

JAN 29,1982 0600 - MAY 19,1982 1000



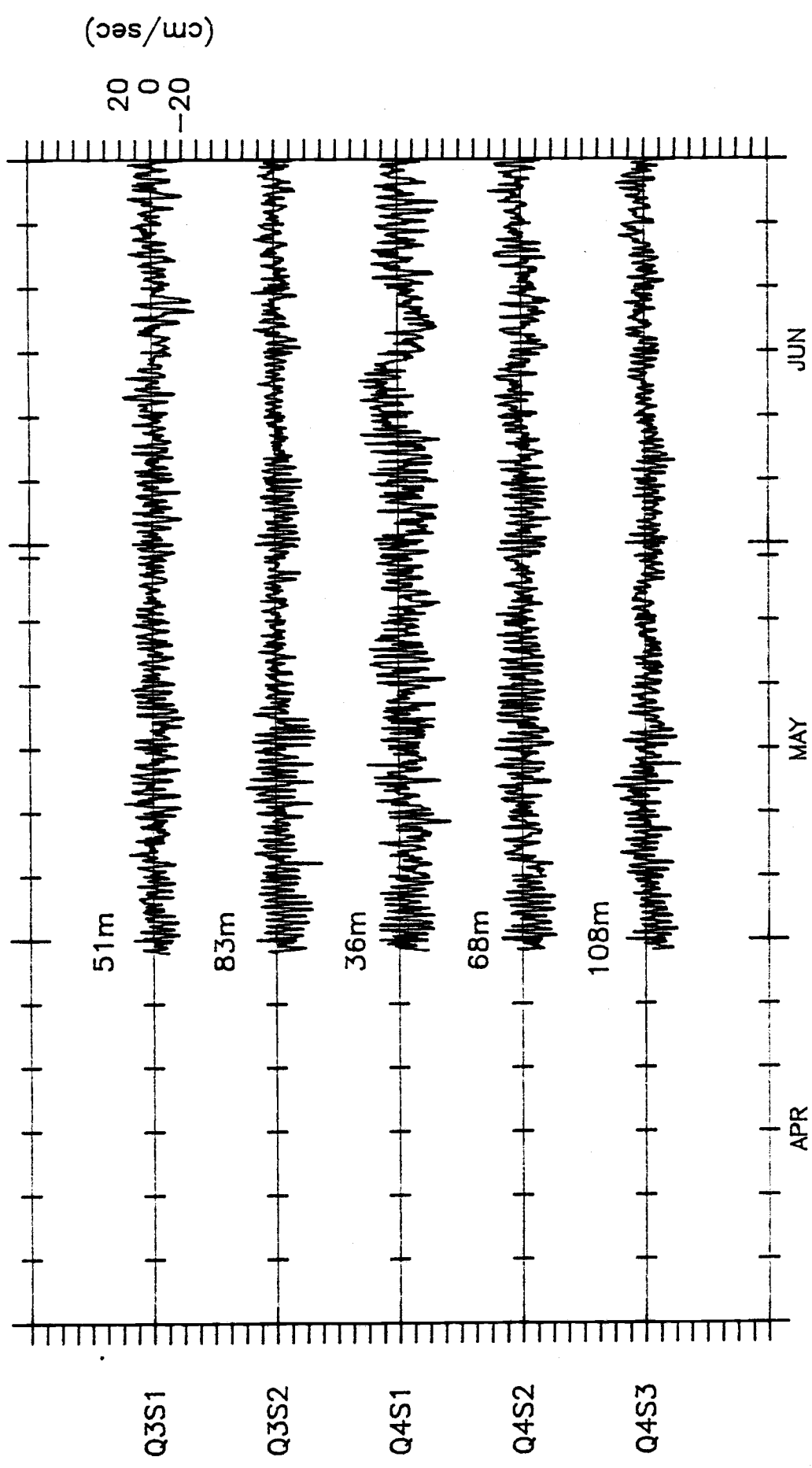
V Component  
(NORTH)



Q4S3

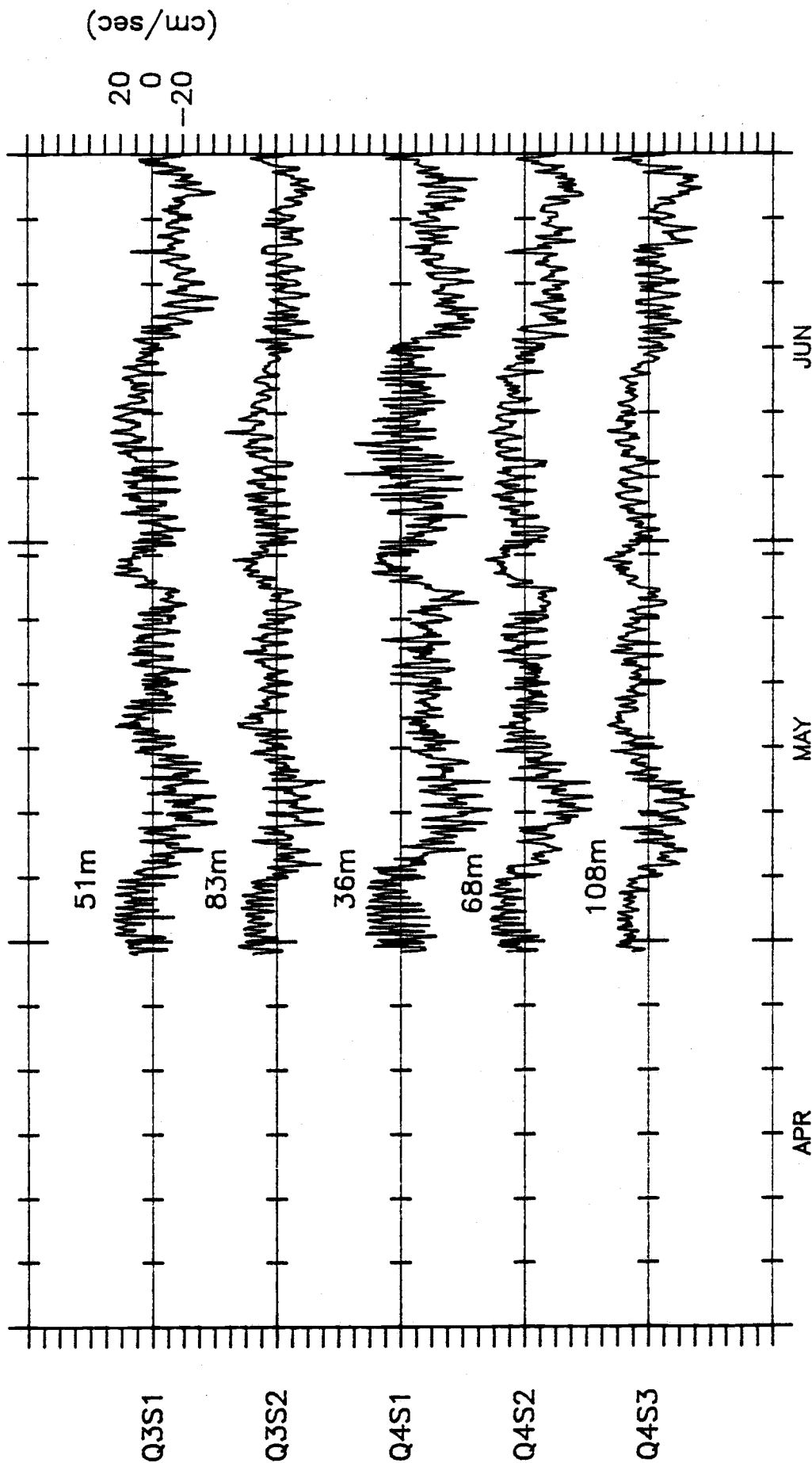
JUL 8,1982 1200 - SEP 8,1982 1200



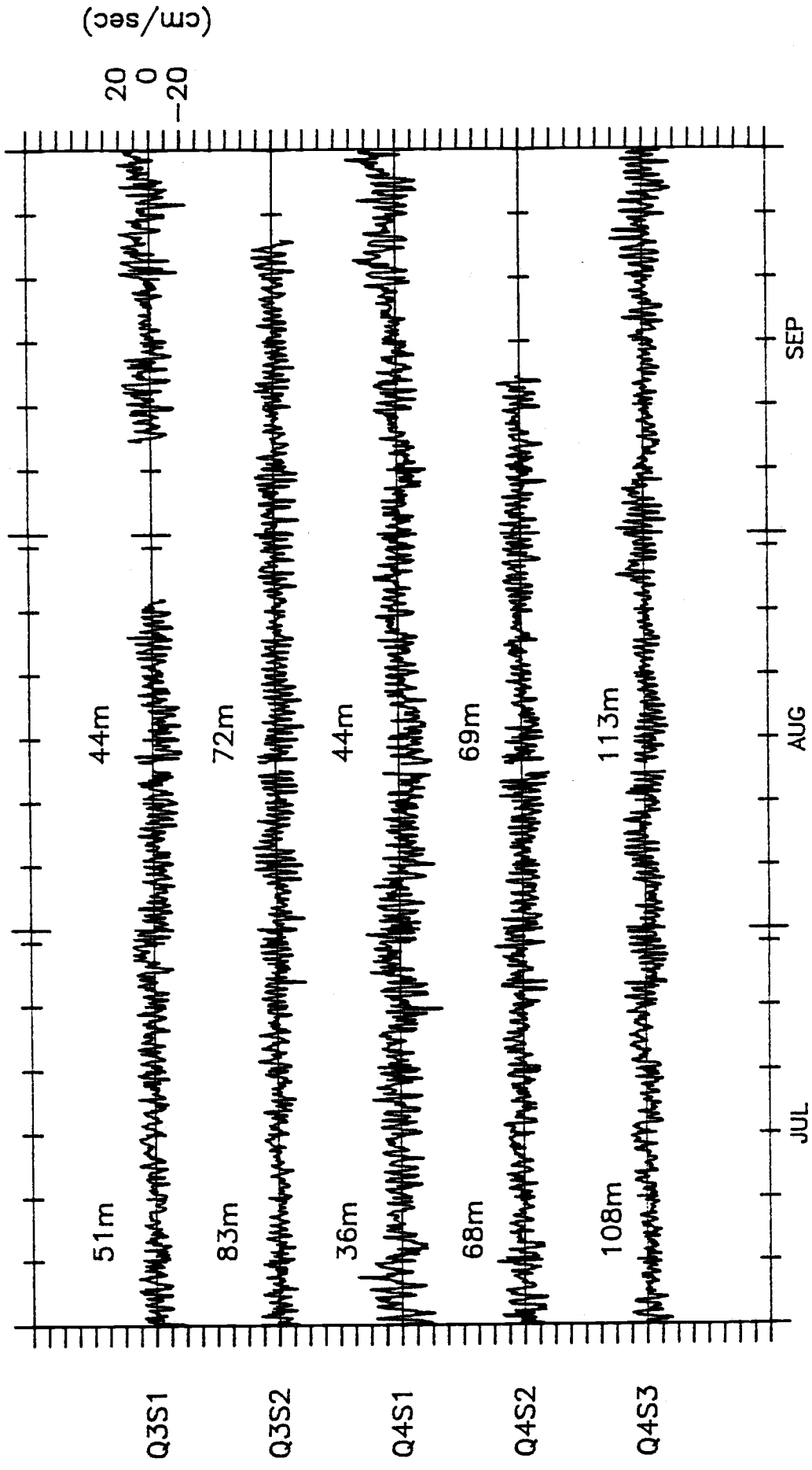


1981

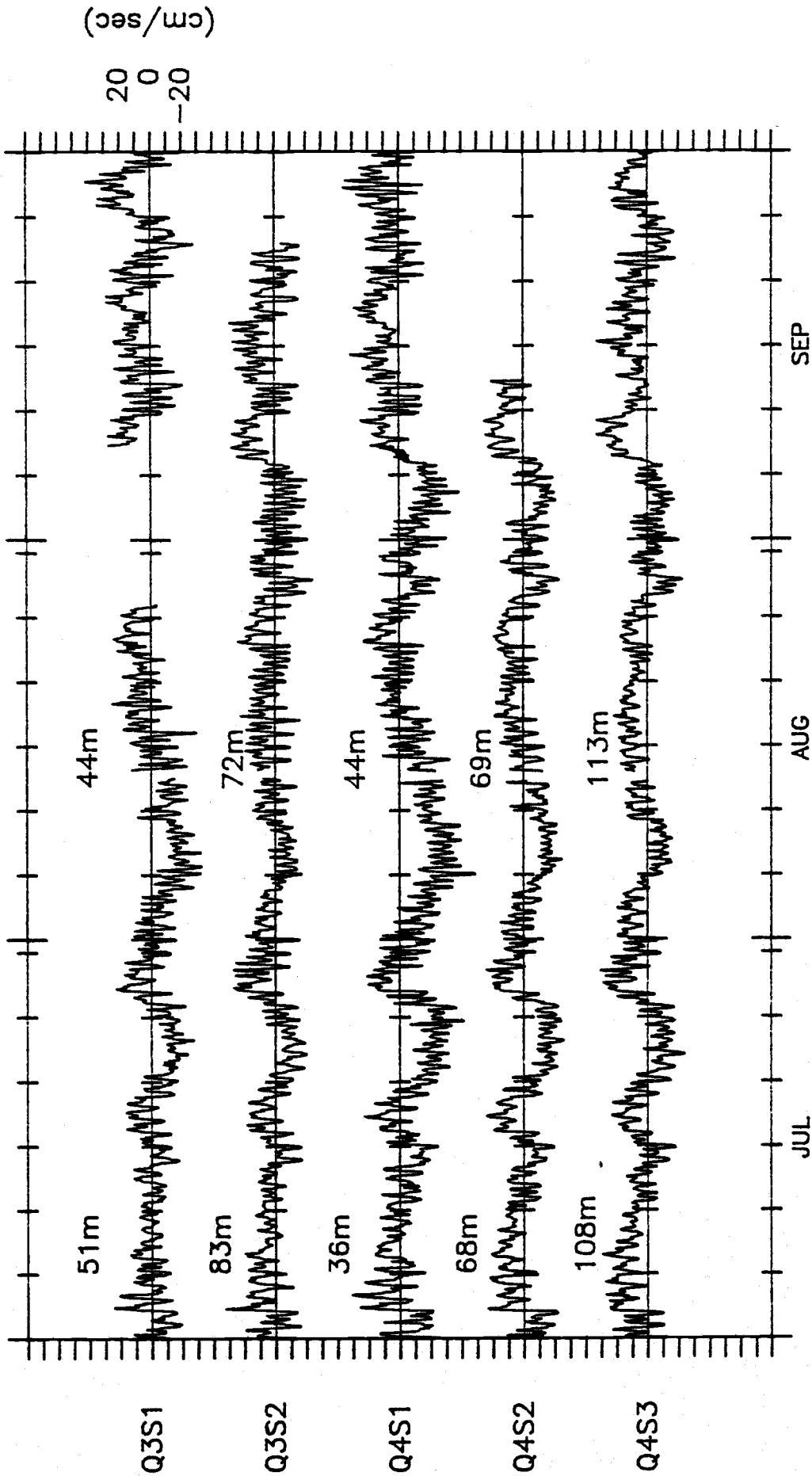
COOS BAY U velocity



COOS BAY V velocity

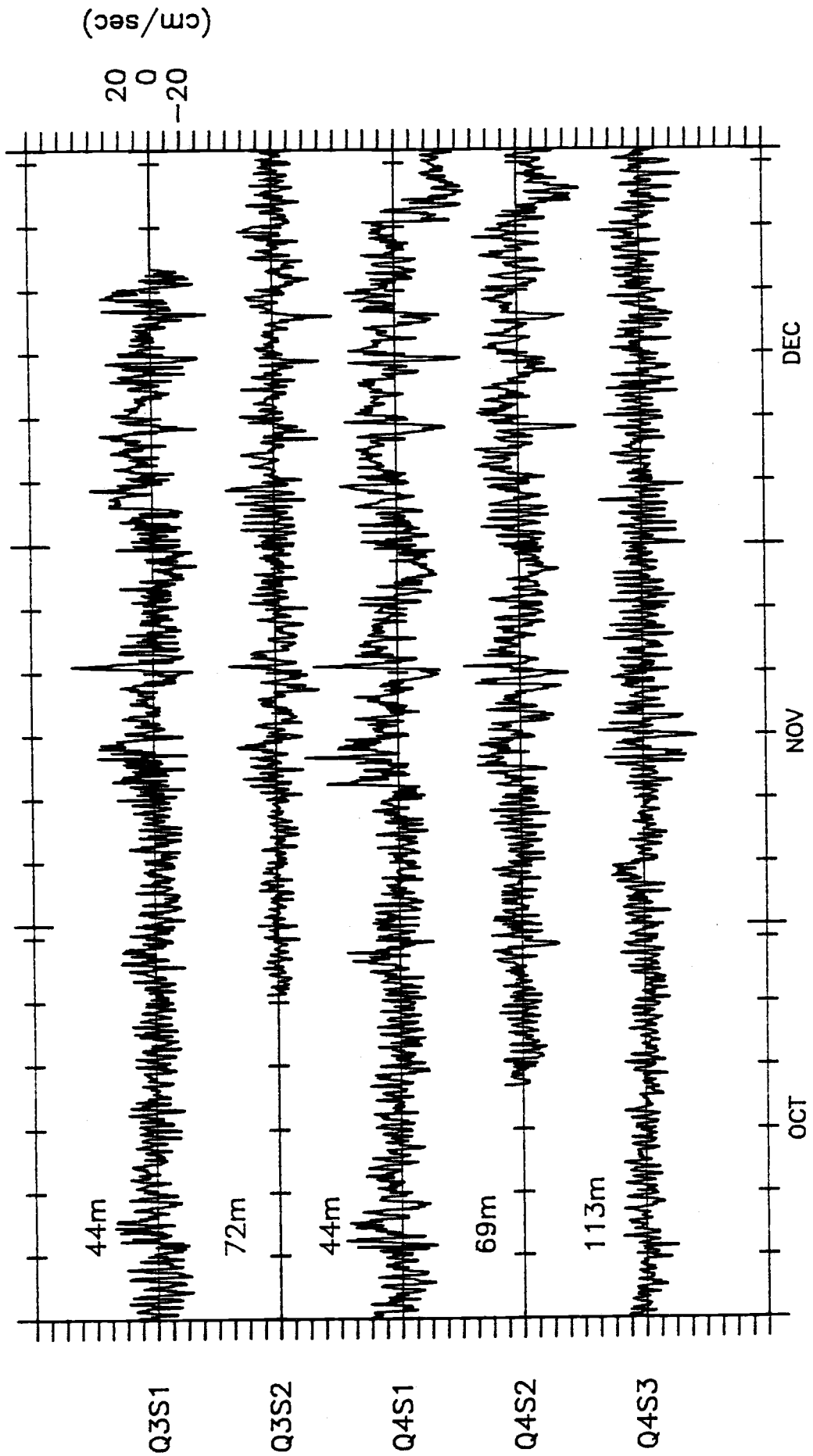


COOS BAY U velocity



COOS BAY V velocity





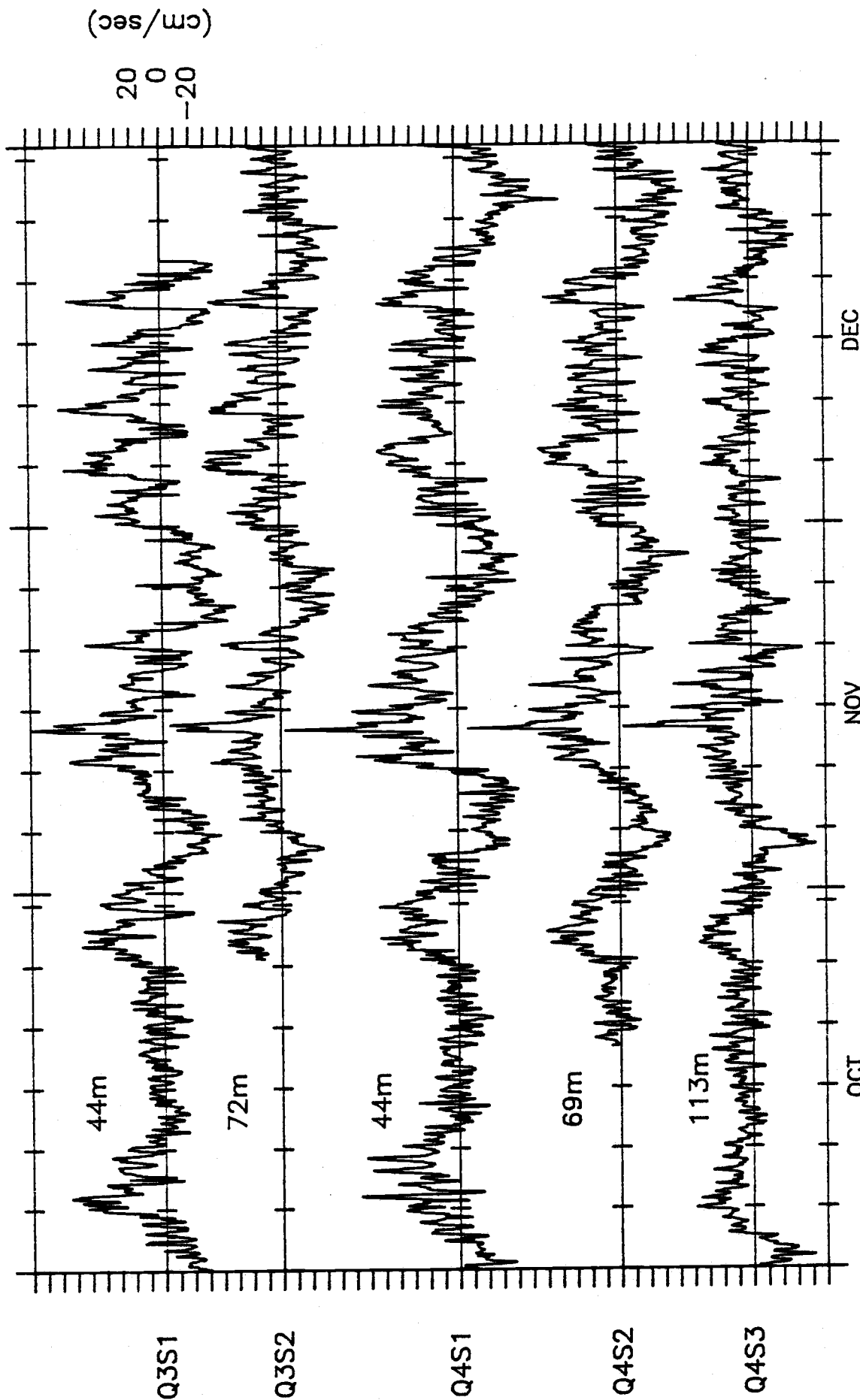
COOS BAY U velocity

1981

DEC

NOV

OCT



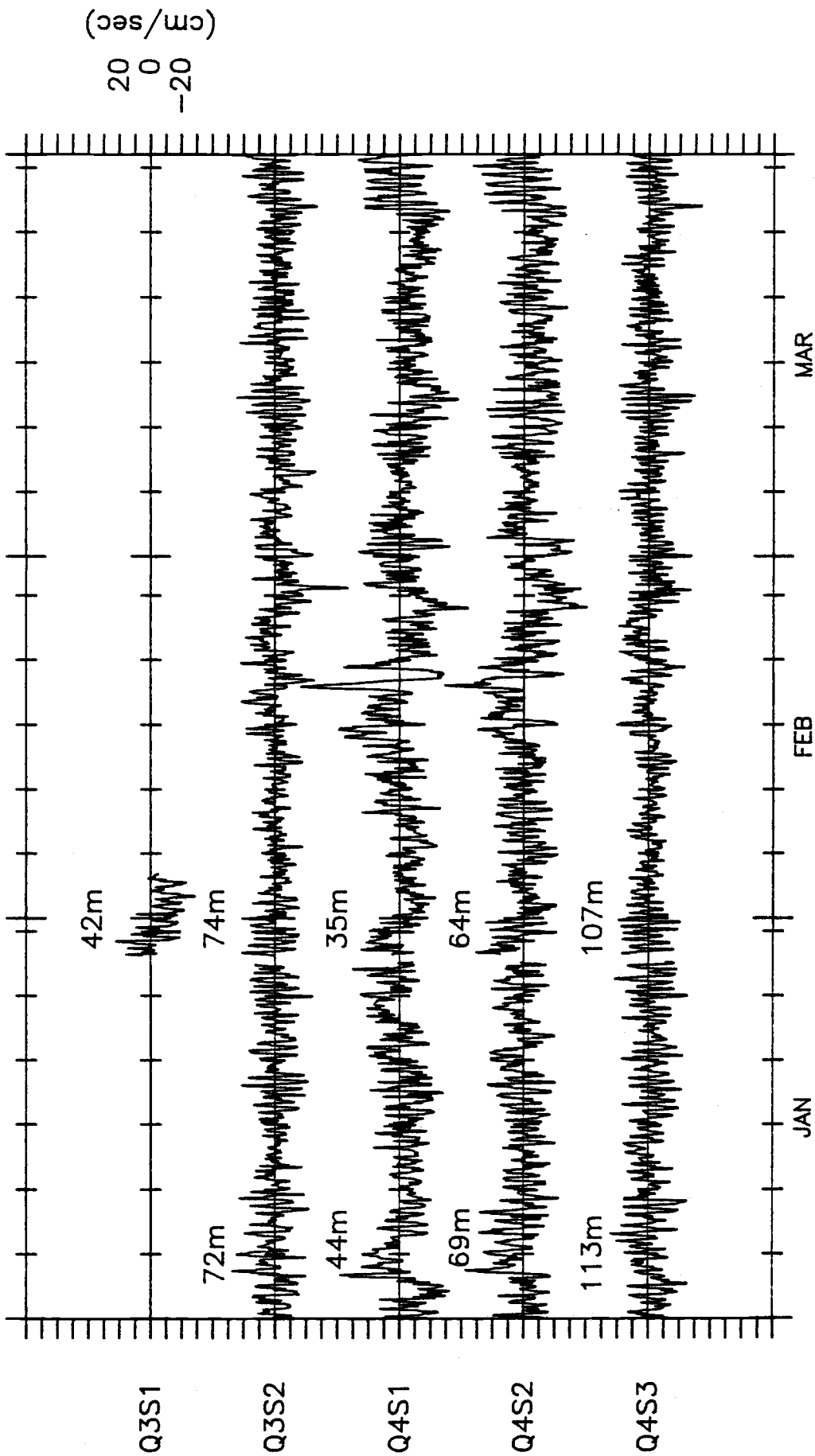
COOS BAY V velocity

1981

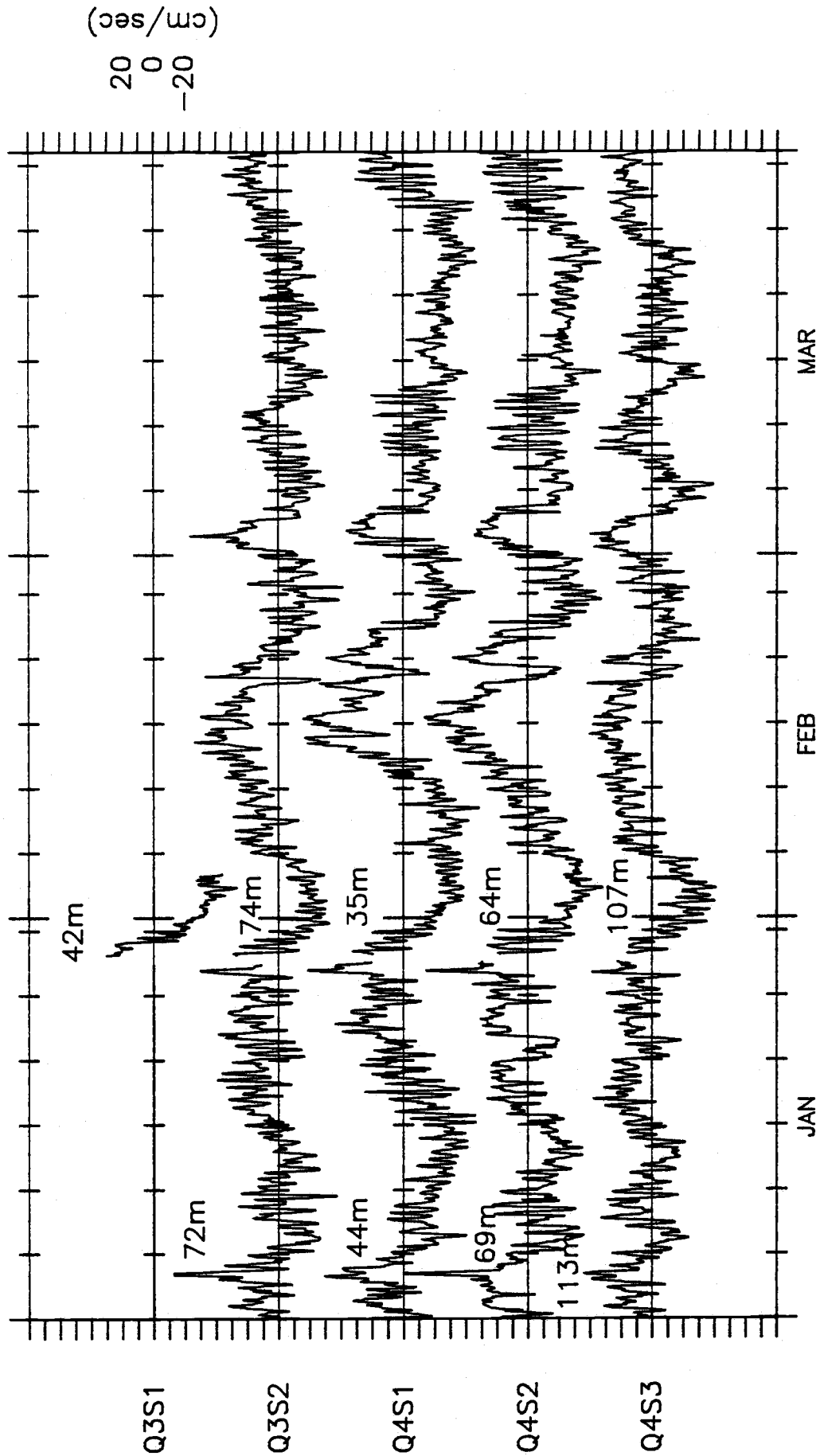
DEC

NOV

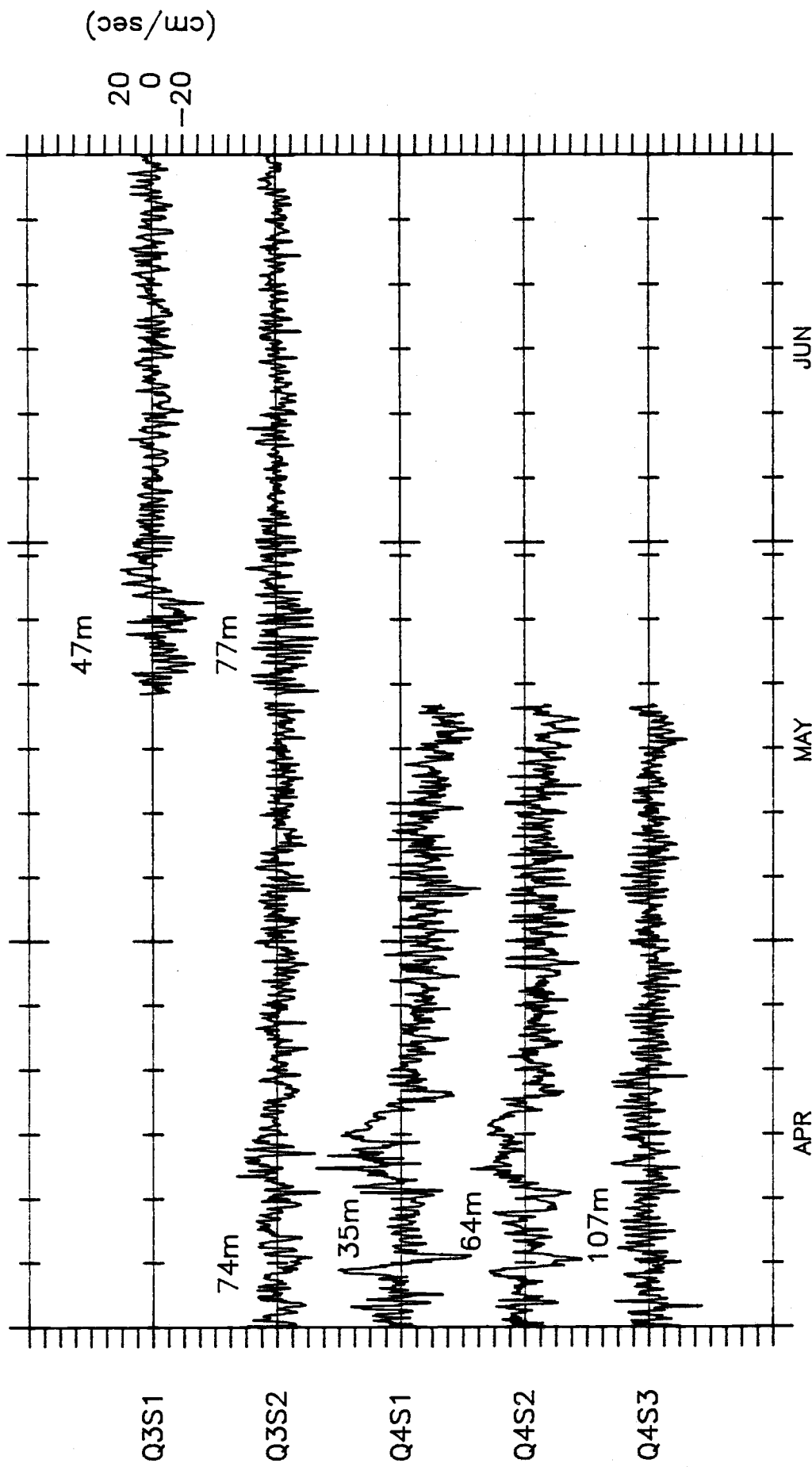
OCT



COOS BAY U velocity

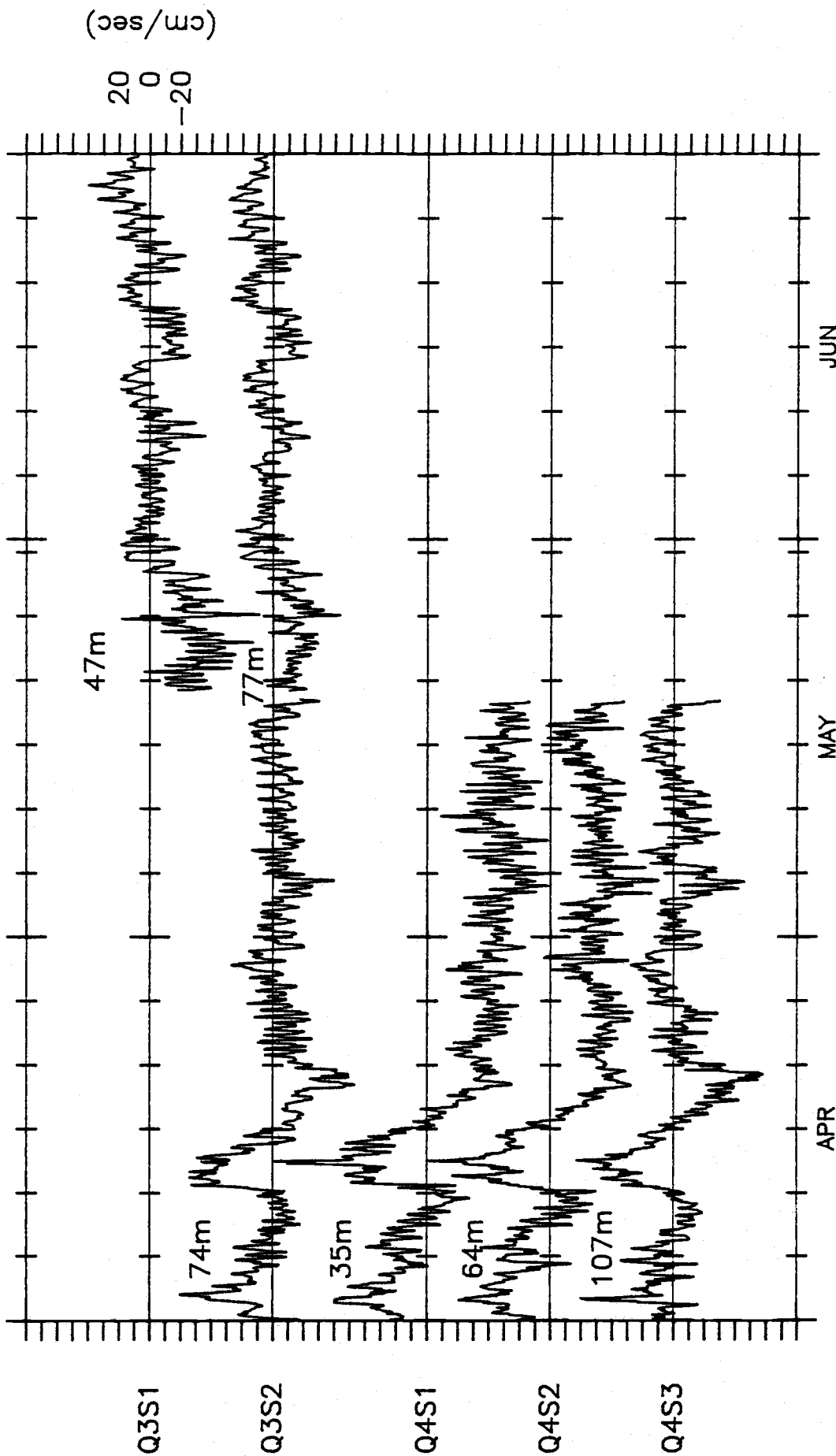


COOS BAY V velocity



1982

COOS BAY U velocity



MAY

JUN

APR

COOS BAY V velocity

(cm/sec)

20  
0  
-20

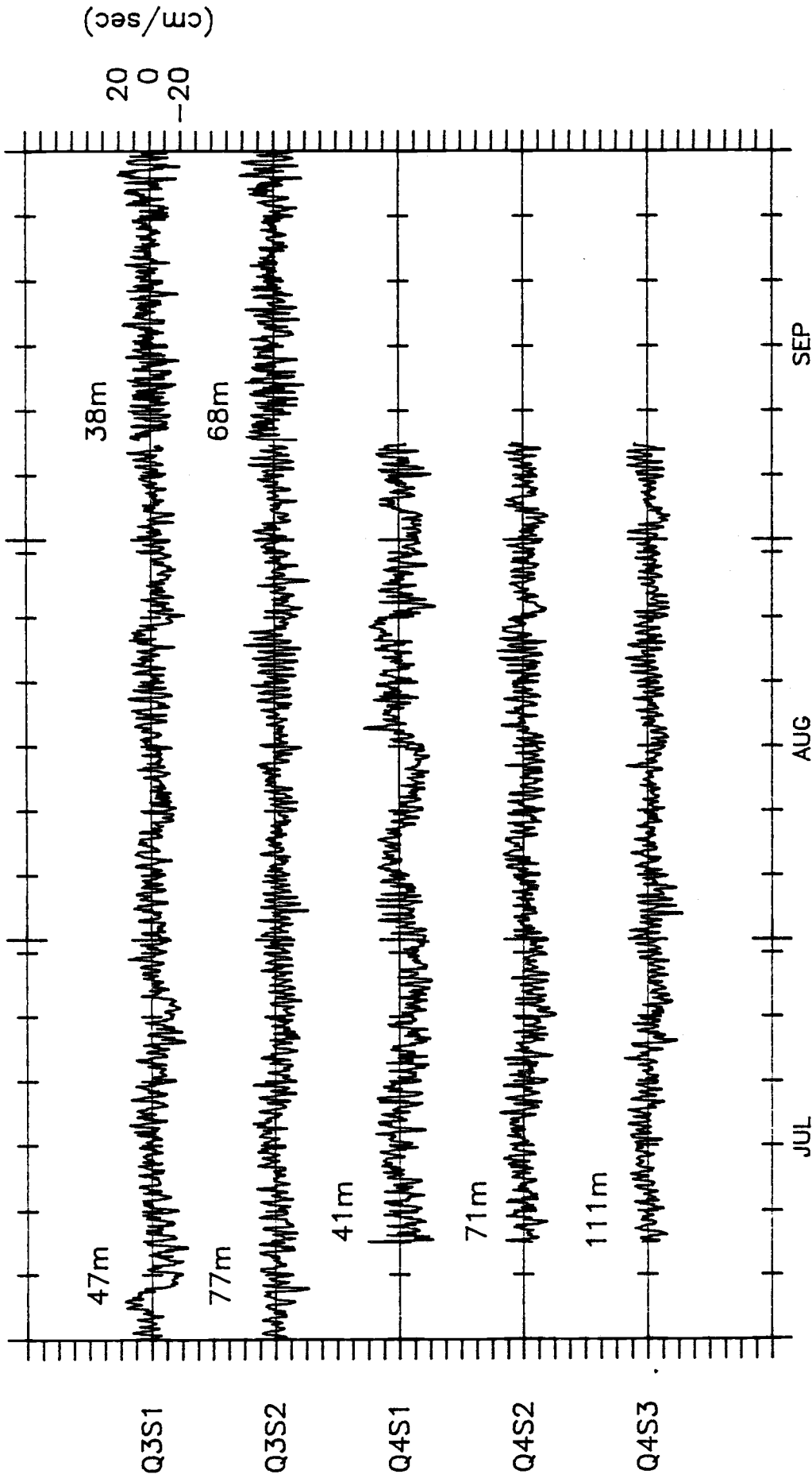
Q3S1

Q3S2

Q4S1

Q4S2

Q4S3



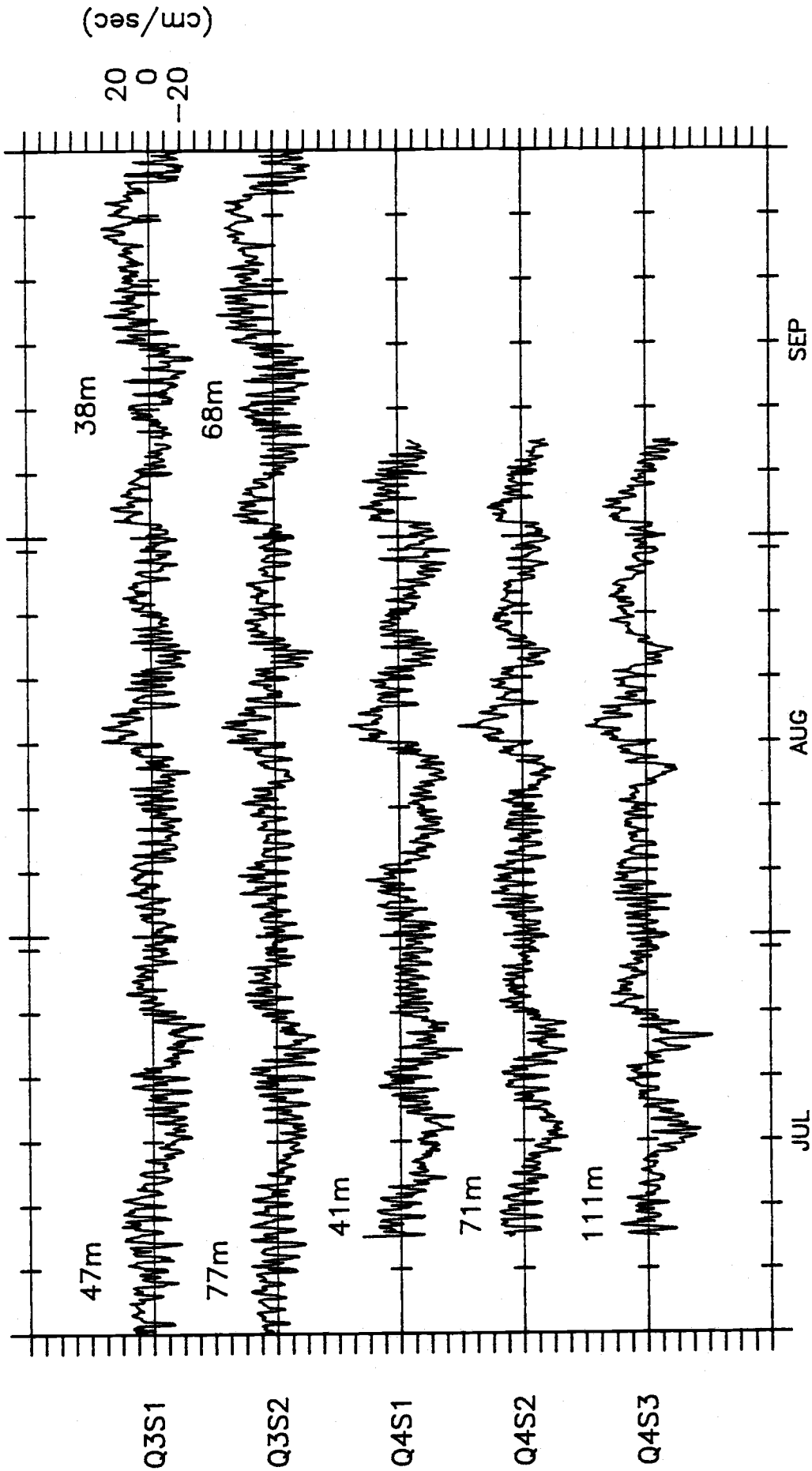
COOS BAY U velocity

1982

SEP

AUG

JUL



SEP

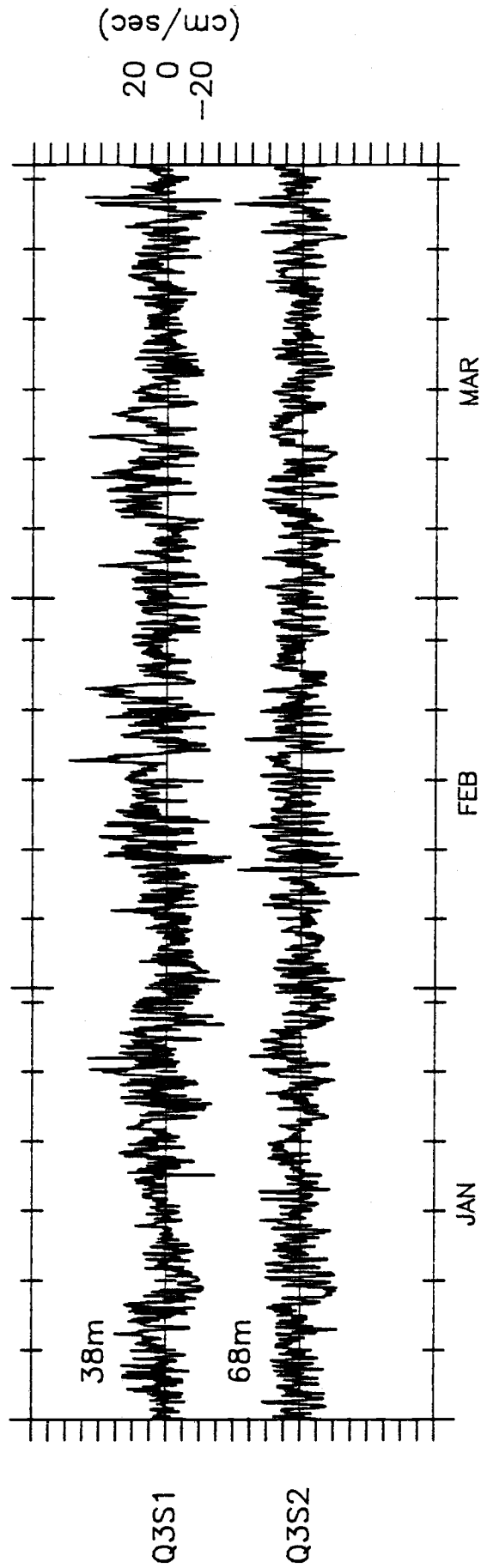
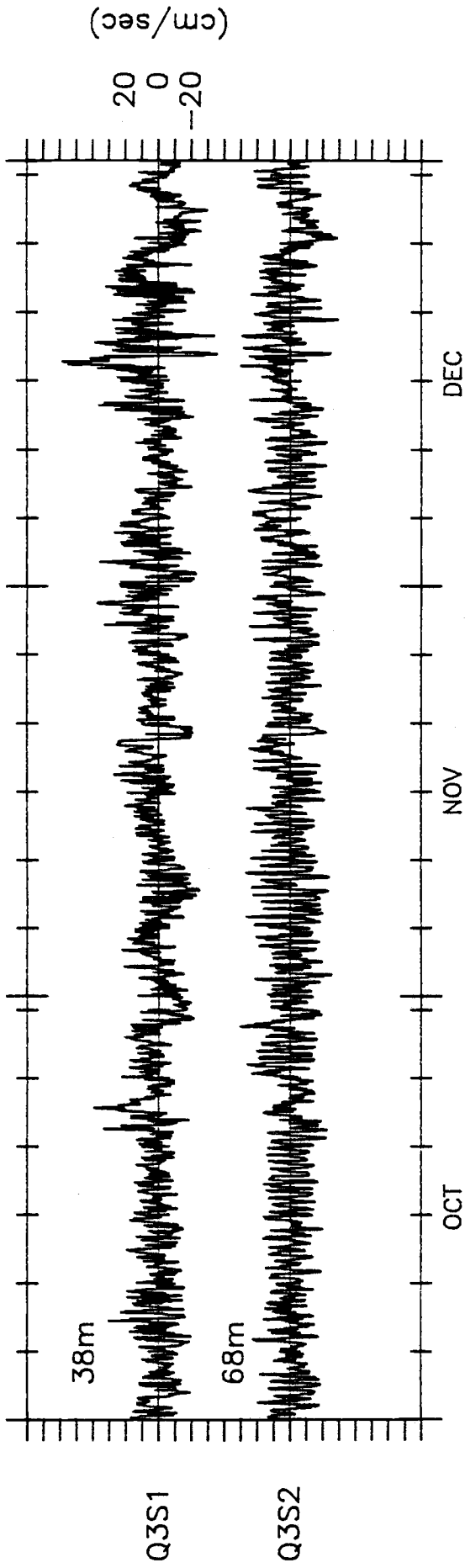
AUG

JUL

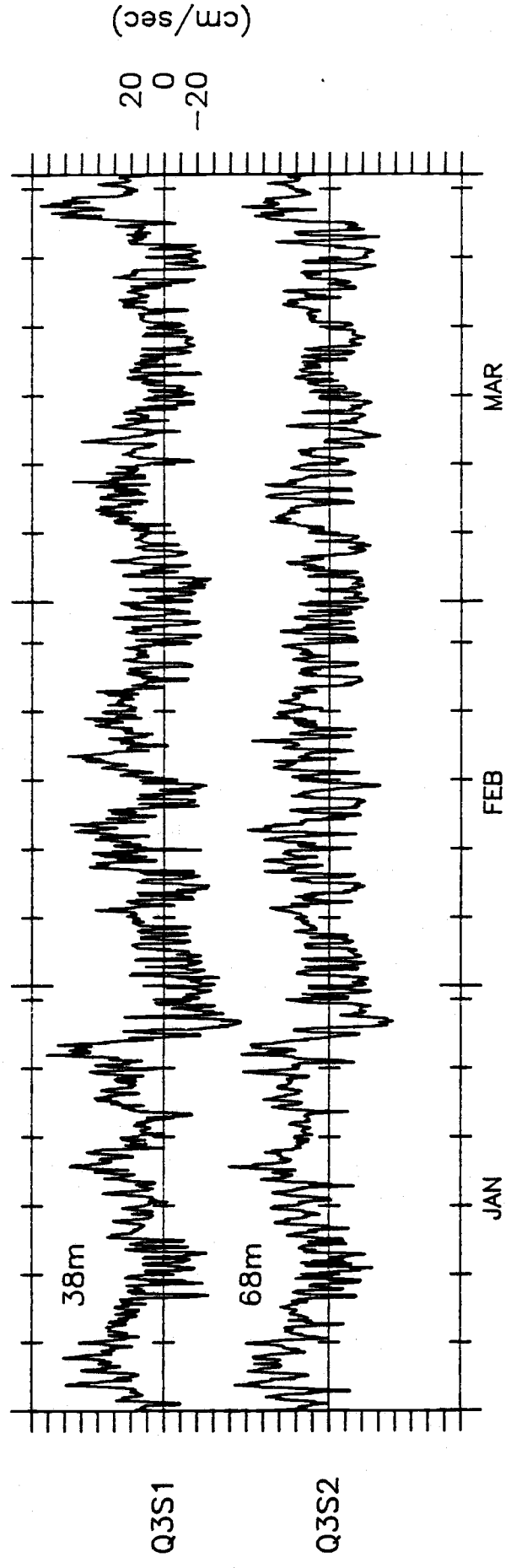
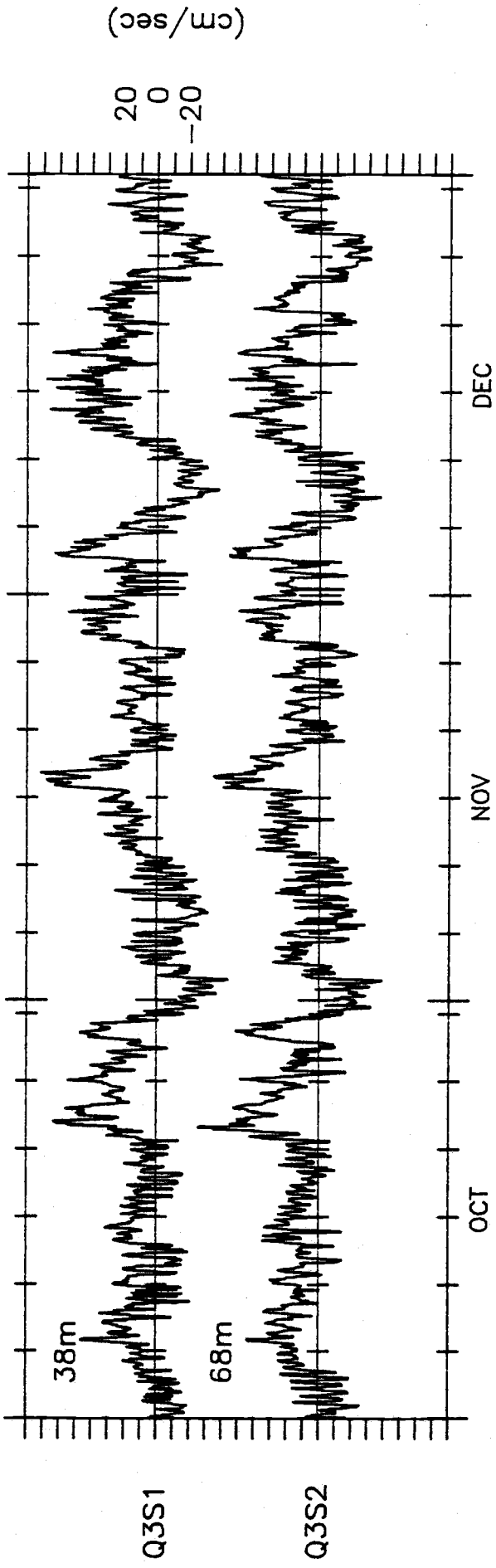
1982

COOS BAY V velocity

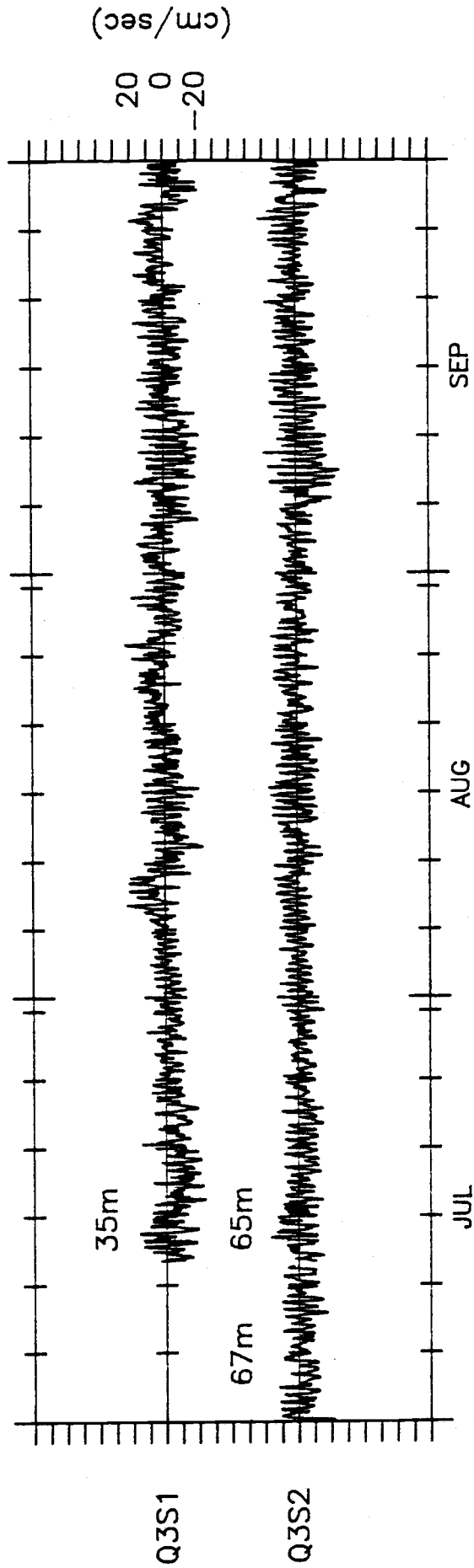
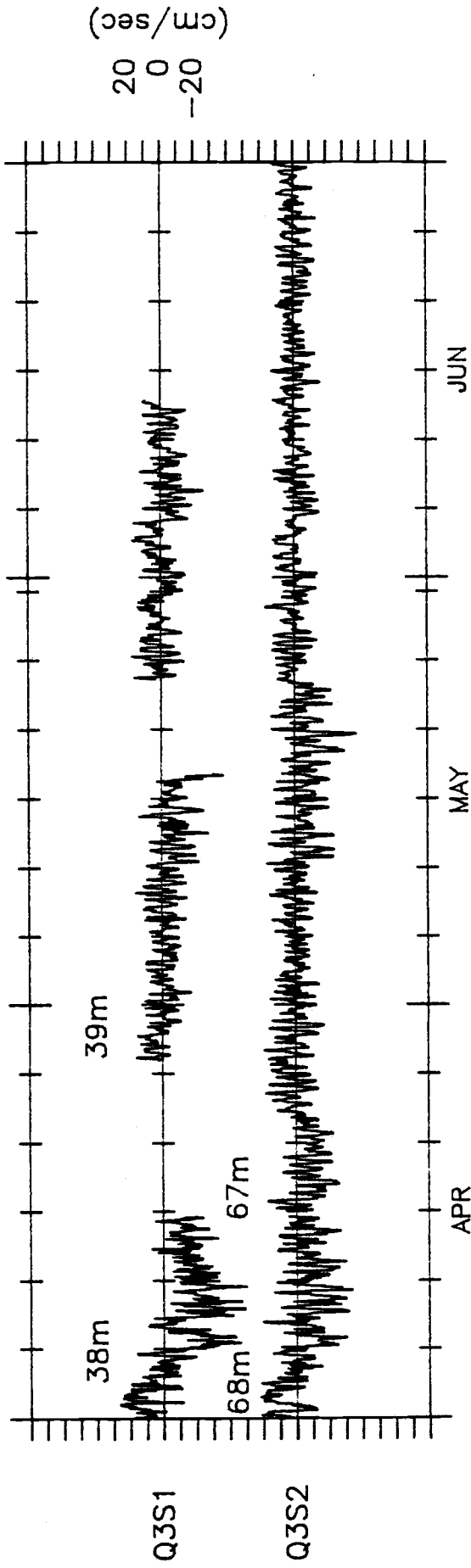




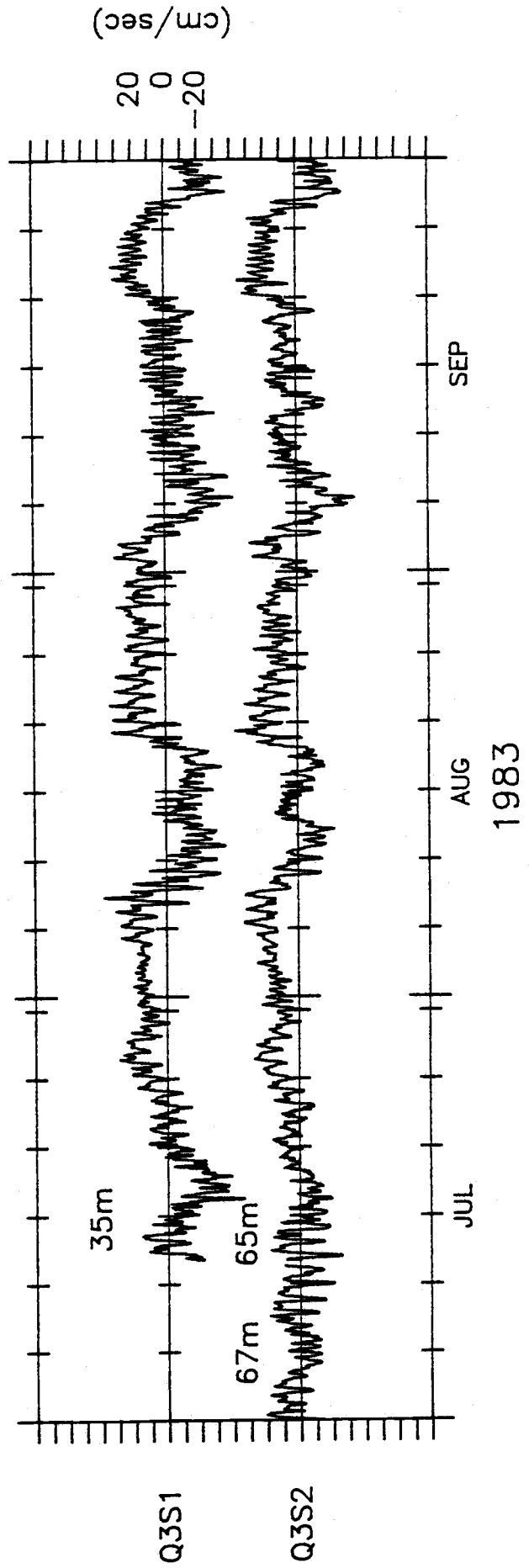
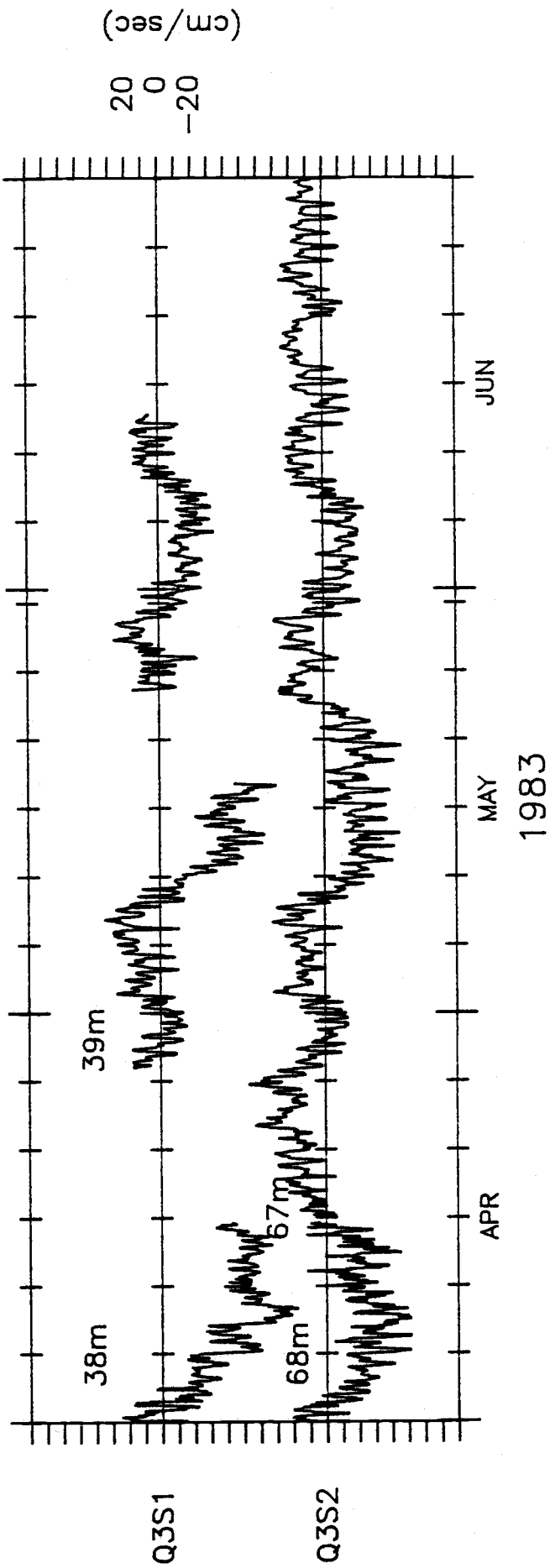
COOS BAY U velocity



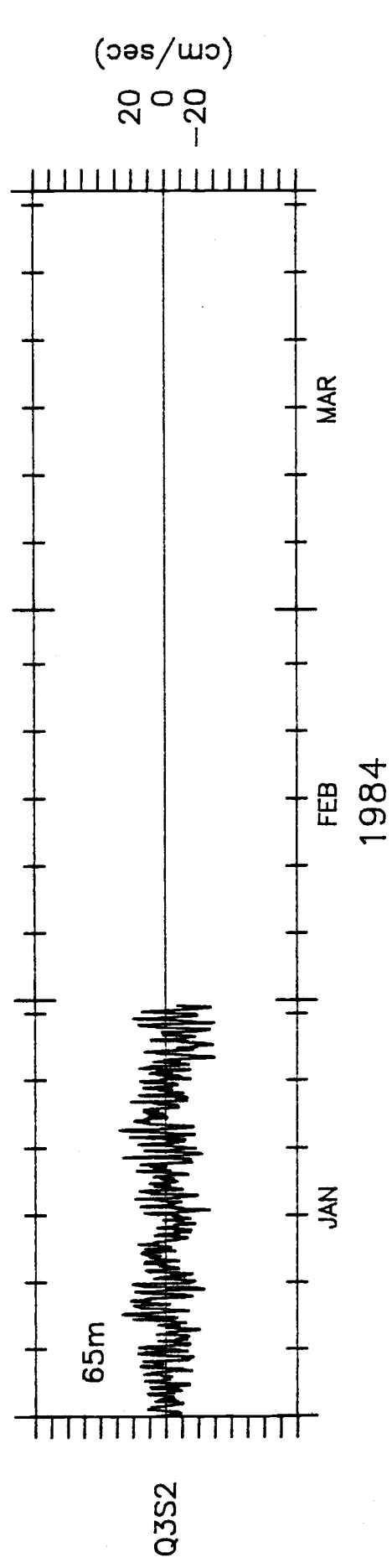
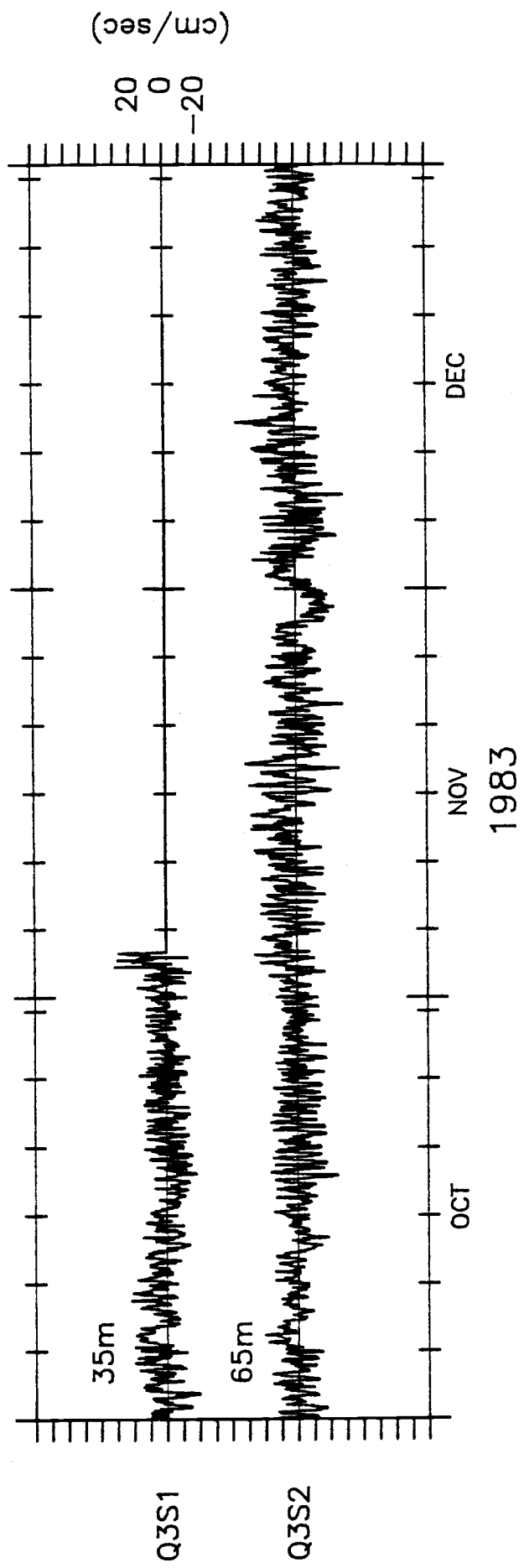
COOS BAY V velocity



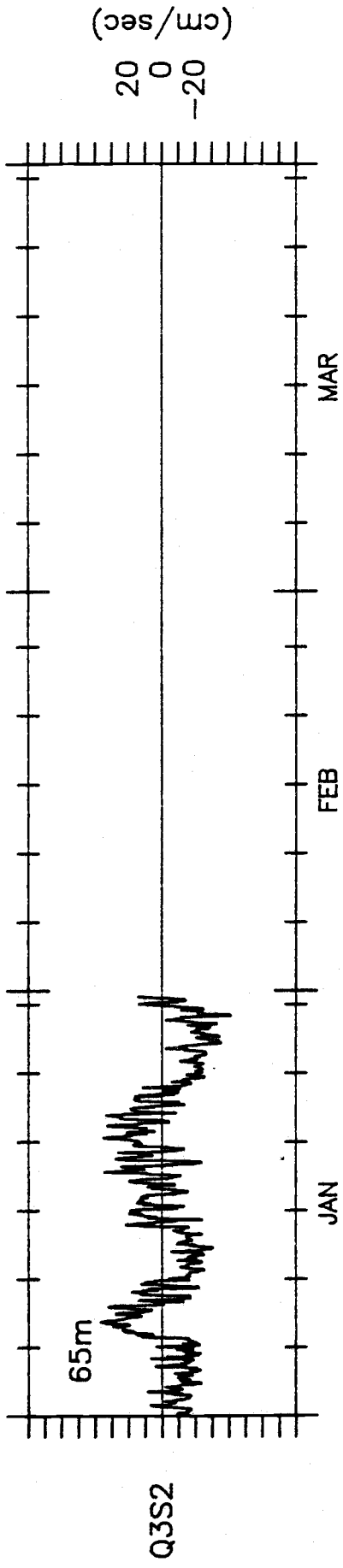
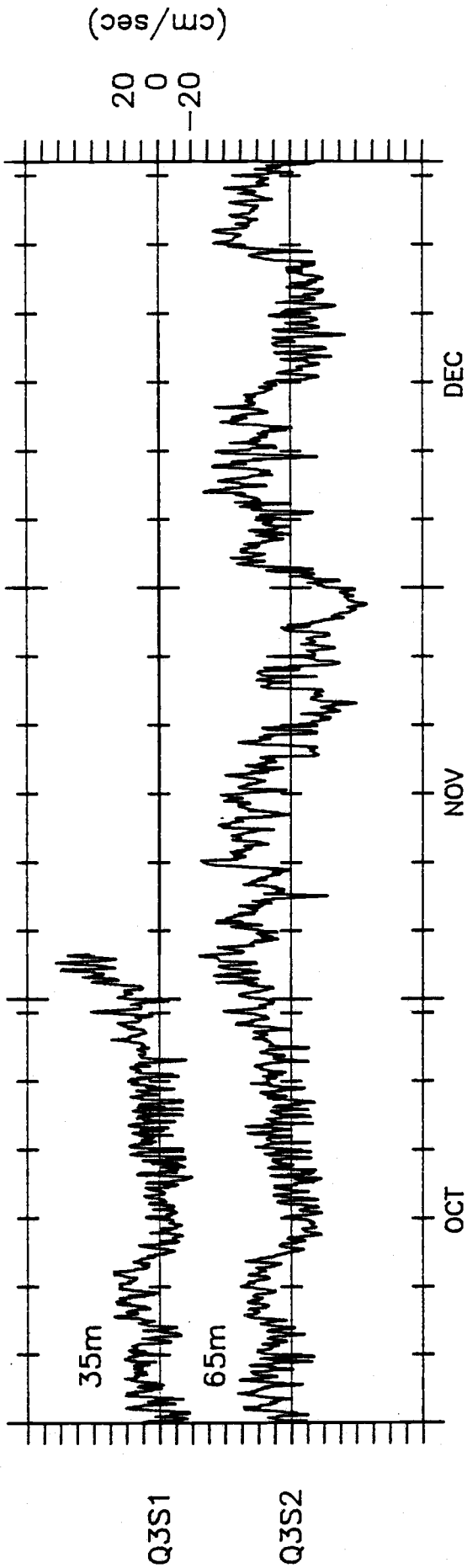
COOS BAY U velocity



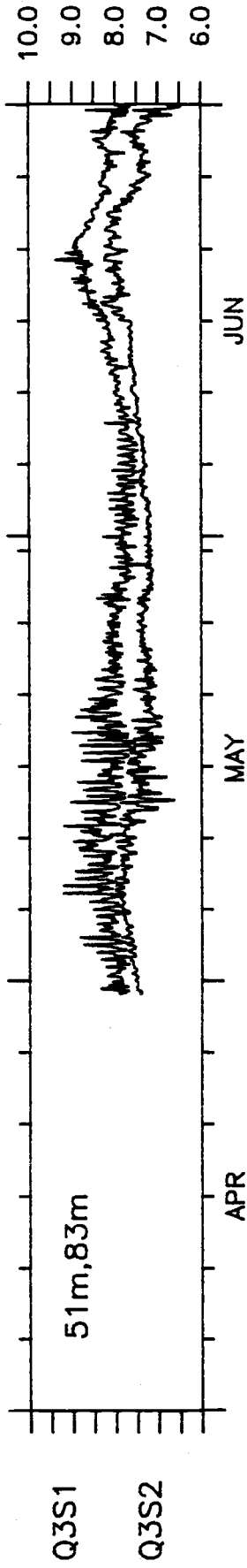
COOS BAY V velocity



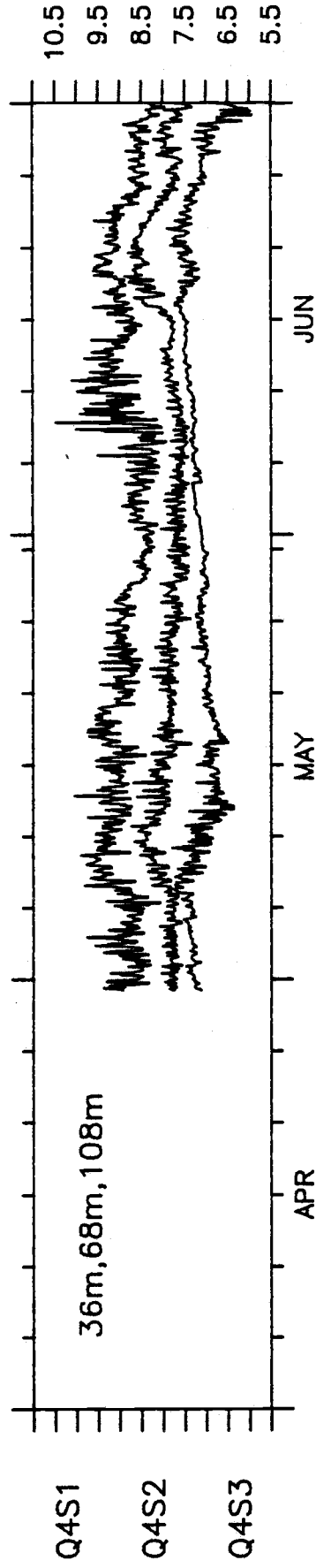
COOS BAY U velocity



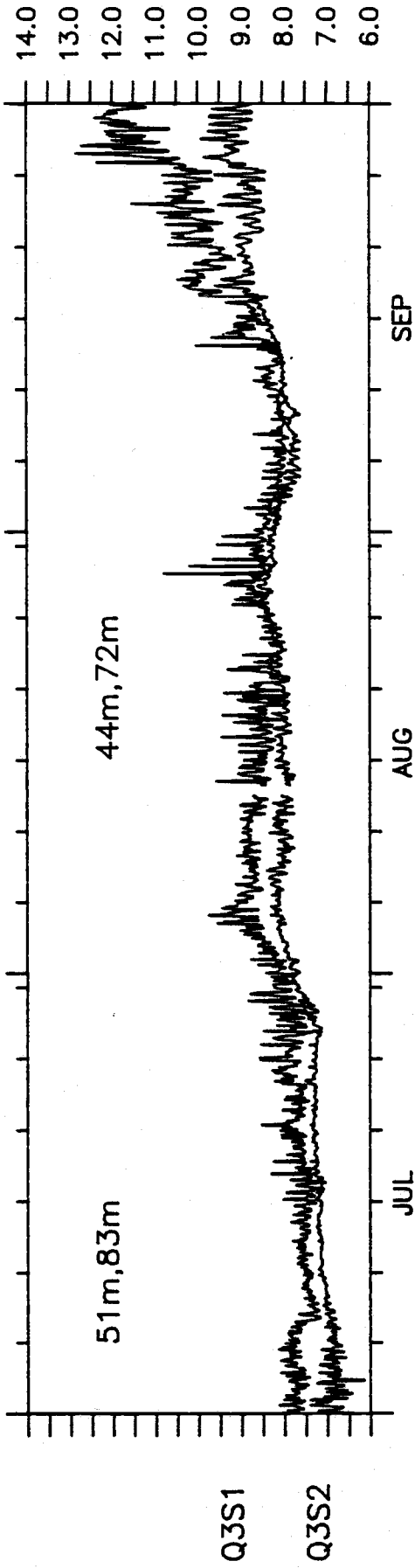
COOS BAY V velocity



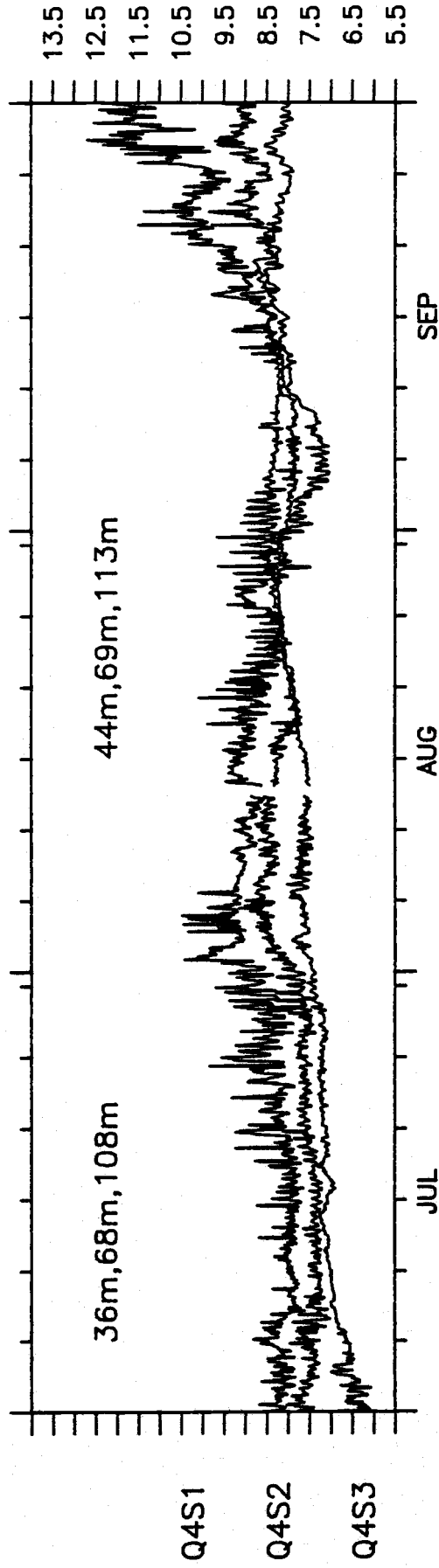
COOS BAY SHALLOW Temperature



COOS BAY DEEP Temperature



COOS BAY SHALLOW Temperature



COOS BAY DEEP Temperature

Q3S1

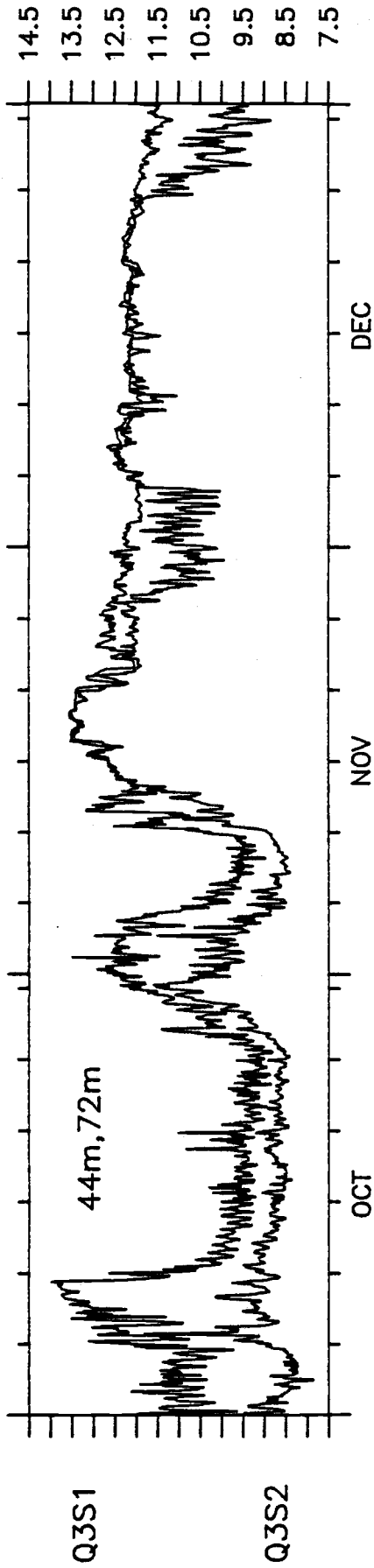
Q3S2

Q4S1

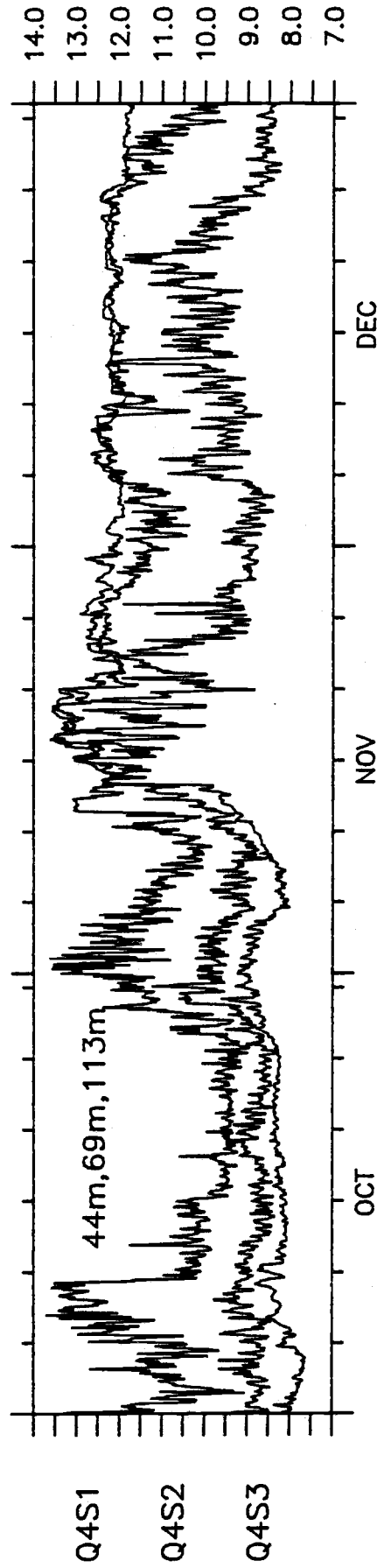
Q4S2

Q4S3

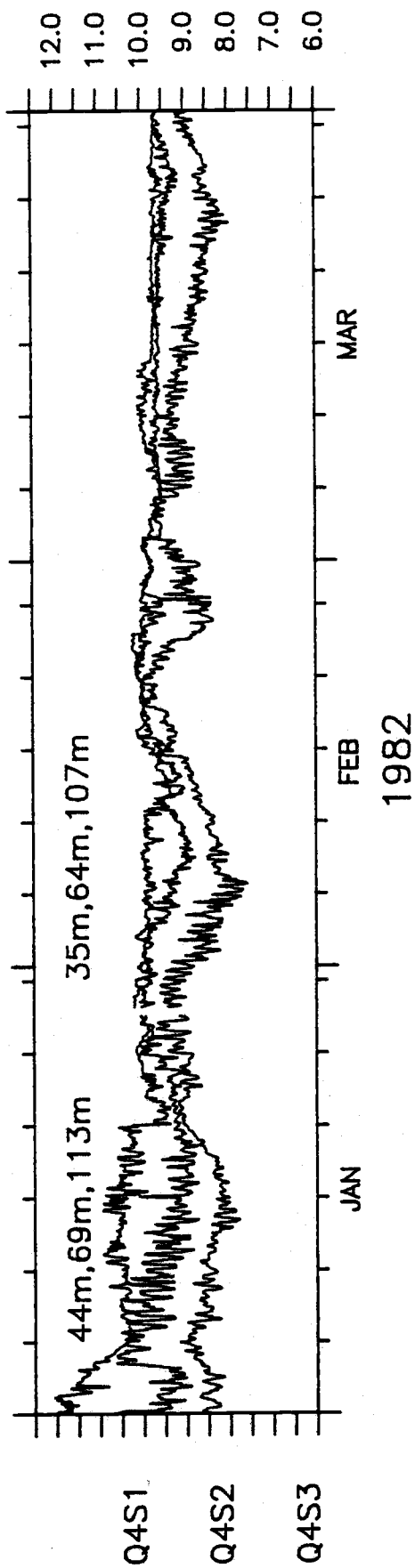
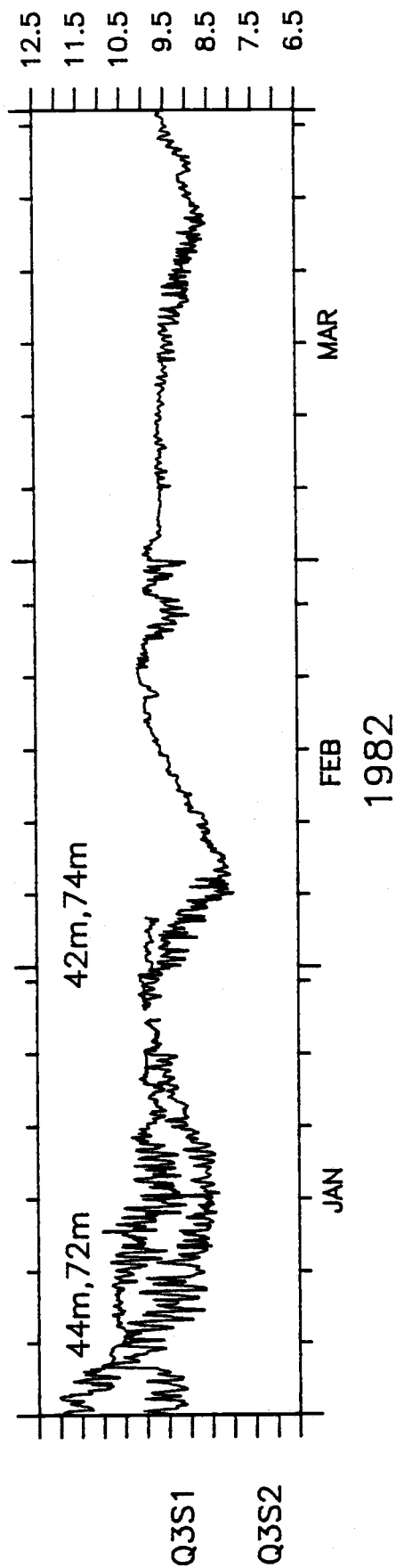


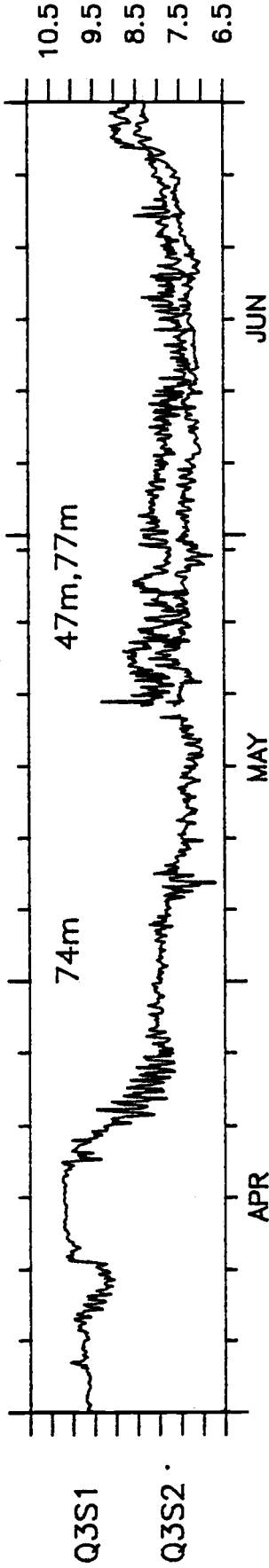


COOS BAY SHALLOW Temperature



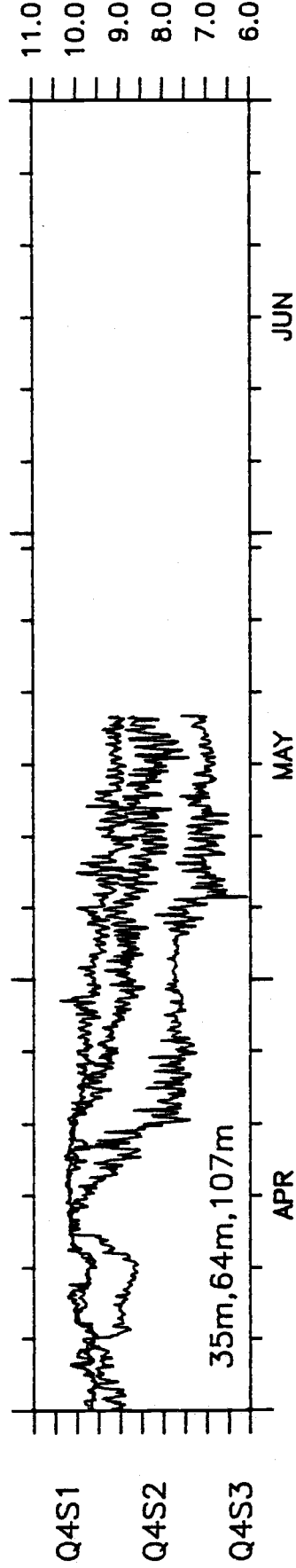
COOS BAY DEEP Temperature





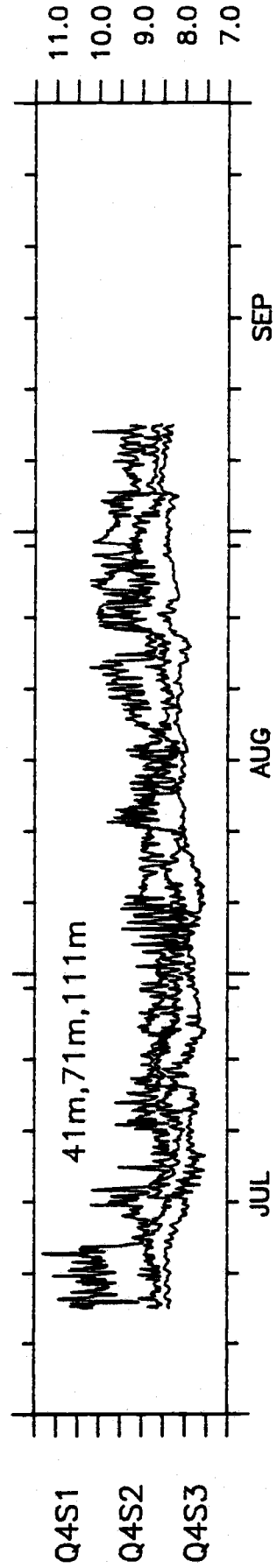
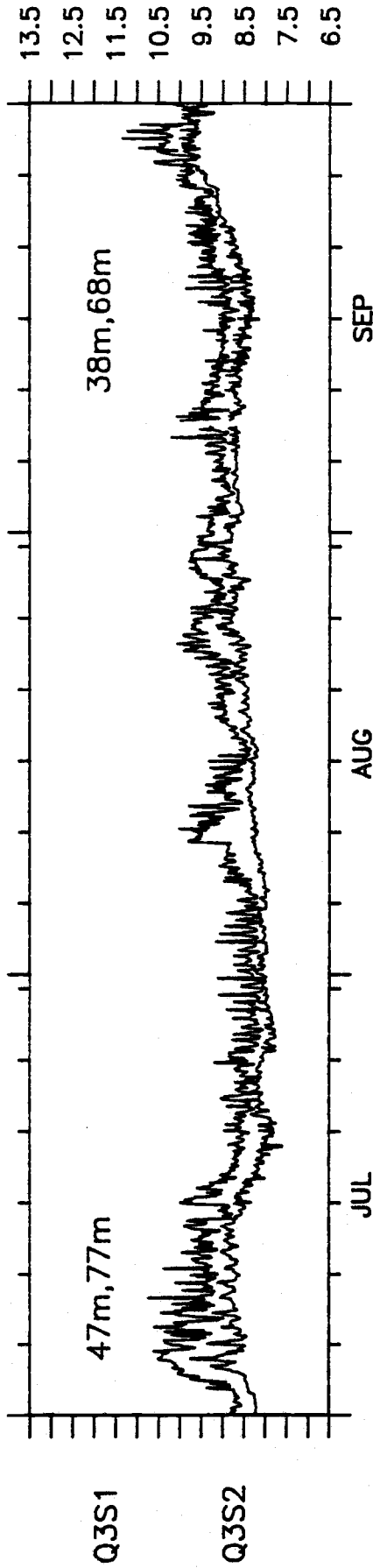
1982

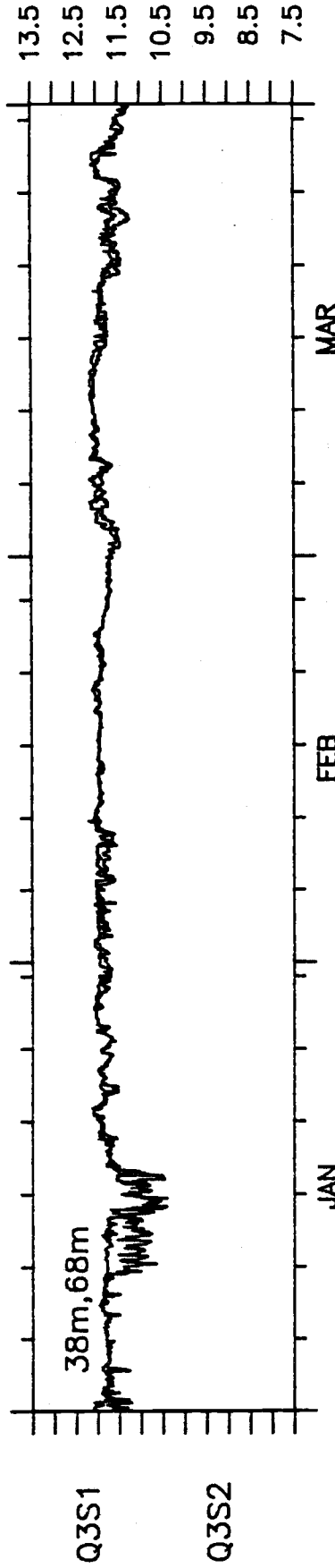
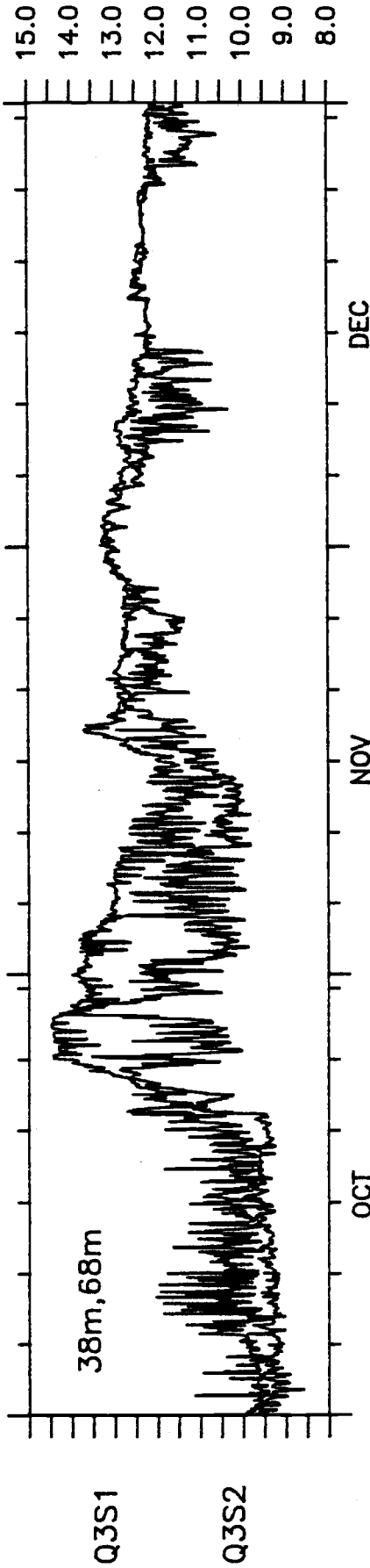
COOS BAY SHALLOW Temperature



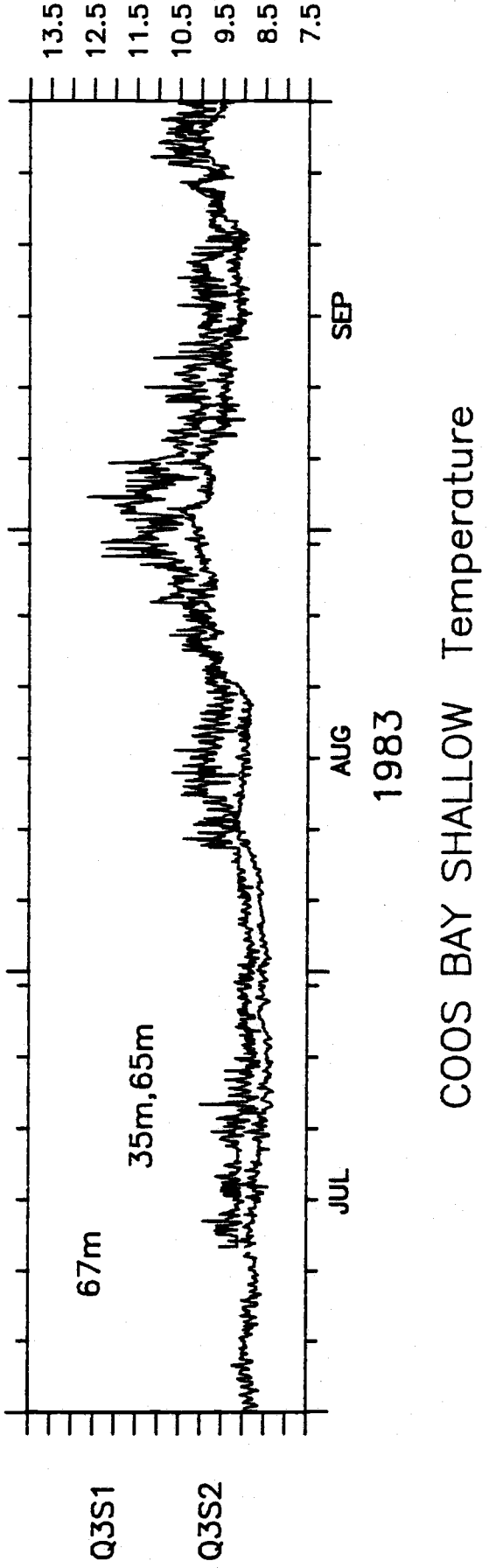
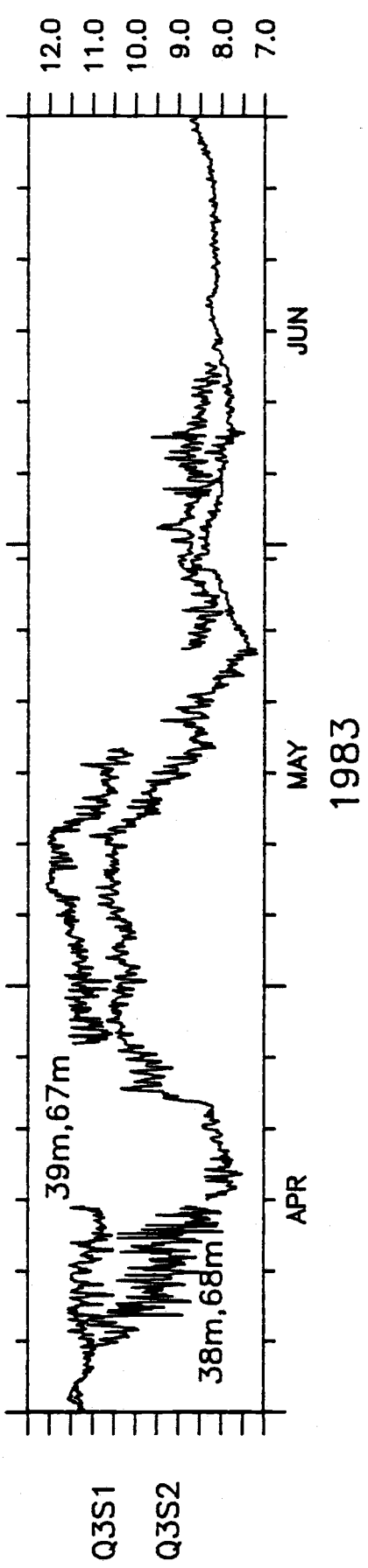
1982

COOS BAY DEEP Temperature

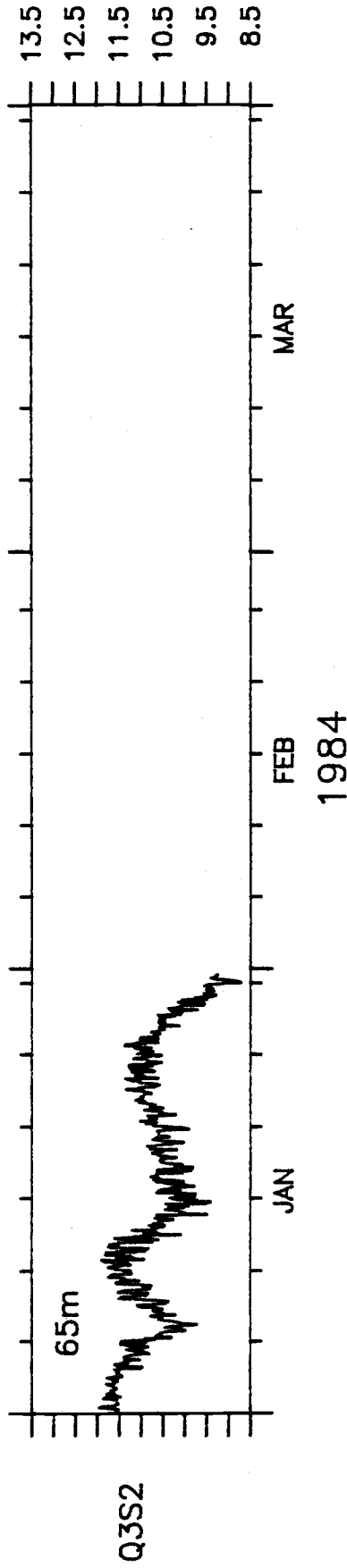
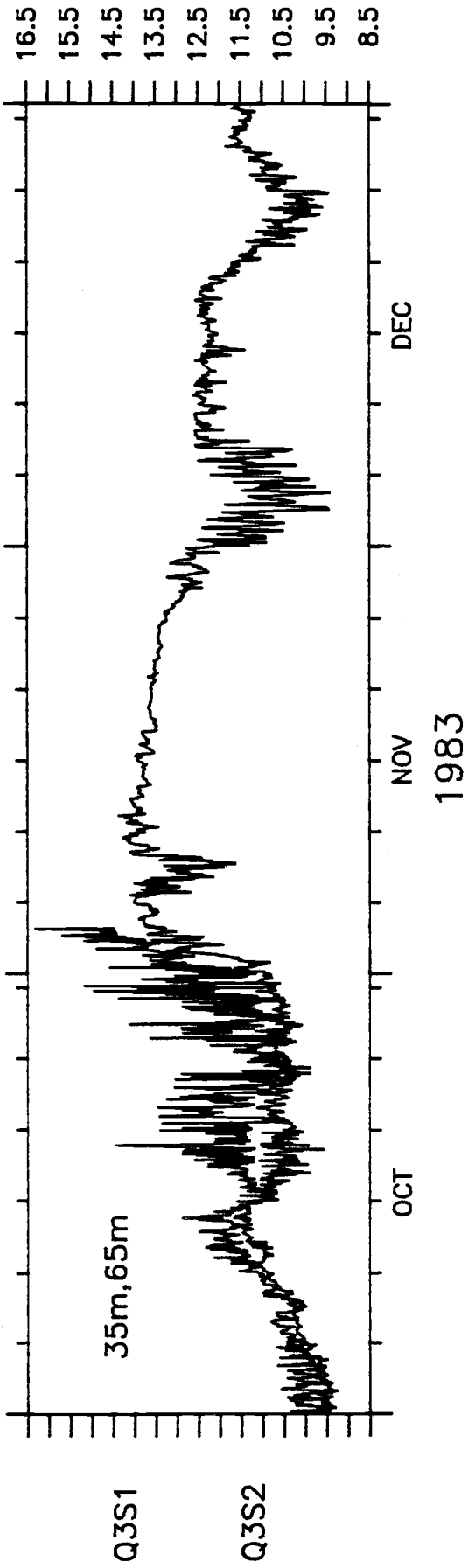




COOS BAY SHALLOW Temperature



COOS BAY SHALLOW Temperature



COOS BAY SHALLOW Temperature

## SAMPLING INTERVAL = 360 MINUTES

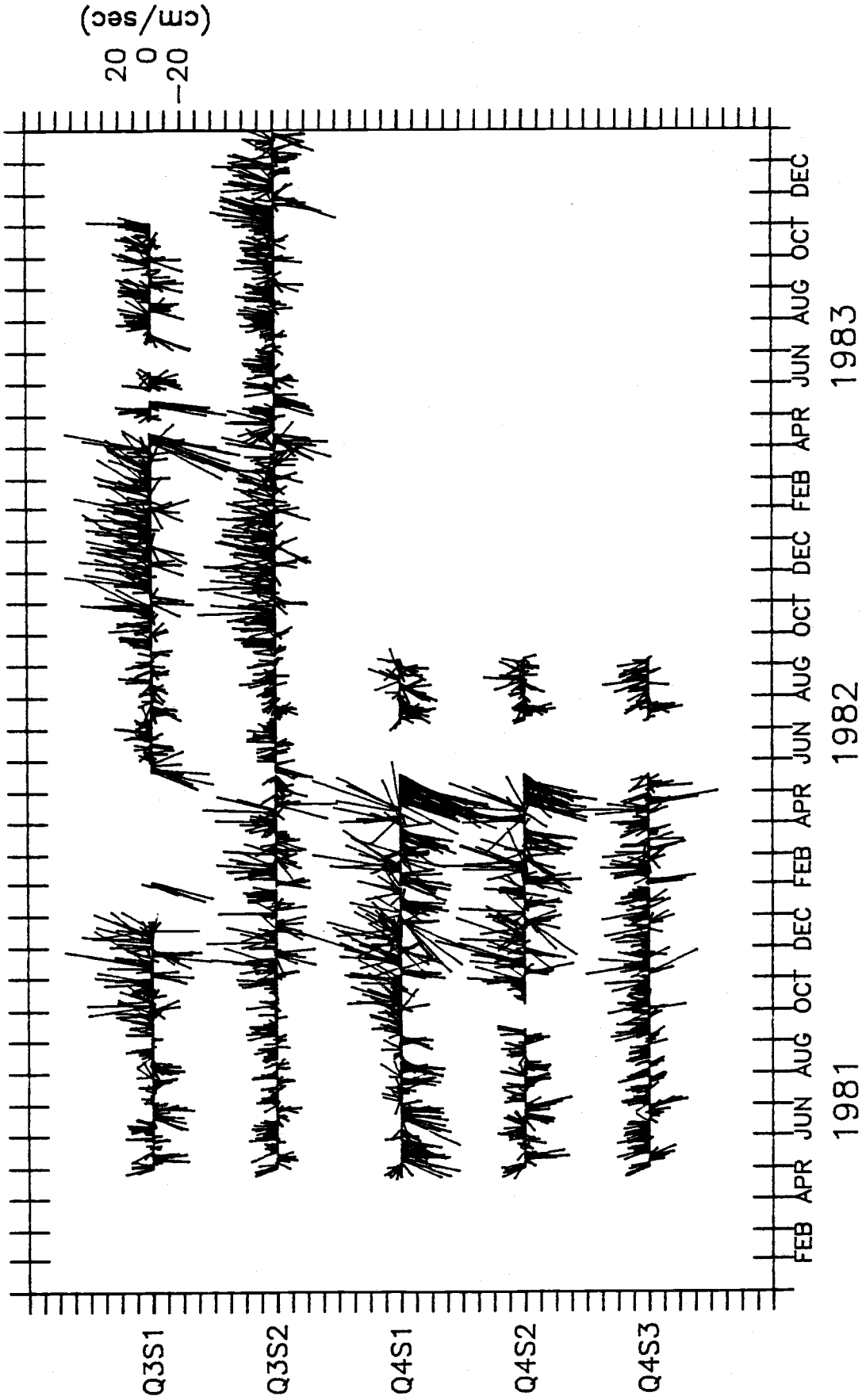
STATION	START TIME (GMT)	MIN	MAX	MEAN	STD	STOP TIME	
Q3S1	MAY 1, 1981 0000	U	-8.0	9.7	-0.3	2.9	AUG 12, 1981 1800
		V	-27.0	18.0	-2.8	10.5	AUG 12, 1981 1800
		T	7.3	9.2	8.1	0.4	AUG 12, 1981 1800
PRINCIPAL AXIS = 0.9							
Q3S1	AUG 15, 1981 0600	U	-12.3	23.8	2.0	6.0	DEC 20, 1981 1200
		V	-37.7	63.8	8.6	17.7	DEC 20, 1981 1200
		T	8.0	13.8	10.7	1.5	JAN 27, 1982 0600
PRINCIPAL AXIS = 6.3							
Q3S1	JAN 30, 1982 0600	U	-12.3	1.7	-8.1	4.1	FEB 3, 1982 1200
		V	-39.4	6.2	-24.4	13.2	FEB 3, 1982 1200
		T	9.9	10.1	10.0	0.1	FEB 3, 1982 1200
PRINCIPAL AXIS = 16.9							
Q3S1	MAY 21, 1982 0600	U	-15.5	13.4	-1.7	4.8	SEP 7, 1982 1200
		V	-40.0	24.6	-1.5	11.6	SEP 7, 1982 1200
		T	7.4	10.4	8.6	0.7	SEP 7, 1982 1200
PRINCIPAL AXIS = 7.0							
Q3S1	SEP 10, 1982 0000	U	-29.9	29.7	2.6	8.1	APR 14, 1983 1800
		V	-74.4	60.4	8.8	21.2	APR 14, 1983 1800
		T	8.9	14.4	11.7	1.1	APR 14, 1983 1800
PRINCIPAL AXIS = 14.4							
Q3S1	APR 28, 1983 0000	U	-9.2	8.9	-0.7	4.0	JUN 13, 1983 0000
		V	-49.1	21.9	-5.8	18.3	JUN 13, 1983 0000
		T	8.3	12.0	10.0	1.4	JUN 13, 1983 0000
PRINCIPAL AXIS = 6.3							
Q3S1	JUL 13, 1983 1800	U	-10.7	14.4	0.5	4.7	NOV 3, 1983 0600
		V	-27.3	42.9	4.3	13.2	NOV 3, 1983 0600
		T	8.8	13.8	10.2	1.0	NOV 3, 1983 0600
PRINCIPAL AXIS = 11.7							
Q3S2	MAY 1, 1981 0000	U	-7.8	4.8	-0.7	2.1	AUG 12, 1981 1800
		V	-16.6	18.3	2.5	7.8	AUG 12, 1981 1800
		T	6.8	8.2	7.5	0.4	AUG 12, 1981 1800
PRINCIPAL AXIS = -6.5							
Q3S2	AUG 15, 1981 0600	U	-11.8	10.6	-0.2	3.3	JAN 27, 1982 0600
		V	-25.3	53.1	6.0	12.8	JAN 27, 1982 0600
		T	7.8	13.5	9.7	1.5	JAN 27, 1982 0600
PRINCIPAL AXIS = 2.2							
Q3S2	JAN 30, 1982 0600	U	-17.6	10.8	-1.0	4.5	MAY 18, 1982 1800
		V	-41.4	46.6	1.4	15.7	MAY 18, 1982 1800
		T	7.1	10.2	9.1	0.9	MAY 18, 1982 1800
PRINCIPAL AXIS = 3.7							
Q3S2	MAY 21, 1982 0600	U	-9.3	6.7	-1.0	3.0	SEP 7, 1982 1200
		V	-24.6	22.4	2.3	9.0	SEP 7, 1982 1200
		T	7.1	9.1	8.1	0.6	SEP 7, 1982 1200
PRINCIPAL AXIS = -1.2							
Q3S2	SEP 10, 1982 0000	U	-15.7	16.1	1.2	5.2	APR 14, 1983 1800
		V	-40.0	52.6	9.0	16.6	APR 14, 1983 1800
		T	8.4	13.6	11.2	1.2	APR 14, 1983 1800
PRINCIPAL AXIS = 5.9							



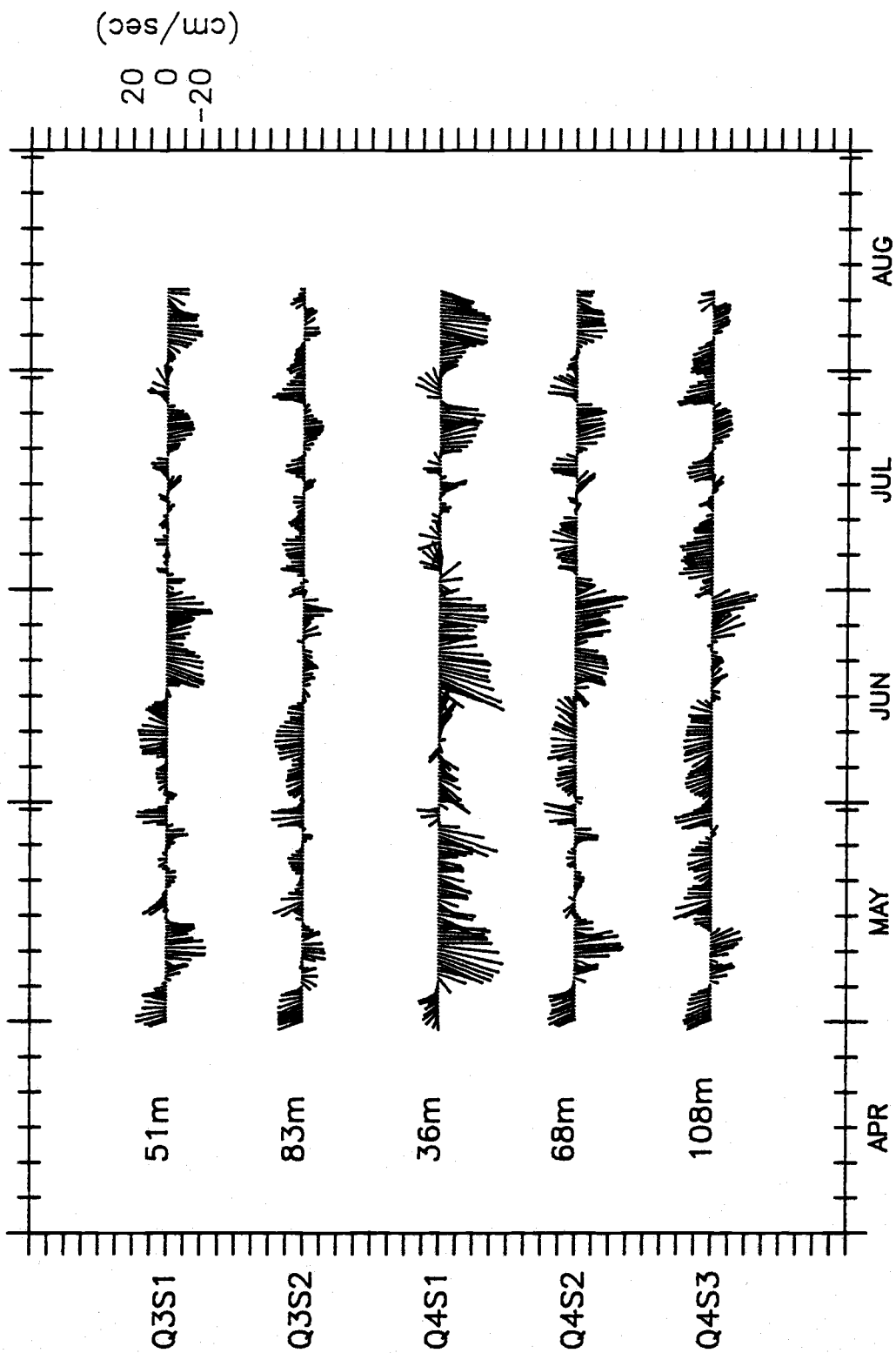
## SAMPLING INTERVAL = 360 MINUTES

STATION	START TIME	(GMT)		MIN	MAX	MEAN	STD	STOP TIME	
Q3S2	APR 17, 1983	0600	U	-13.9	7.9	-0.9	3.9	JUL 11, 1983	1200
			V	-26.0	34.8	3.8	13.7	JUL 11, 1983	1200
			PRINCIPAL AXIS =	5.5	T	7.4	10.7	8.8	0.9
Q3S2	JUL 13, 1983	1800	U	-14.2	14.7	1.1	4.3	JAN 30, 1984	1200
			V	-40.1	43.1	7.5	14.9	JAN 30, 1984	1200
			PRINCIPAL AXIS =	7.2	T	8.4	14.1	10.6	1.5
Q4S1	MAY 1, 1981	0600	U	-17.5	11.8	-1.7	5.5	AUG 12, 1981	1200
			V	-37.8	14.2	-11.8	12.7	AUG 12, 1981	1200
			PRINCIPAL AXIS =	11.2	T	7.9	9.9	8.7	0.5
Q4S1	AUG 15, 1981	0600	U	-36.1	24.4	1.5	9.1	JAN 27, 1982	1800
			V	-44.4	67.2	4.4	18.8	JAN 27, 1982	1800
			PRINCIPAL AXIS =	17.6	T	8.2	13.5	10.7	1.5
Q4S1	JAN 30, 1982	0600	U	-34.0	29.1	-4.9	11.5	MAY 18, 1982	1200
			V	-61.9	57.8	-13.5	28.0	MAY 18, 1982	1200
			PRINCIPAL AXIS =	18.2	T	8.9	10.2	9.8	0.3
Q4S1	JUL 9, 1982	1200	U	-13.7	14.8	-2.3	6.2	SEP 7, 1982	1200
			V	-24.6	20.3	-6.2	10.5	SEP 7, 1982	1200
			PRINCIPAL AXIS =	12.6	T	8.5	10.4	9.1	0.5
Q4S2	MAY 1, 1981	0600	U	-11.4	7.2	0.3	3.3	AUG 12, 1981	1200
			V	-29.8	17.9	-2.2	11.6	AUG 12, 1981	1200
			PRINCIPAL AXIS =	-2.3	T	7.3	8.7	7.9	0.4
Q4S2	AUG 15, 1981	0600	U	-25.3	15.4	1.4	6.1	JAN 27, 1982	1800
			V	-33.5	60.4	5.5	17.3	JAN 27, 1982	1800
			PRINCIPAL AXIS =	9.2	T	7.8	13.3	9.8	1.5
Q4S2	JAN 30, 1982	0600	U	-23.9	26.3	-3.4	8.9	MAY 18, 1982	1200
			V	-46.7	57.4	-8.3	24.2	MAY 18, 1982	1200
			PRINCIPAL AXIS =	12.7	T	8.1	10.2	9.5	0.5
Q4S2	JUL 9, 1982	1200	U	-12.4	7.5	-1.4	3.9	SEP 7, 1982	1800
			V	-20.8	26.0	0.7	9.3	SEP 7, 1982	1800
			PRINCIPAL AXIS =	-2.1	T	8.1	9.5	8.6	0.3
Q4S3	MAY 1, 1981	0600	U	-8.8	8.4	-0.6	3.4	AUG 12, 1981	1200
			V	-26.2	21.6	4.2	10.4	AUG 12, 1981	1200
			PRINCIPAL AXIS =	-15.4	T	6.3	7.8	7.2	0.3
Q4S3	AUG 15, 1981	0600	U	-8.4	15.2	-0.2	3.2	JAN 27, 1982	1800
			V	-33.6	47.0	7.5	10.5	JAN 27, 1982	1800
			PRINCIPAL AXIS =	-12.6	T	7.2	12.1	8.8	1.0



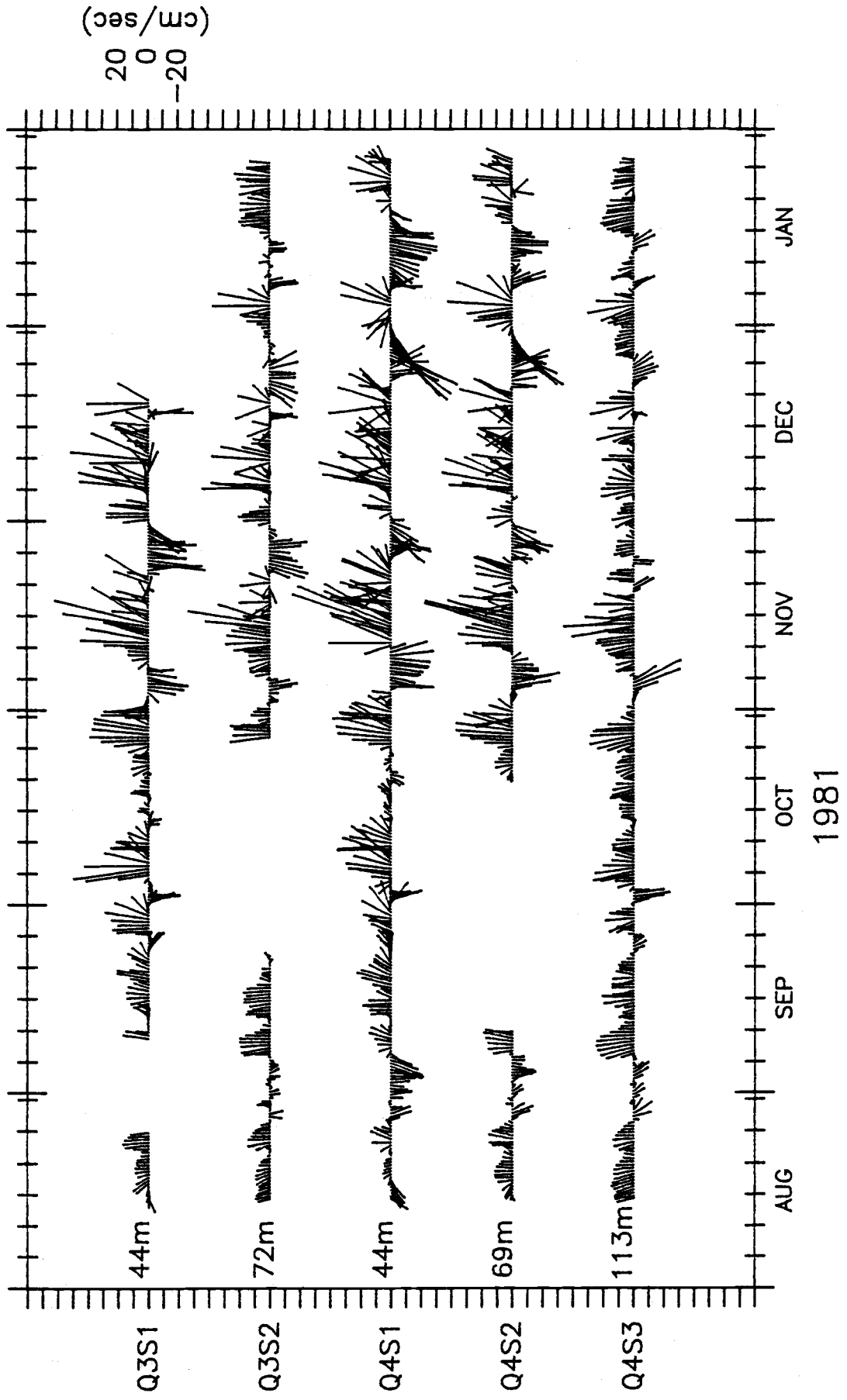


COOS BAY velocity

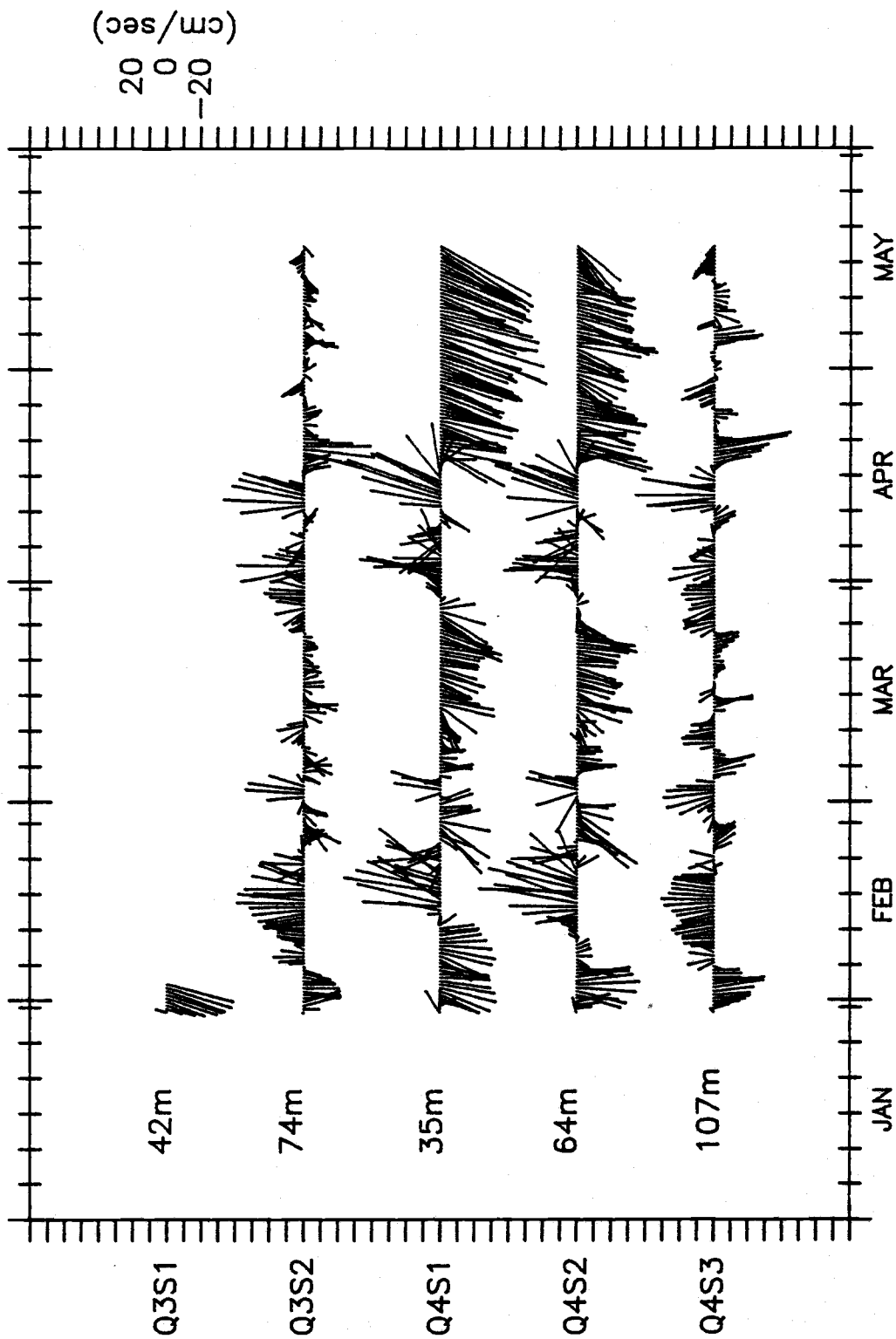


COOS BAY velocity

1981

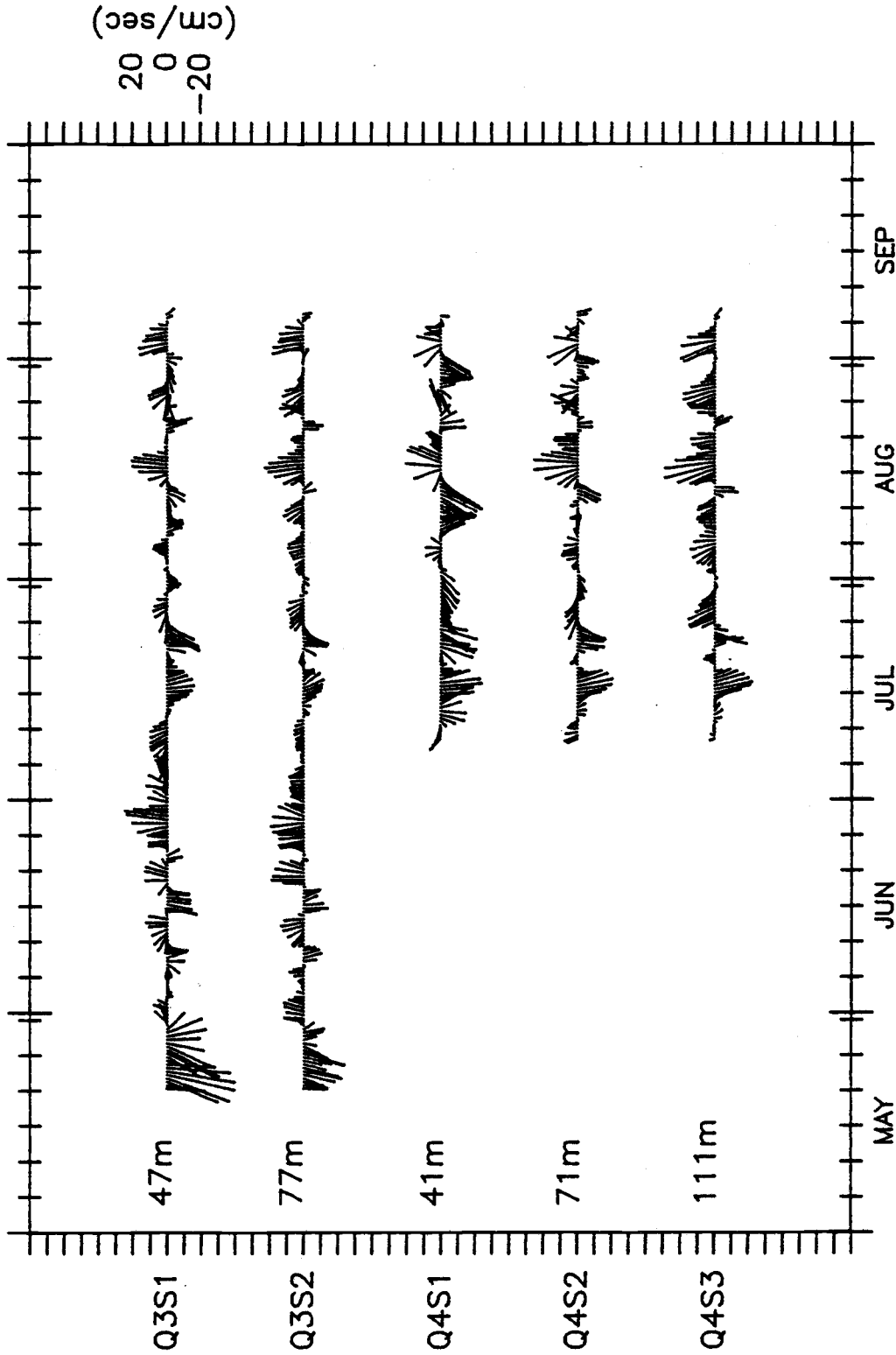


COOS BAY velocity



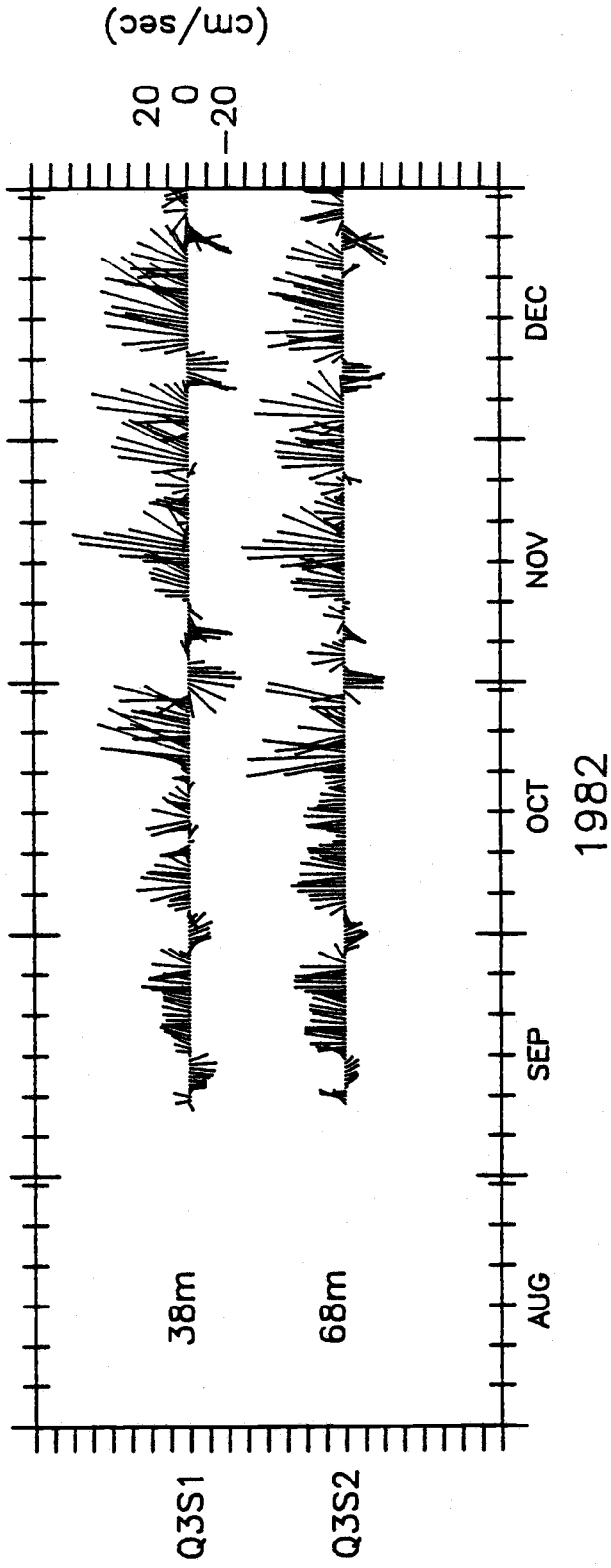
1982

COOS BAY velocity

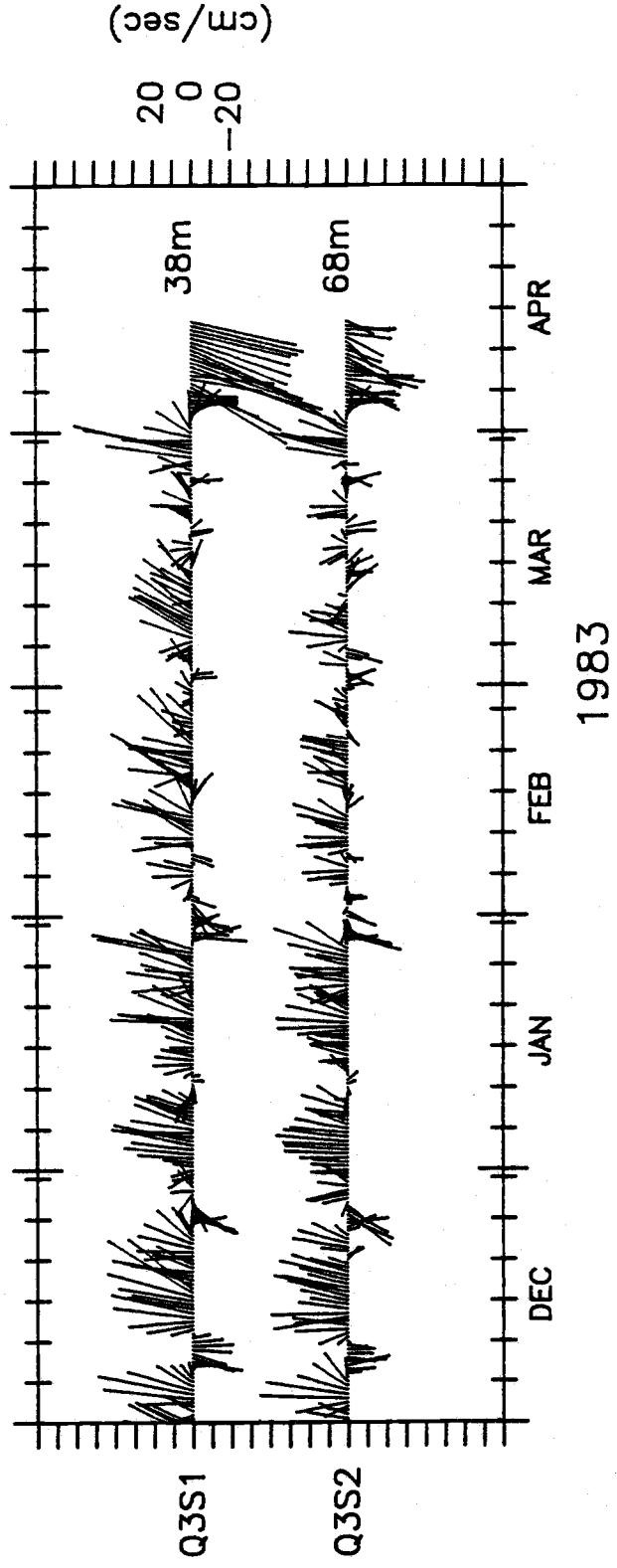


1982

COOS BAY velocity

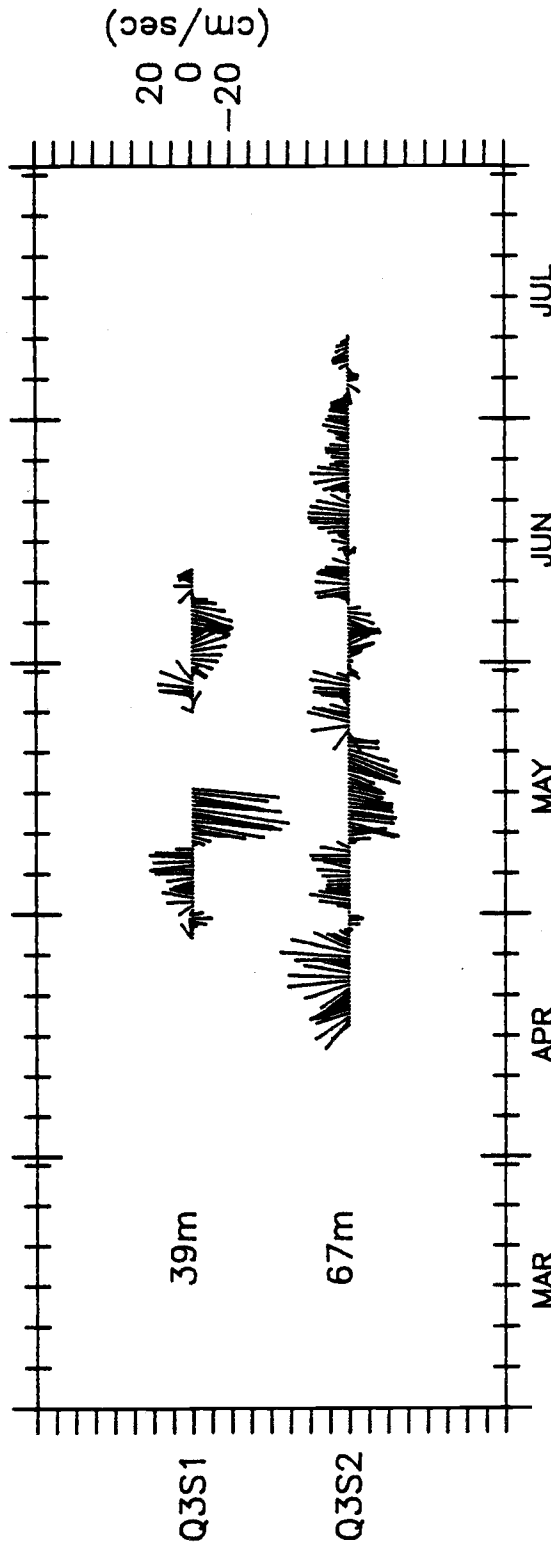


COOS BAY velocity



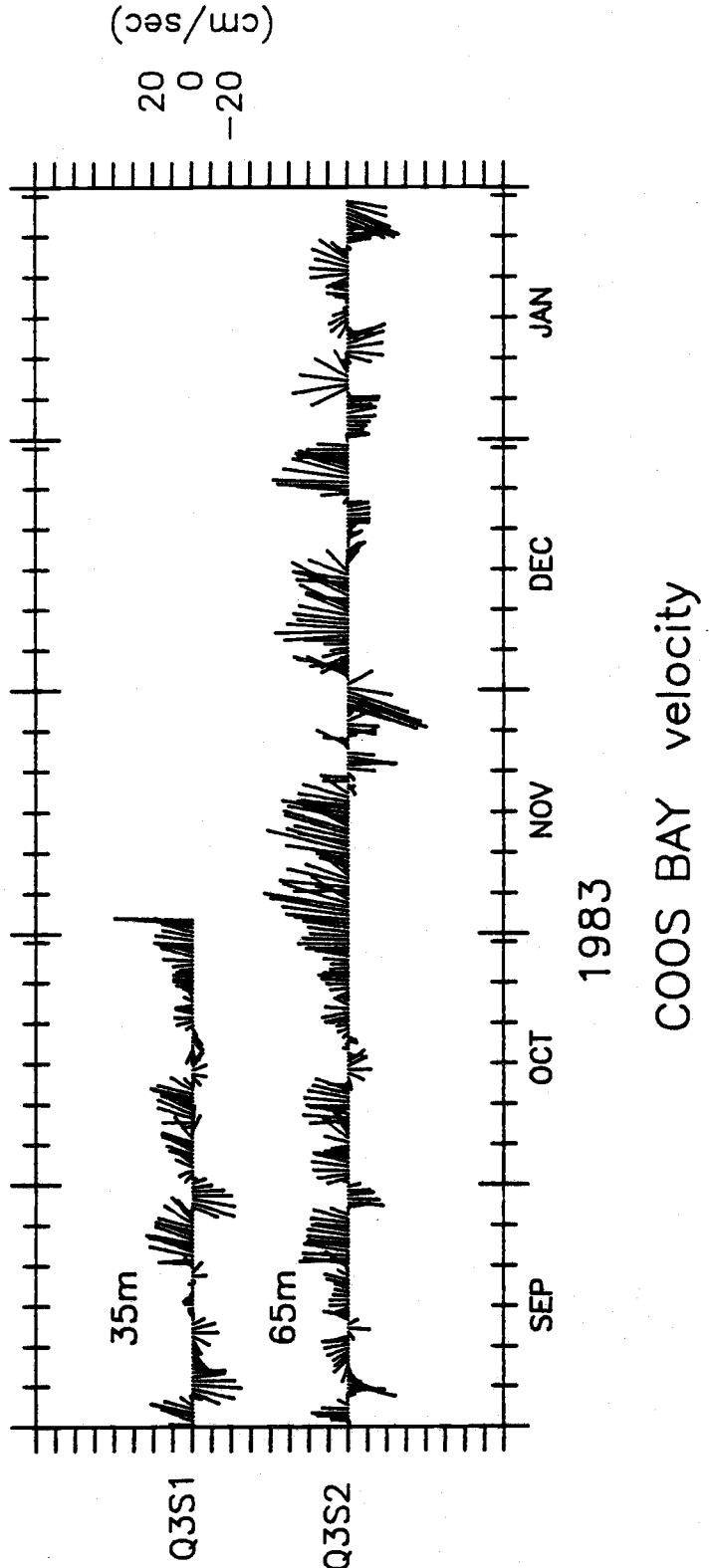
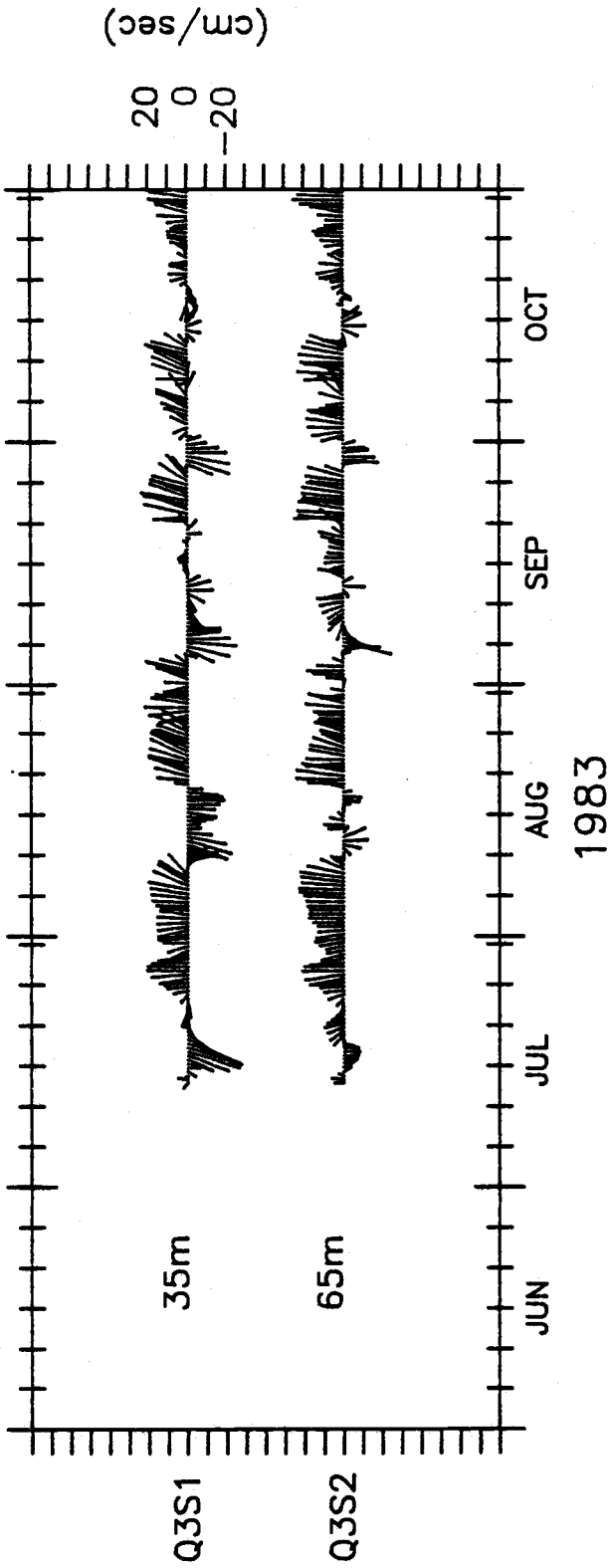
COOS BAY velocity

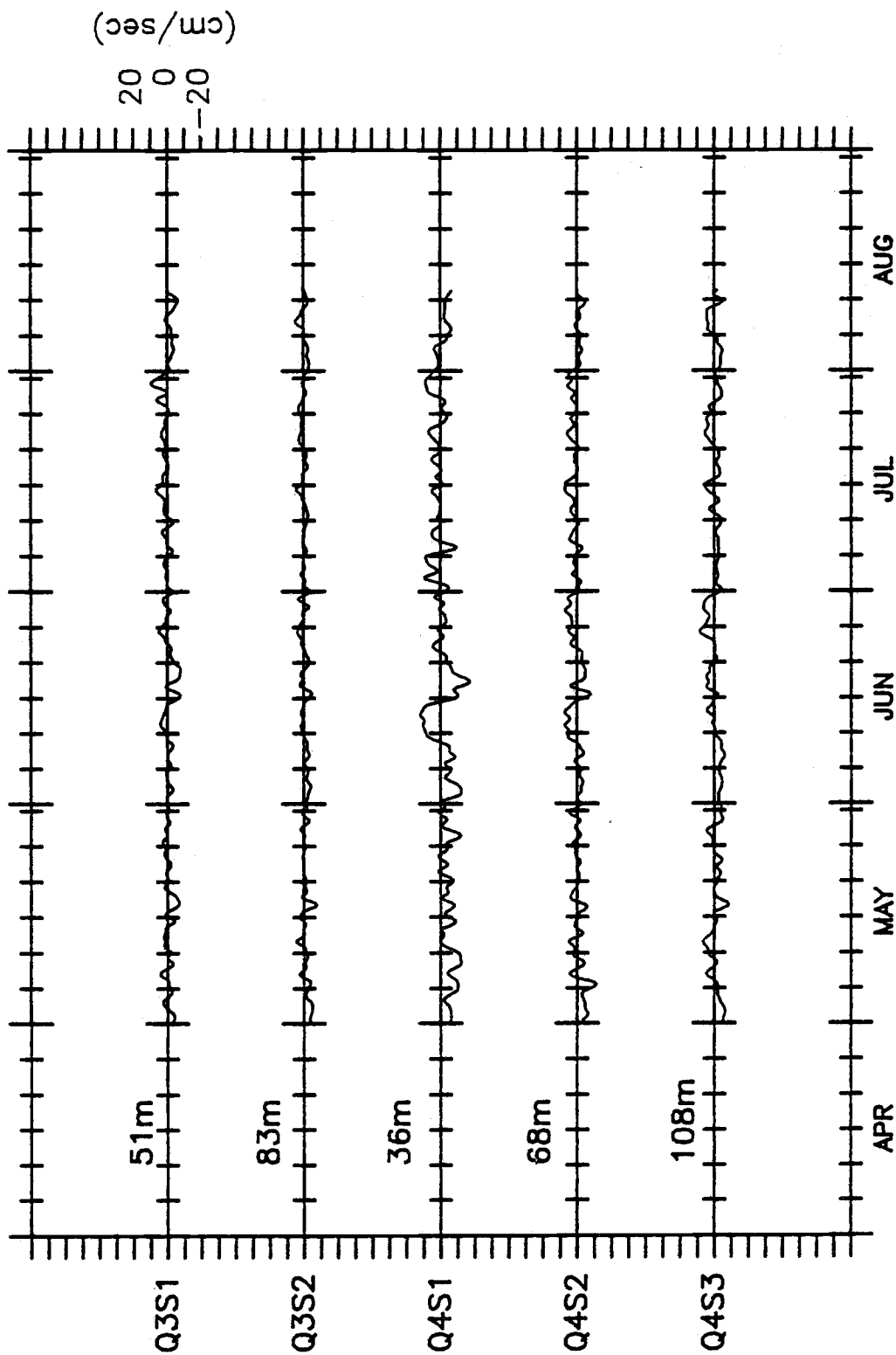




1983

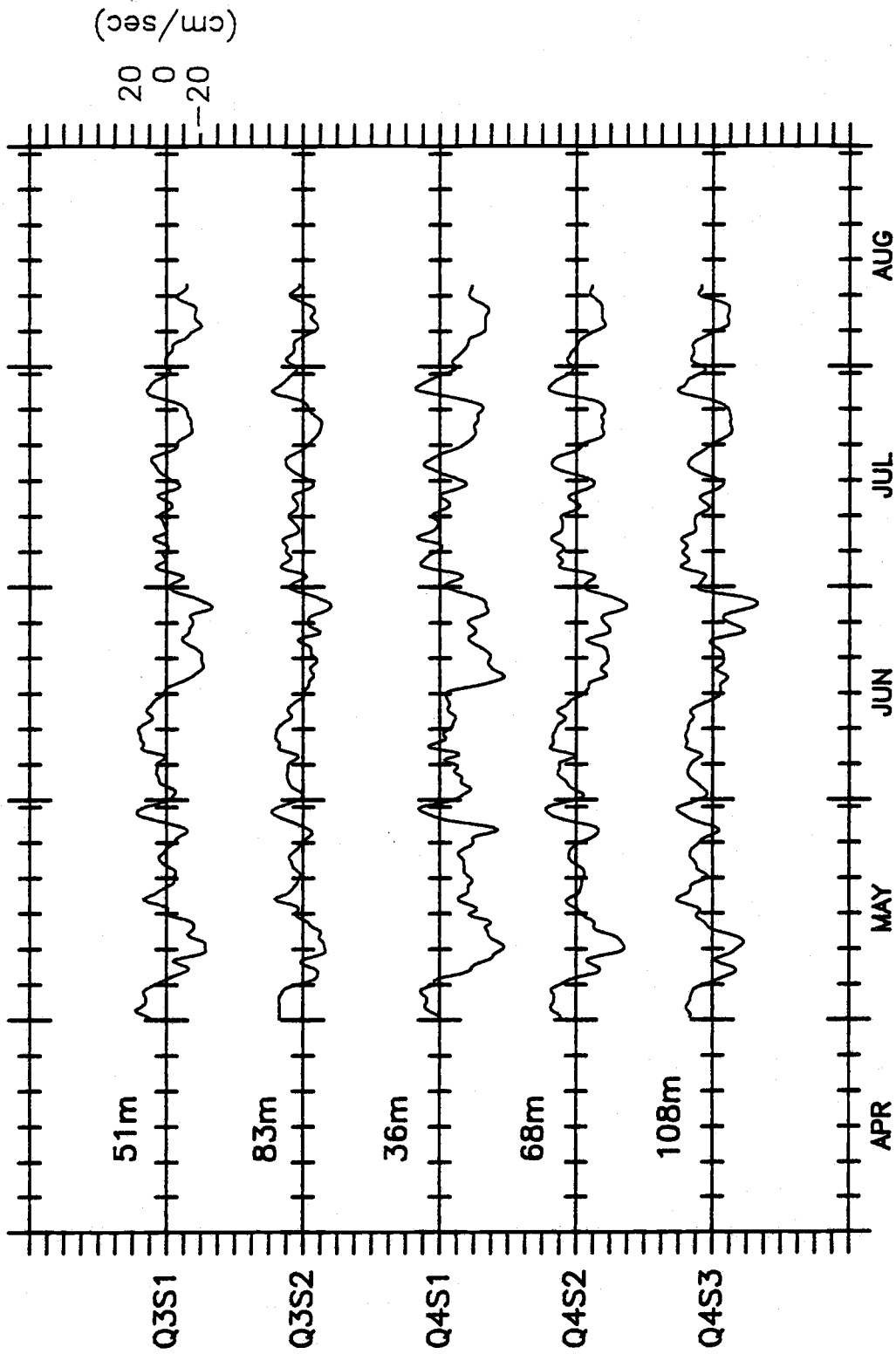
COOS BAY velocity





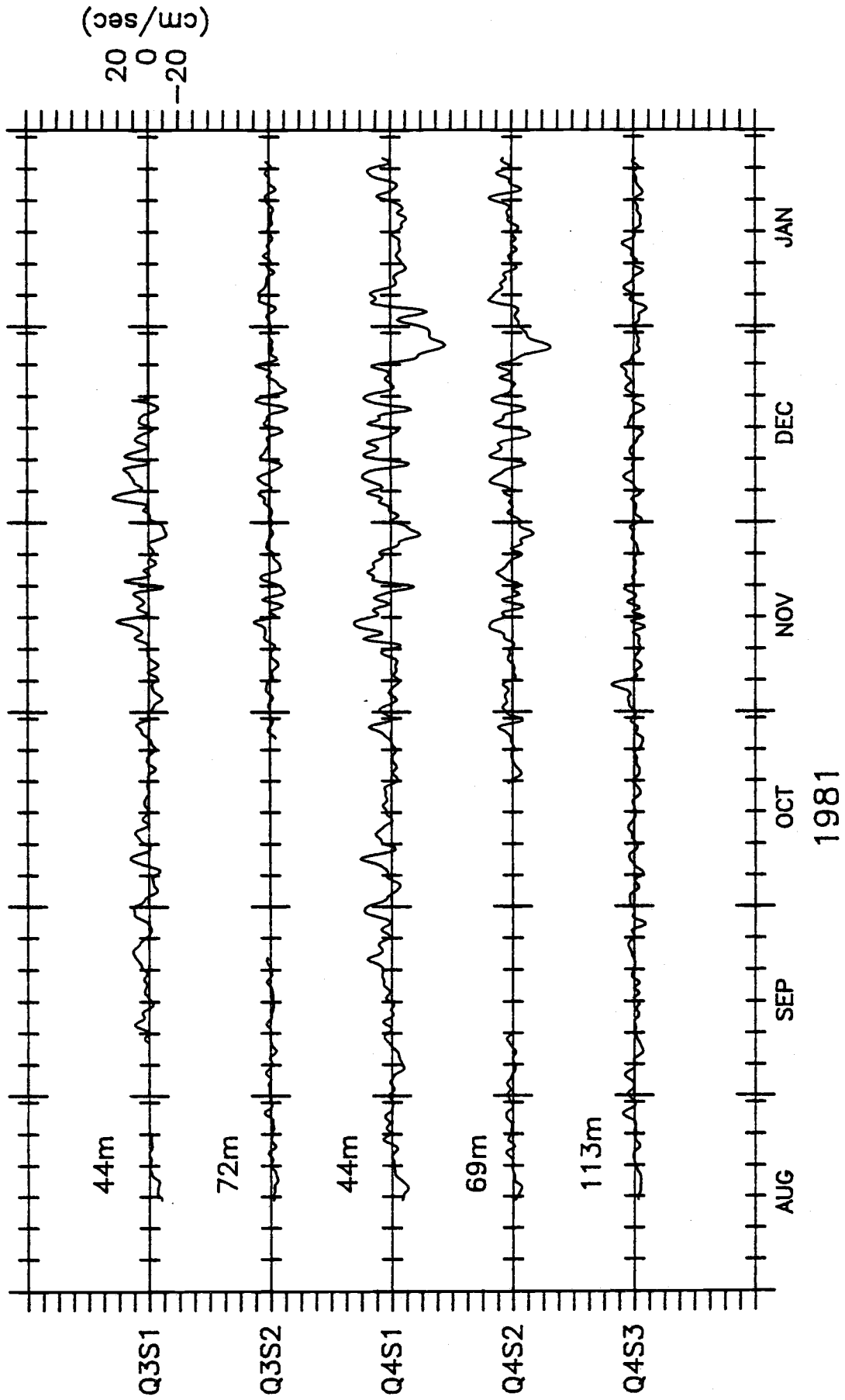
1981

COOS BAY U velocity

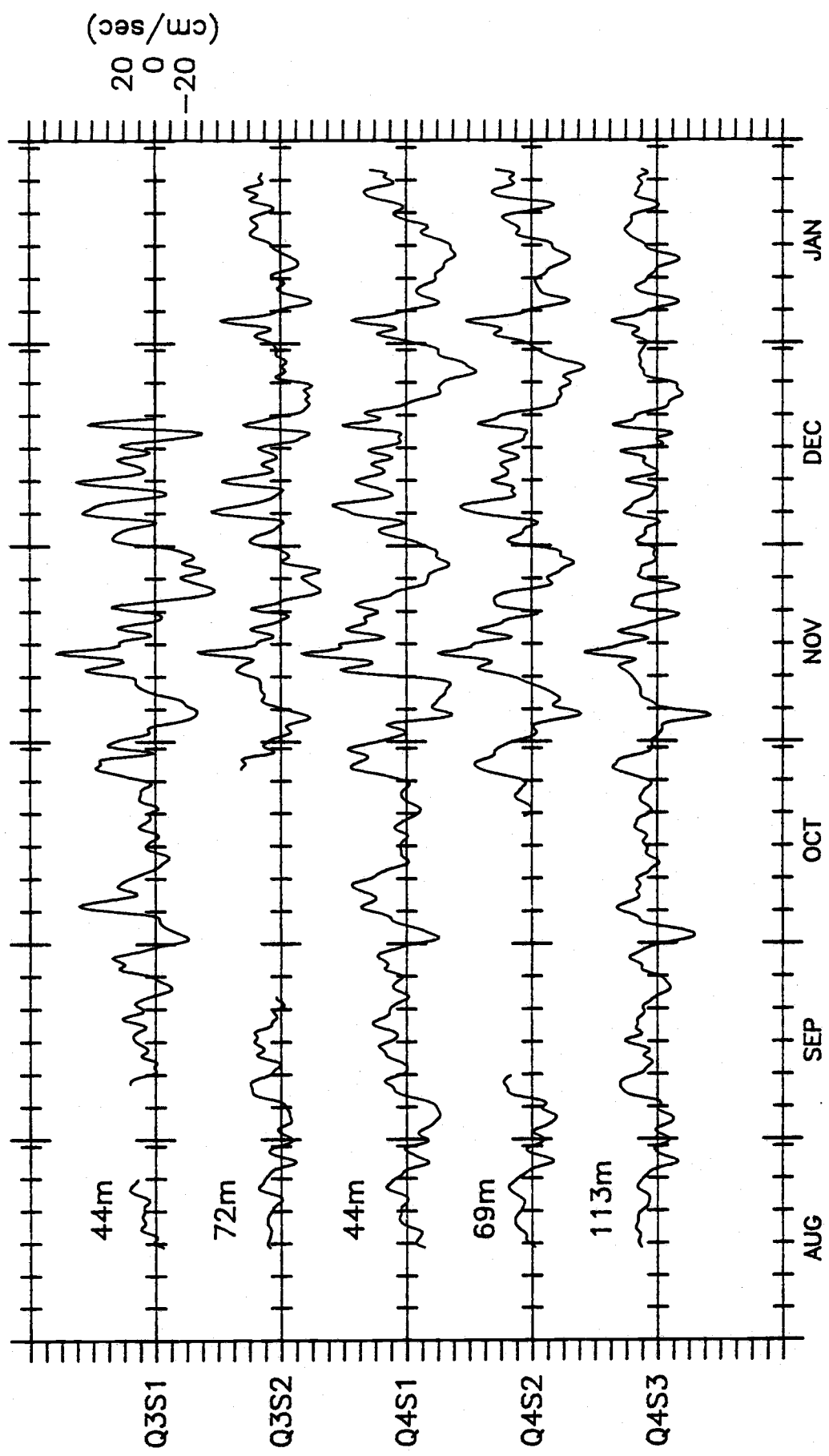


1981

COOS BAY V velocity

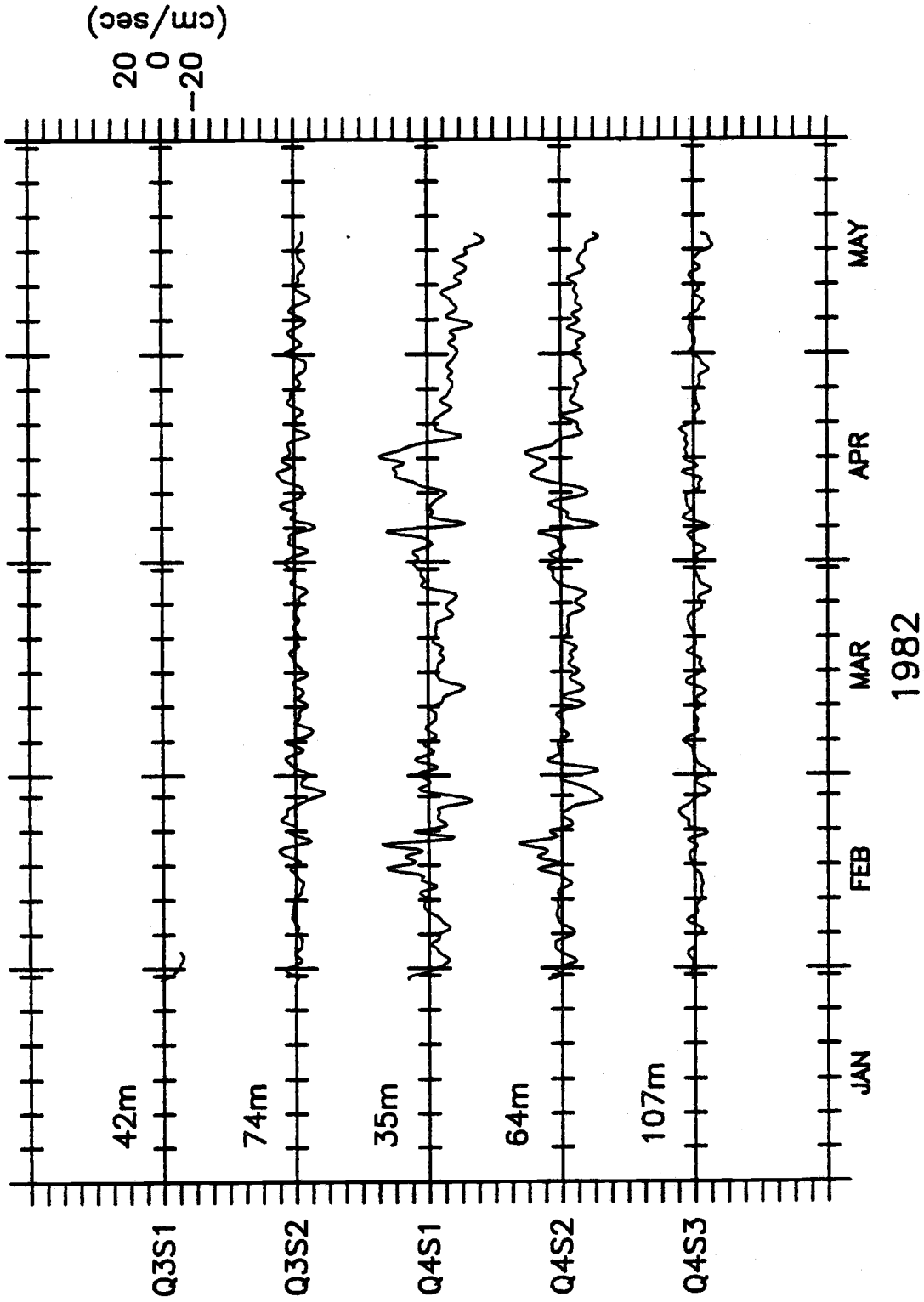


COOS BAY U velocity

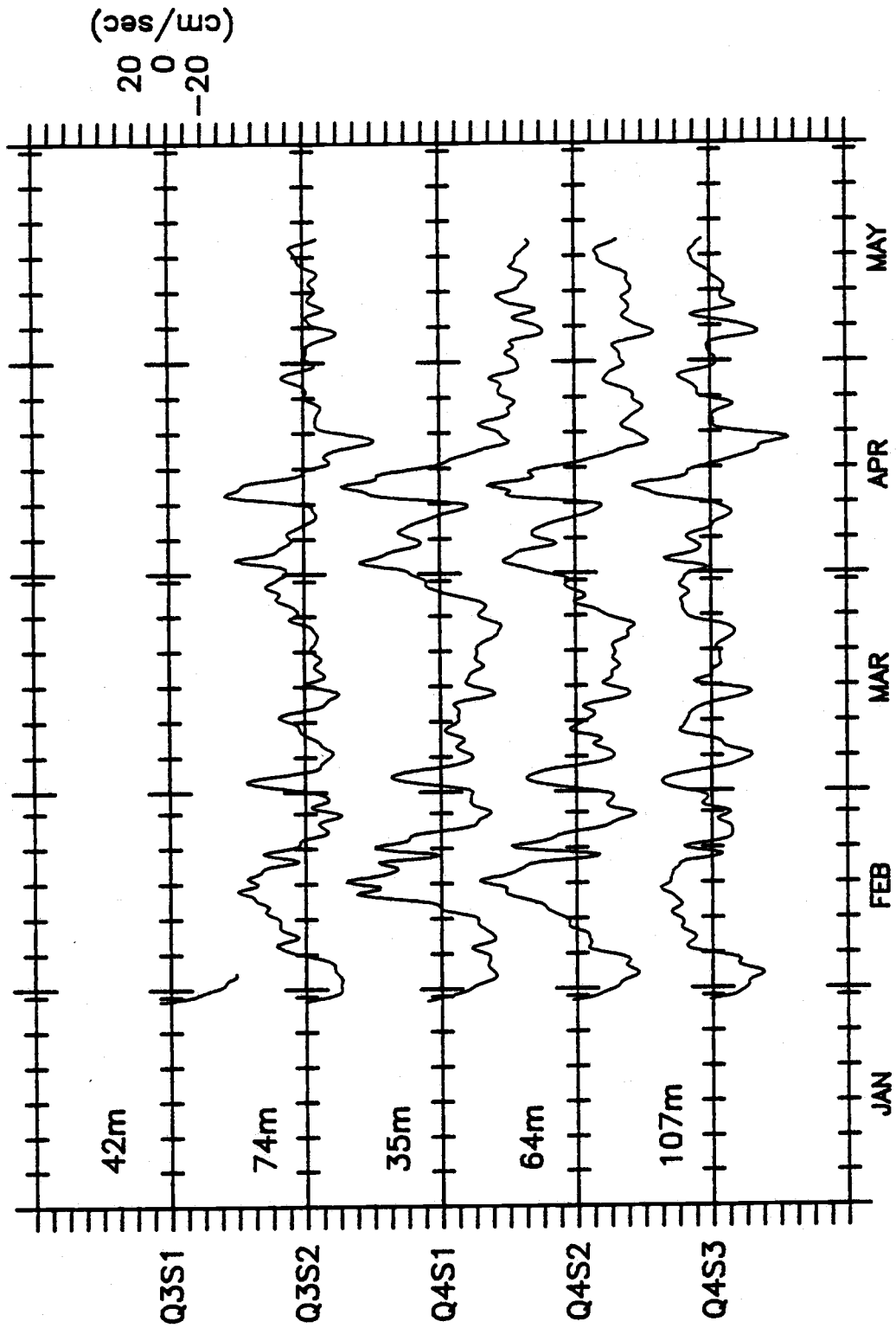


1981

COOS BAY V velocity



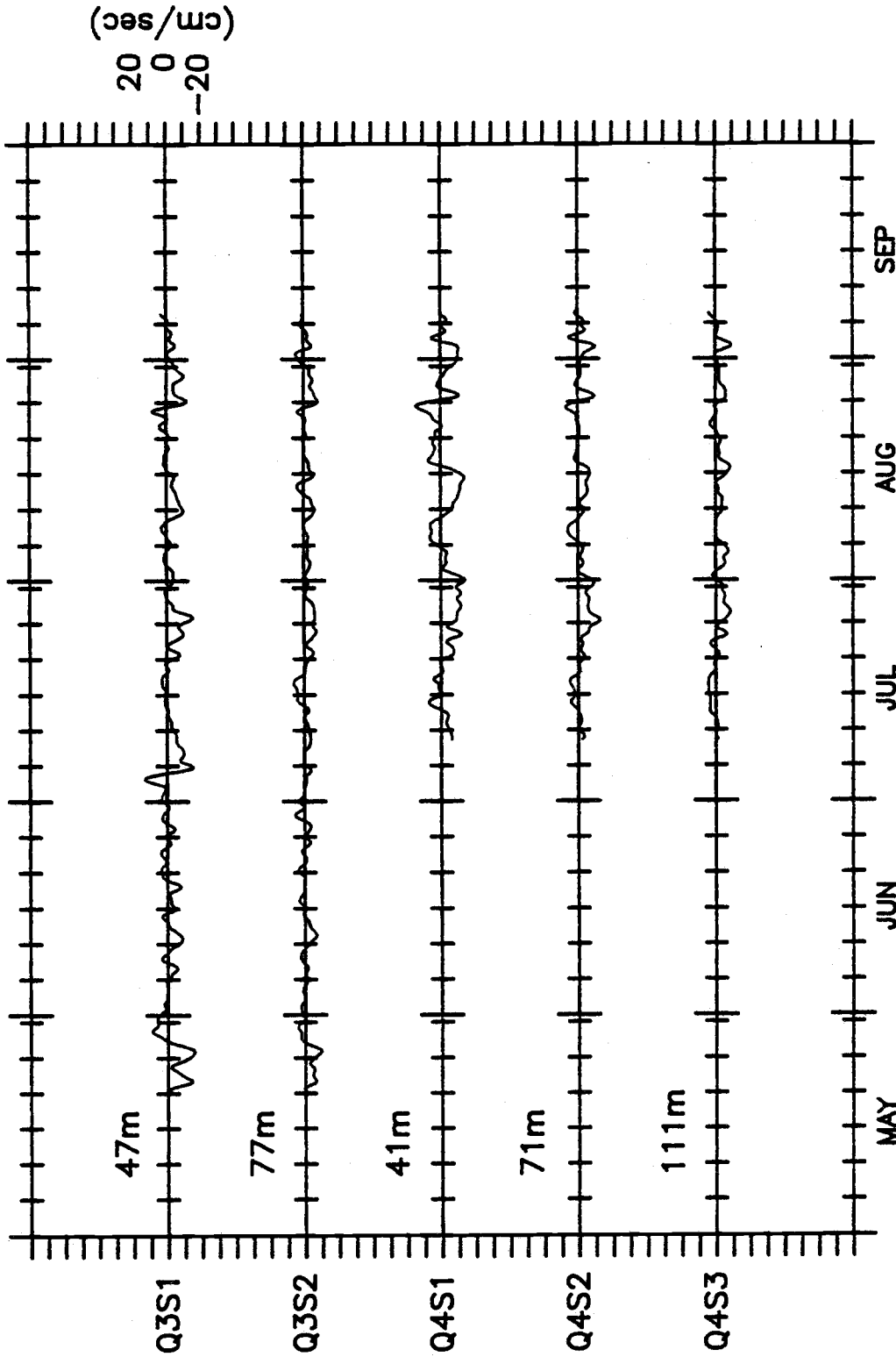
COOS BAY U velocity



1982

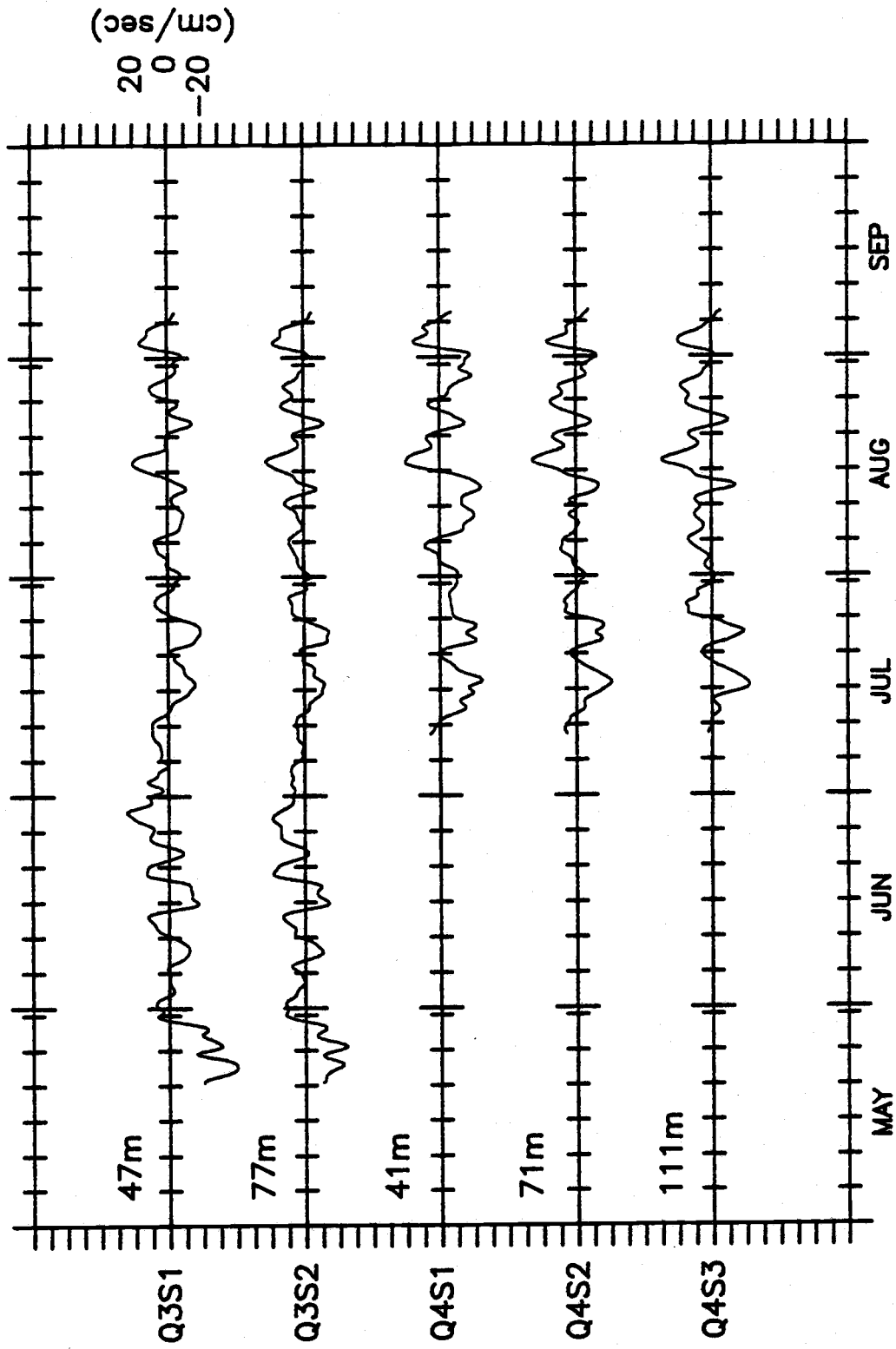
COOS BAY V velocity





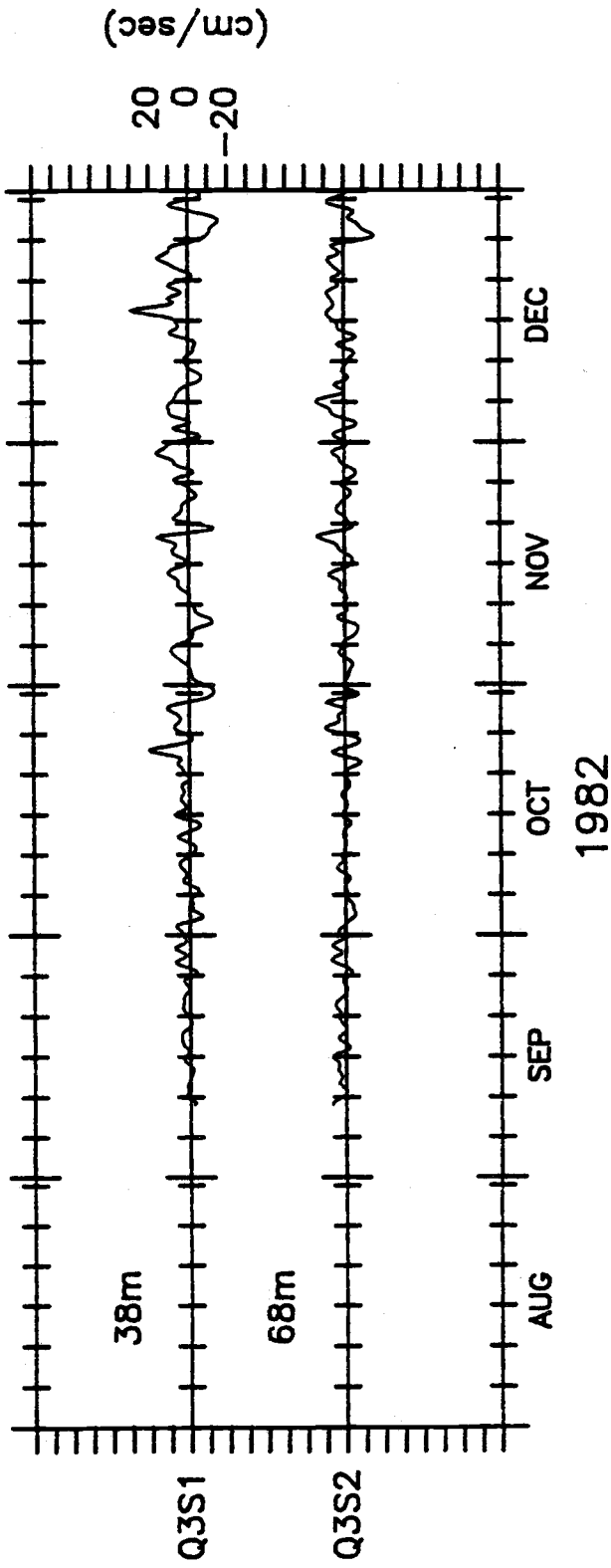
1982

COOS BAY U velocity

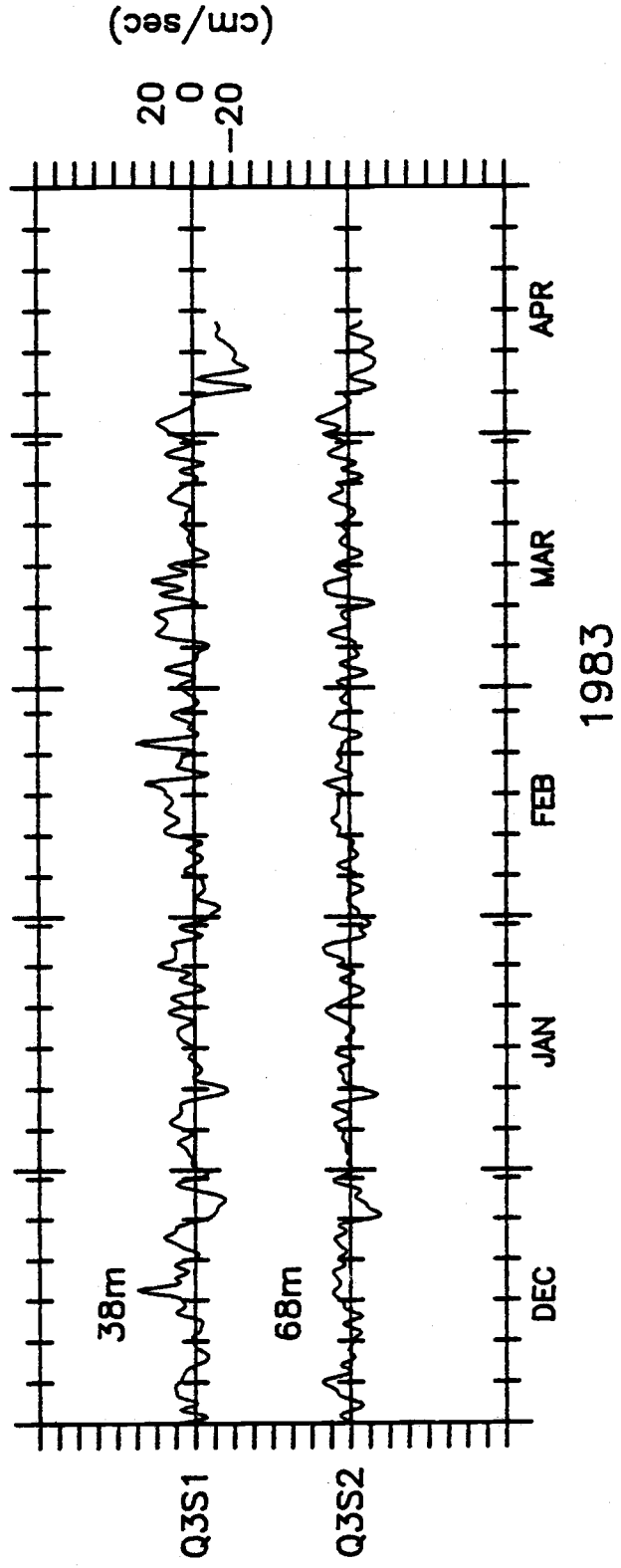


1982

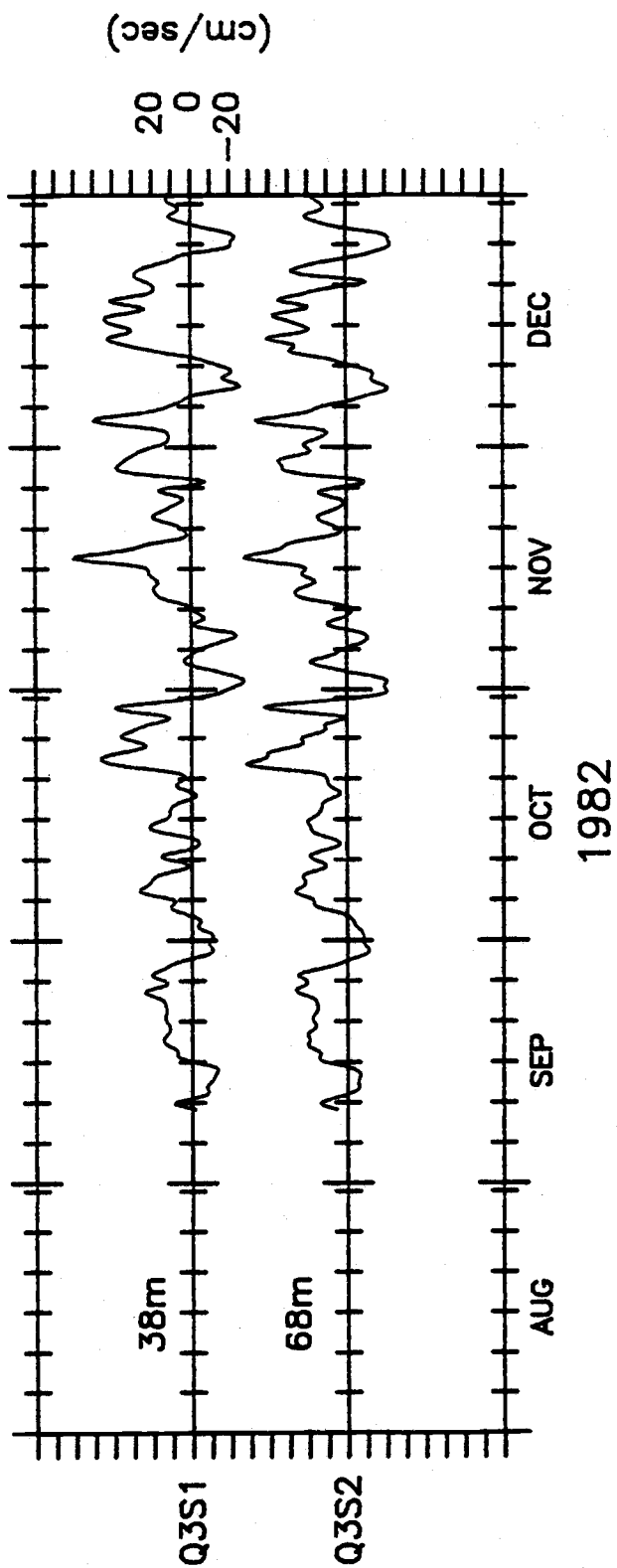
COOS BAY V velocity



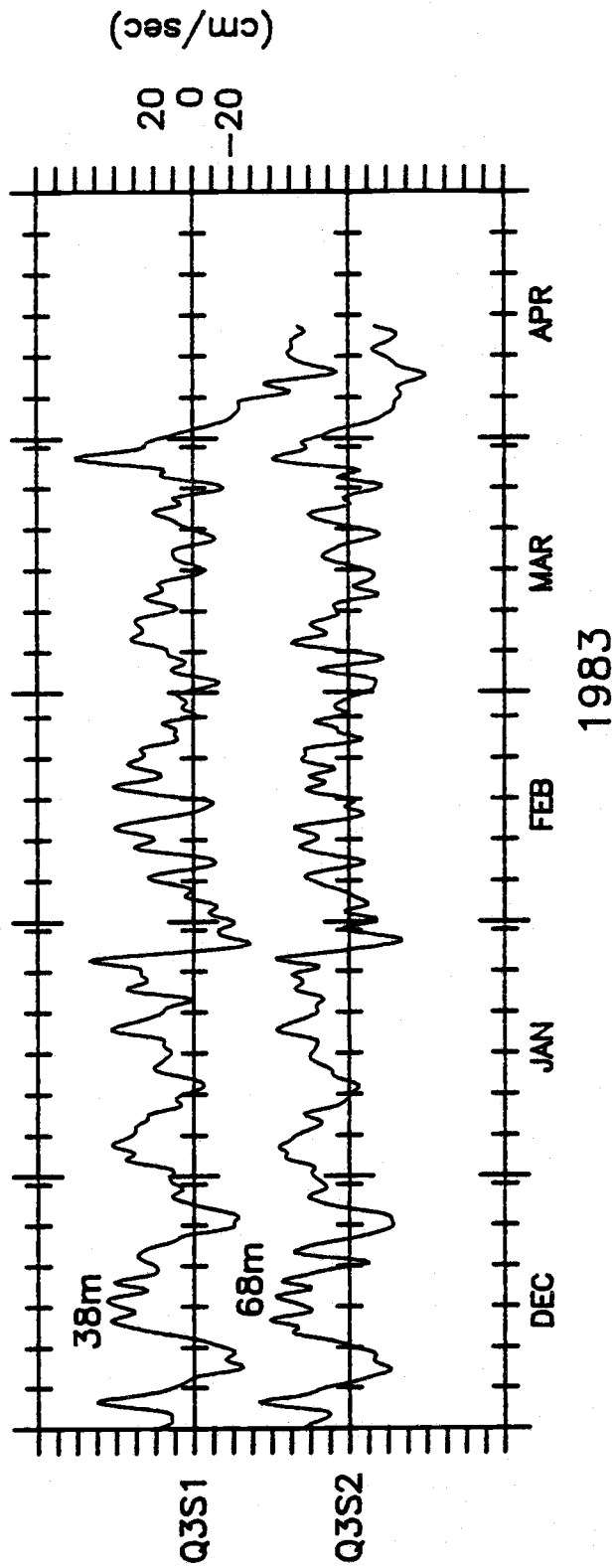
COOS BAY U velocity



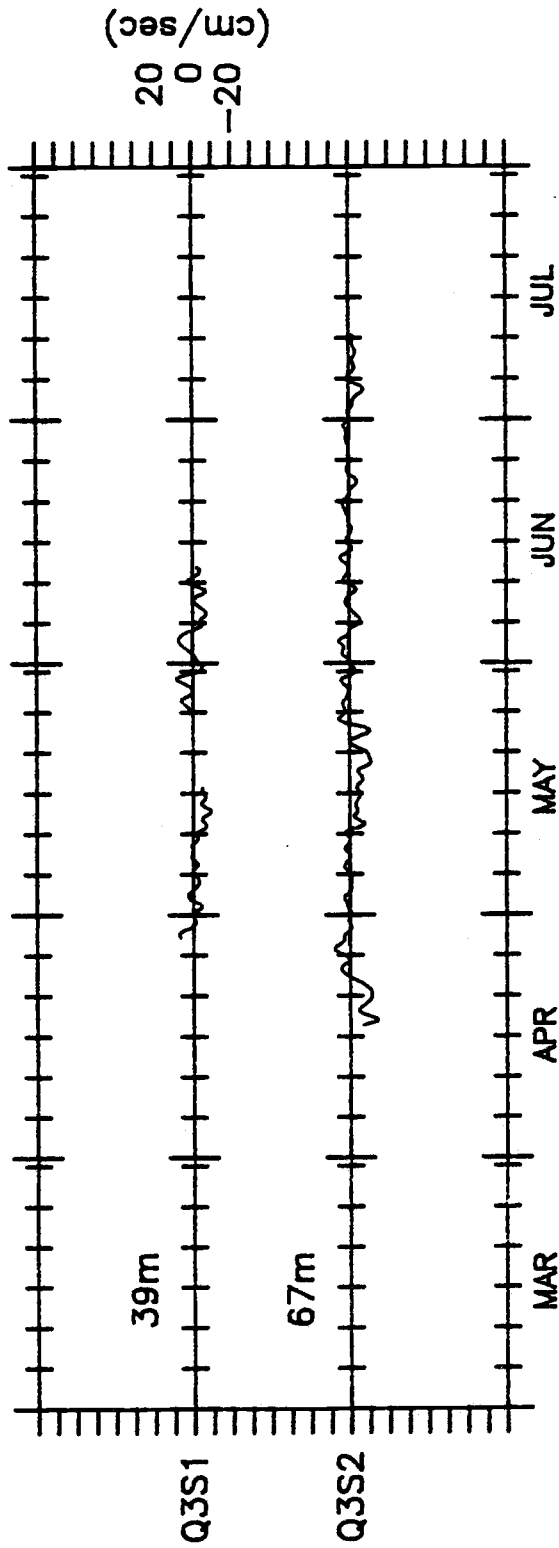
COOS BAY U velocity



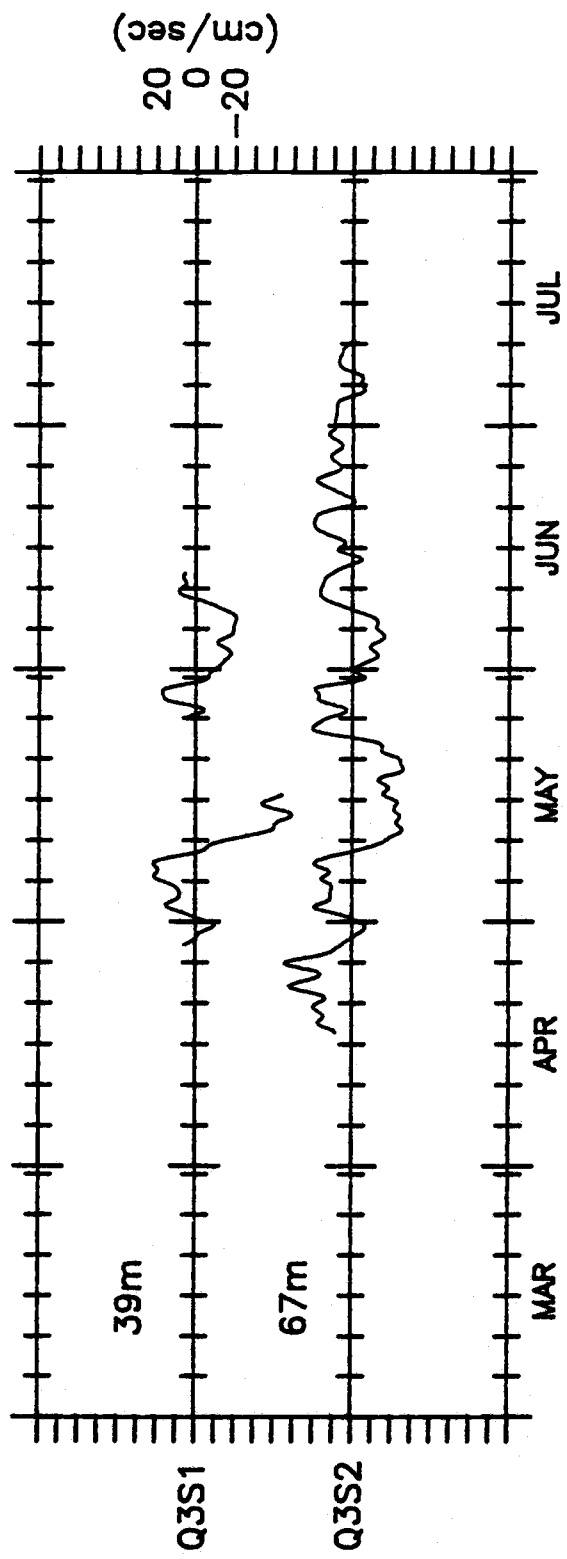
COOS BAY V velocity



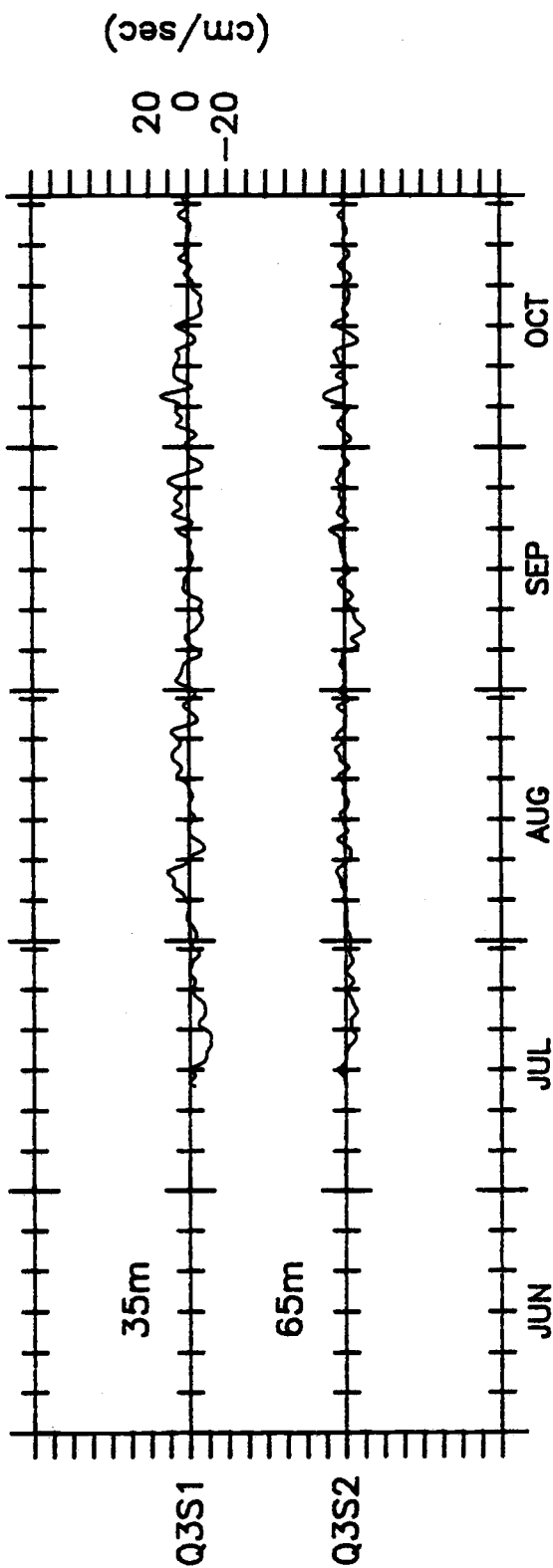
COOS BAY V velocity



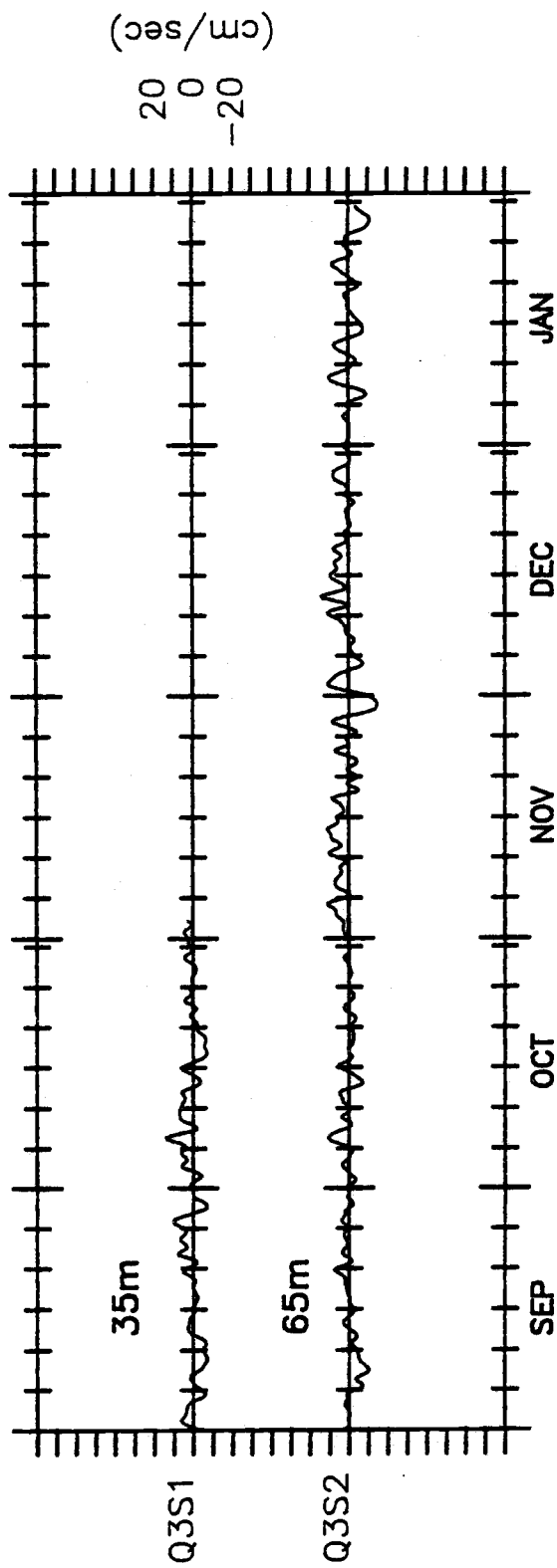
COOS BAY U velocity



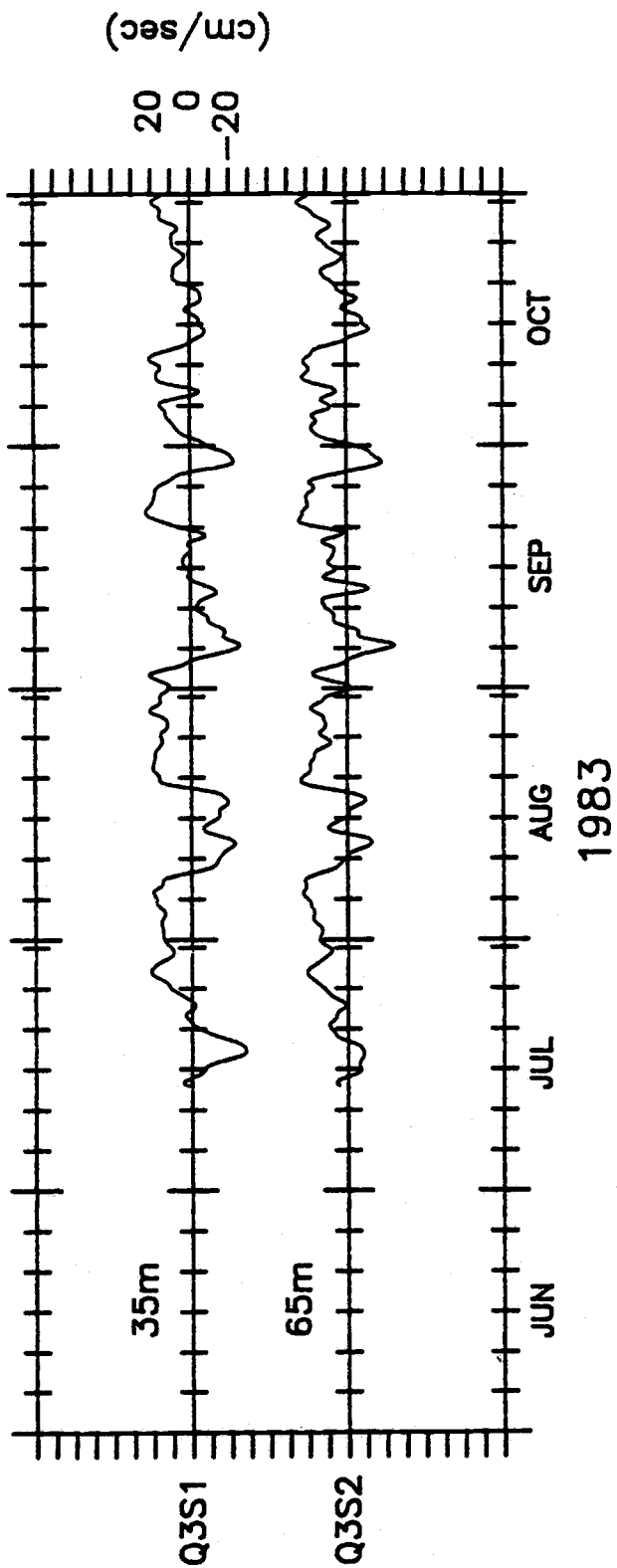
COOS BAY V velocity



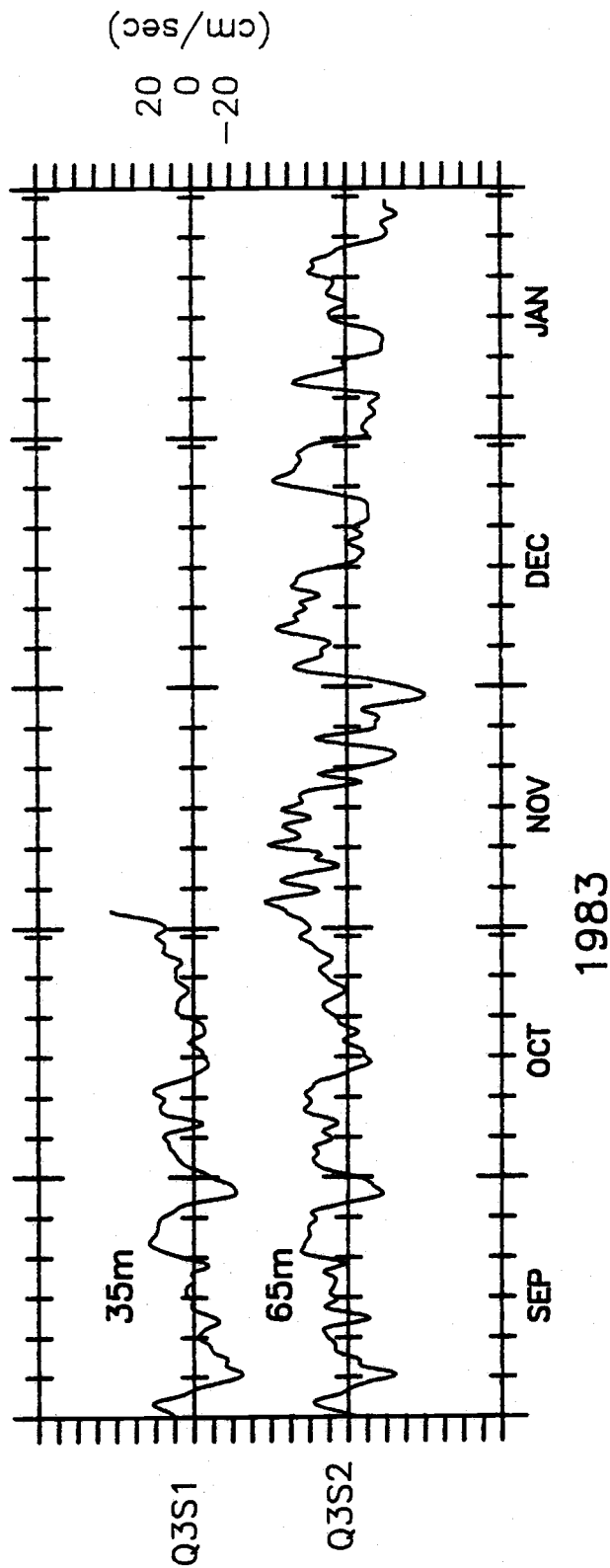
COOS BAY U velocity



COOS BAY U velocity

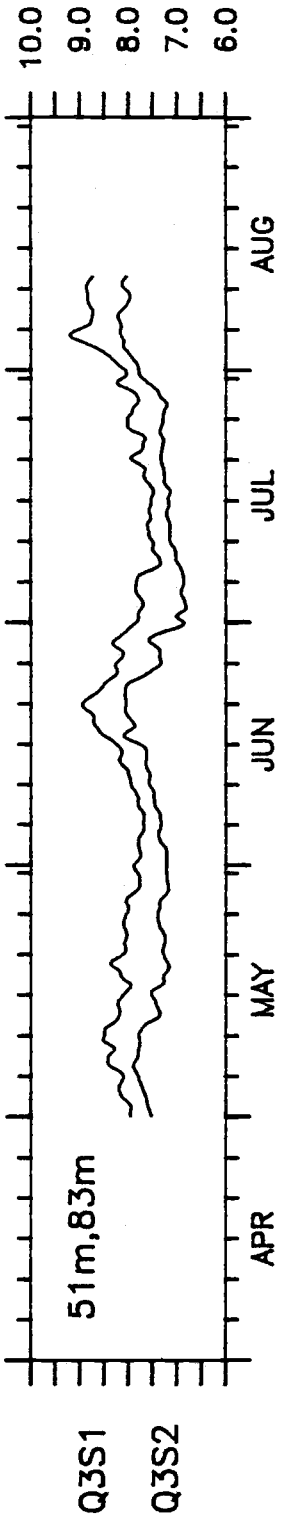


COOS BAY V velocity

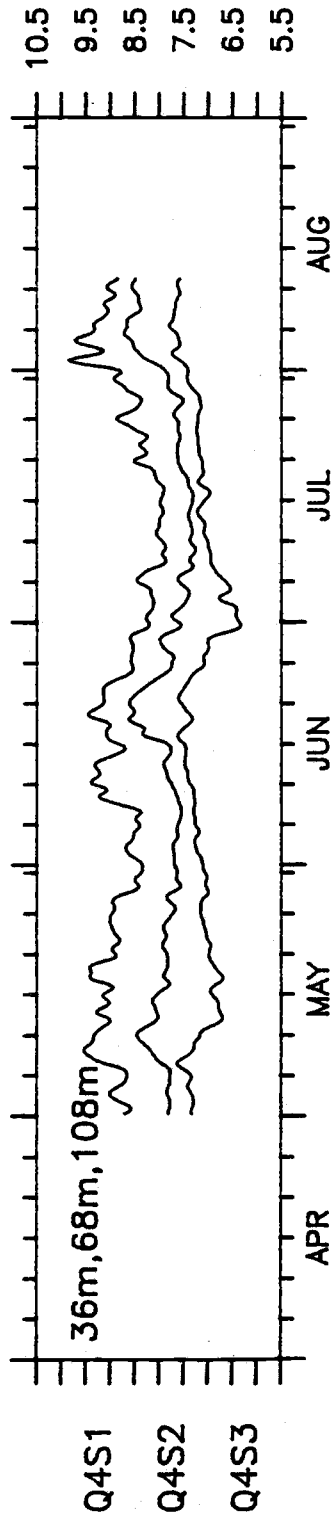


COOS BAY V velocity

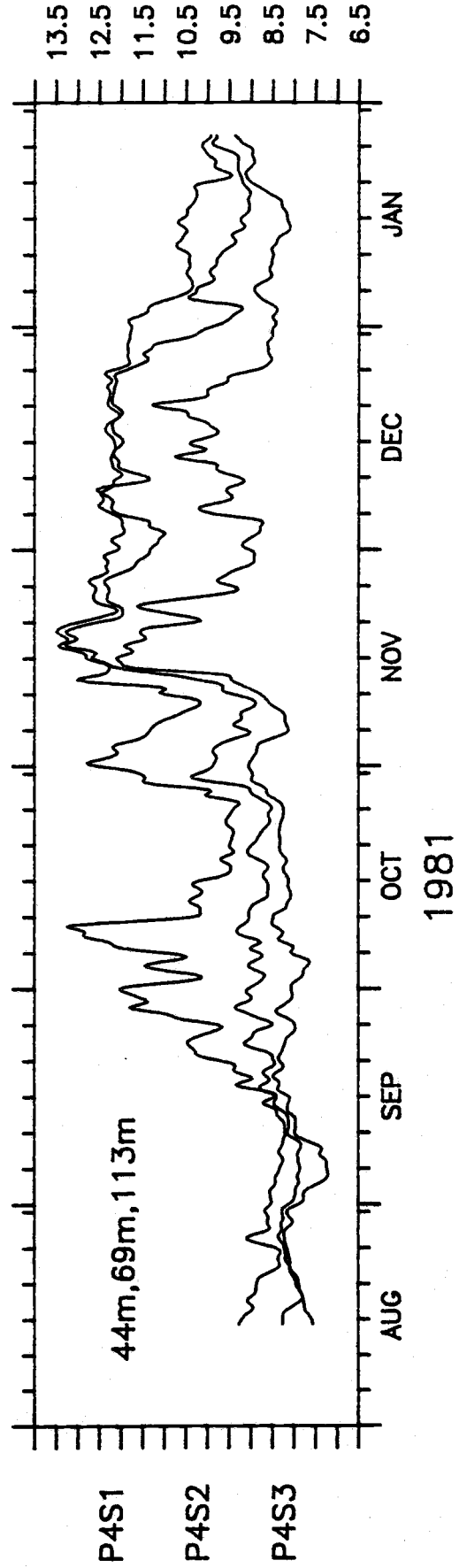
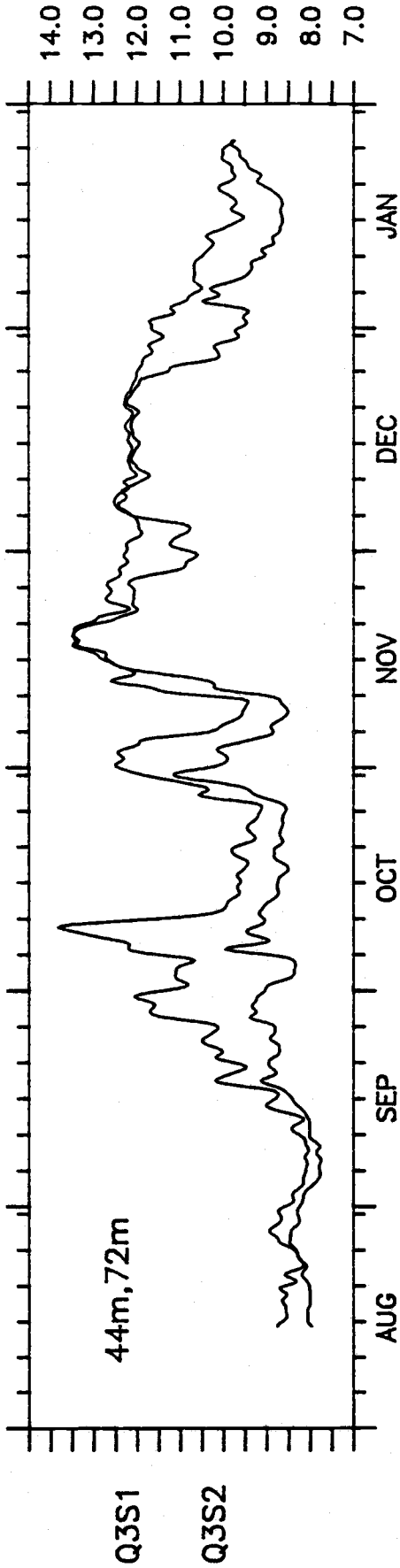


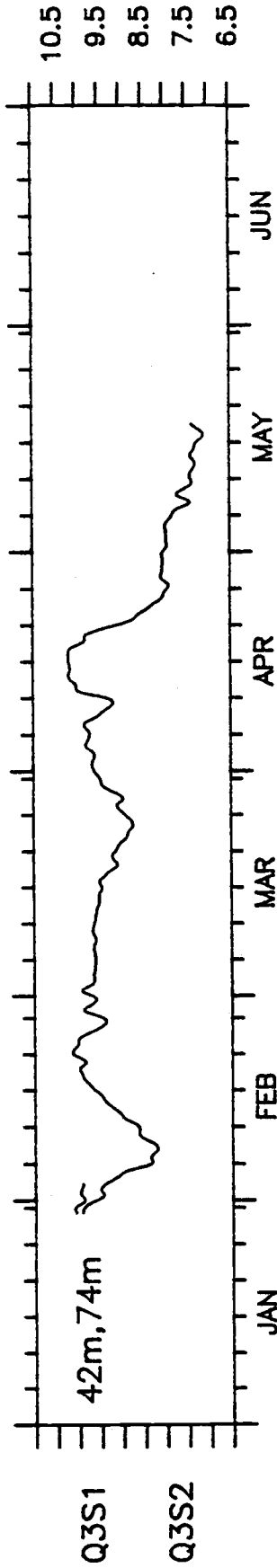


COOS BAY SHALLOW Temperature

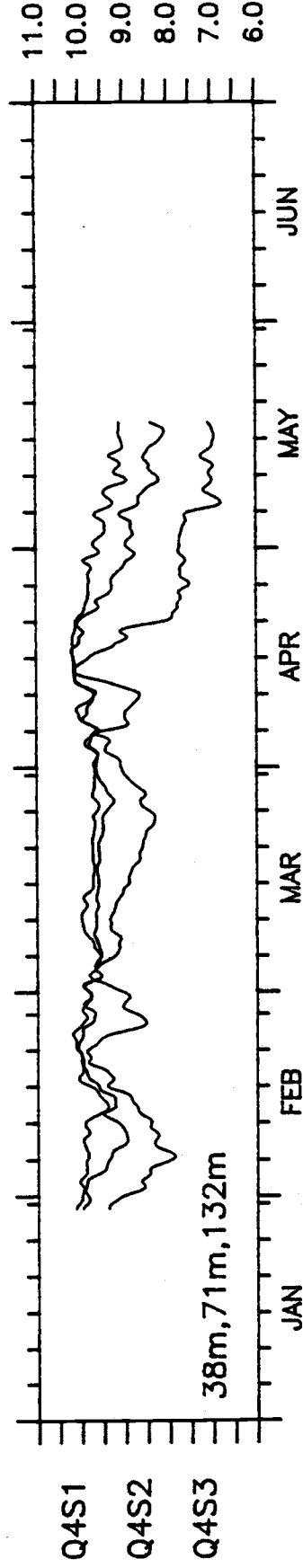


COOS BAY DEEP Temperature

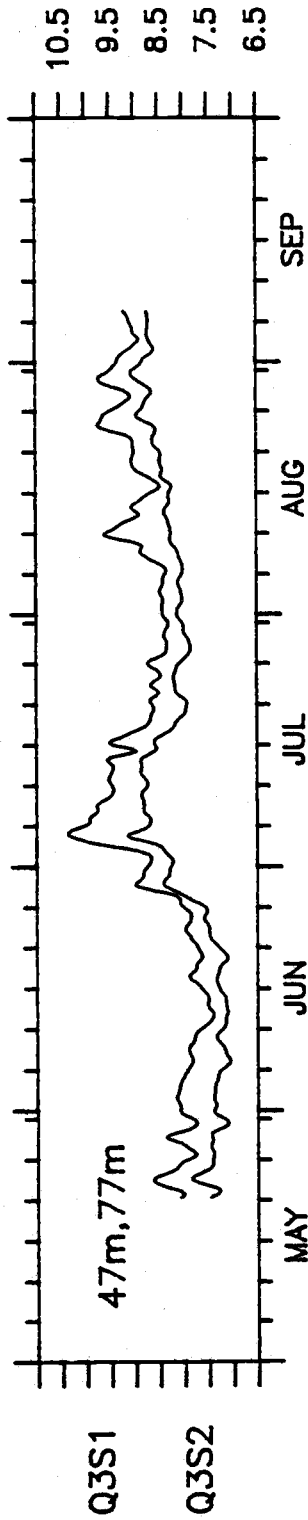




COOS BAY SHALLOW Temperature  
1982

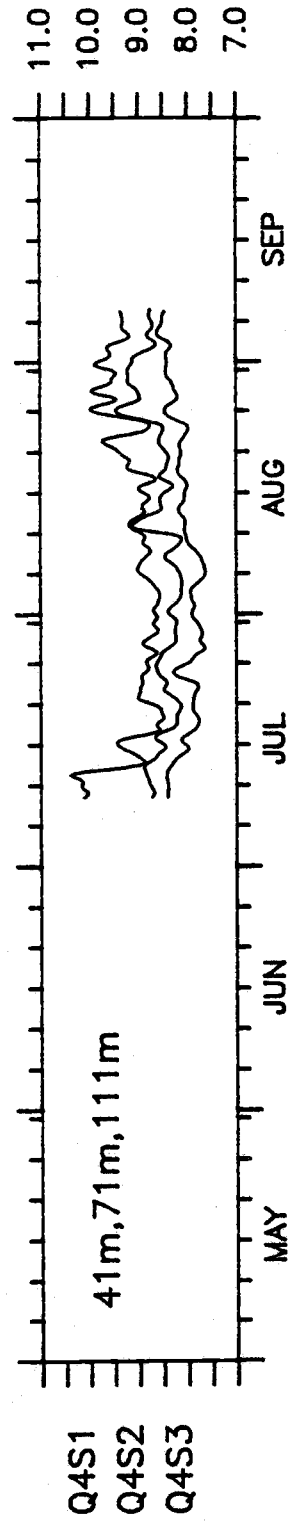


COOS BAY DEEP Temperature  
1982



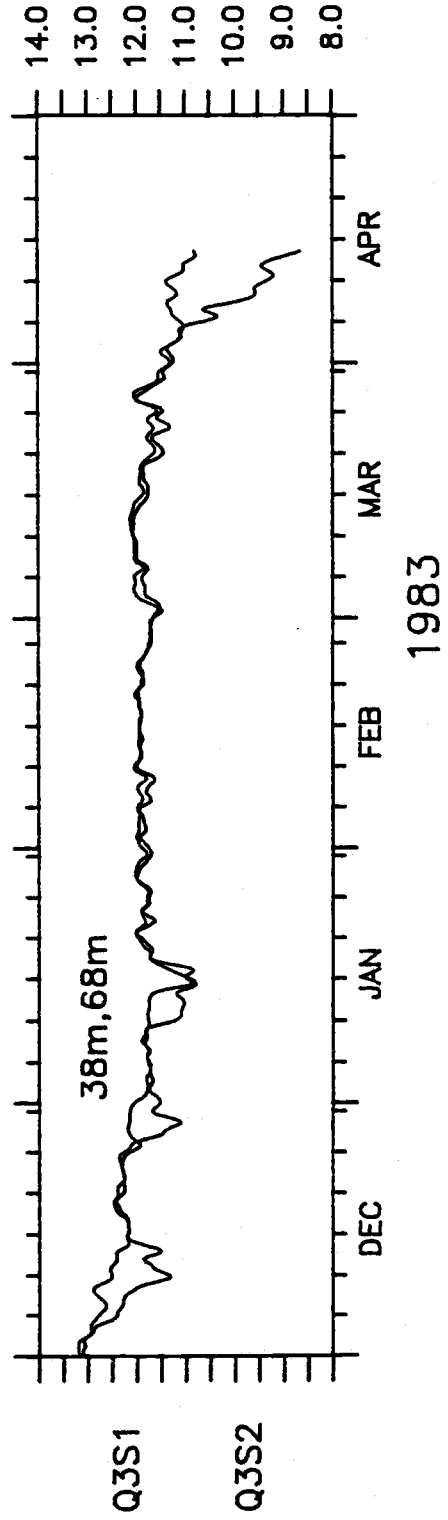
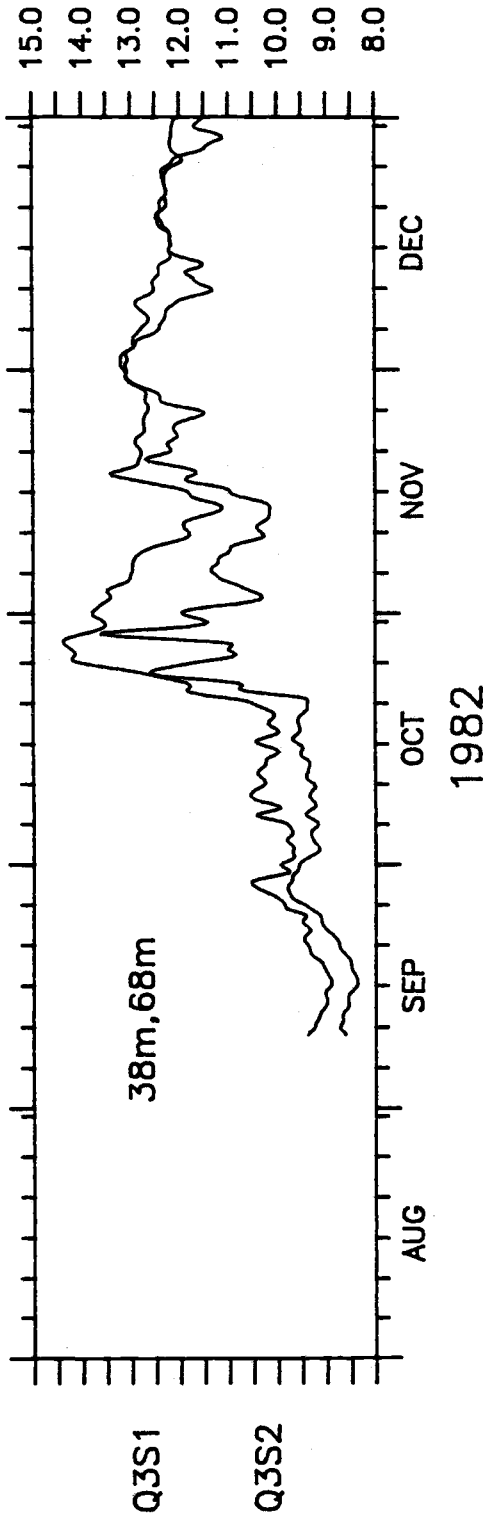
1982

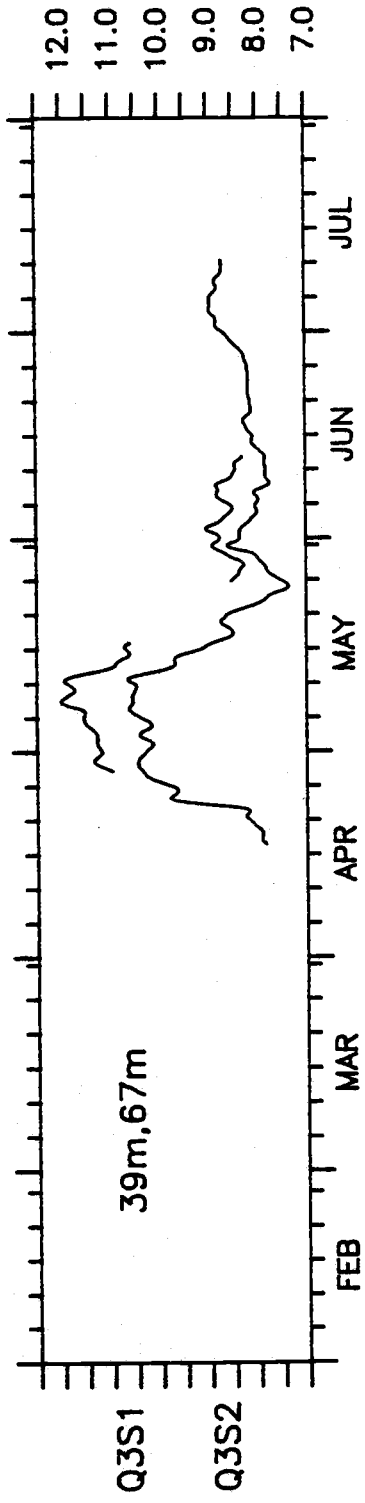
### COOS BAY SHALLOW Temperature



1982

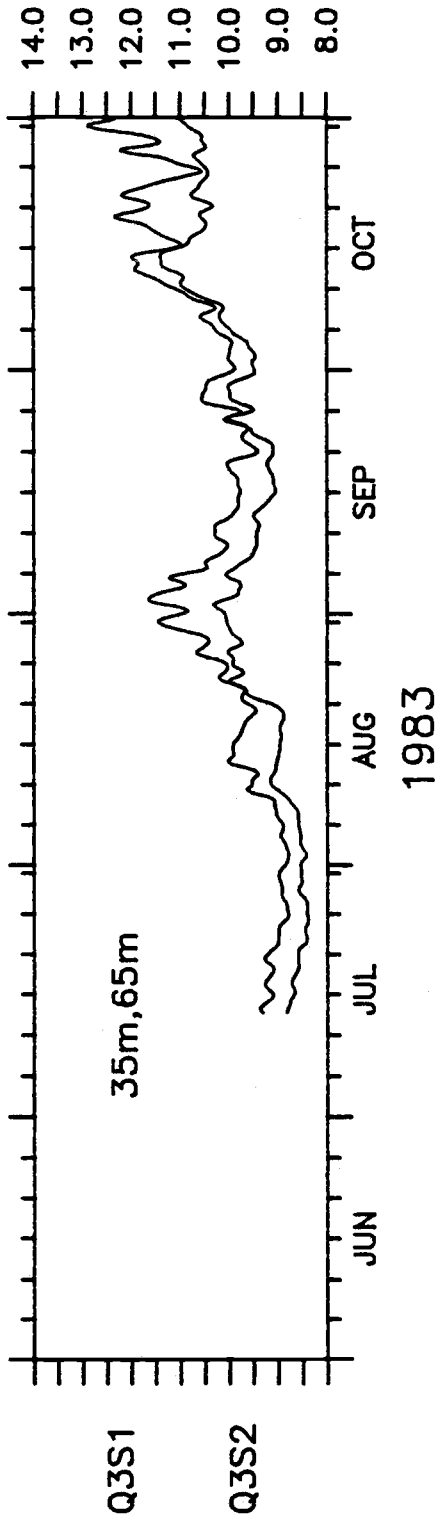
### COOS BAY DEEP Temperature



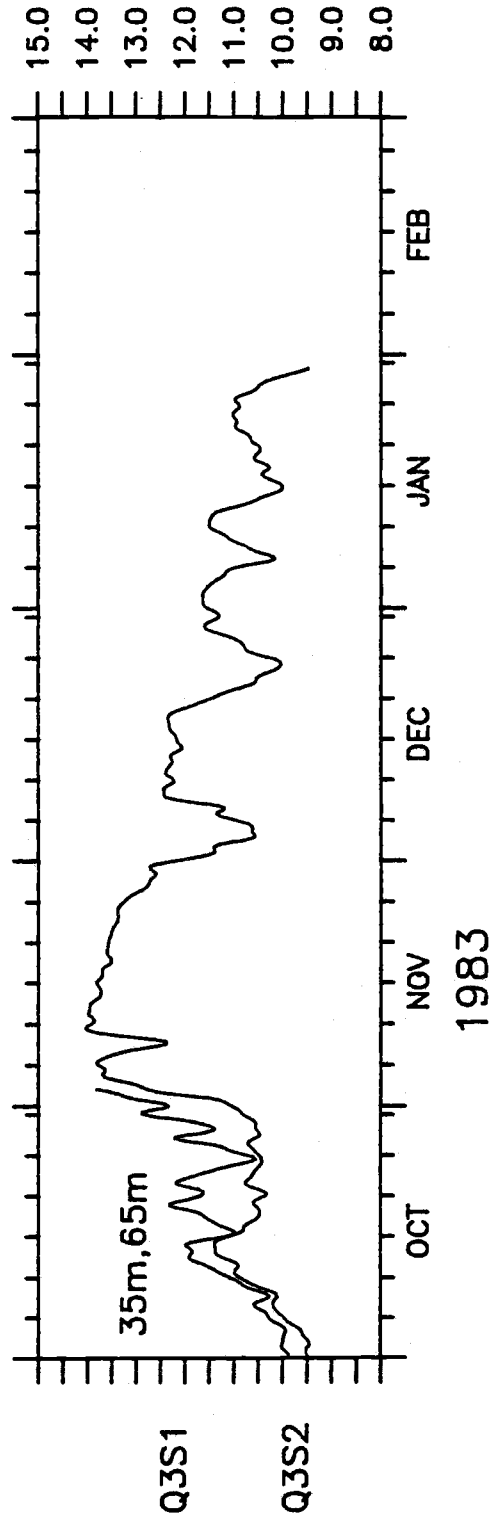


1983

COOS BAY SHALLOW Temperature



COOS BAY SHALLOW Temperature

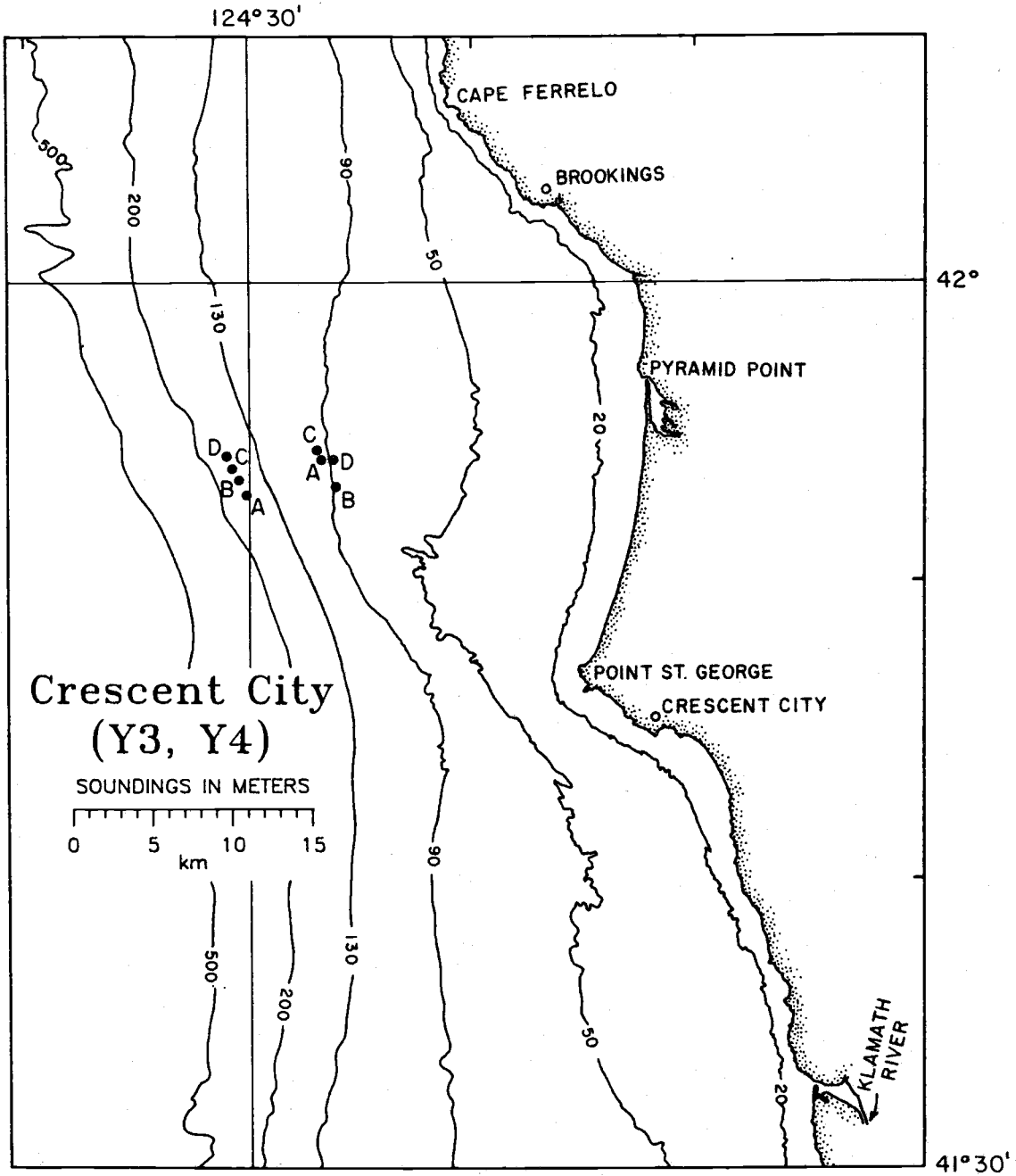


COOS BAY SHALLOW Temperature

CRESCENT CITY







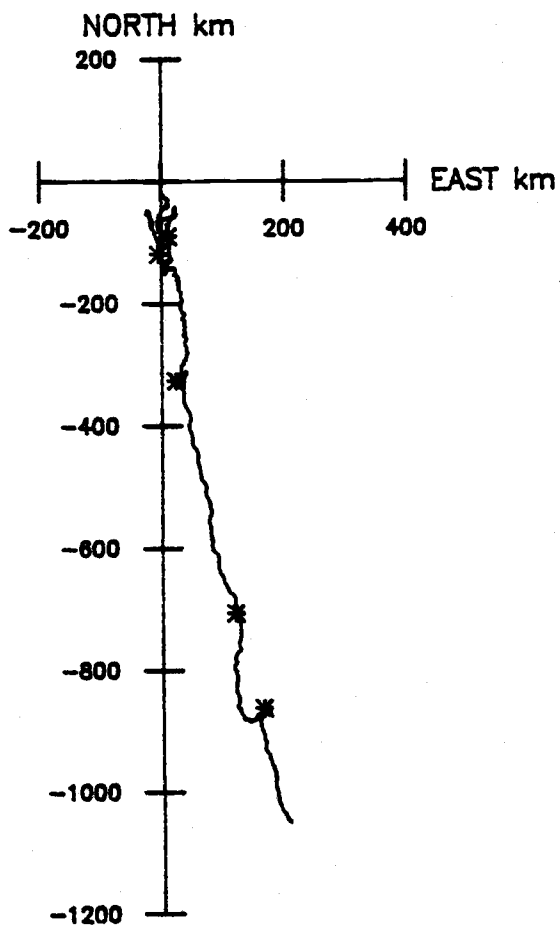
## SAMPLING INTERVAL = 60 MINUTES

STATION	START TIME	(GMT)		MIN	MAX	MEAN	STD	STOP TIME		
Y3S1	FEB 6,1981	0100	U	-39.4	45.4	2.8	14.1	MAY 1,1981	0800	
			V	-80.8	34.8	-14.4	21.3	MAY 1,1981	0800	
			T	7.8	12.9	10.8	1.3	MAY 1,1981	0800	
Y3S1	AUG 14,1981	2200	U	-27.7	45.8	2.4	10.2	NOV 3,1981	1100	
			V	-56.1	48.6	0.5	18.3	NOV 3,1981	1100	
			T	8.3	16.1	10.3	1.4	NOV 3,1981	1100	
Y3S1	JAN 30,1982	0400	U	-24.4	23.8	1.8	10.4	FEB 8,1982	1300	
			V	-36.4	46.8	-6.2	18.2	FEB 8,1982	1300	
			T	9.3	10.4	9.9	0.3	FEB 8,1982	1300	
Y3S2	FEB 6,1981	0100	U	-34.6	33.8	-0.2	10.3	MAY 1,1981	0800	
			V	-53.9	43.6	-2.2	16.8	MAY 1,1981	0800	
			T	6.8	12.5	9.2	1.3	MAY 1,1981	0800	
Y3S2	AUG 14,1981	2200	U	-29.4	27.4	0.3	7.6	NOV 3,1981	1100	
			V	-31.8	39.0	7.0	12.4	NOV 3,1981	1100	
			T	8.1	13.8	9.1	0.9	NOV 3,1981	1100	
Y3S2	JAN 30,1982	0500	U	-20.8	24.1	1.5	10.7	FEB 8,1982	1300	
			V	-36.8	48.3	-0.3	18.9	FEB 8,1982	1300	
			T	8.3	10.4	9.4	0.5	FEB 8,1982	1300	
Y4S1	FEB 6,1981	0400	U	-44.7	36.6	2.8	14.1	APR 9,1981	1100	
			V	-86.5	36.4	-19.9	22.4	APR 9,1981	1100	
			T	9.4	12.9	11.7	0.6	APR 9,1981	1100	
Y4S1	MAY 2,1981	0300	U	-32.7	38.1	3.4	14.6	MAY 22,1981	1700	
			V	-54.4	24.1	-9.4	16.8	MAY 22,1981	1700	
			T	7.5	10.9	8.9	1.0	MAY 22,1981	1700	
Y4S1	AUG 15,1981	0000	U	-20.7	17.1	-2.6	7.9	AUG 30,1981	1300	
			V	-16.9	32.3	11.2	9.7	AUG 30,1981	1300	
			T	8.5	11.9	9.6	0.5	AUG 30,1981	1300	
Y4S1	JAN 30,1982	0300	U	-28.3	33.1	-0.6	10.8	MAR 7,1982	1200	
			V	-44.4	60.6	6.0	21.7	MAR 7,1982	1200	
			T	9.2	11.0	10.2	0.4	MAR 7,1982	1200	
Y4S2	MAY 2,1981	0300	U	-24.1	28.9	2.0	9.3	MAY 22,1981	1700	
			V	-37.1	27.1	-1.6	13.7	MAY 22,1981	1700	
			T	7.1	9.6	8.0	0.6	MAY 22,1981	1700	
Y4S2	AUG 15,1981	0000	U	-15.5	15.6	-3.7	6.3	AUG 30,1981	1300	
			V	-14.8	35.4	11.2	10.6	AUG 30,1981	1300	
			T	8.0	9.6	8.5	0.2	AUG 30,1981	1300	

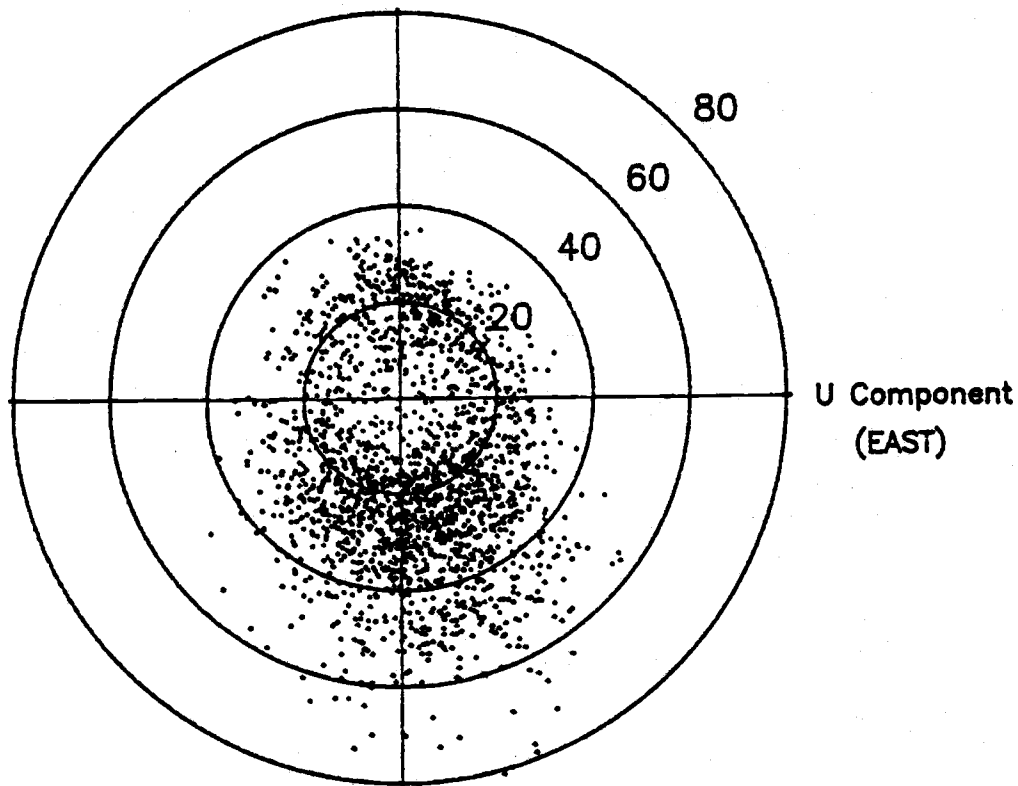
## SAMPLING INTERVAL = 60 MINUTES

STATION	START TIME (GMT)		MIN	MAX	MEAN	STD	STOP TIME	
Y4S2	JAN 30,1982 0200	U	-37.2	25.4	-0.8	10.2	MAR 7,1982	1200
		V	-31.8	63.4	6.9	22.5	MAR 7,1982	1200
		T	7.7	10.8	9.5	0.8	MAY 20,1982	1100
Y4S3	AUG 15,1981 0000	U	-23.6	13.6	-3.3	7.7	AUG 30,1981	1300
		V	-25.8	34.0	7.2	11.5	AUG 30,1981	1300
		T	7.6	8.5	8.1	0.2	AUG 30,1981	1300
Y4S3	JAN 30,1982 0200	U	-35.9	26.5	-1.3	9.7	MAY 20,1982	1100
		V	-40.2	51.9	4.1	16.0	MAY 20,1982	1100
		T	6.8	10.3	8.4	0.7	MAY 20,1982	1100



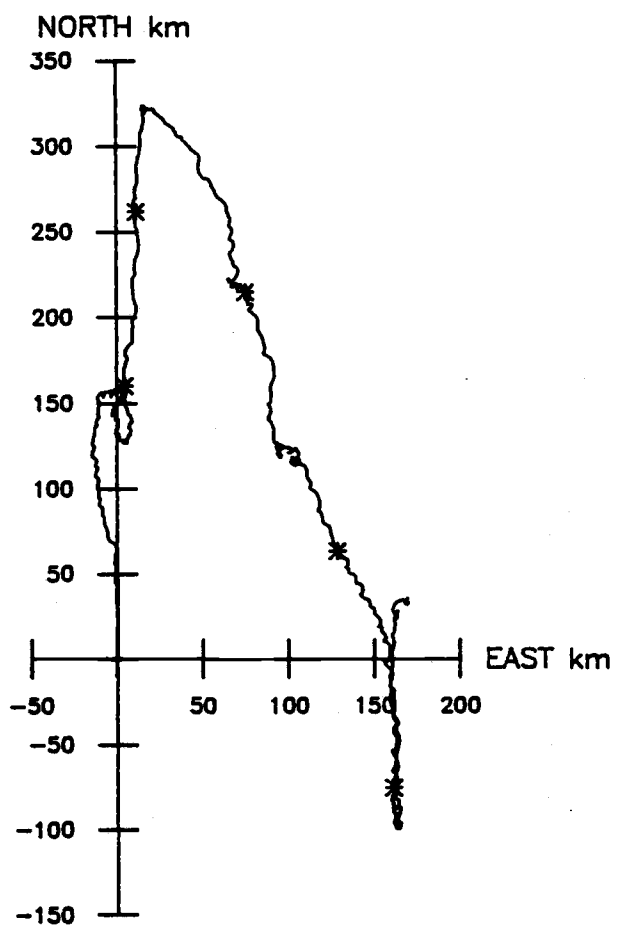


V Component  
(NORTH)

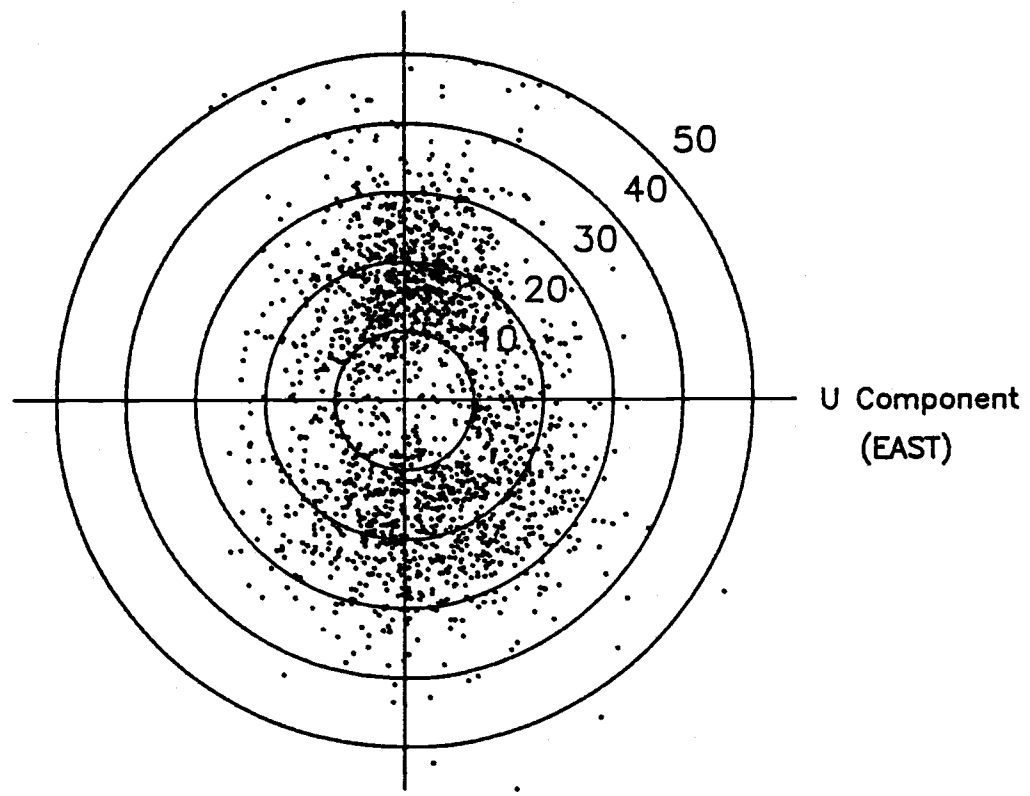


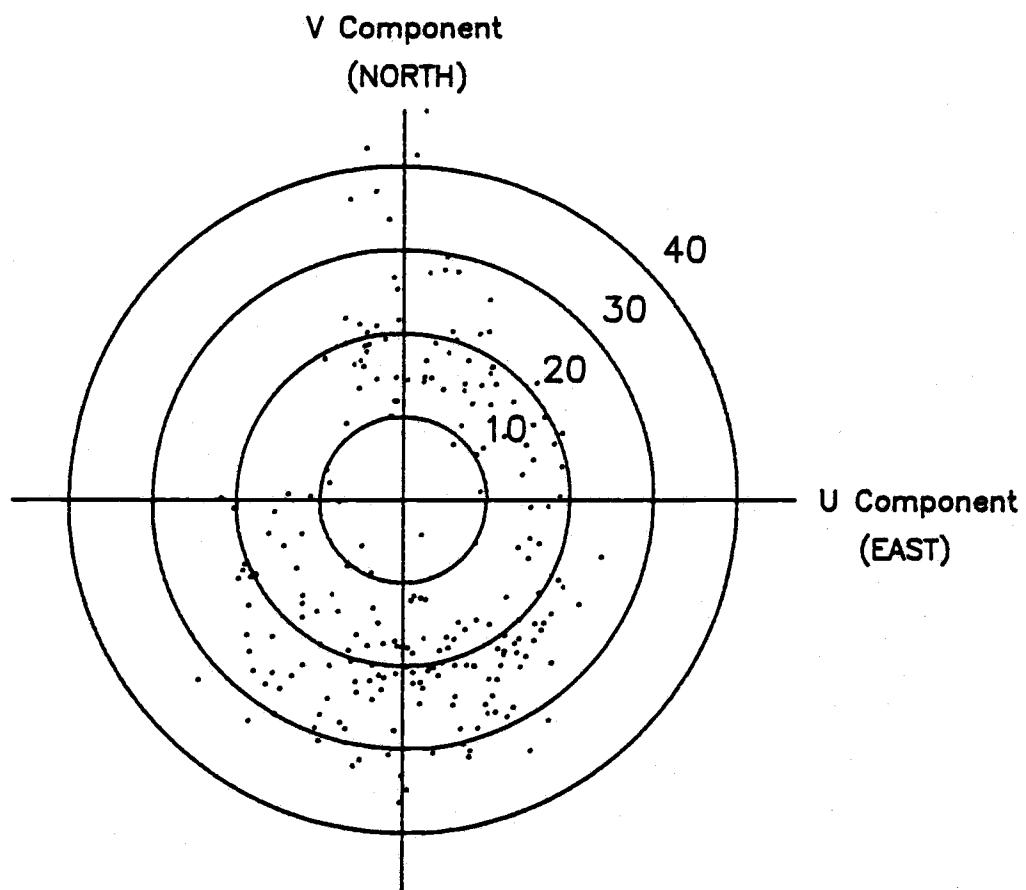
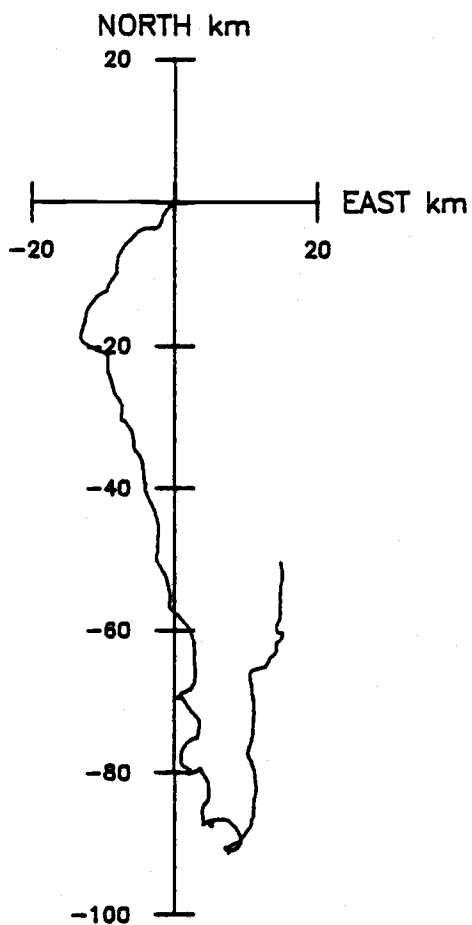
Y3S1

FEB 6, 1981 0100 - MAY 1, 1981 0800



V Component  
(NORTH)

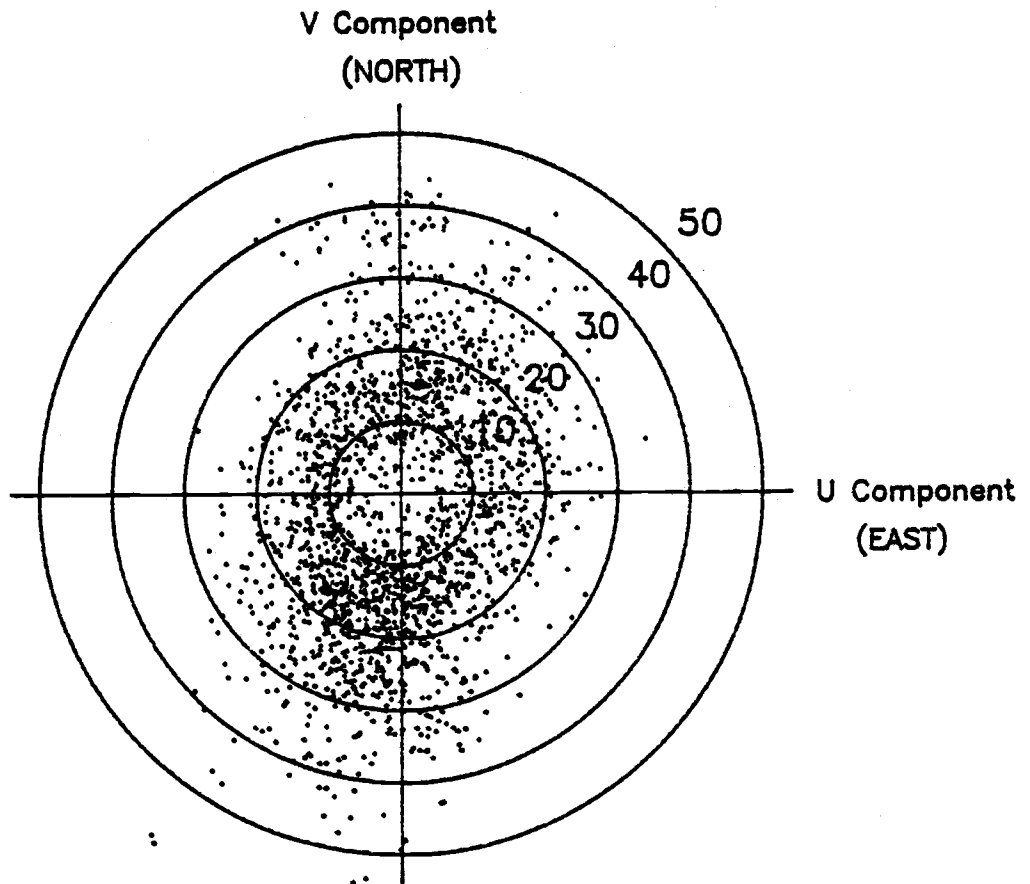
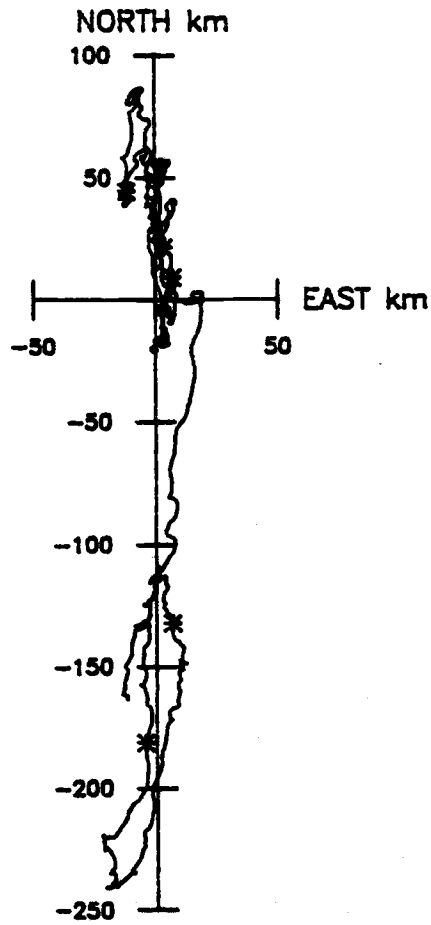


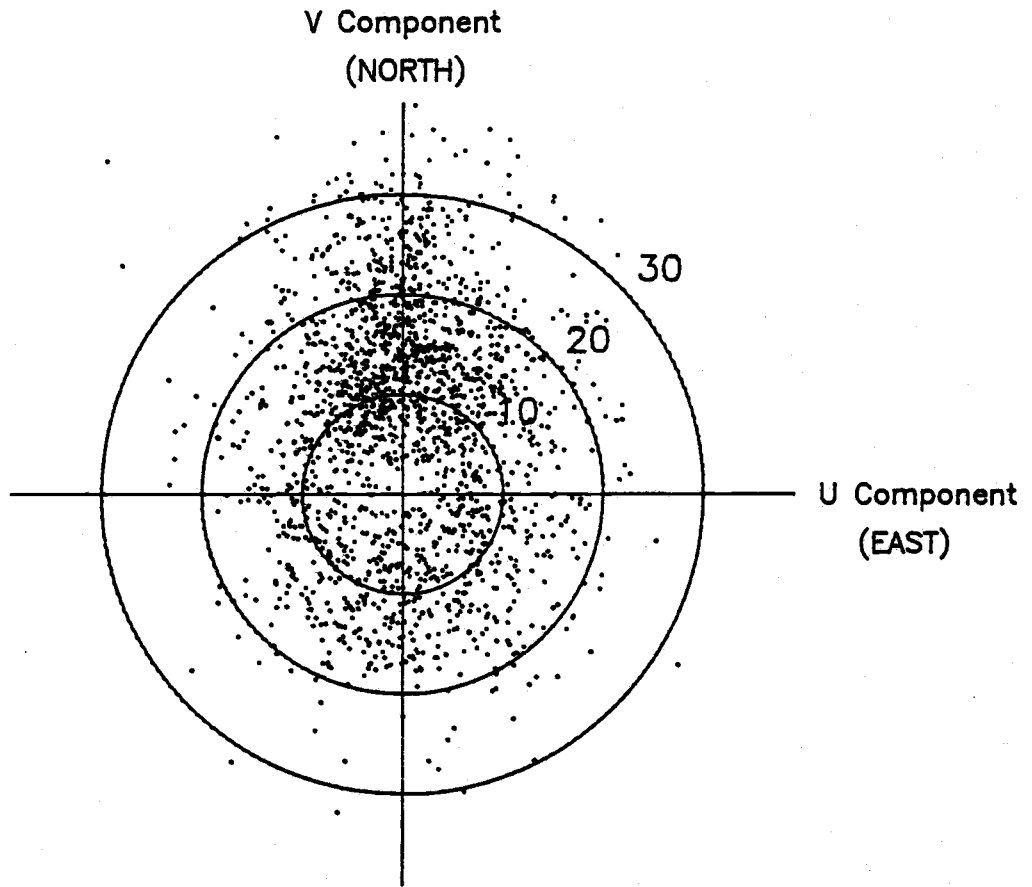
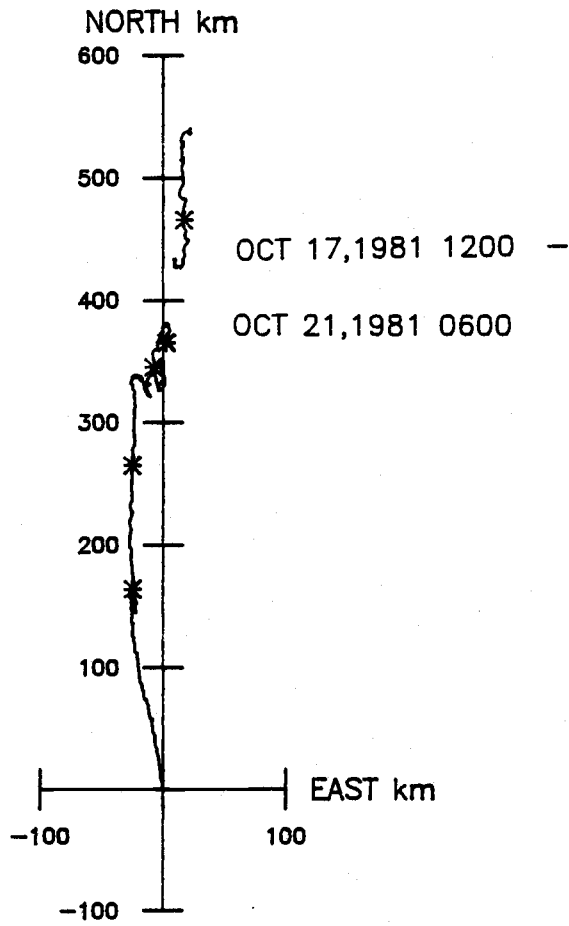


Y3S1

JAN 30, 1982 0400 - FEB 8, 1982 1300

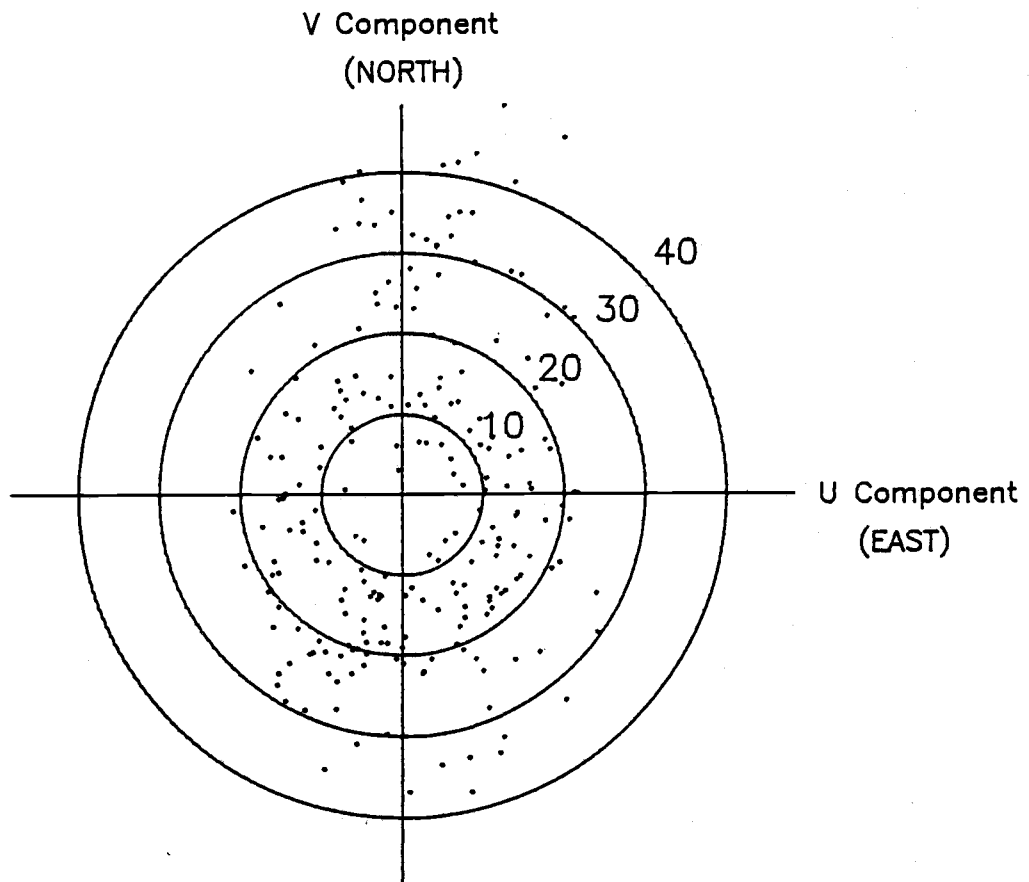
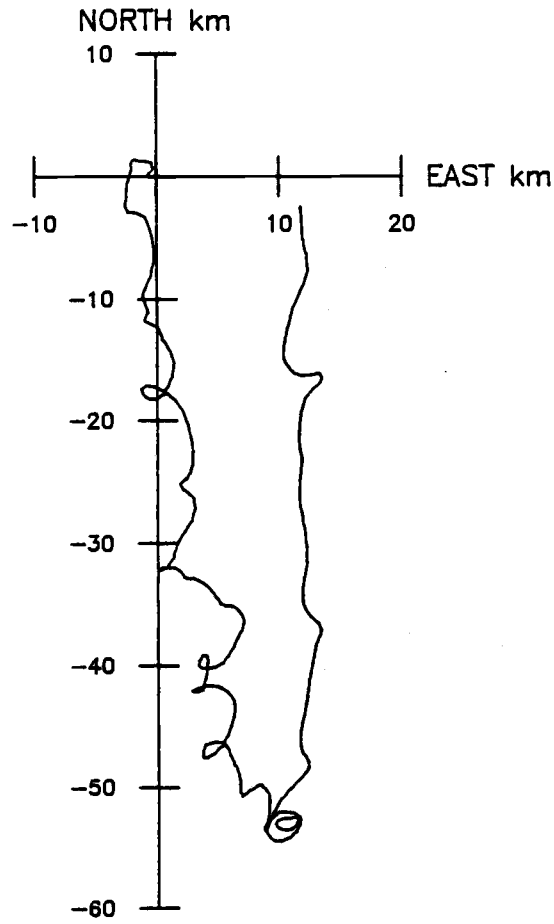


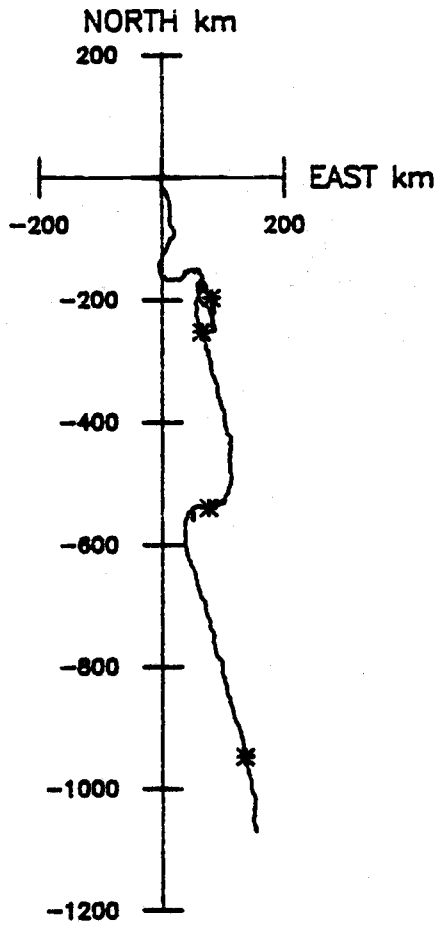




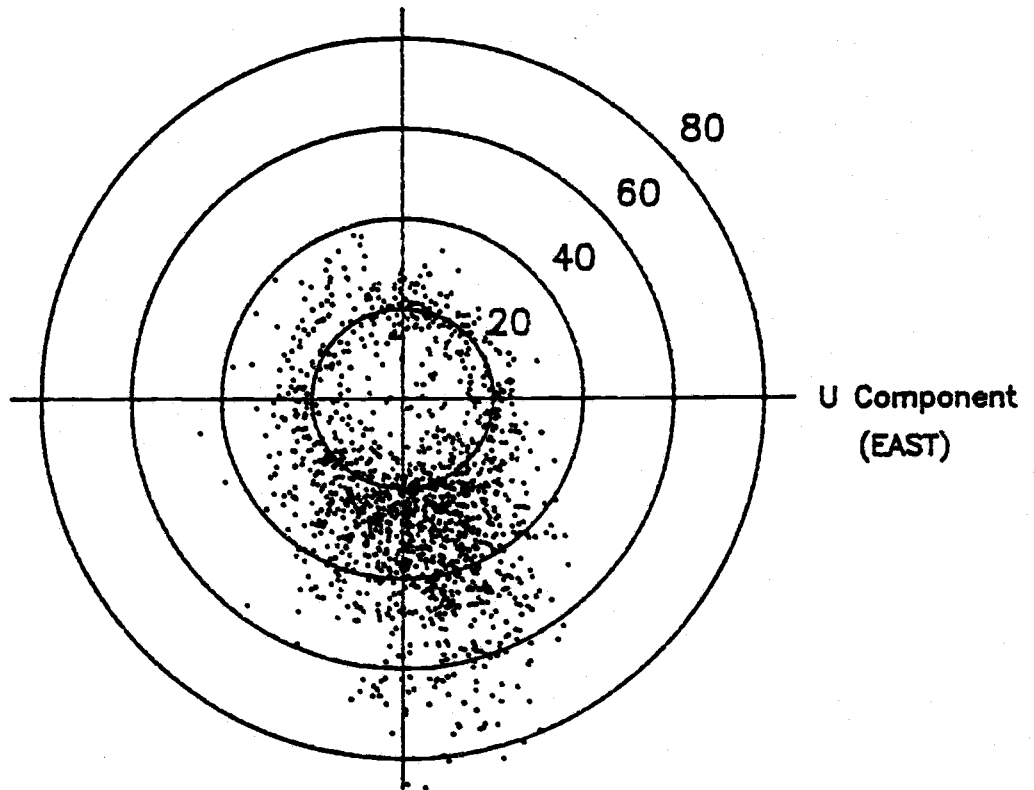
Y3S2

AUG 14, 1981 2200 - NOV 3, 1981 1100



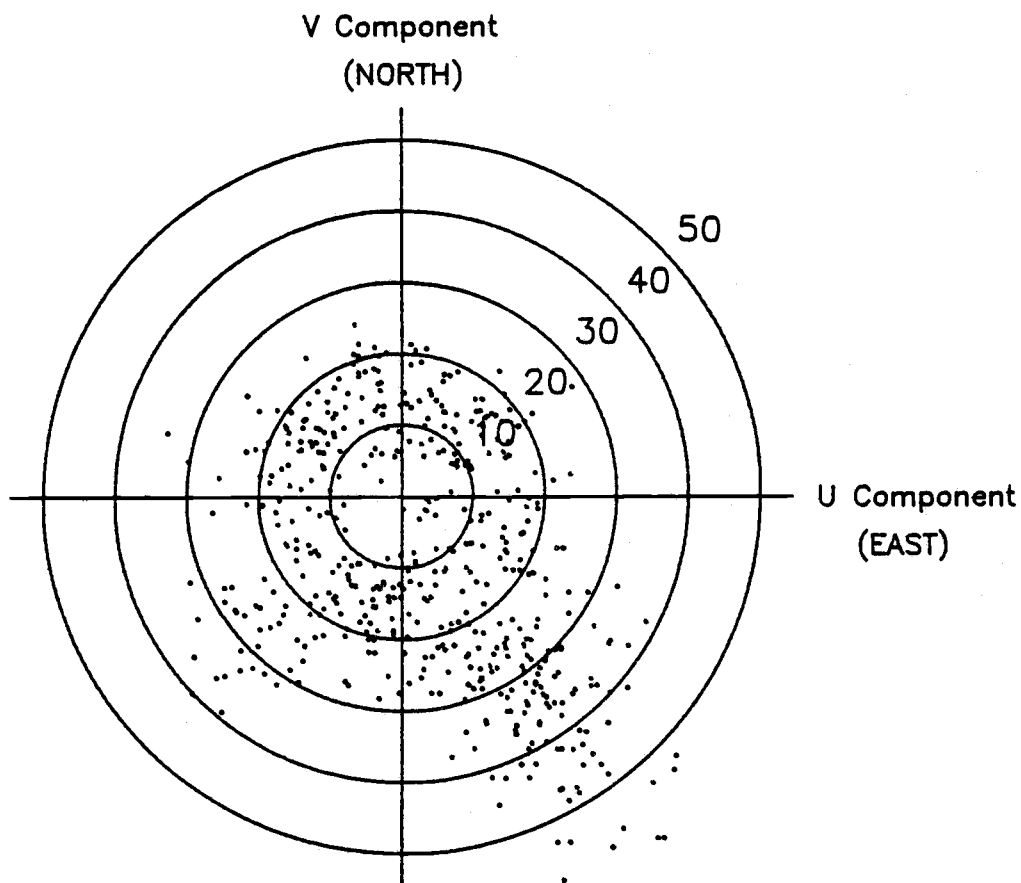
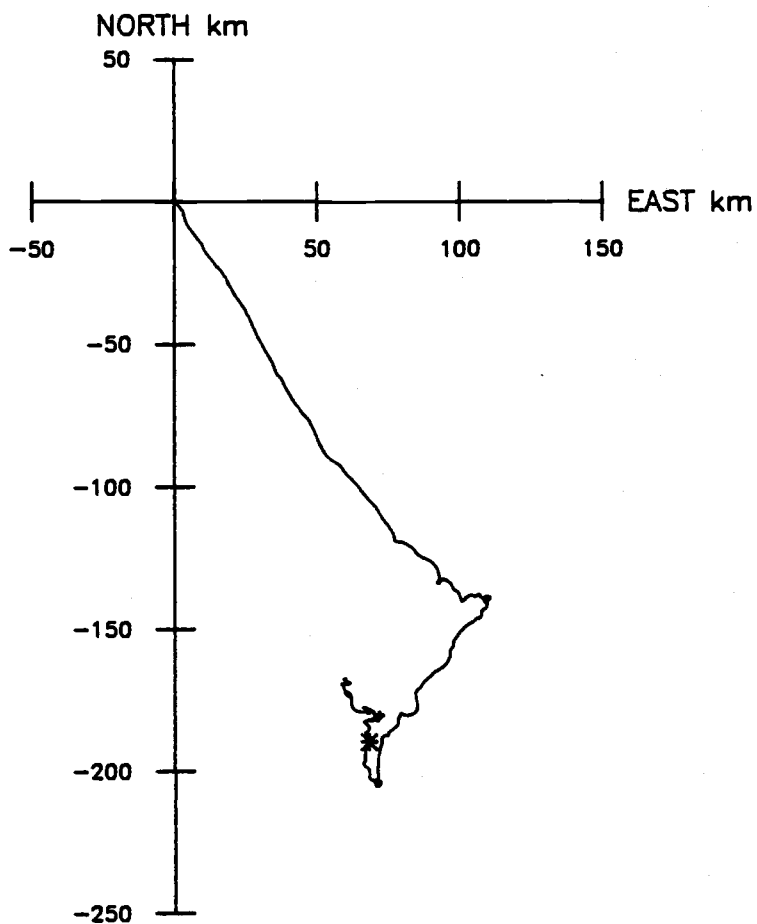


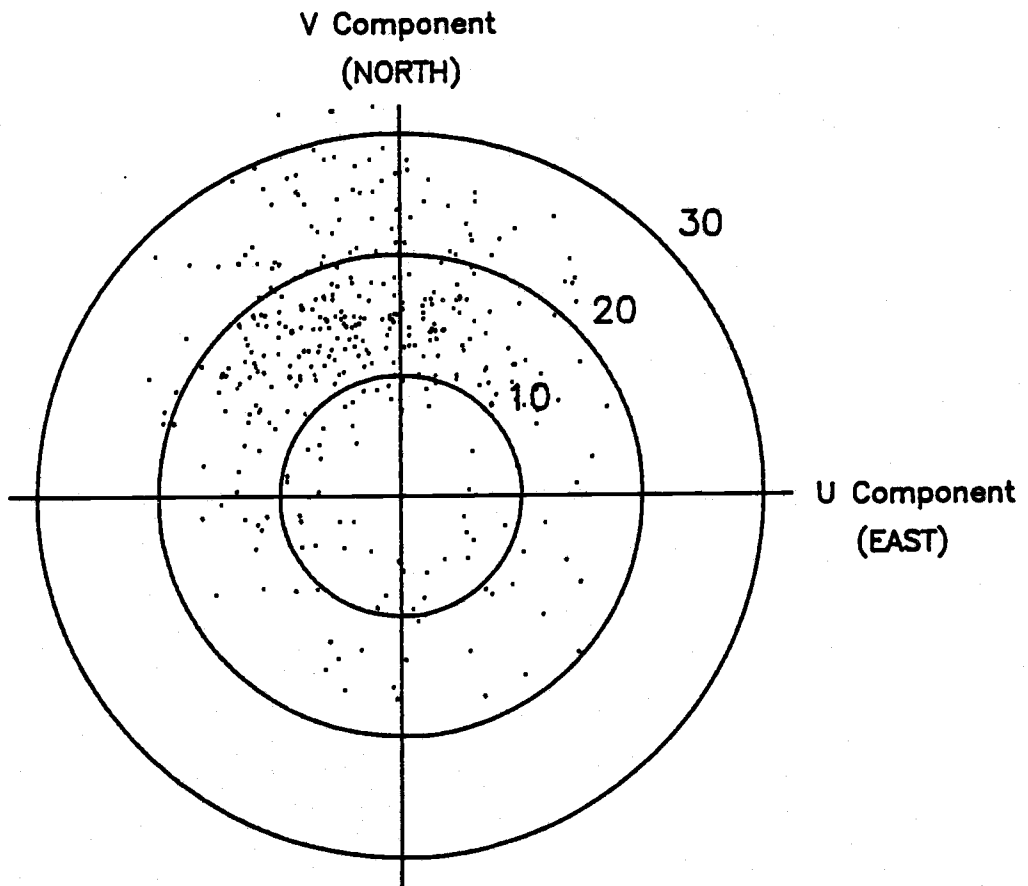
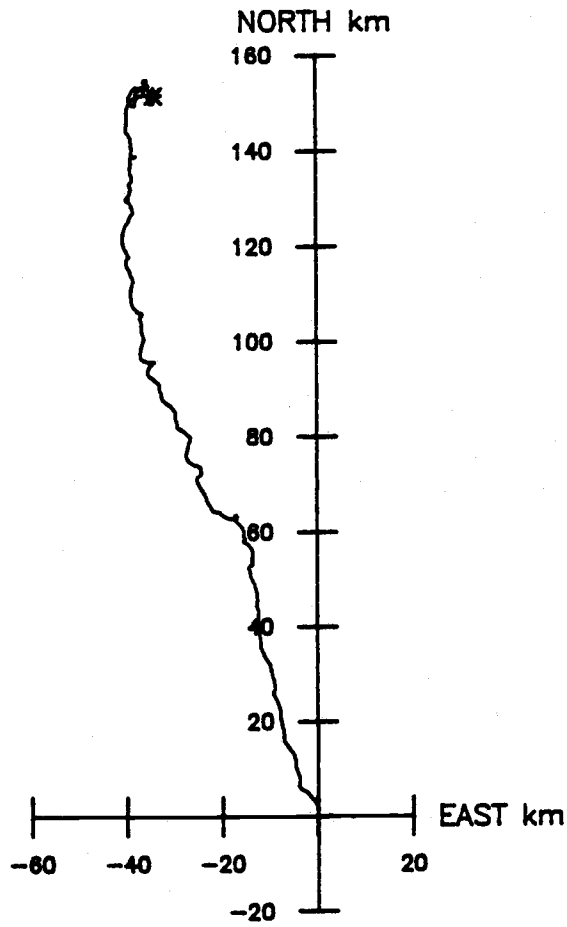
V Component  
(NORTH)

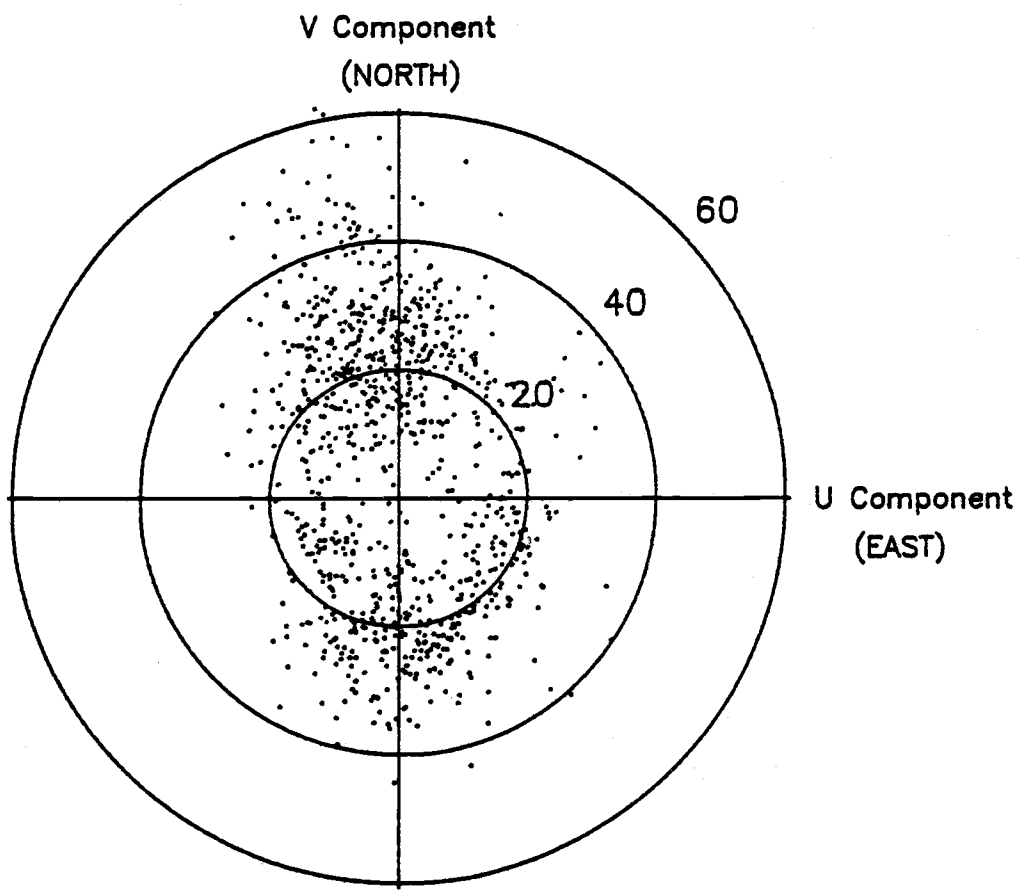
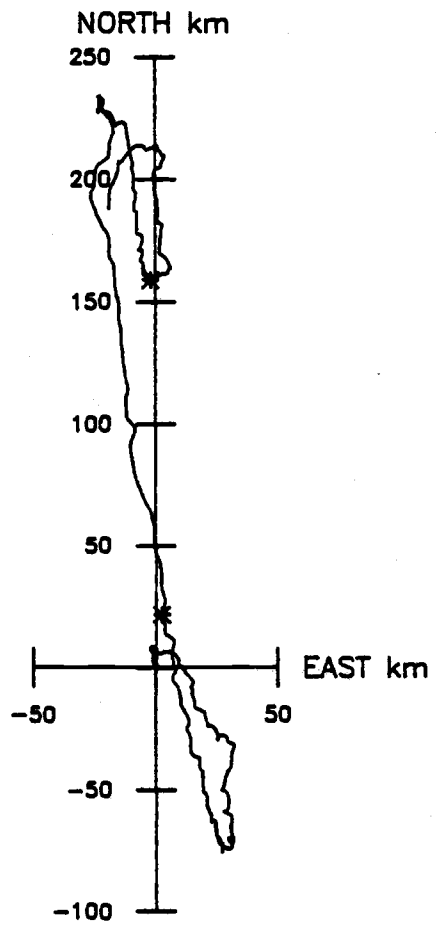


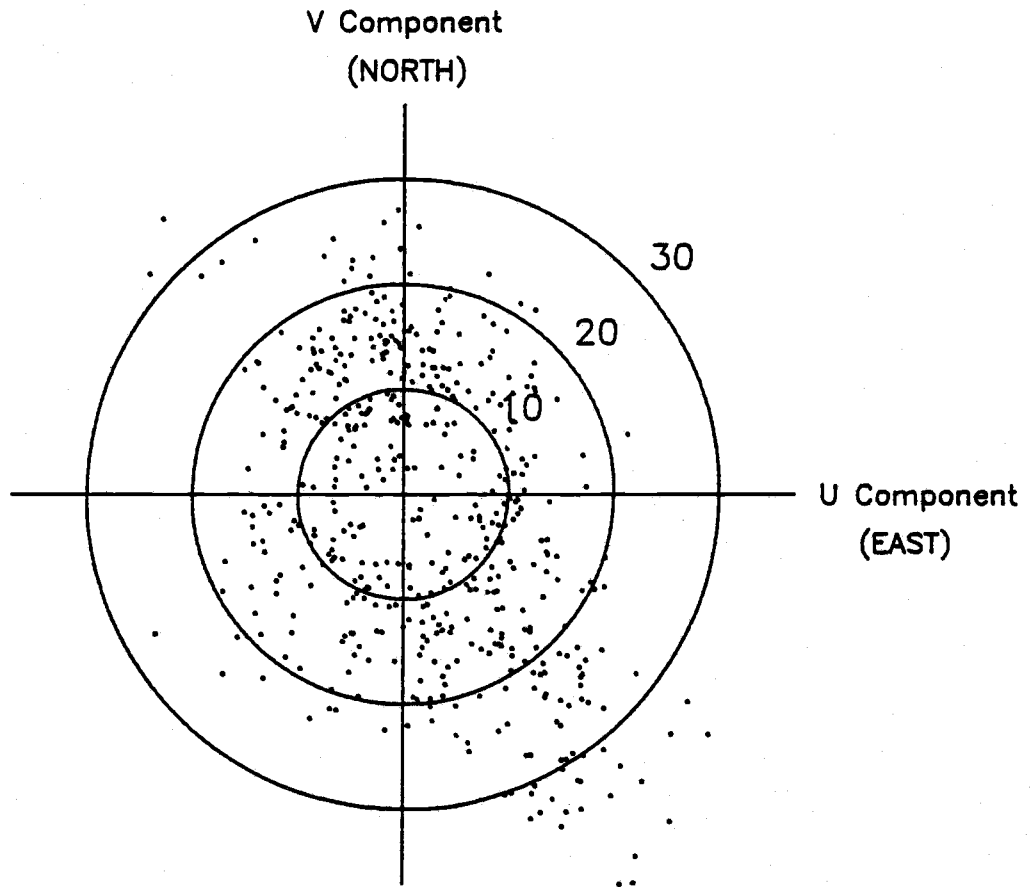
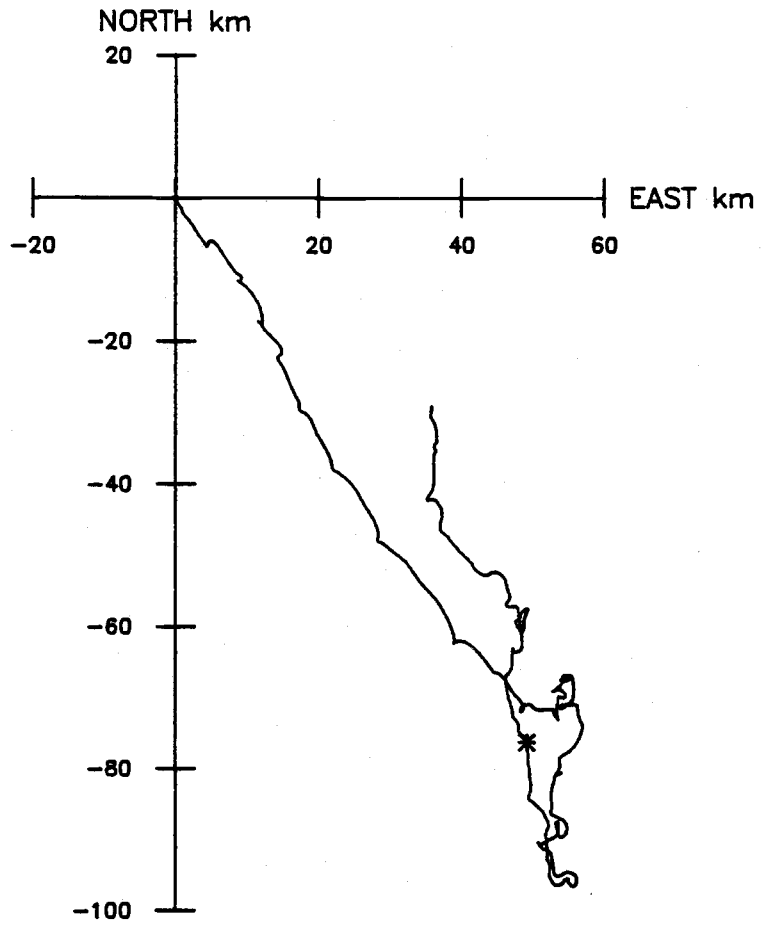
Y4S1

FEB 6, 1981 0400 - APR 9, 1981 1100



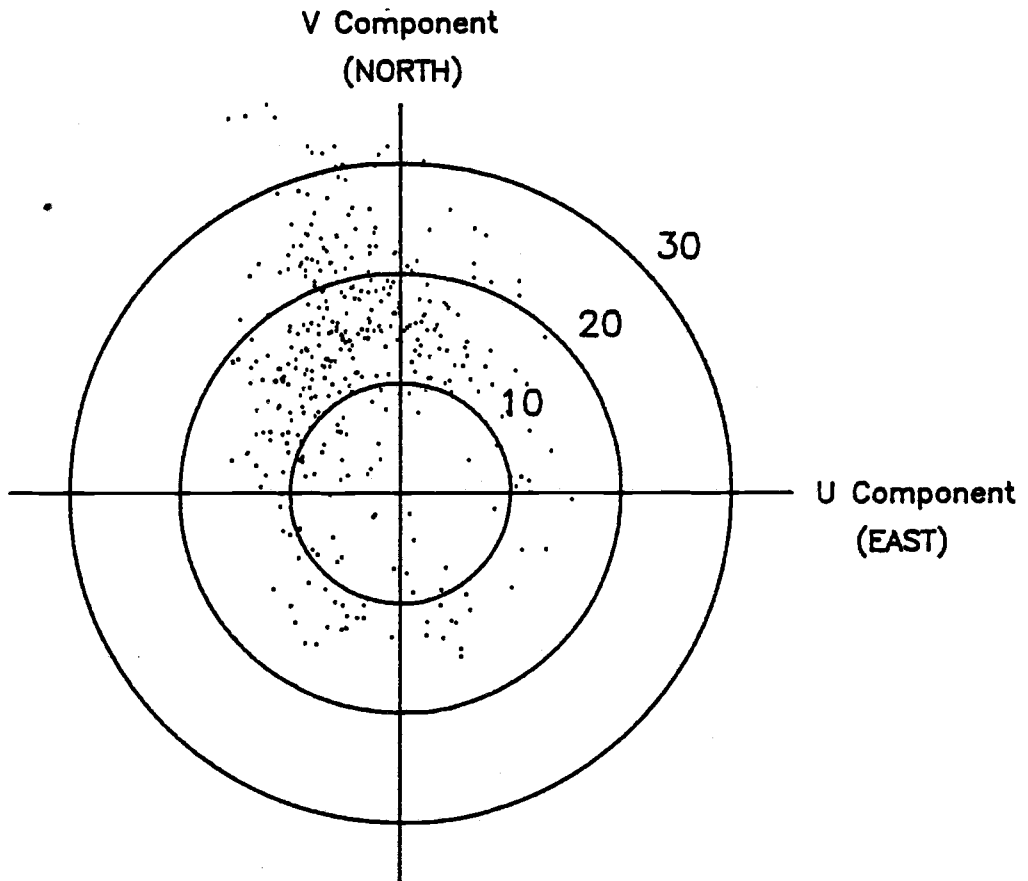
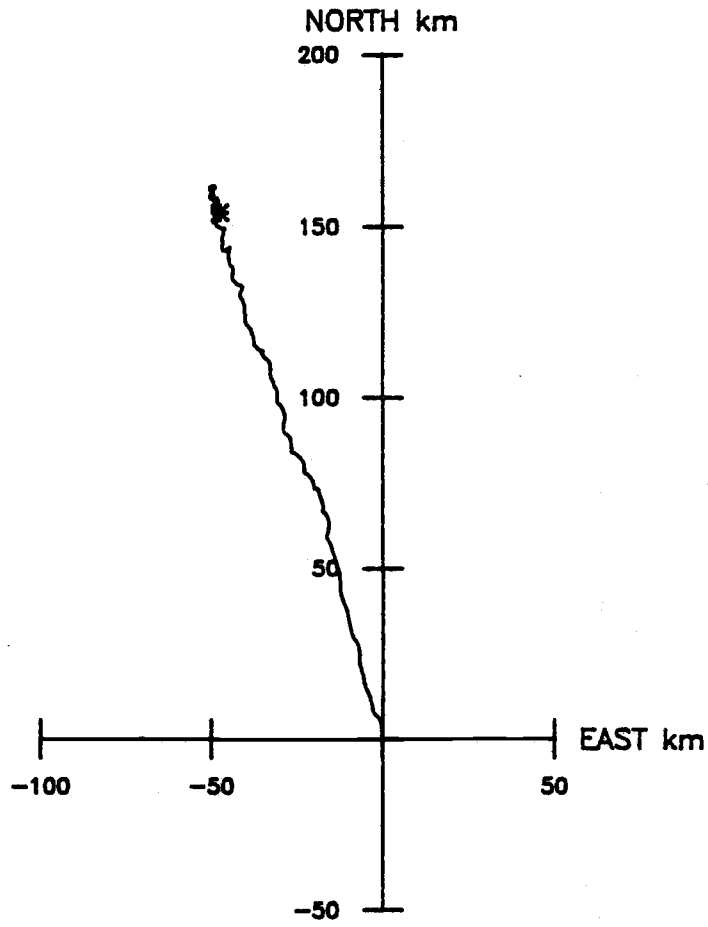


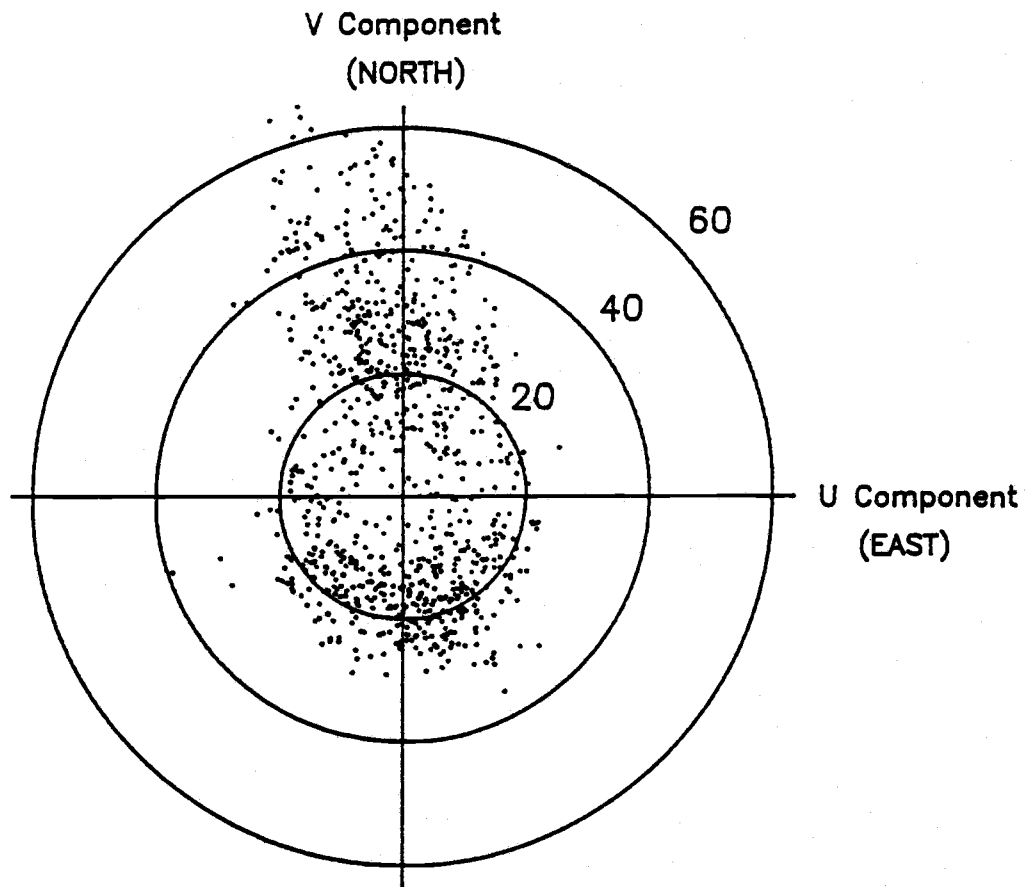
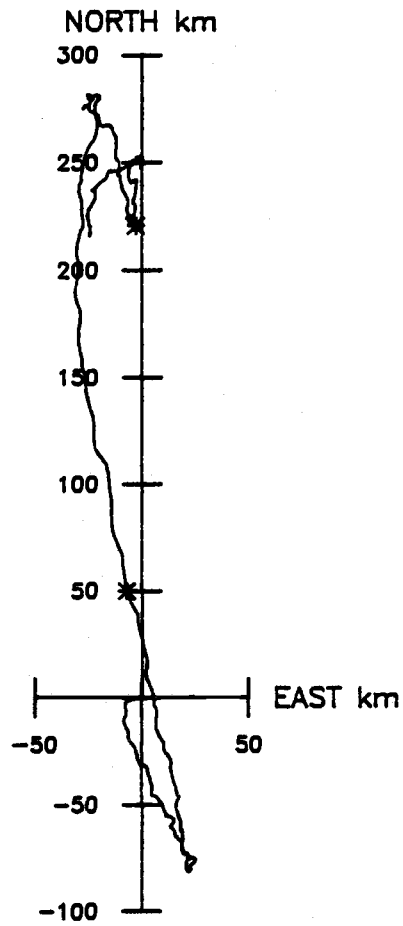




Y4S2      MAY 2, 1981 0300      -      MAY 22, 1981 1700

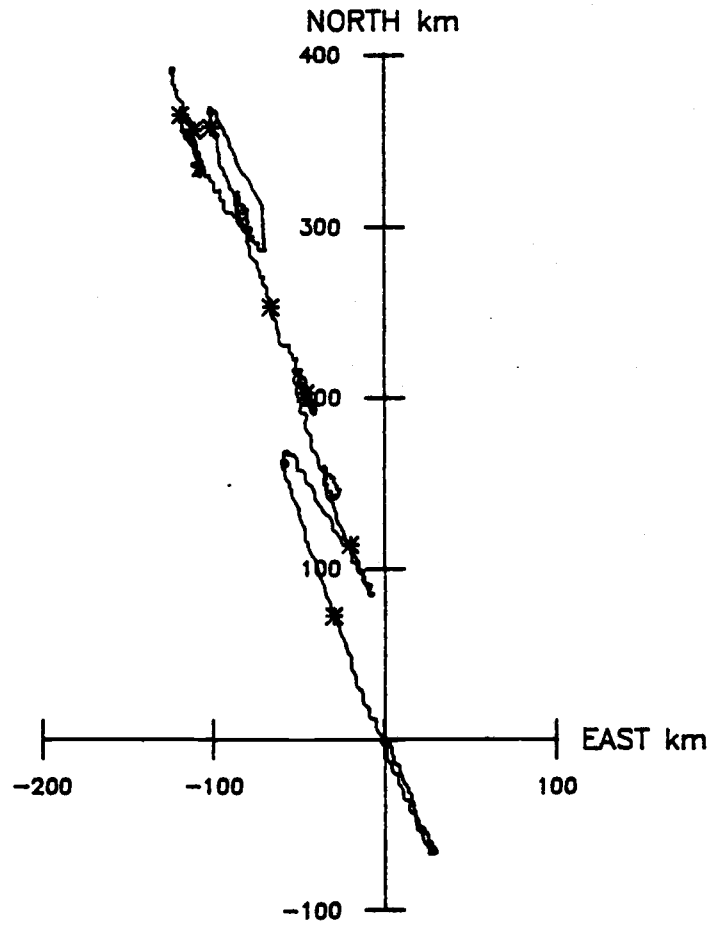




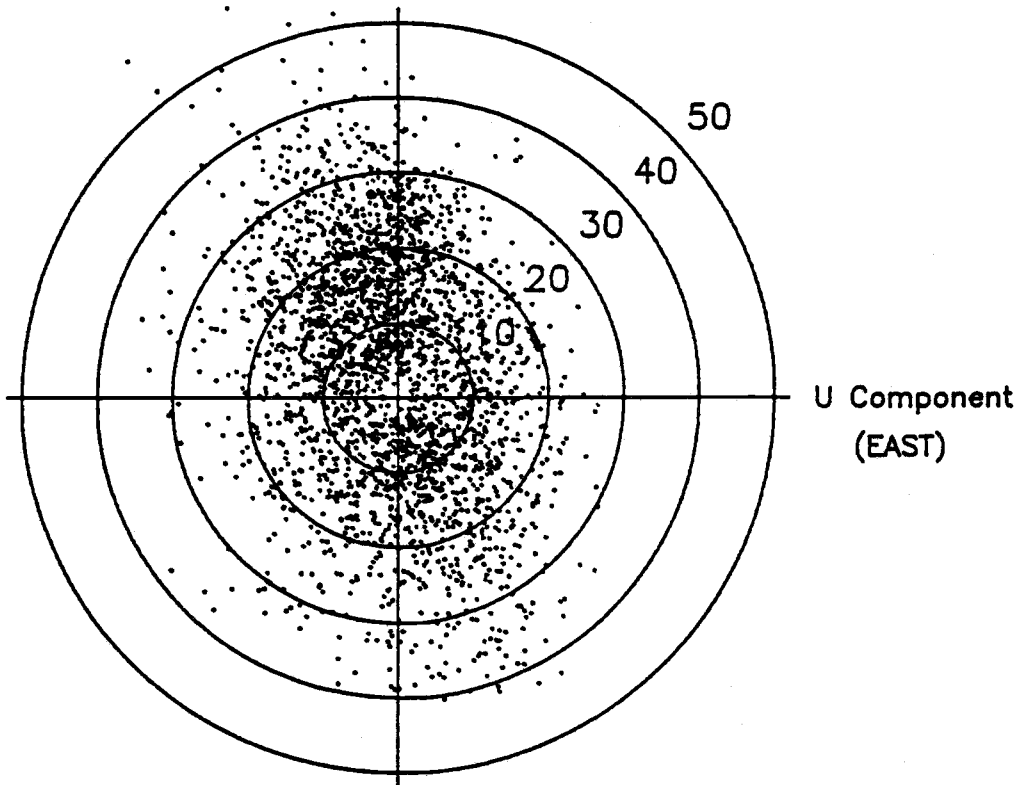


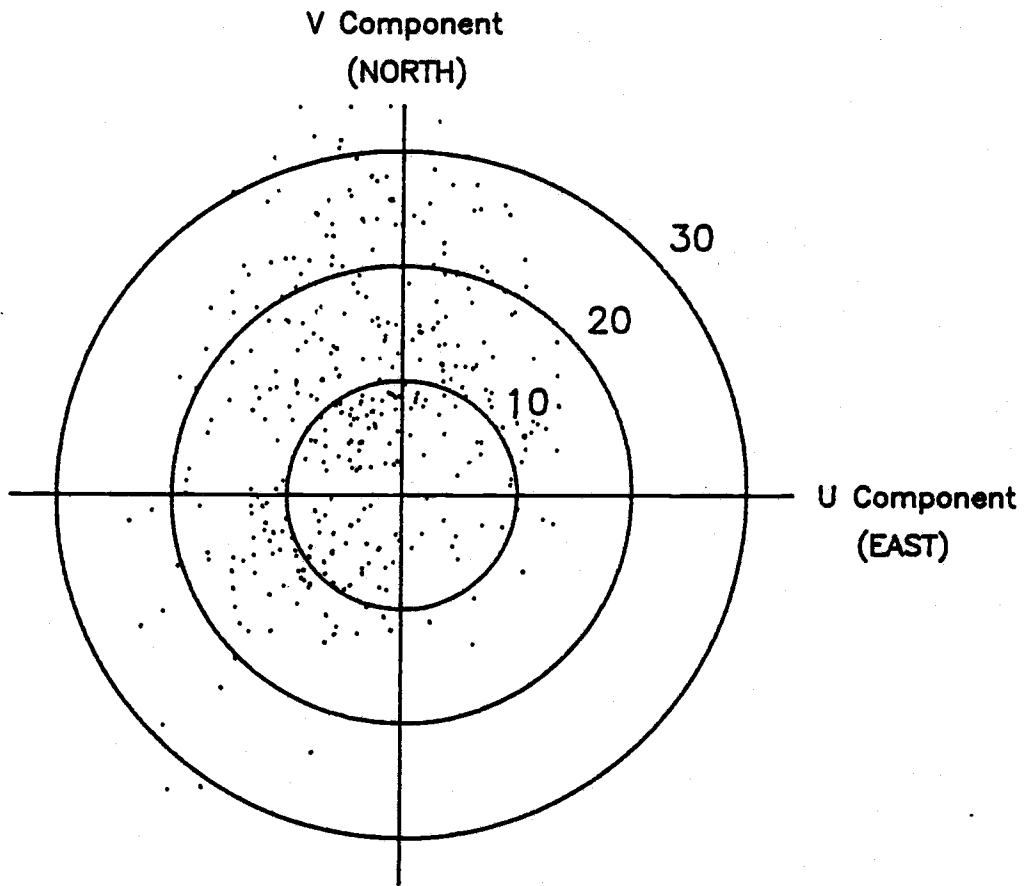
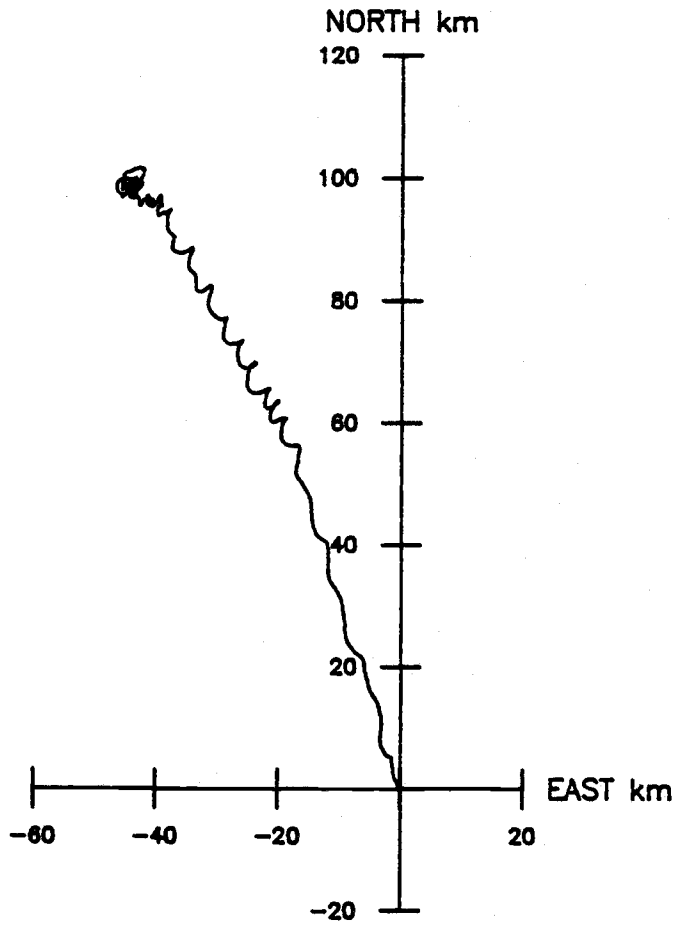
Y4S2

JAN 30, 1982 0200 - MAR 7, 1982 1200



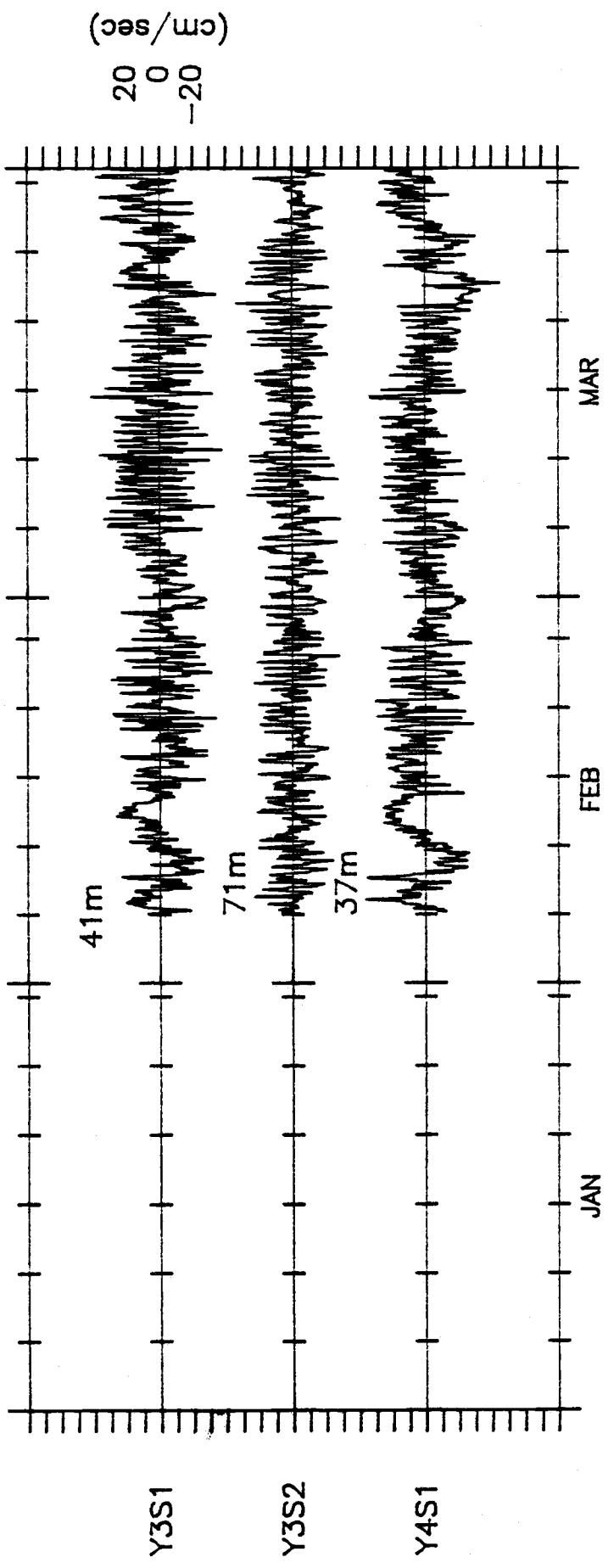
V Component  
(NORTH)



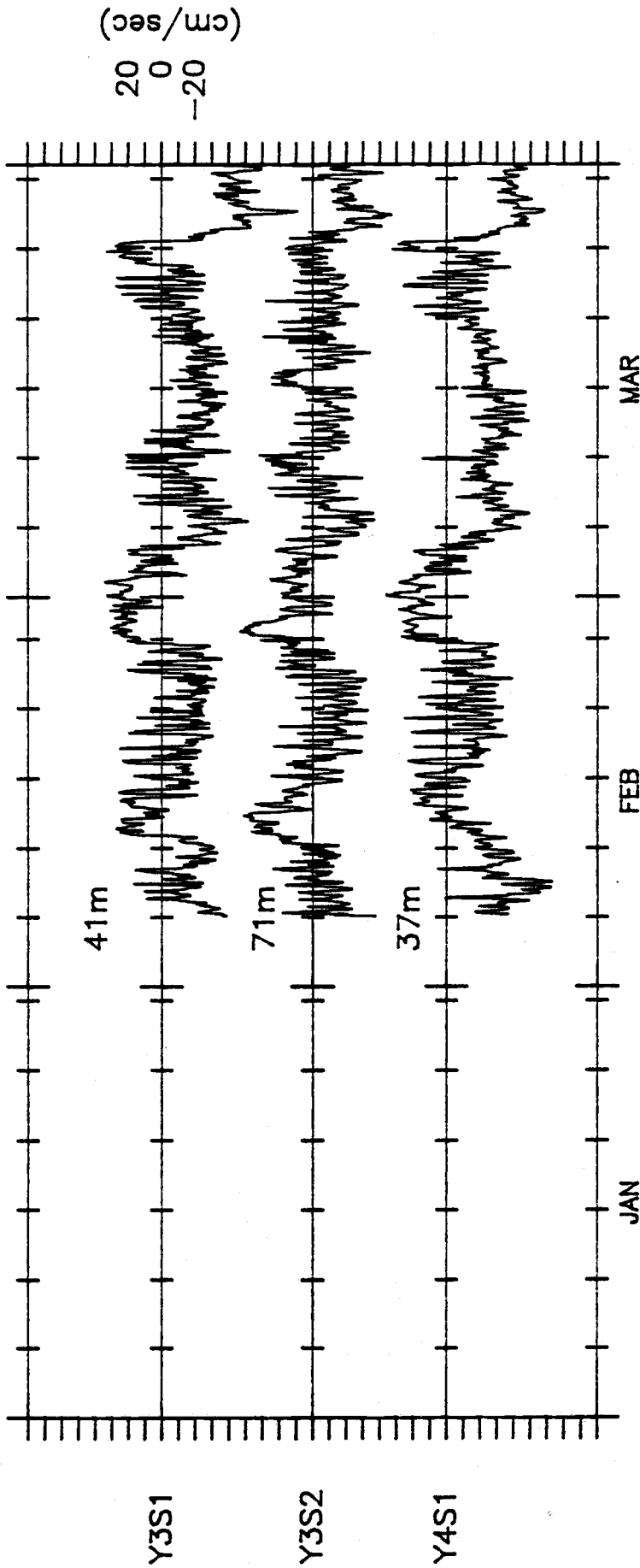


Y4S3

AUG 15, 1981 0000 - AUG 30, 1981 1300

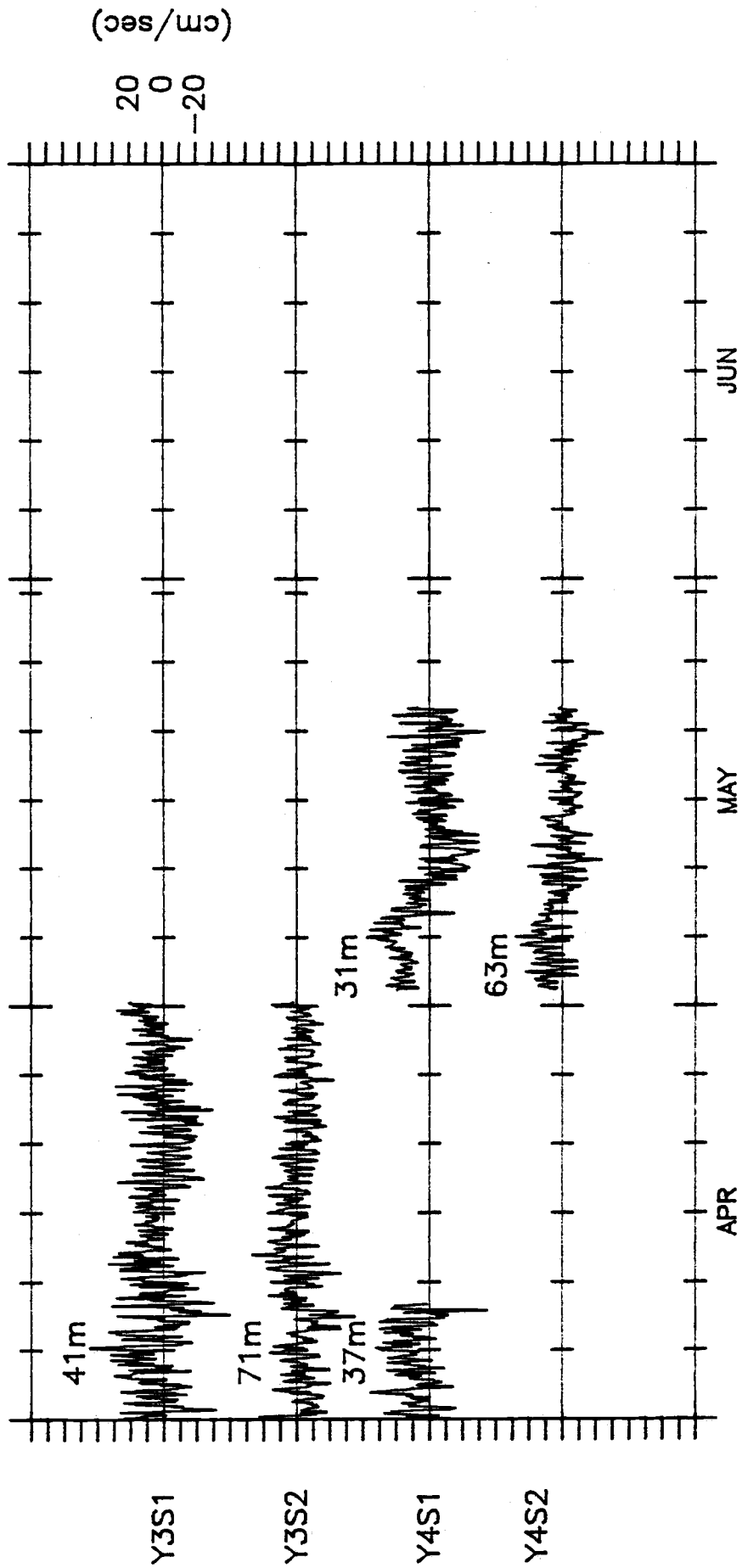


CRESCENT CITY U velocity



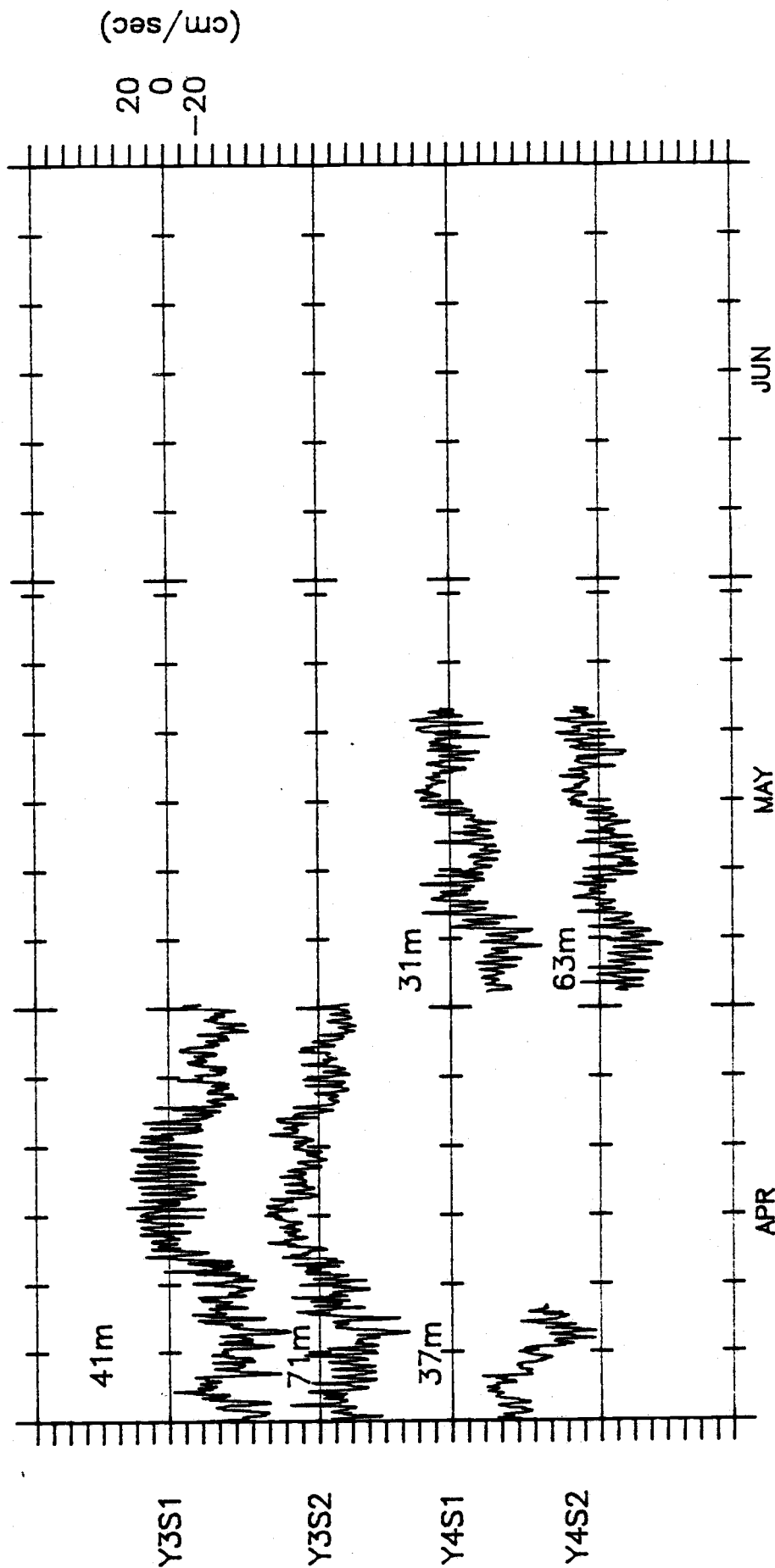
1981

CRESCENT CITY V velocity



1981

CRESCENT CITY U velocity



1981

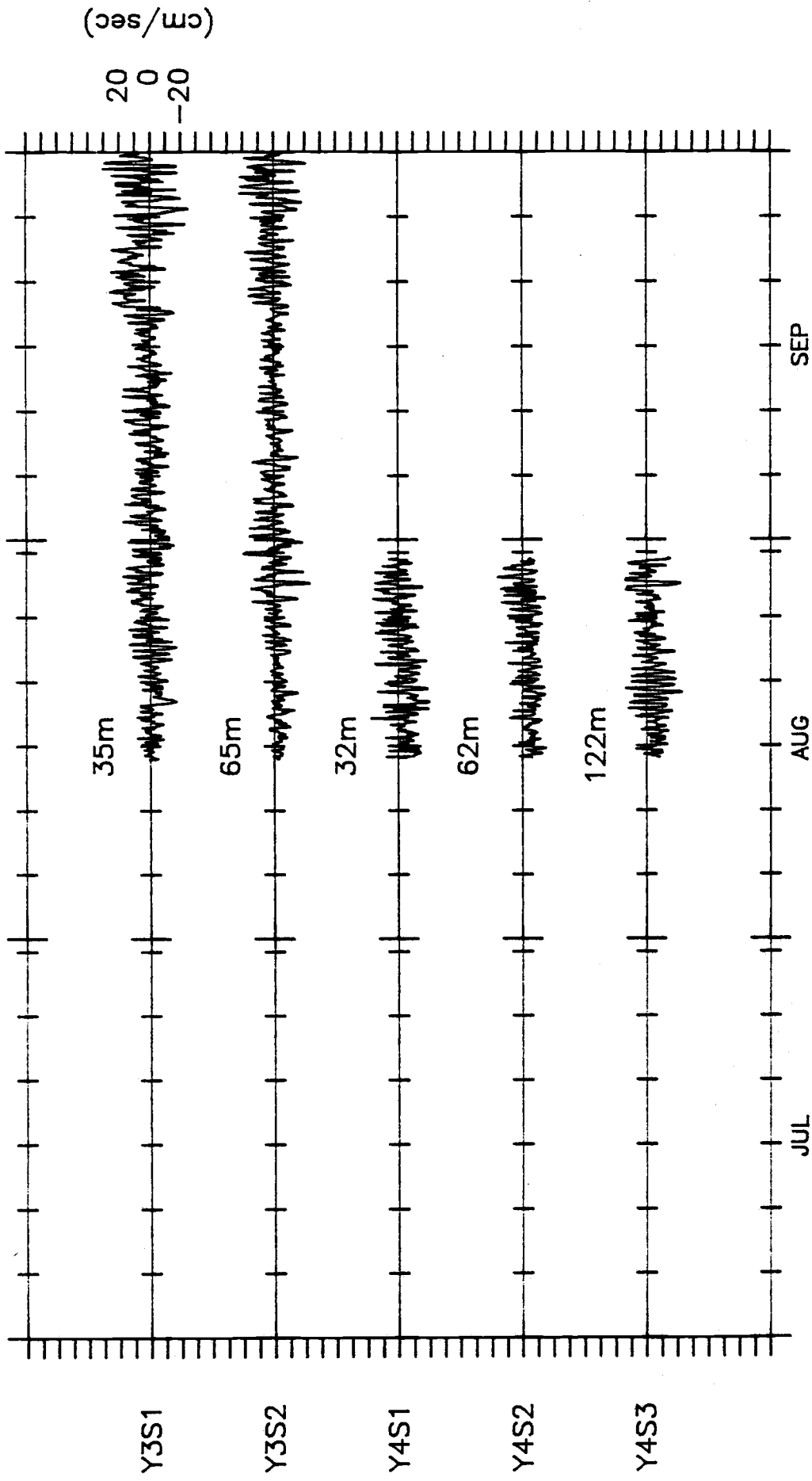
JUN

MAY

APR

CRESCENT CITY V velocity





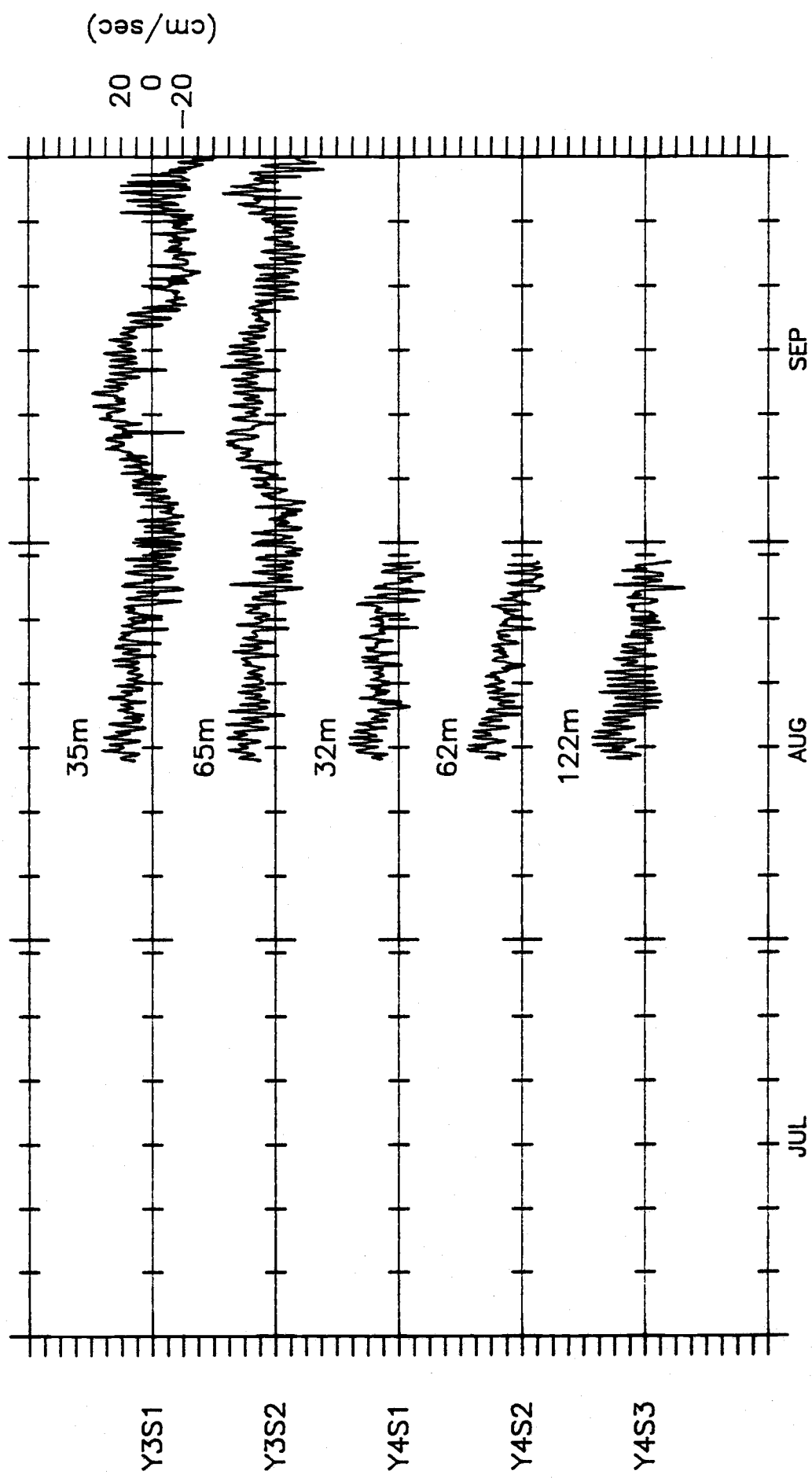
CRESCENT CITY U velocity

1981

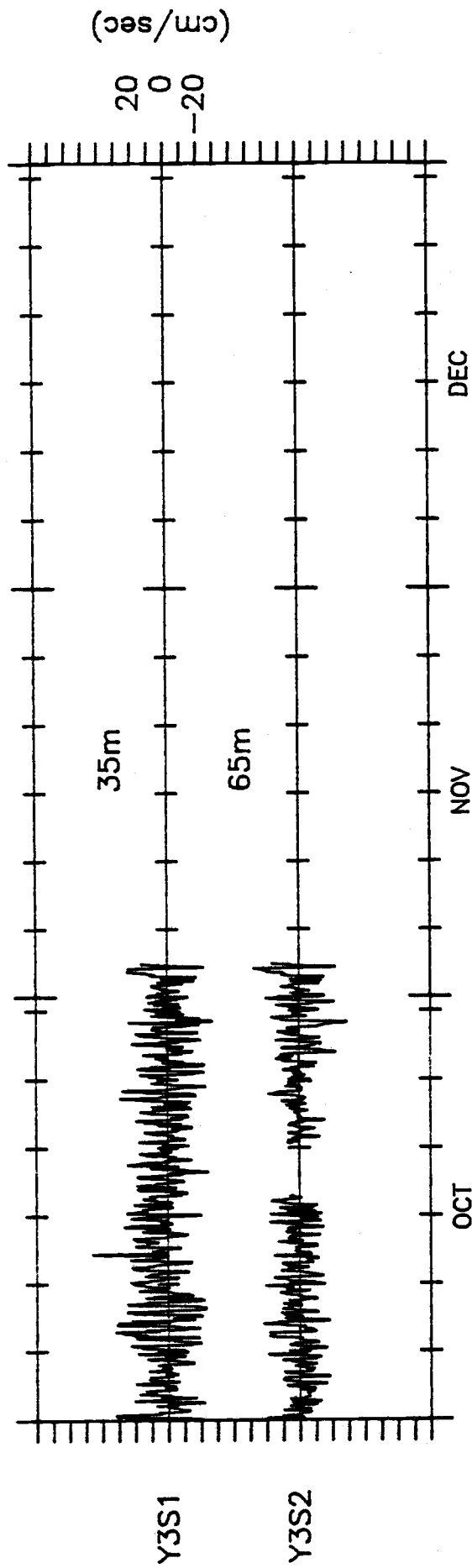
SEP

AUG

JUL

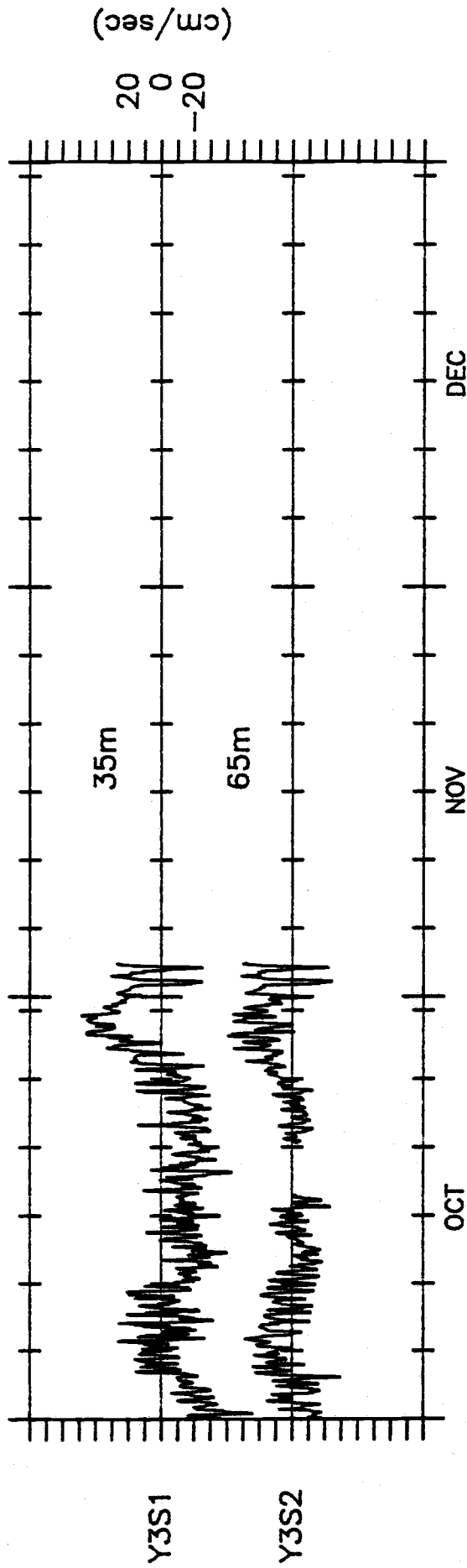


CRESCENT CITY V velocity



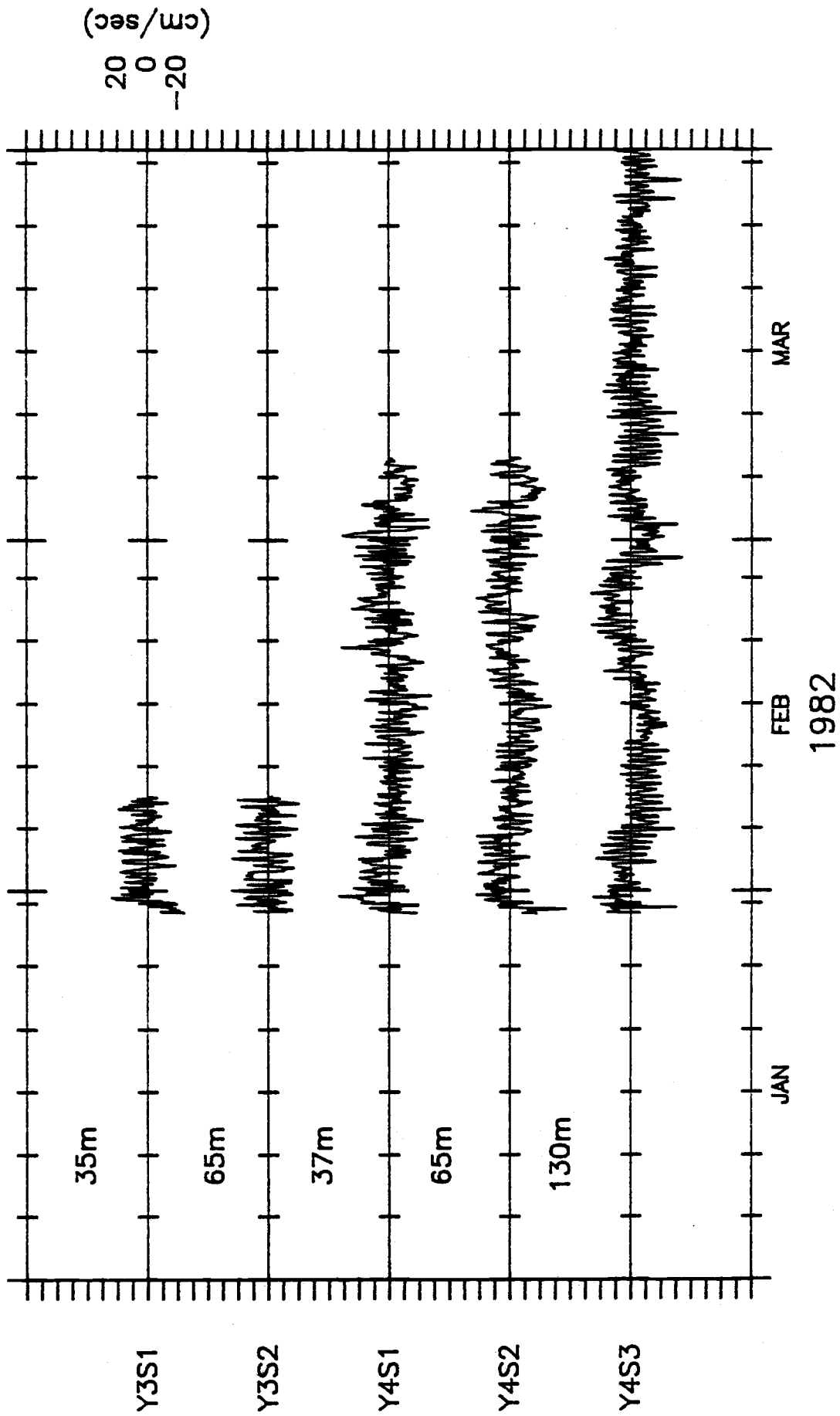
1981

CRESCENT CITY U velocity

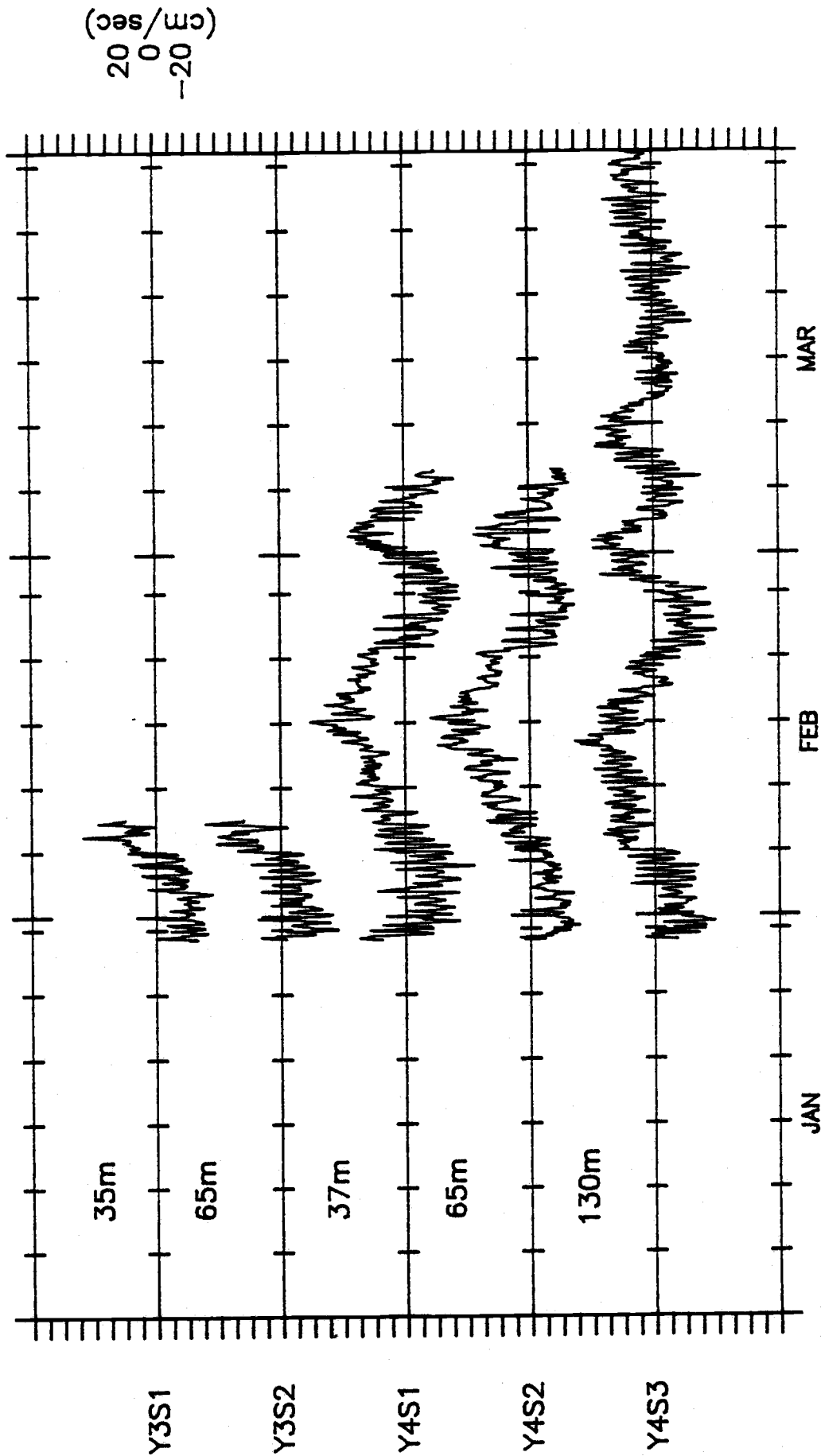


1981

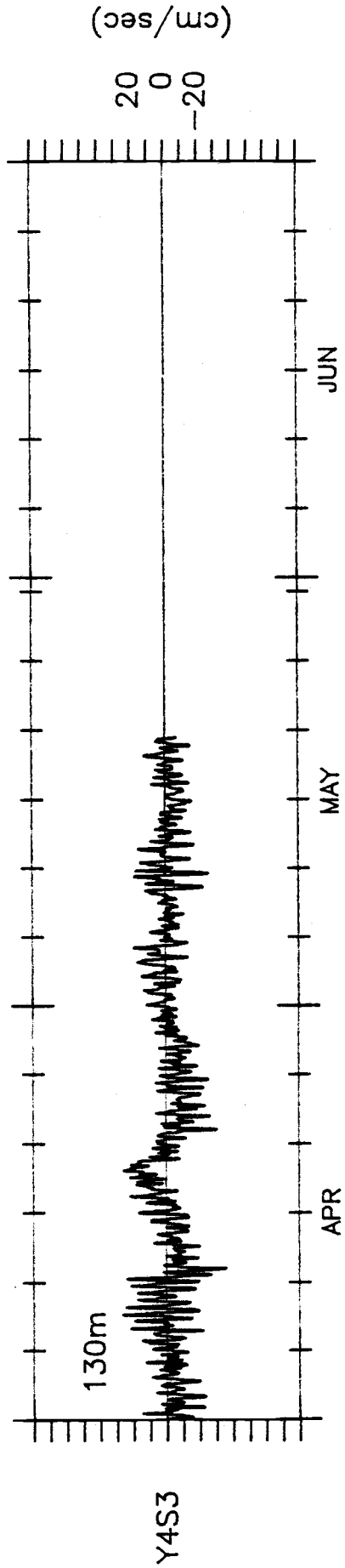
CRESCENT CITY V velocity



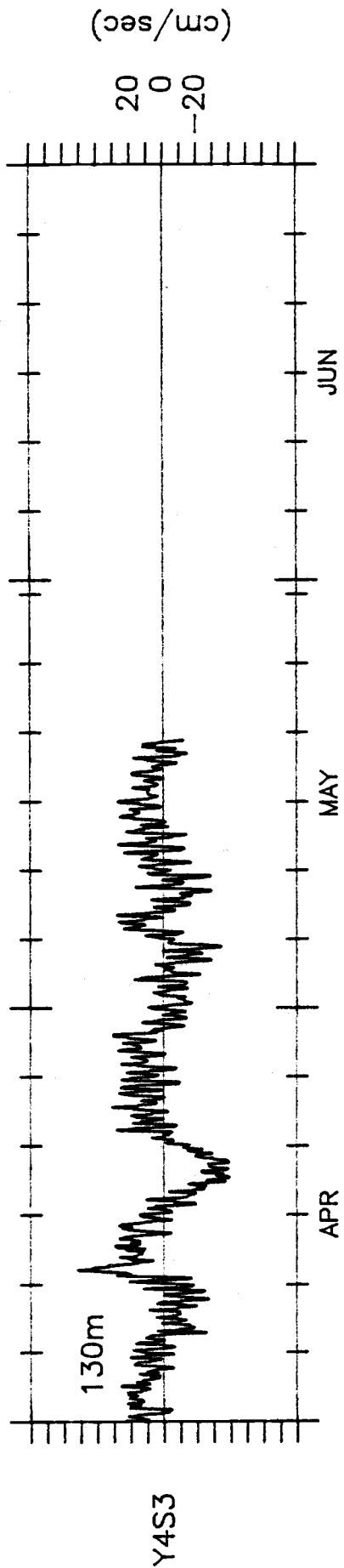
CRESCENT CITY U velocity



CRESCENT CITY V velocity



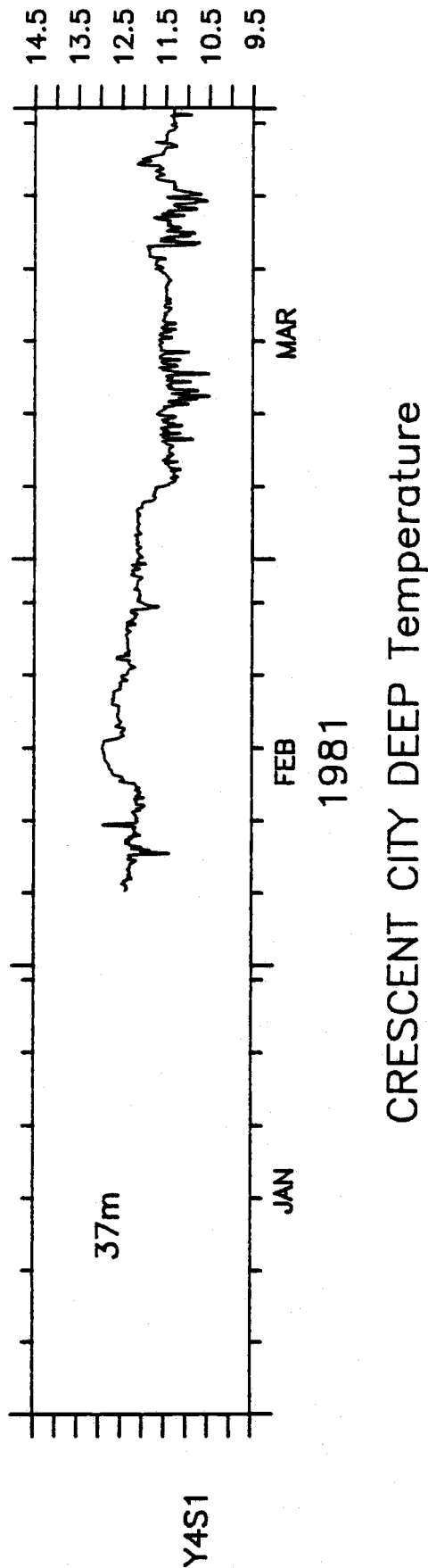
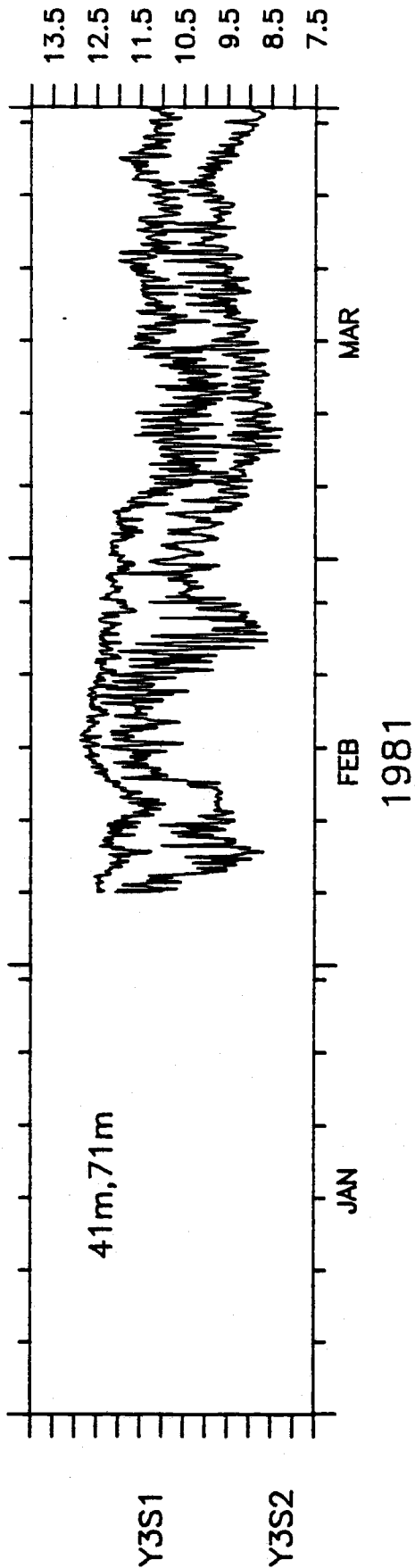
CRESCENT CITY U velocity



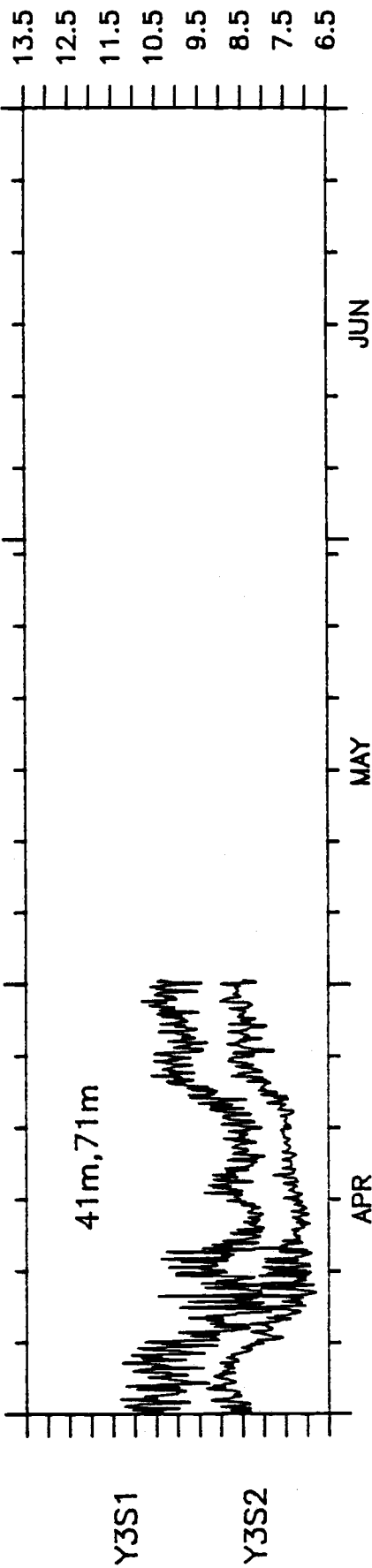
CRESCENT CITY V velocity

Y4S3

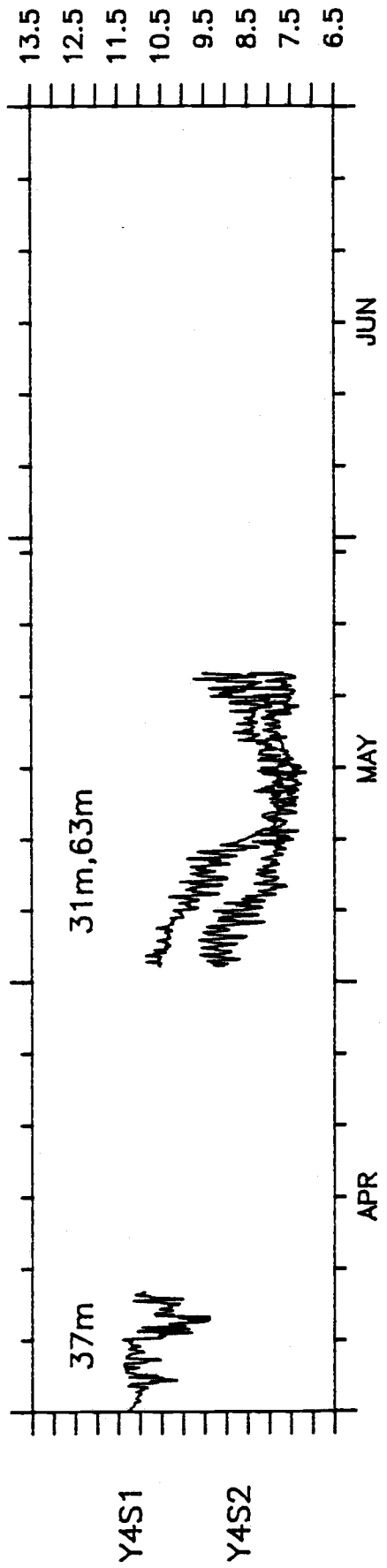
Y4S3



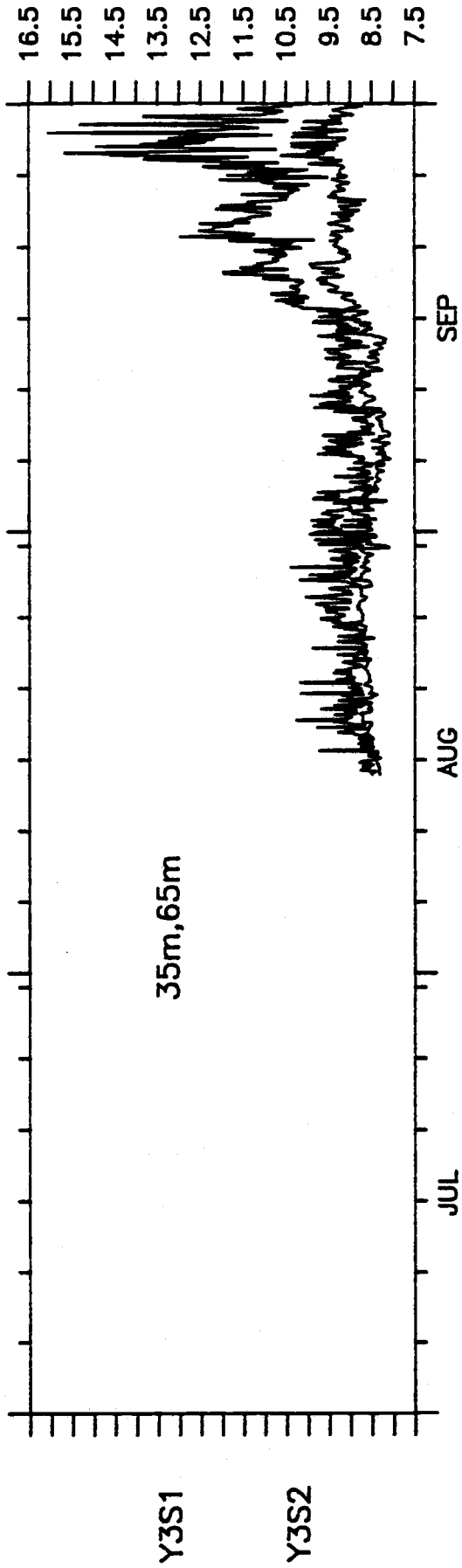




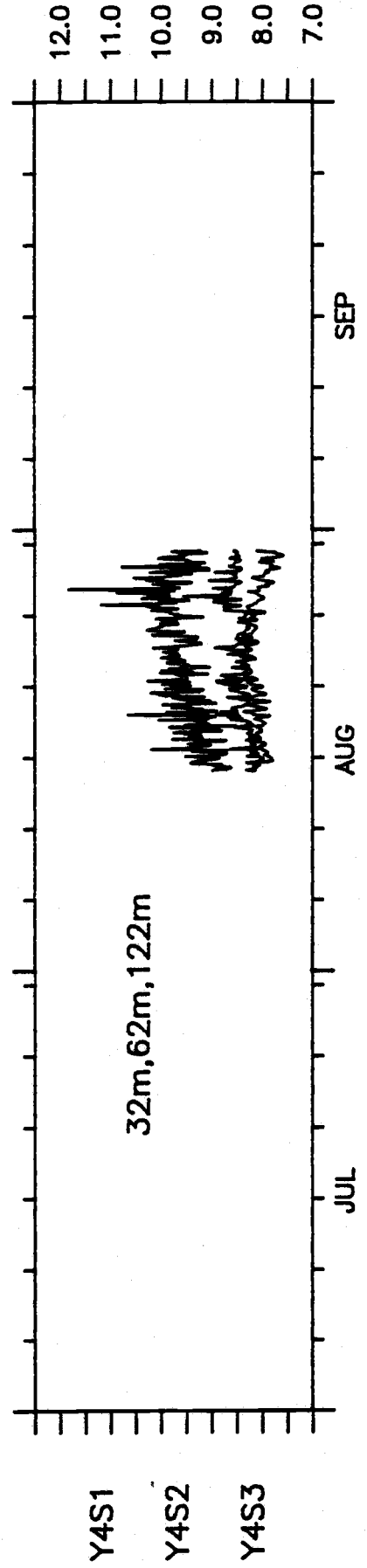
CRESCENT CITY SHALLOW Temperature



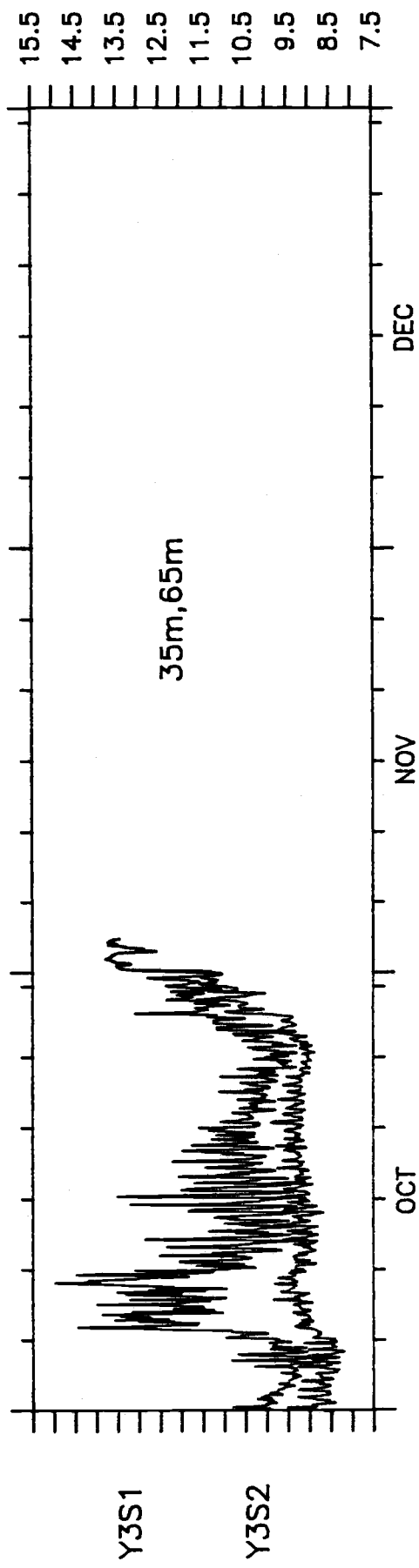
CRESCENT CITY DEEP Temperature



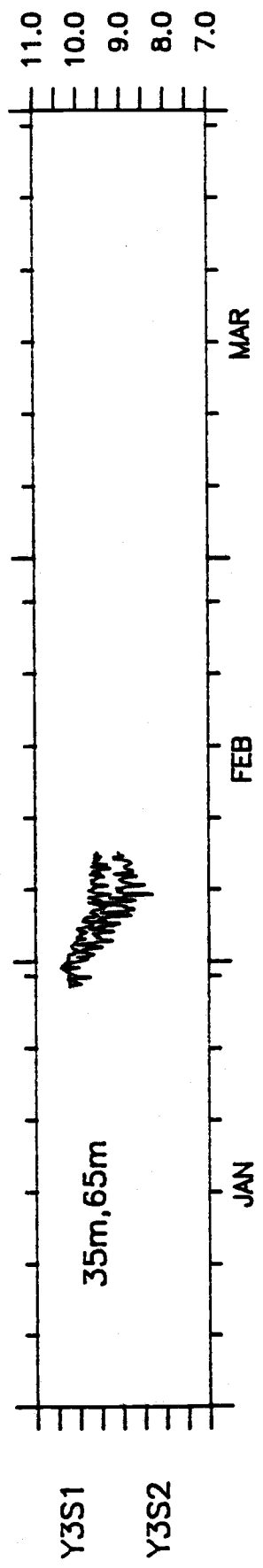
CRESCENT CITY SHALLOW Temperature



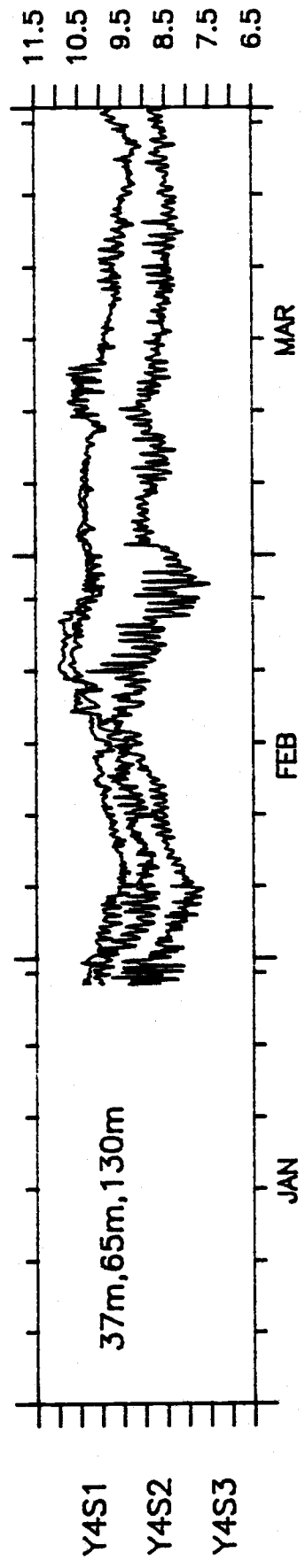
CRESCENT CITY DEEP Temperature



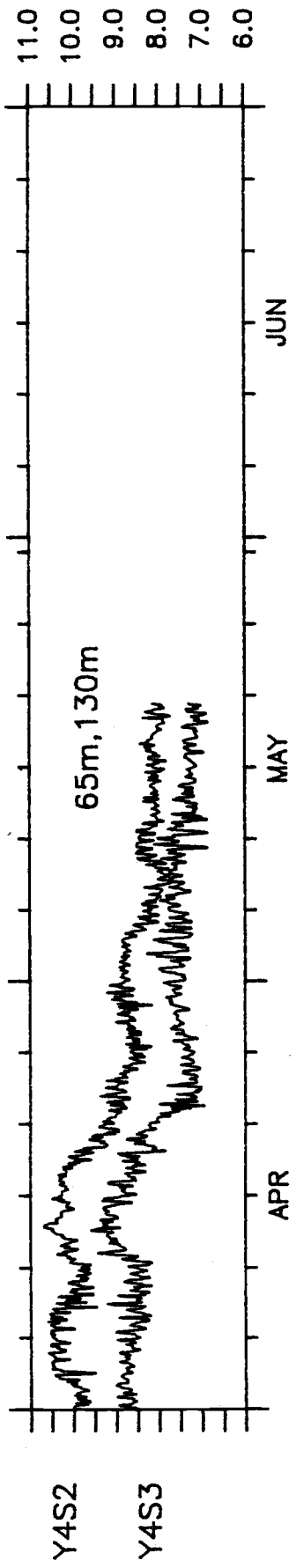
CRESCENT CITY SHALLOW Temperature



### CRESCENT CITY SHALLOW Temperature



### CRESCENT CITY DEEP Temperature



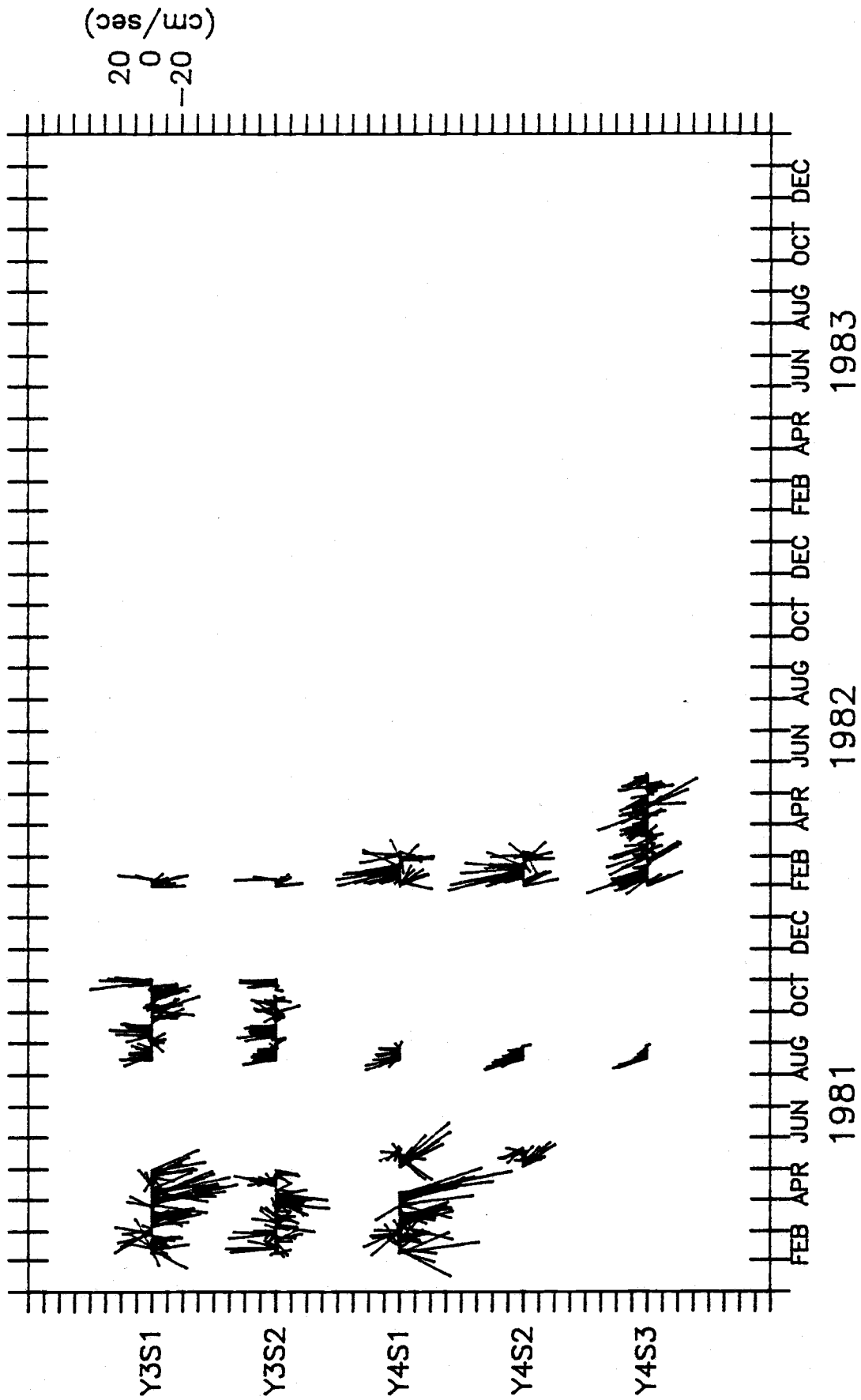
CRESCENT CITY DEEP Temperature

Y4S2

Y4S3

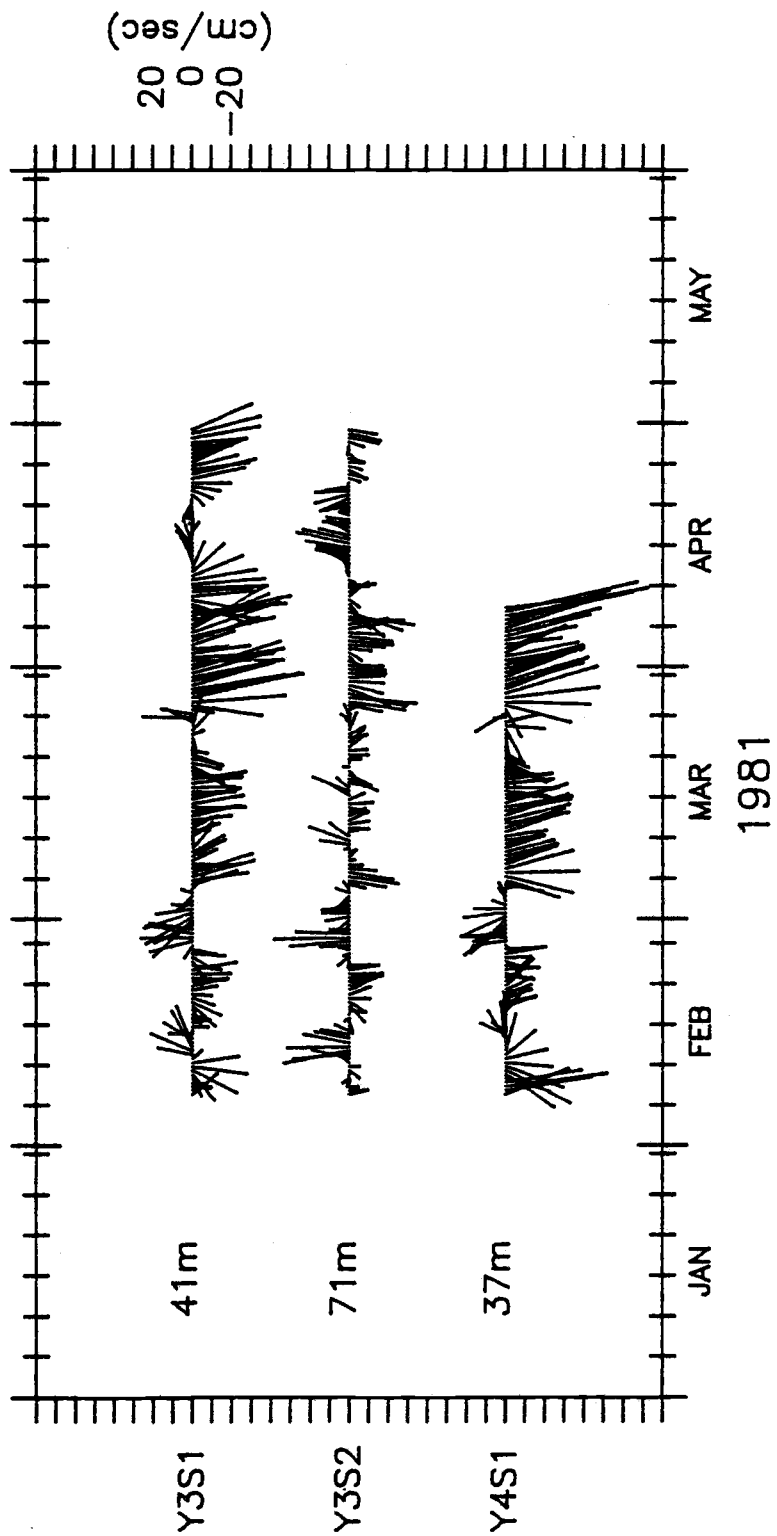




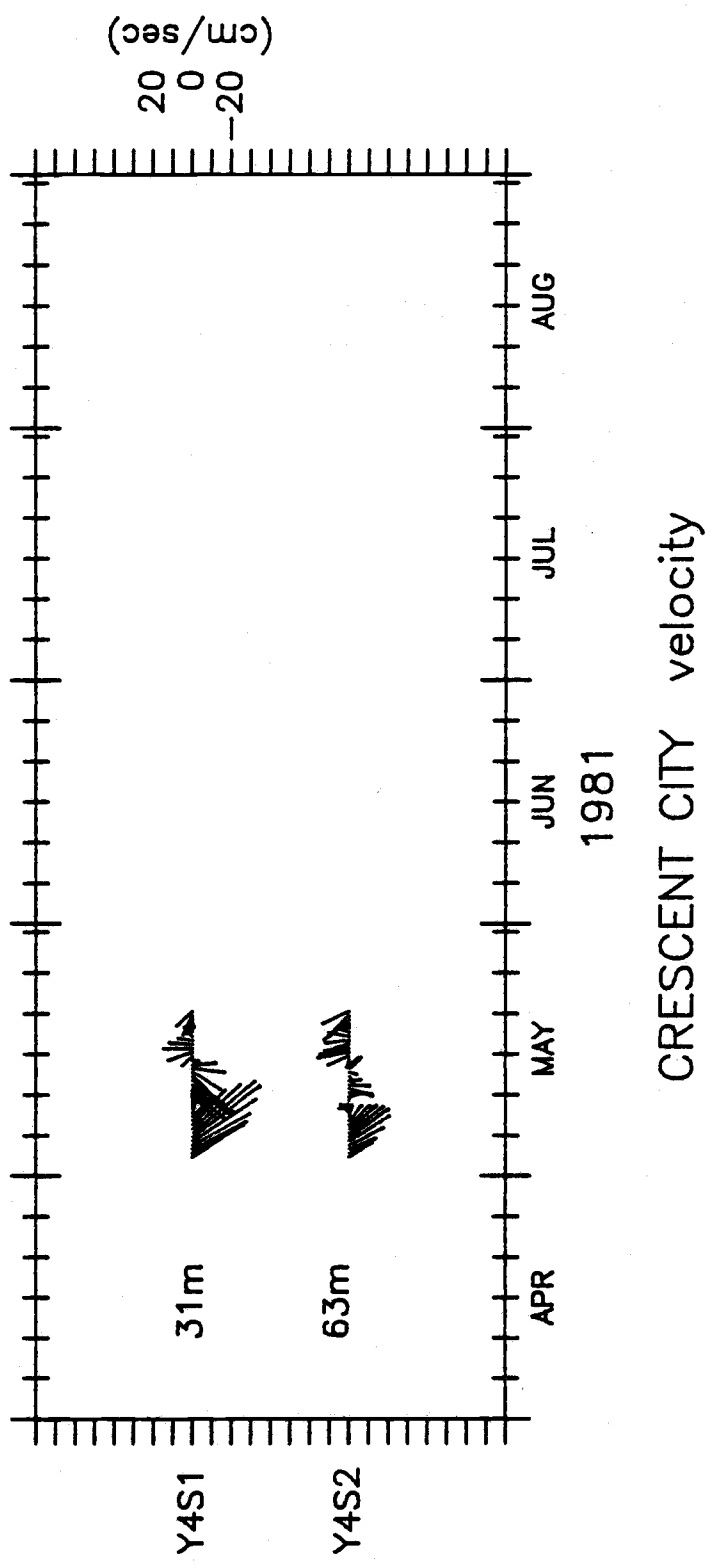


CRESCENT CITY velocity

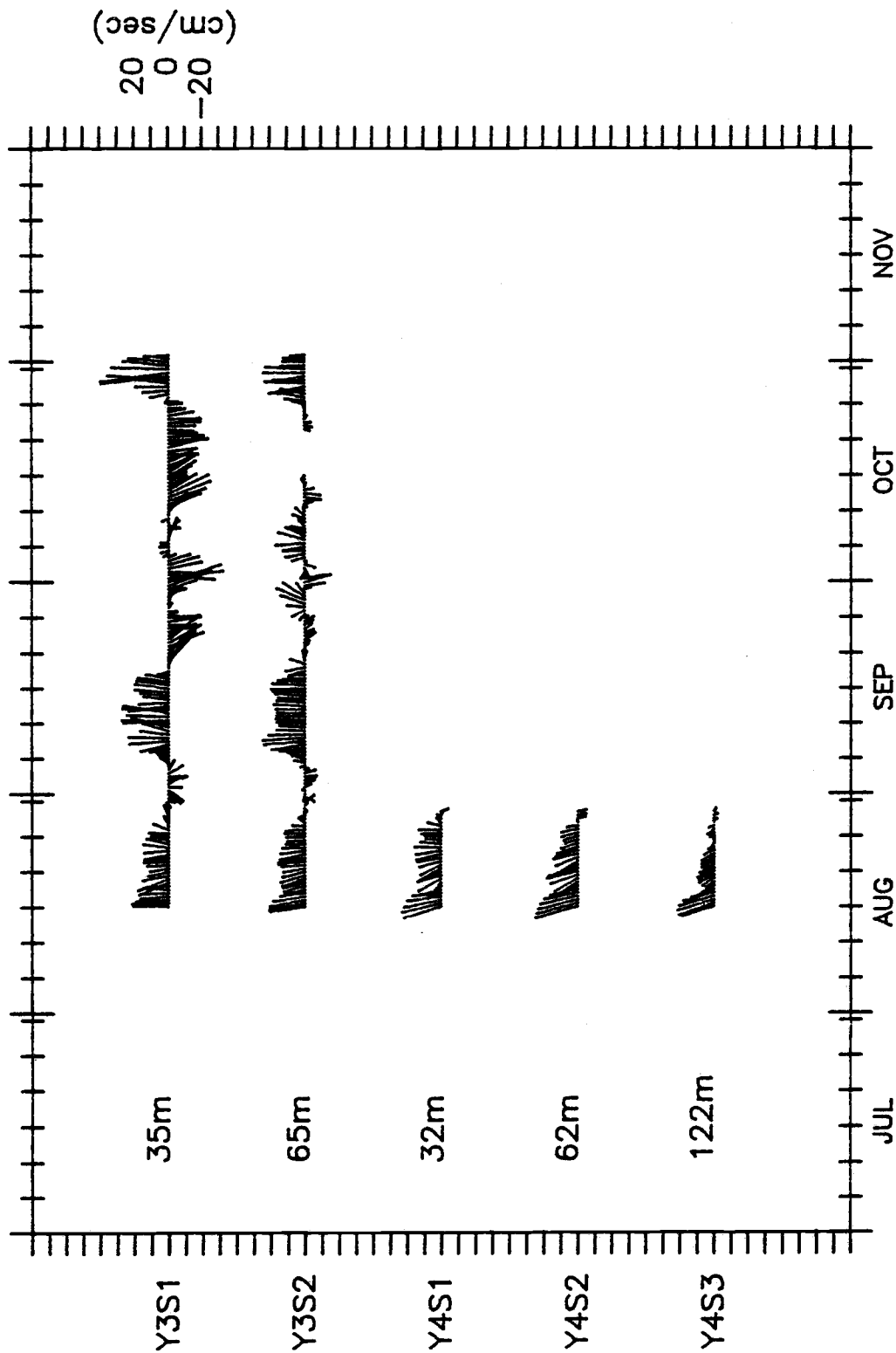




CRESCENT CITY velocity

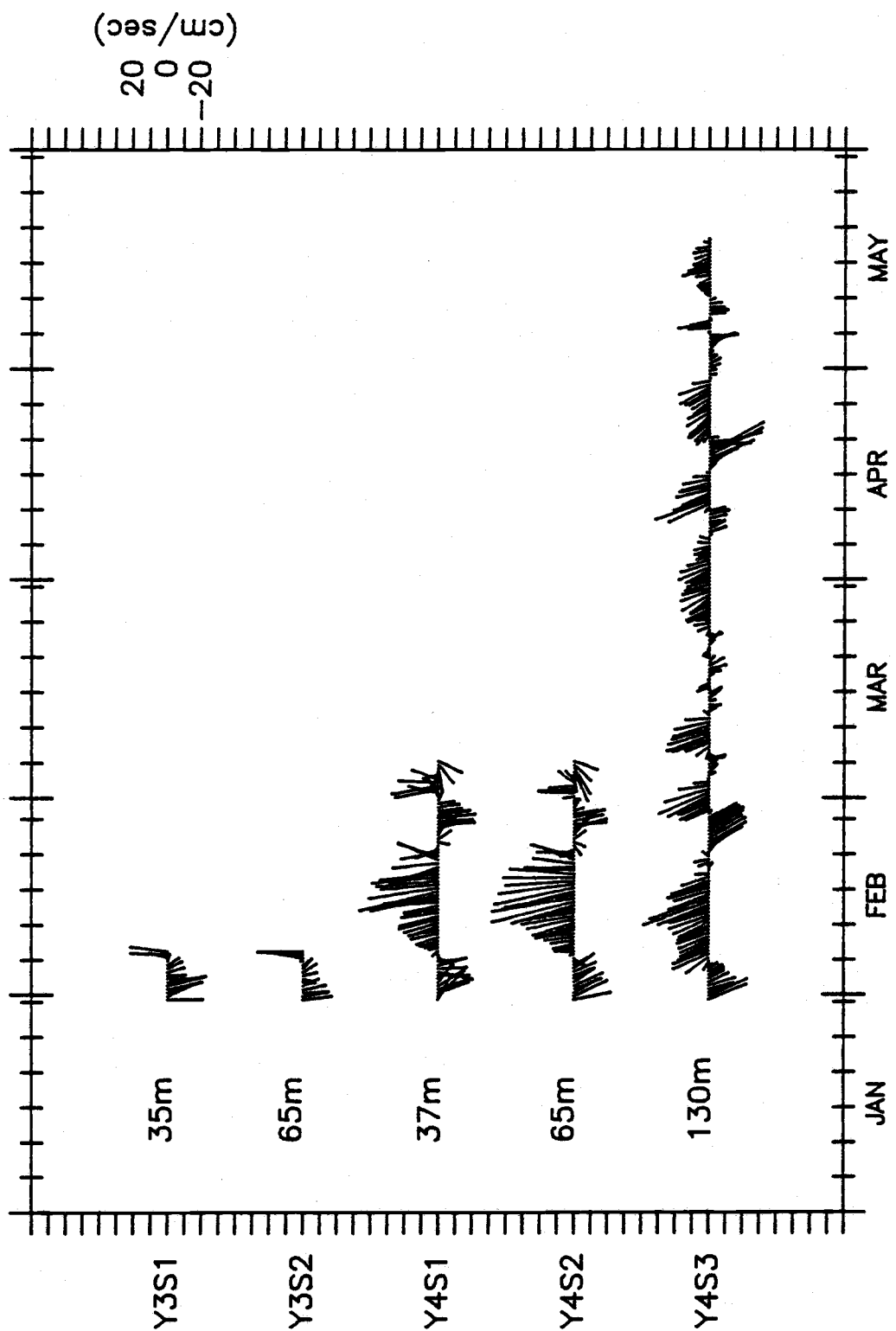


CRESCENT CITY velocity



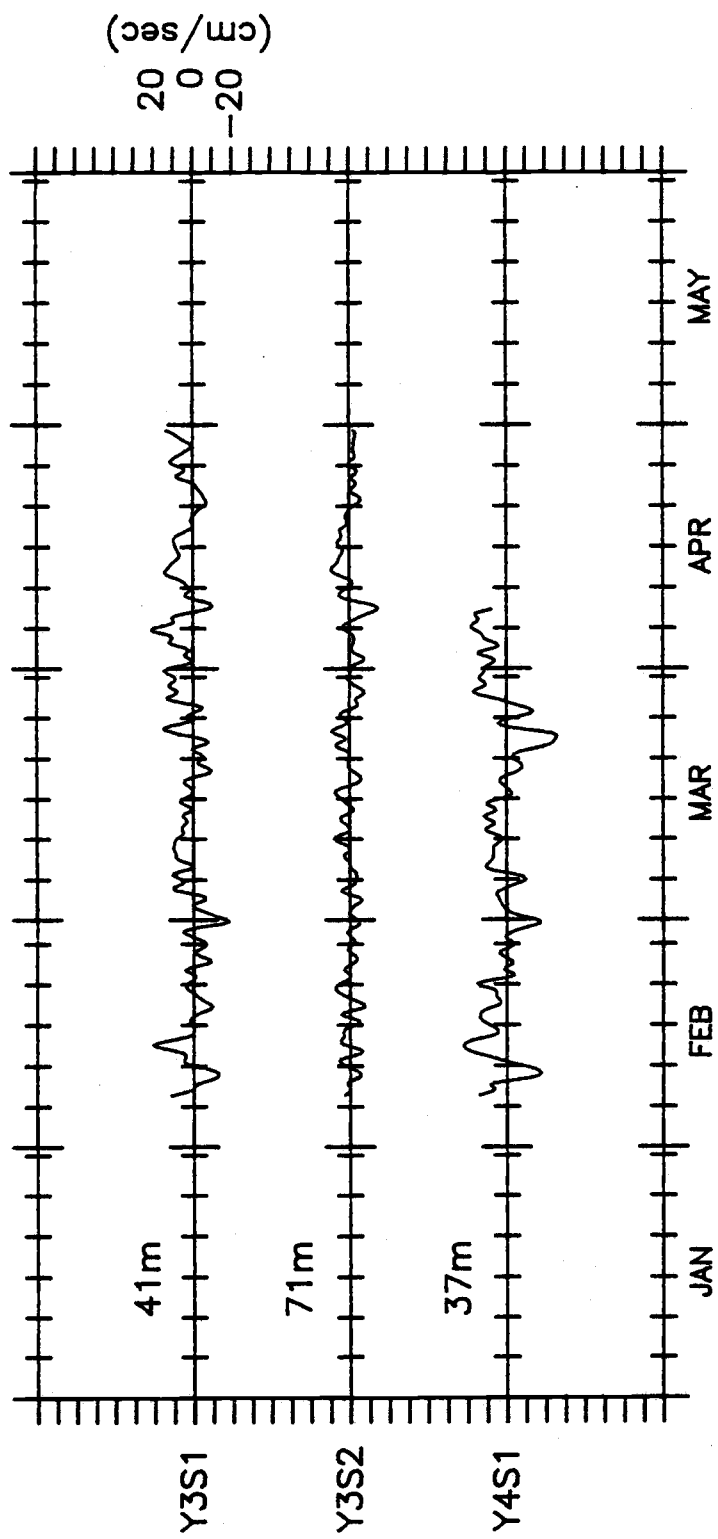
1981

CRESCENT CITY velocity



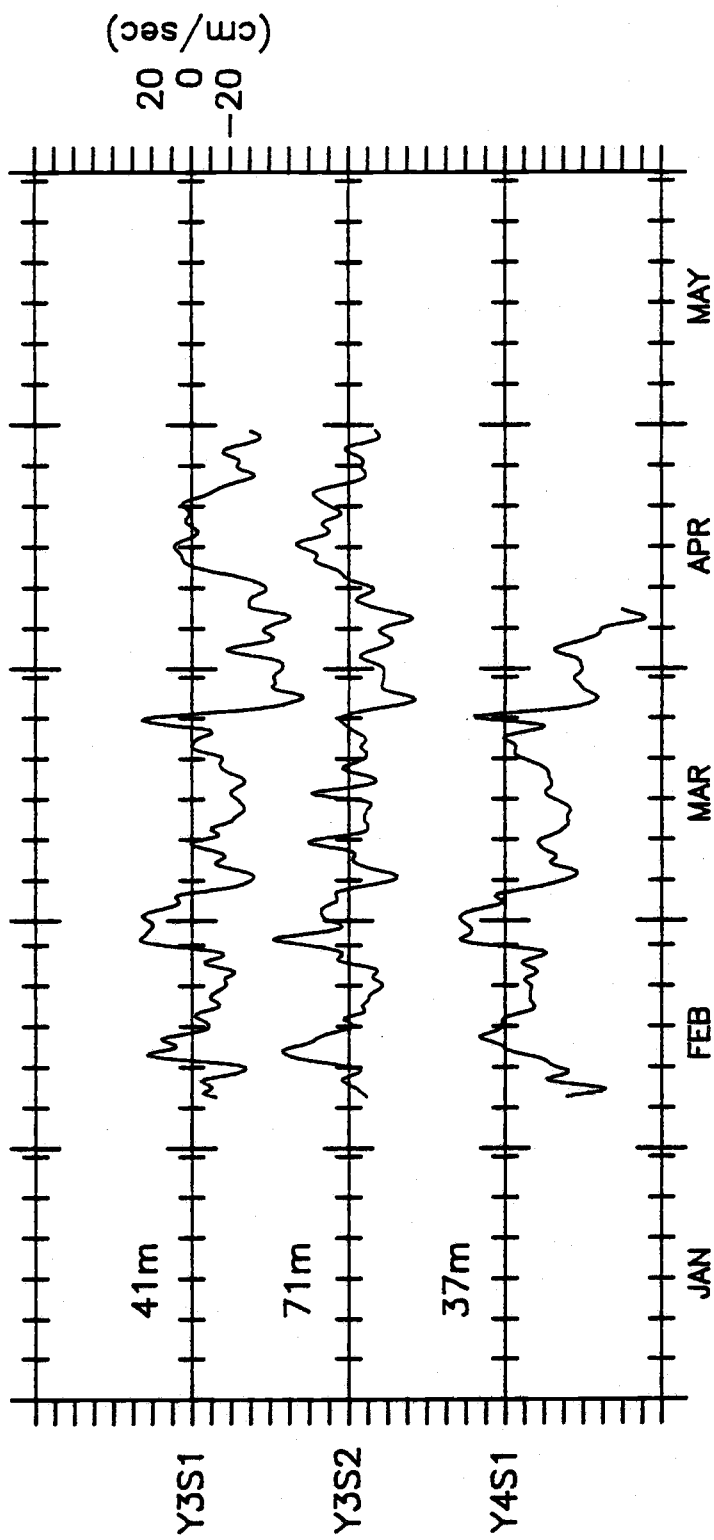
1982

CRESCENT CITY velocity



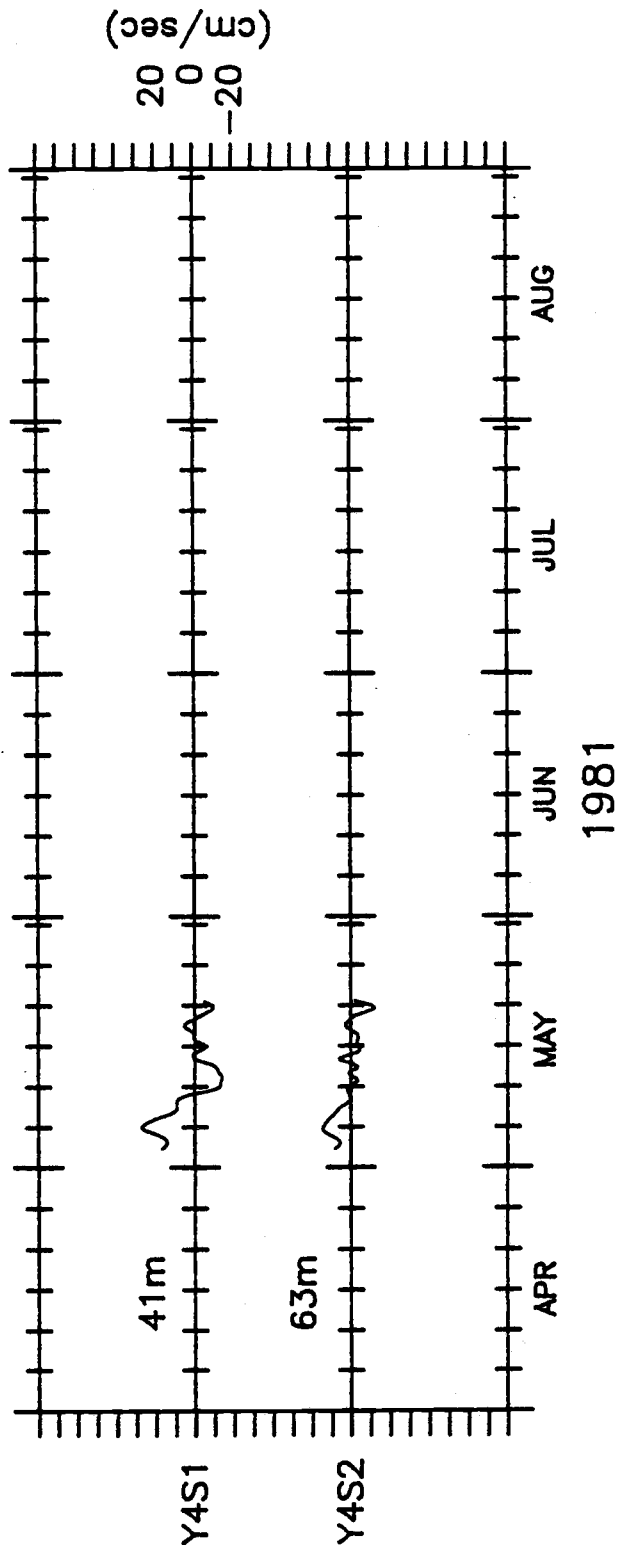
1981

CRESCENT CITY U velocity



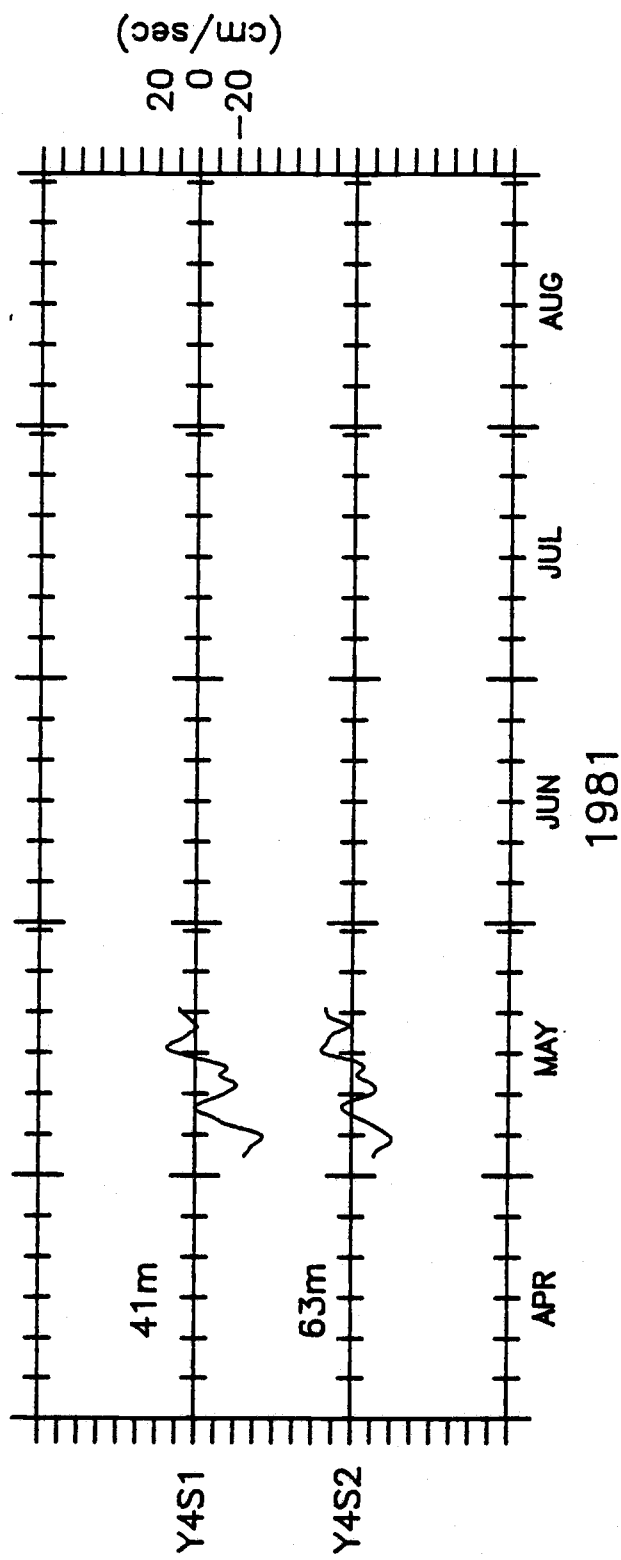
1981

CRESCENT CITY V velocity



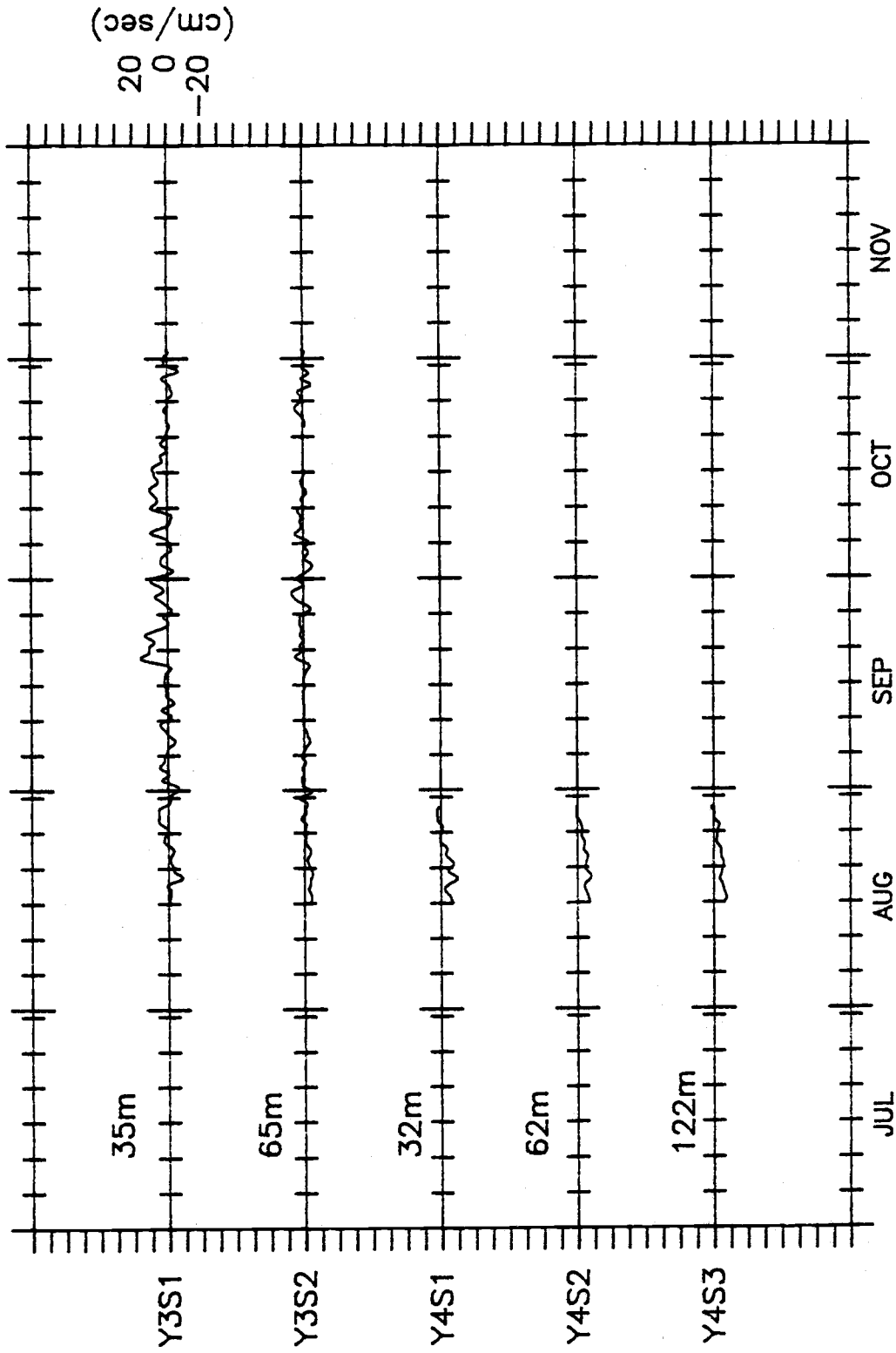
CRESCENT CITY U velocity

1981



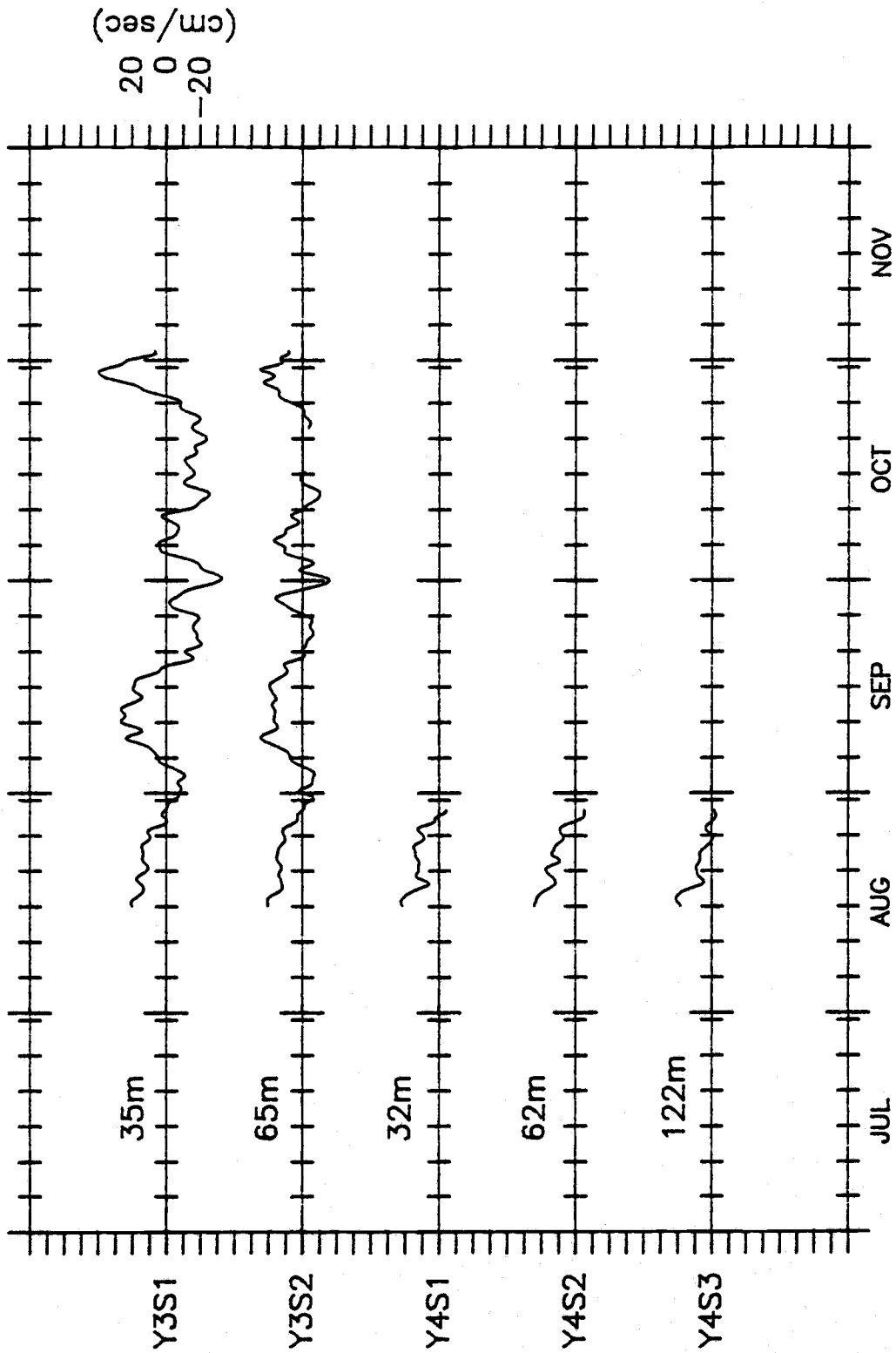
CRESCENT CITY V velocity





1981

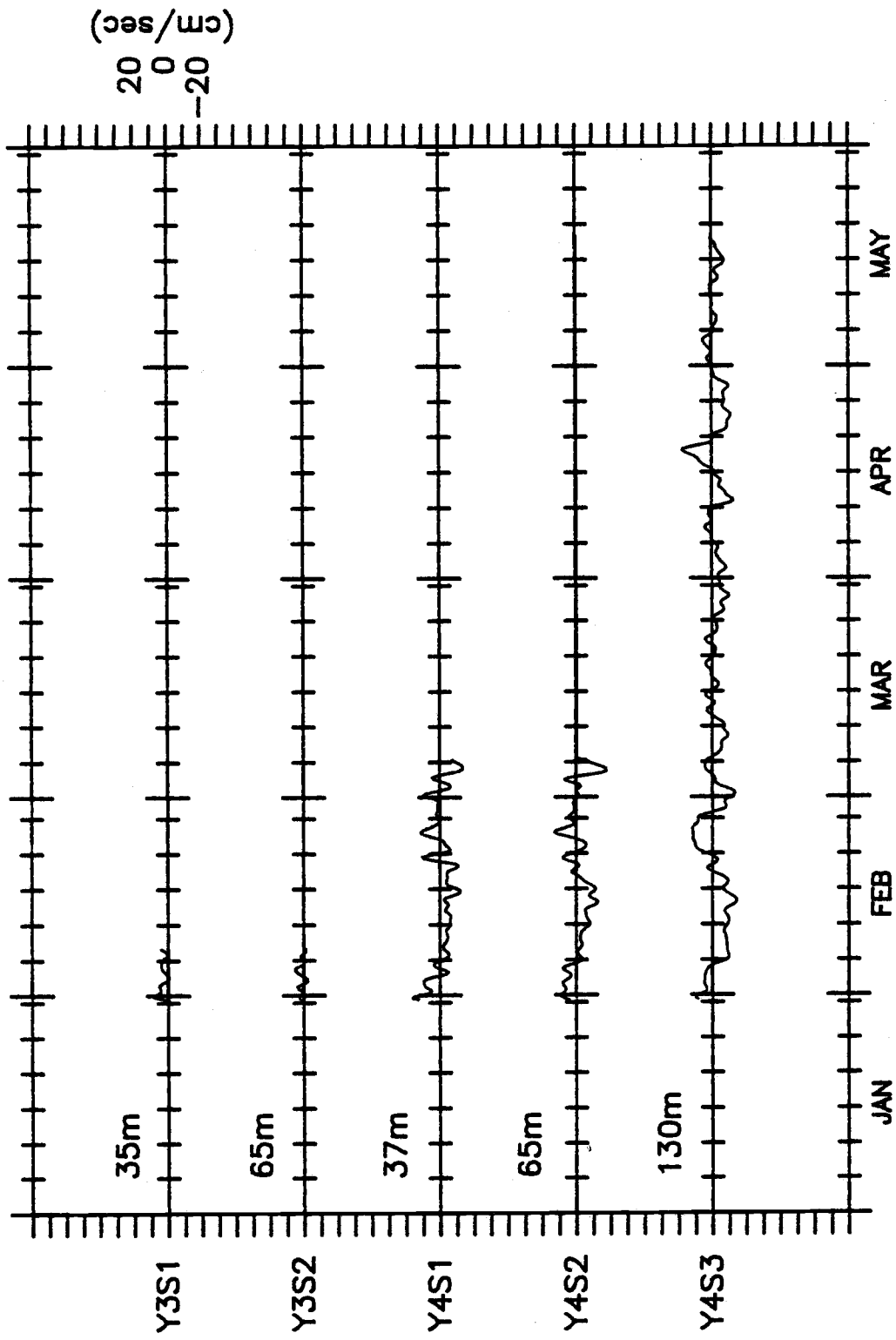
CRESCENT CITY U velocity



1981

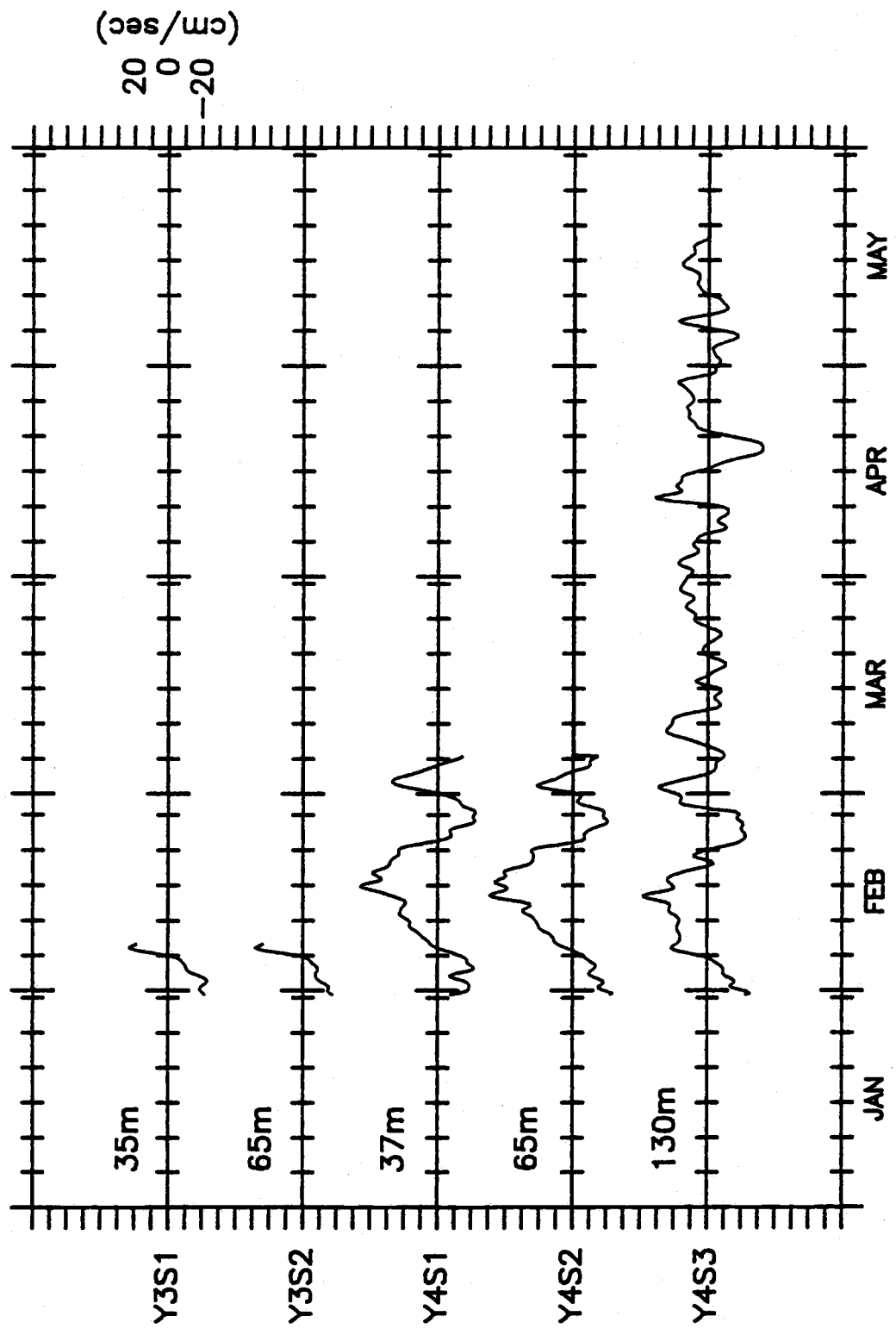
JUL AUG SEP OCT NOV

CRESCENT CITY V velocity



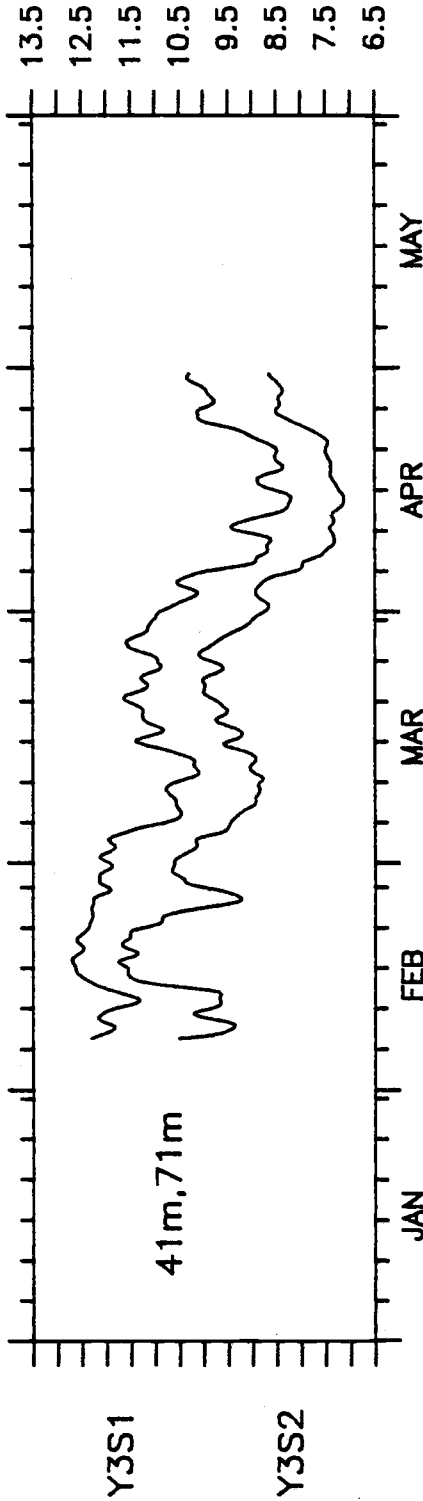
1982

CRESCENT CITY U velocity

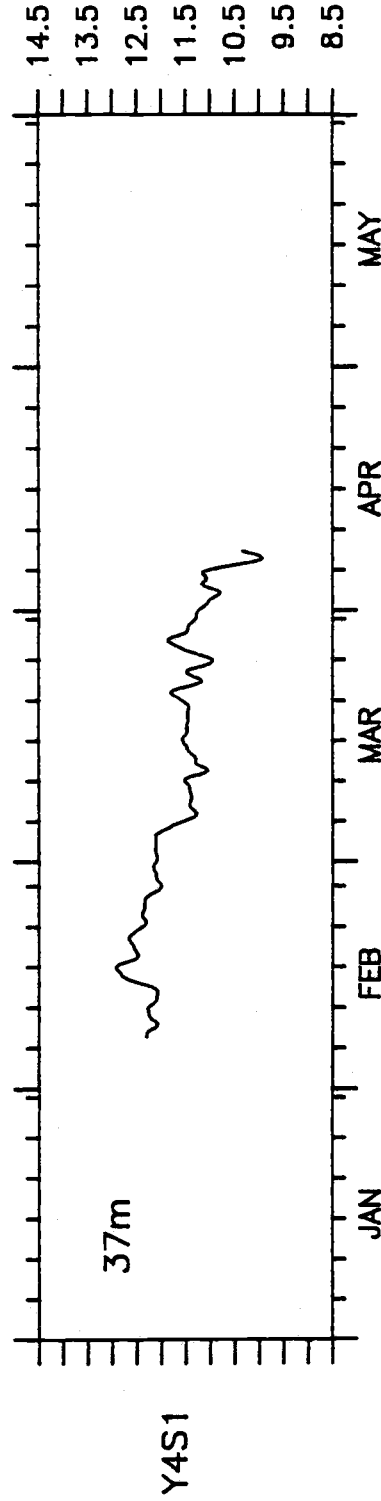


1982

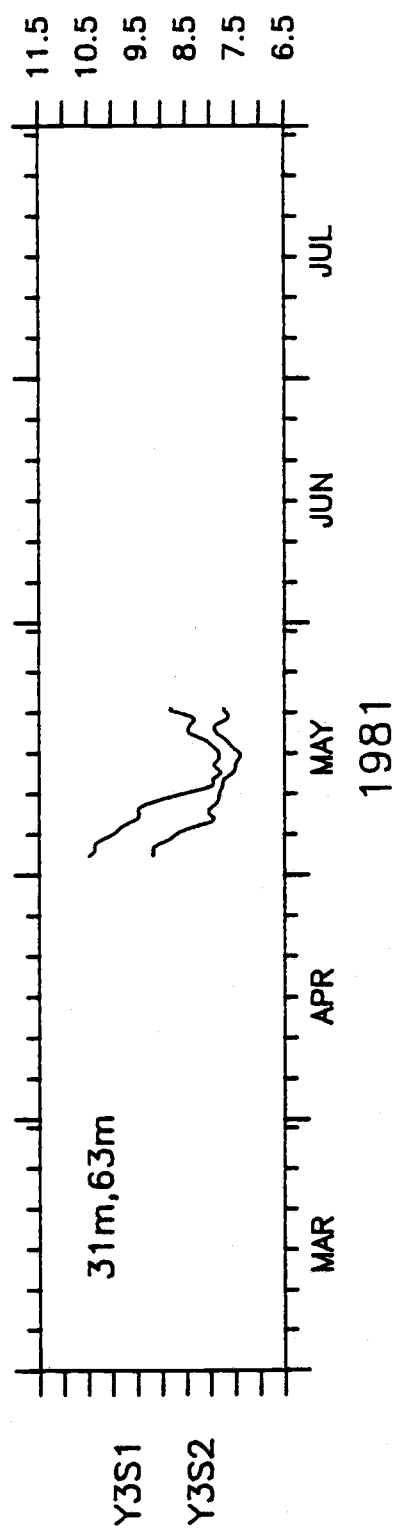
CRESCENT CITY V velocity



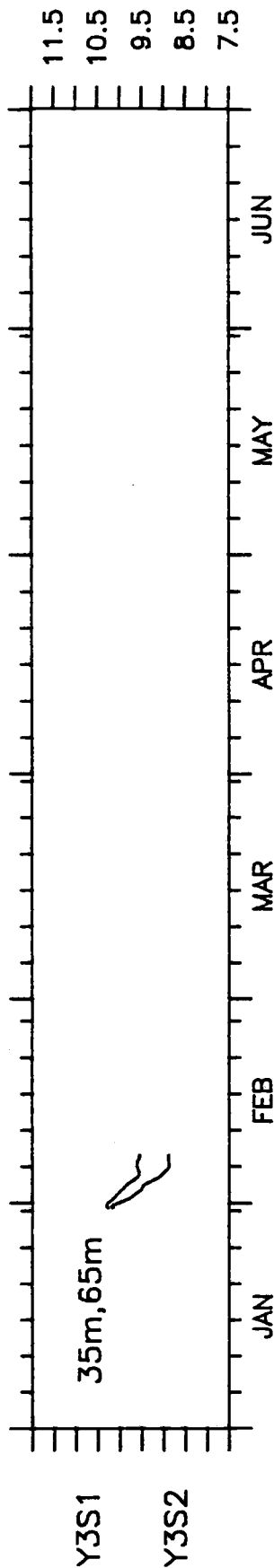
CRESCENT CITY SHALLOW Temperature



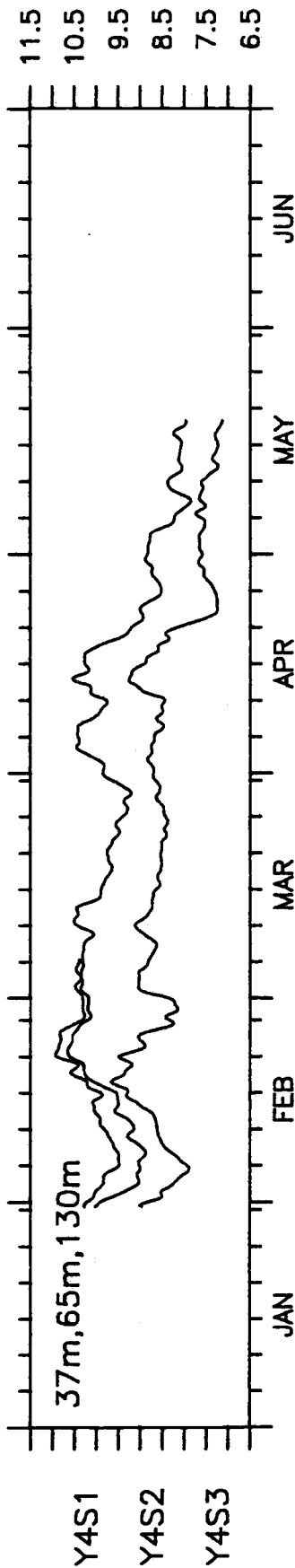
CRESCENT CITY DEEP Temperature



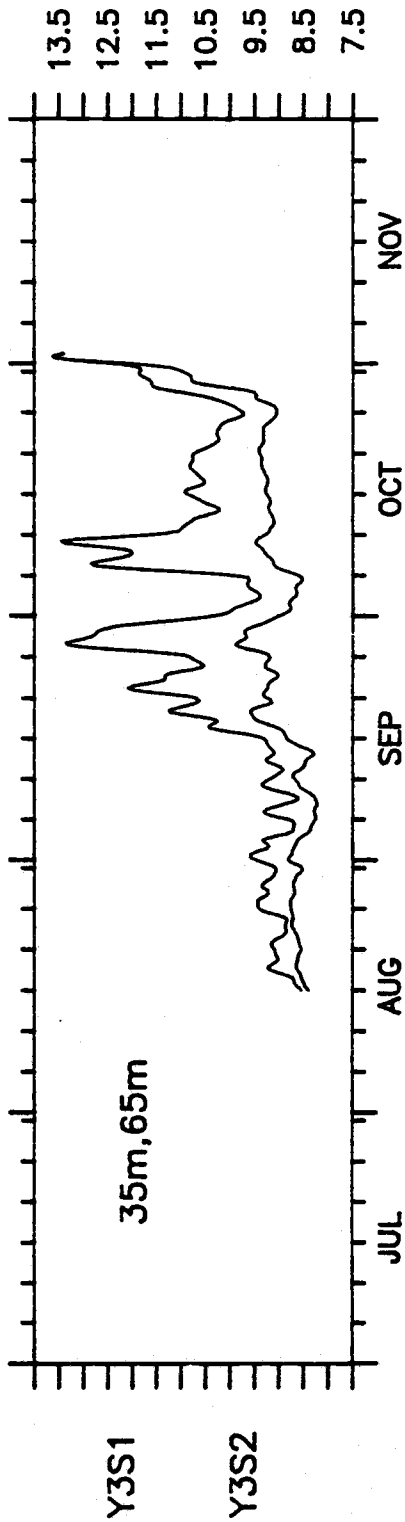
CRESCENT CITY DEEP Temperature 1981



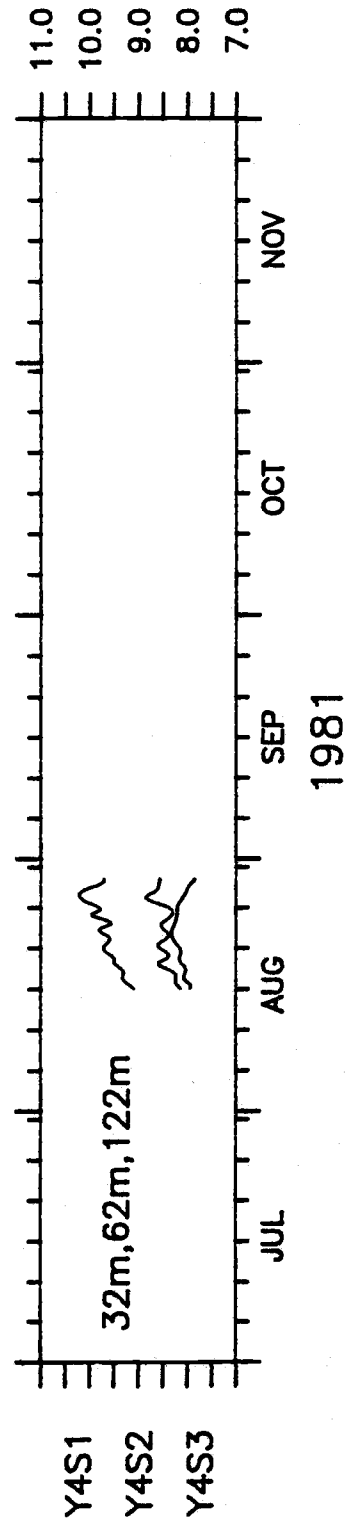
CRESCENT CITY SHALLOW Temperature



CRESCENT CITY DEEP Temperature



CRESCENT CITY SHALLOW Temperature



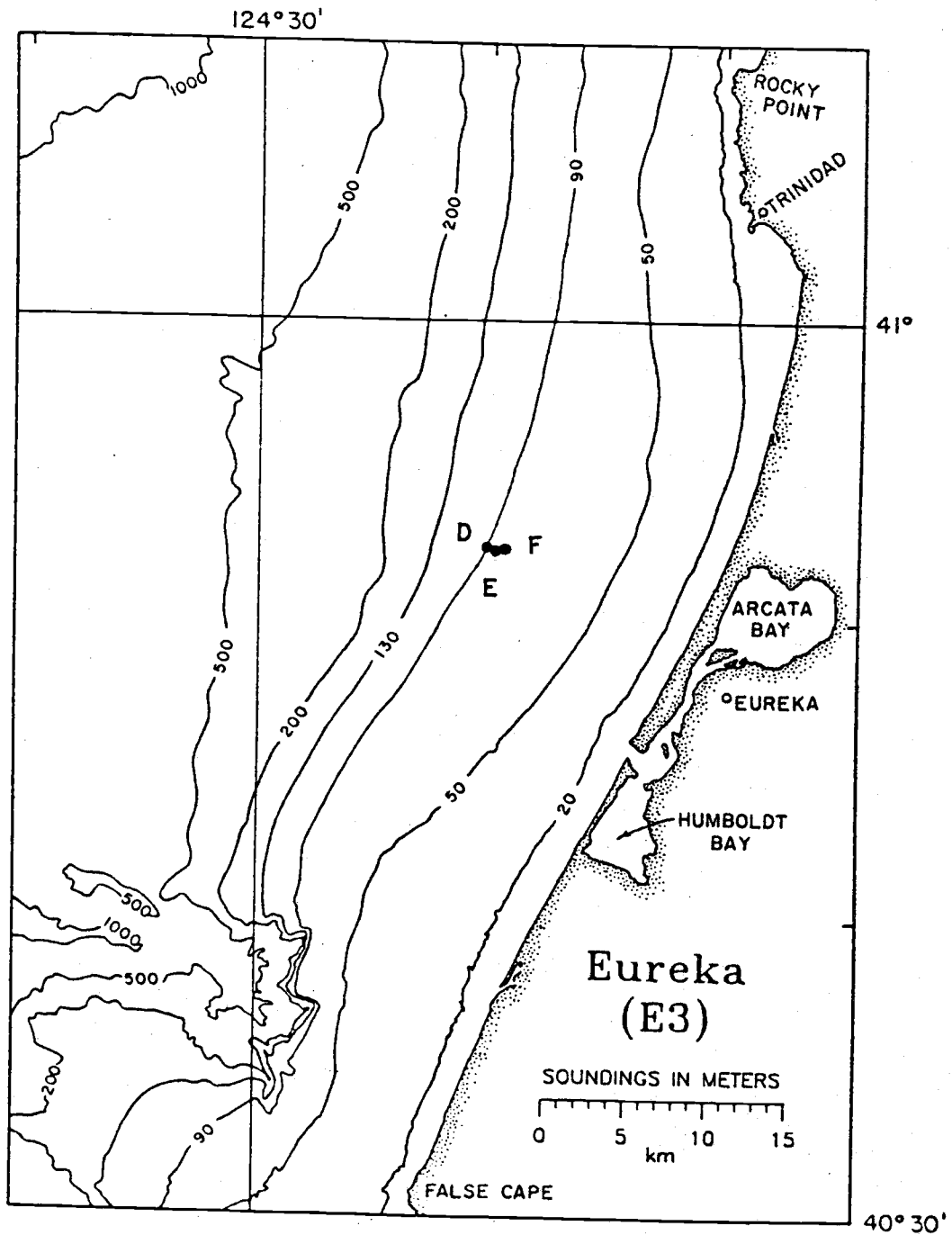
CRESCENT CITY DEEP Temperature





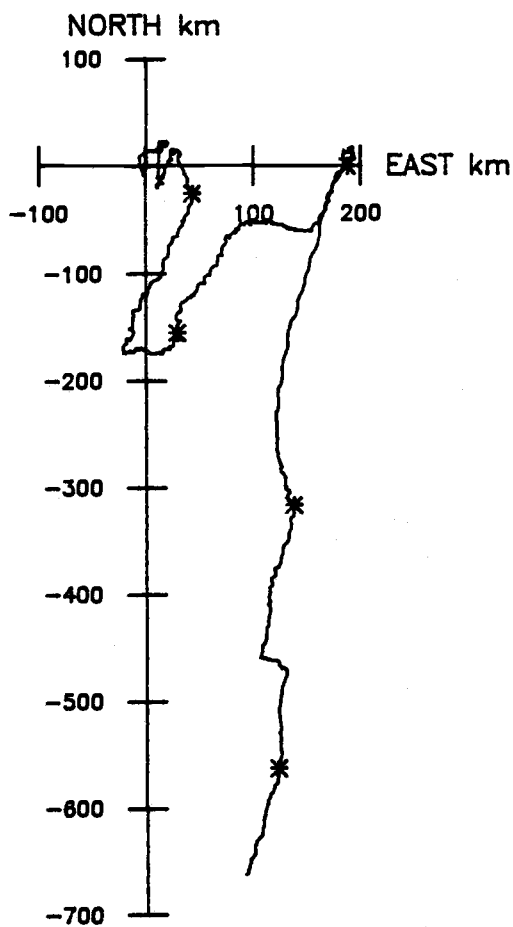
EUREKA



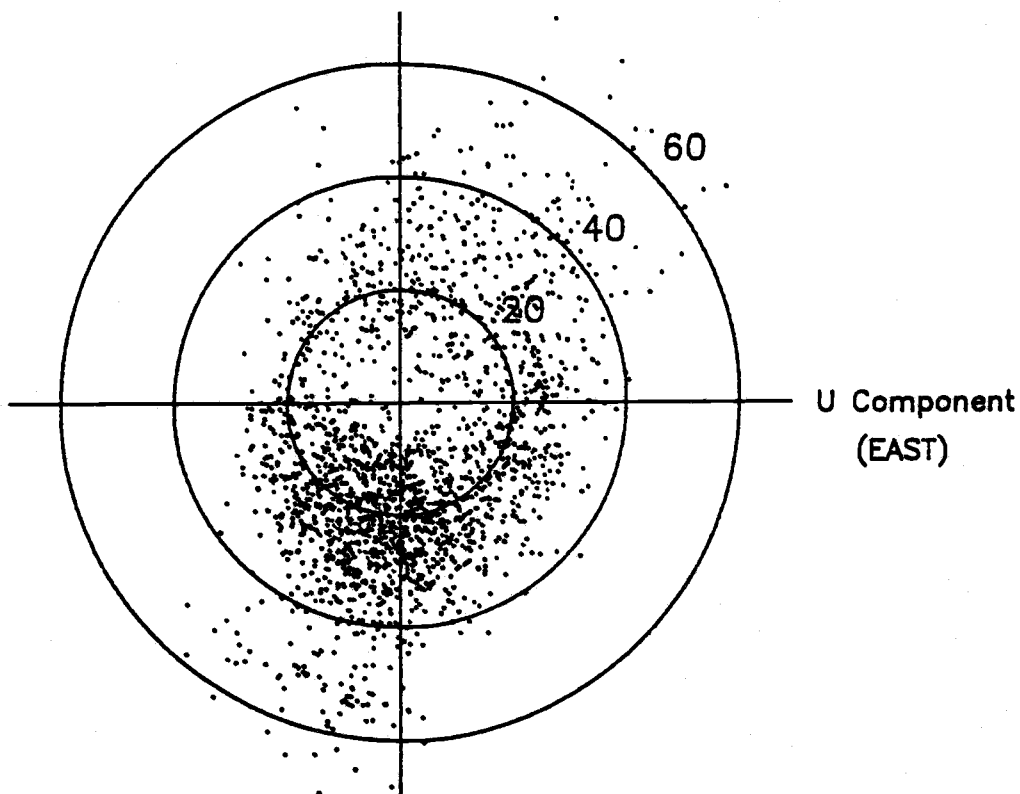


## SAMPLING INTERVAL = 60 MINUTES

STATION	START TIME (GMT)		MIN	MAX	MEAN	STD	STOP TIME		
E3S1	FEB 28,1982	0100	U	-37.9	57.5	1.3	14.6	MAY 21,1982	0900
			V	-69.1	67.9	-9.3	21.3	MAY 21,1982	0900
			T	7.6	11.0	9.7	0.9	MAY 21,1982	0900
E3S1	MAY 22,1982	0100	U	-26.7	31.1	3.5	9.3	SEP 10,1982	0900
			V	-49.0	37.7	-0.4	13.1	SEP 10,1982	0900
			T	7.3	12.1	9.2	0.8	SEP 10,1982	0900
E3S1	SEP 10,1982	1836	U	-44.8	72.5	3.4	17.1	APR 14,1983	1836
			V	-67.9	74.7	0.3	22.9	APR 14,1983	1836
			T	8.2	15.7	11.9	1.2	APR 14,1983	1836
E3S2	FEB 28,1982	0200	U	-35.6	56.4	3.2	14.5	MAY 21,1982	0900
			V	-54.3	60.4	-1.7	16.1	MAY 21,1982	0900
			T	7.3	10.9	9.0	0.9	MAY 21,1982	0900
E3S2	MAY 22,1982	0100	U	-21.7	32.5	2.2	9.3	JUL 31,1982	1200
			V	-27.7	40.7	2.4	11.6	JUL 31,1982	1200
			T	7.0	10.3	8.4	0.6	JUL 31,1982	1200



V Component  
(NORTH)

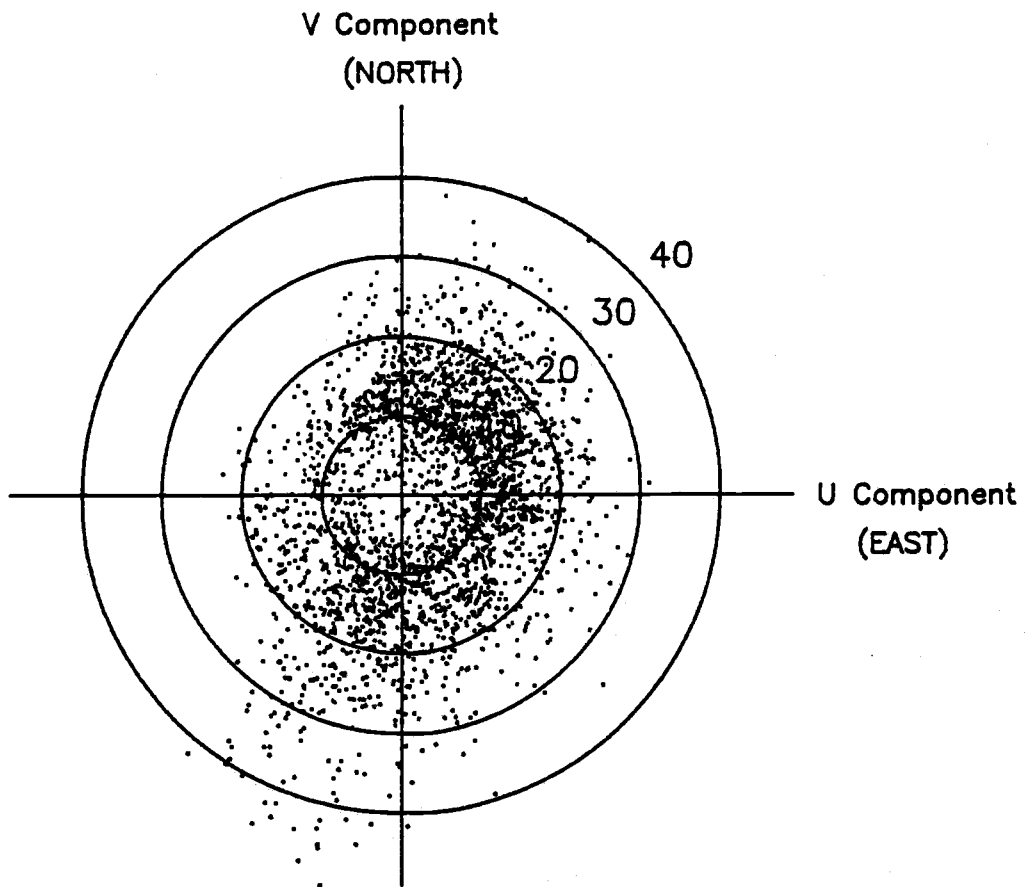
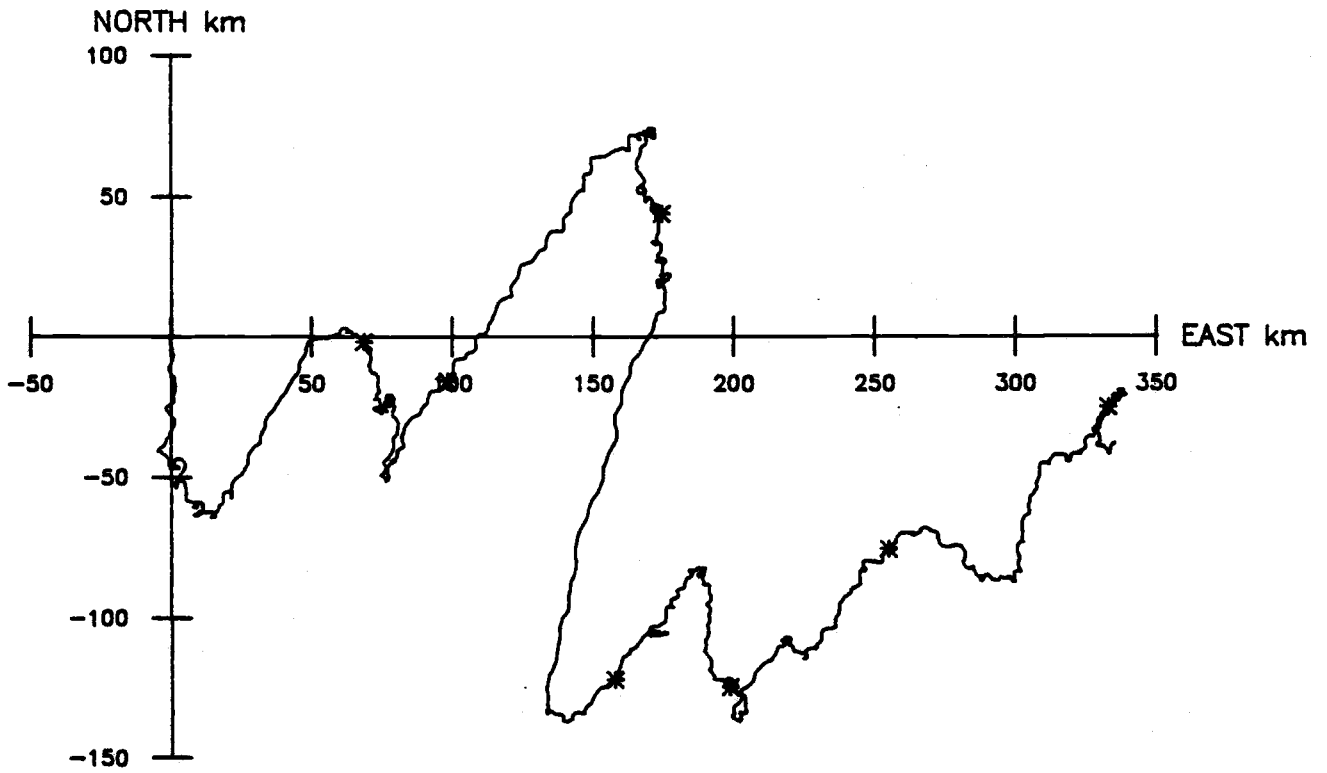


E3S1

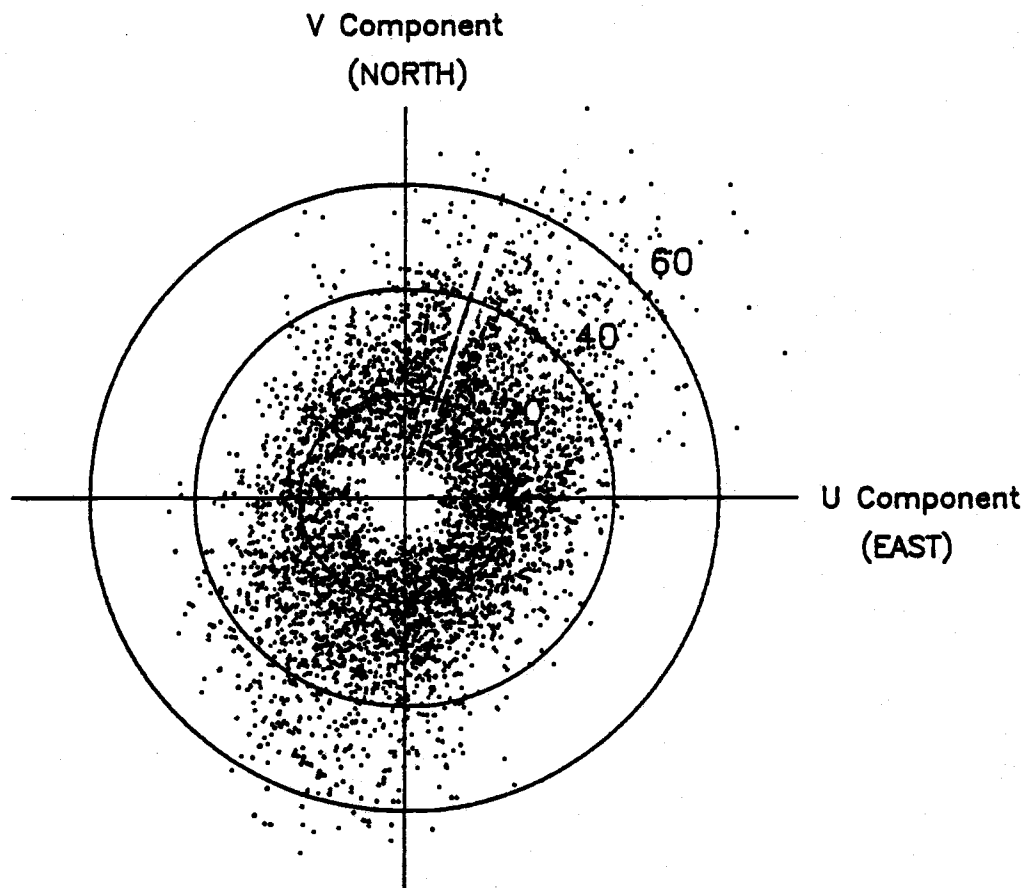
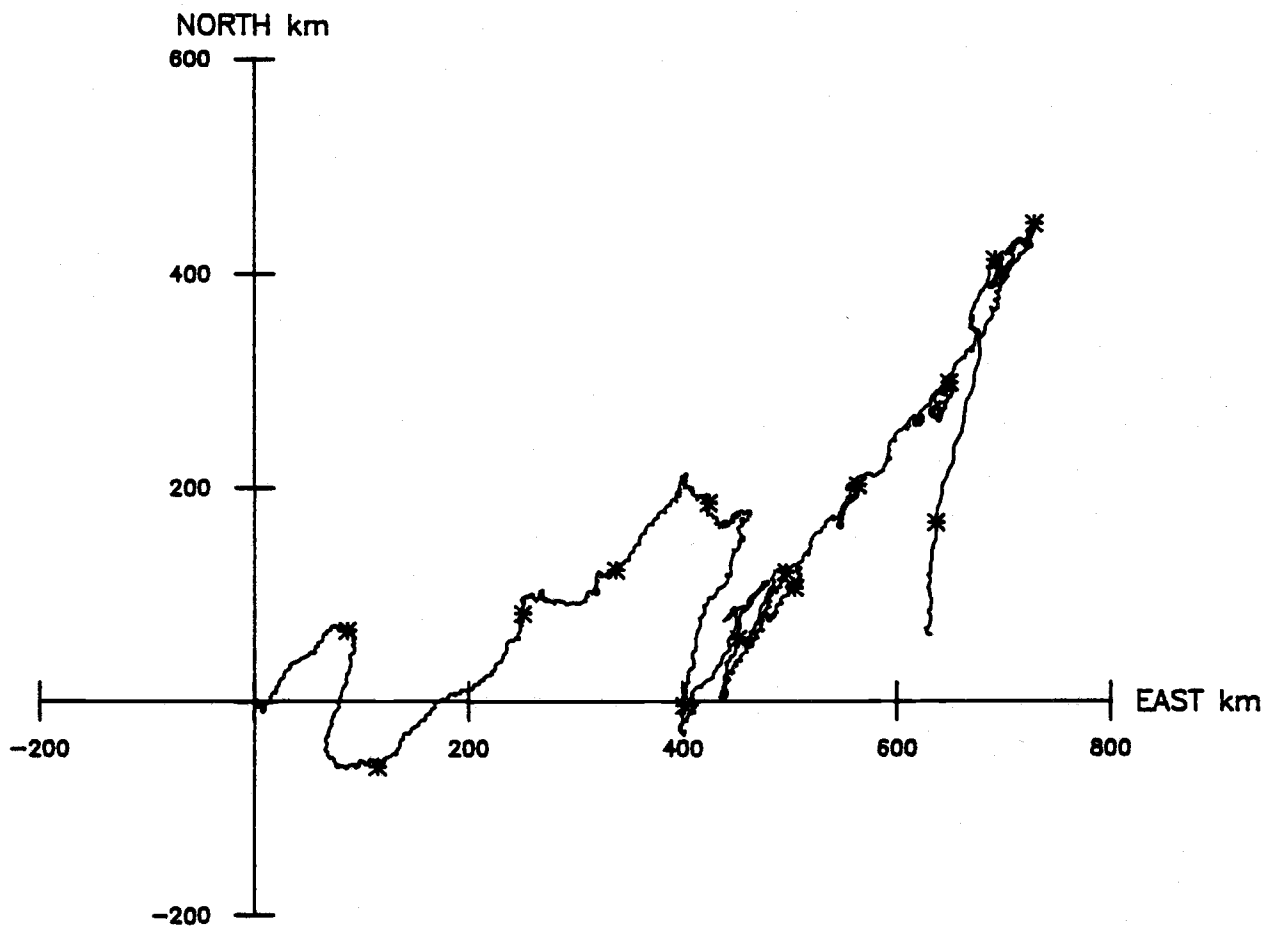
FEB 28, 1982 0100

-

MAY 21, 1982 0900

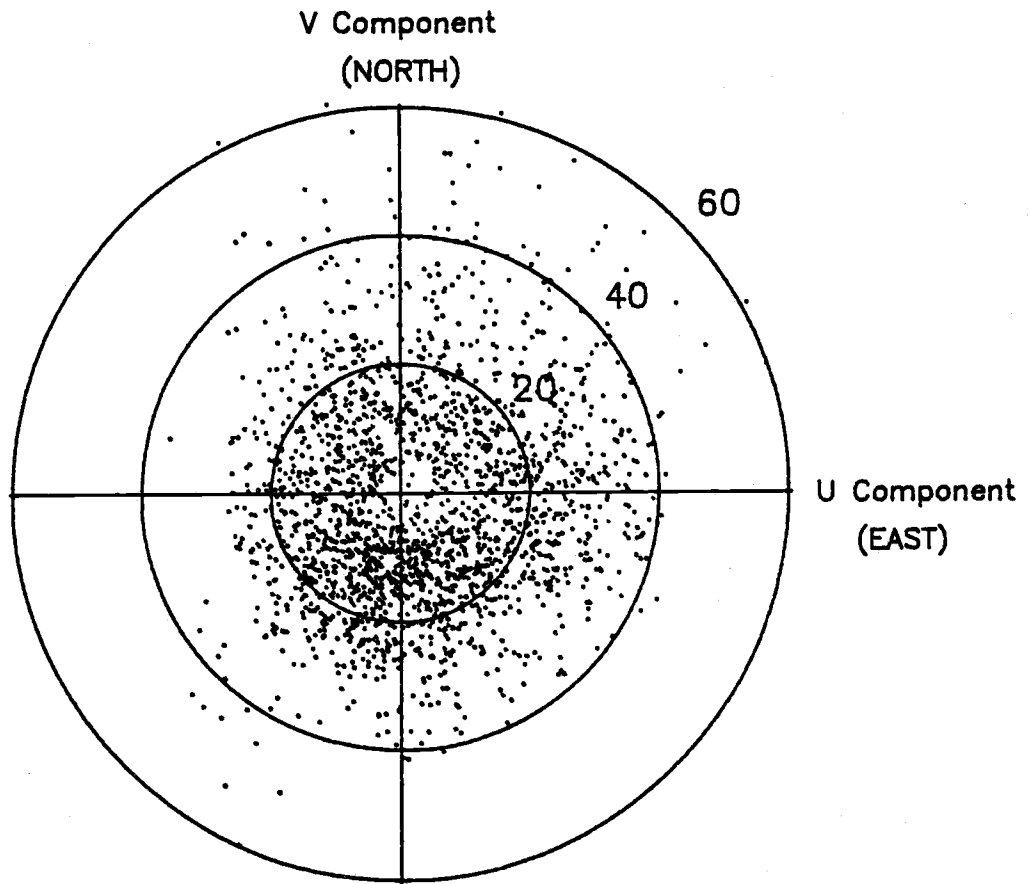
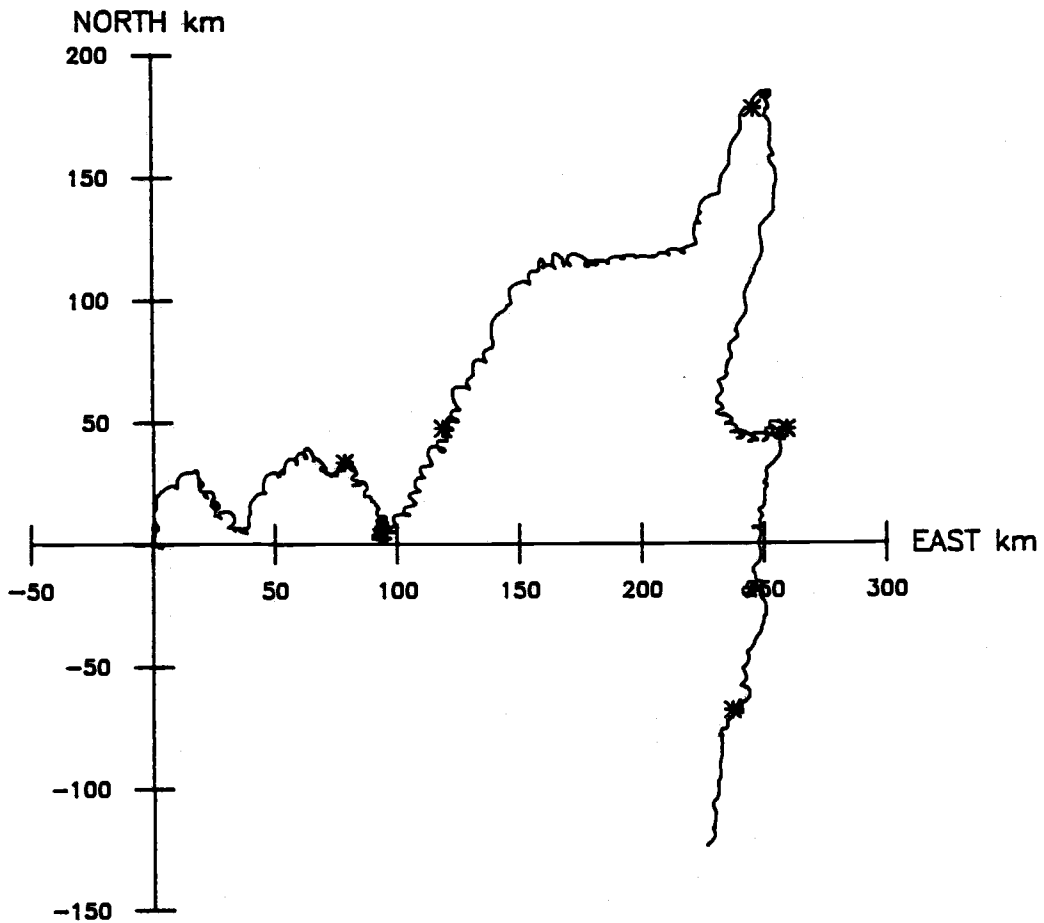


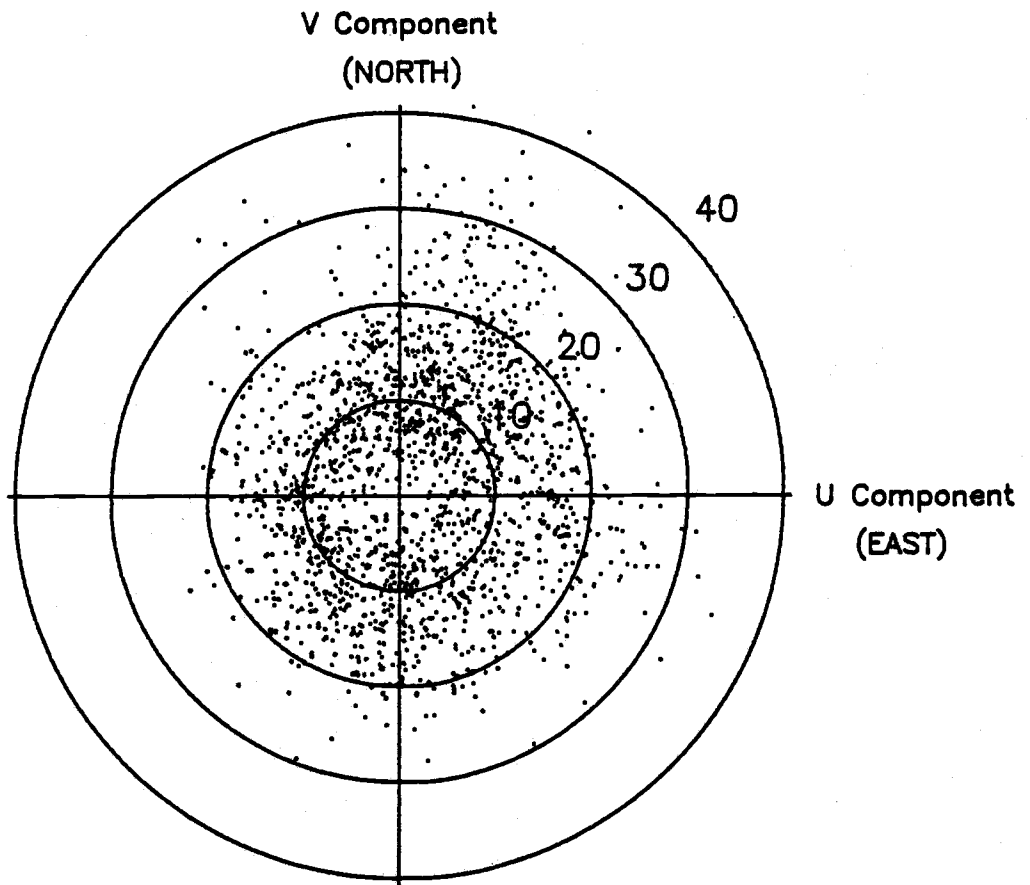
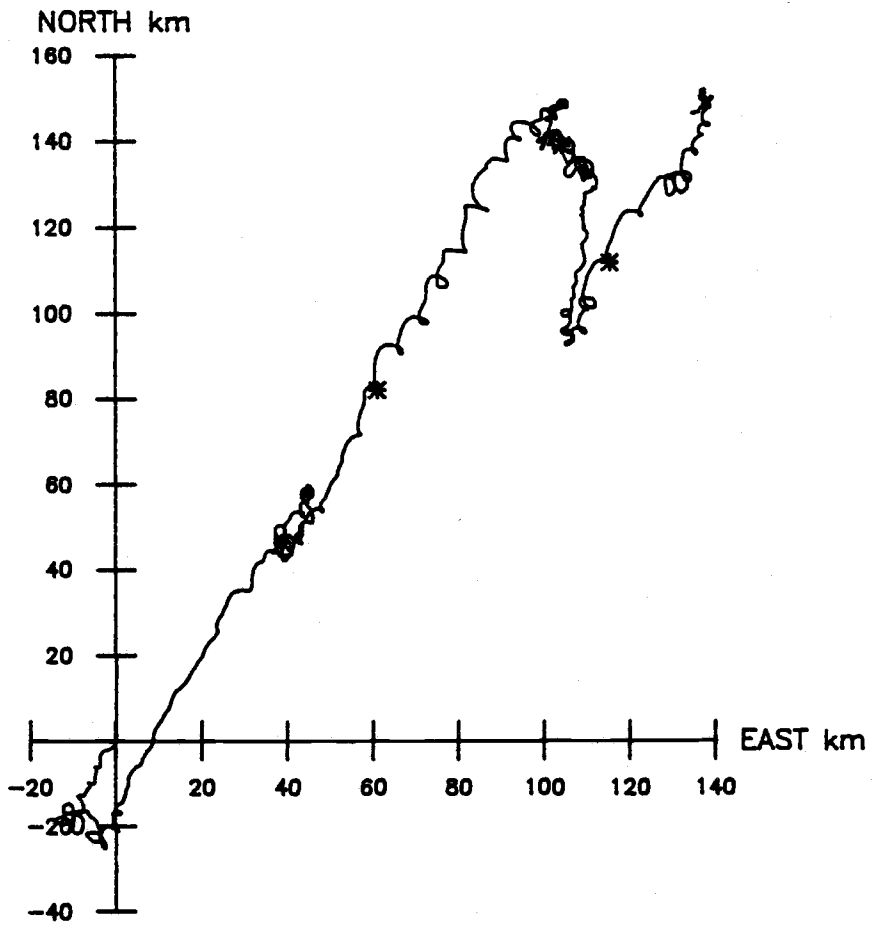
E3S1      MAY 22, 1982 0100      -      SEP 10, 1982 0900



E3S1 SEP 10,1982 1836 - APR 14,1983 1836

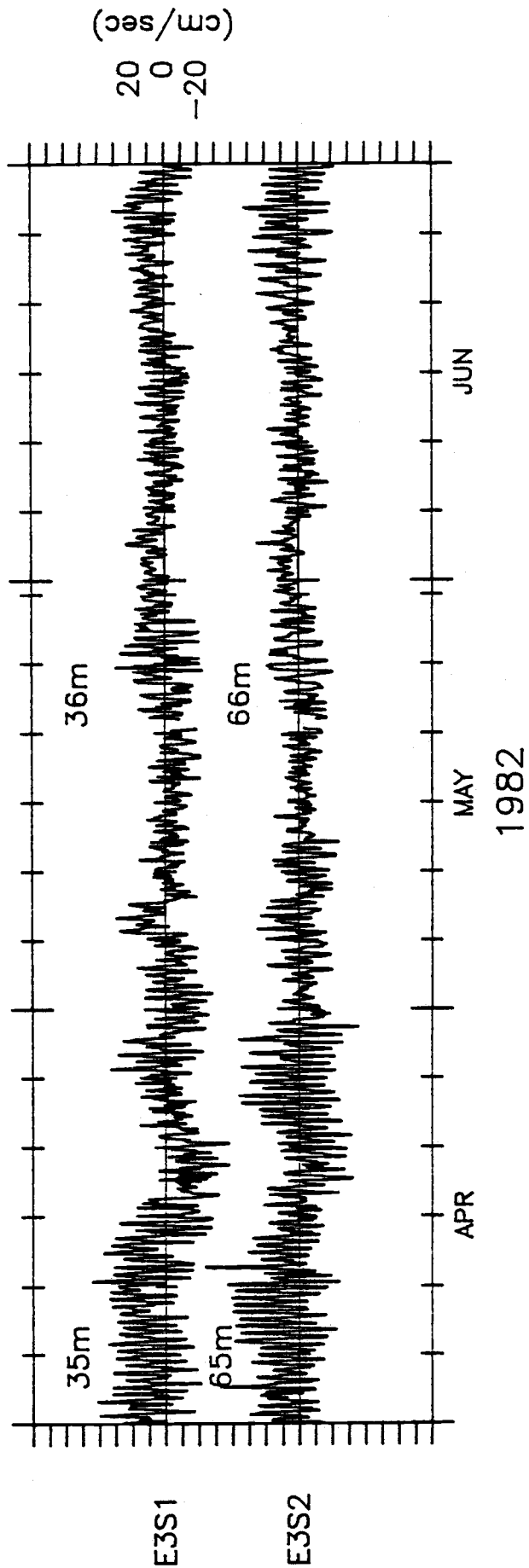
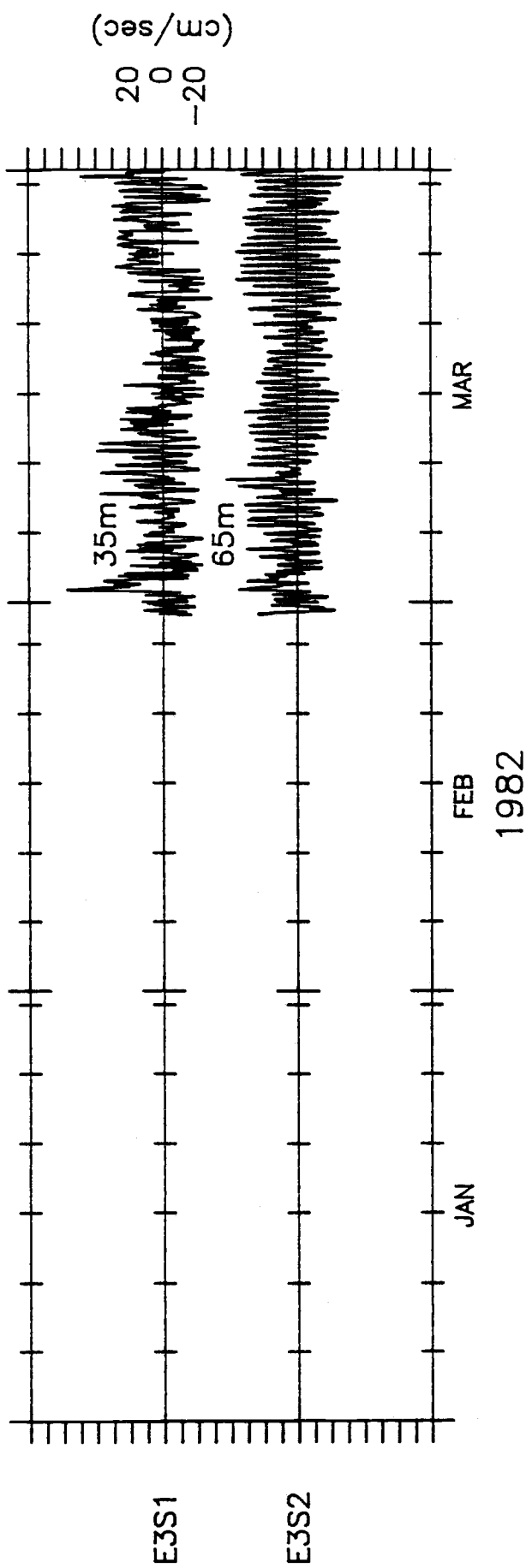




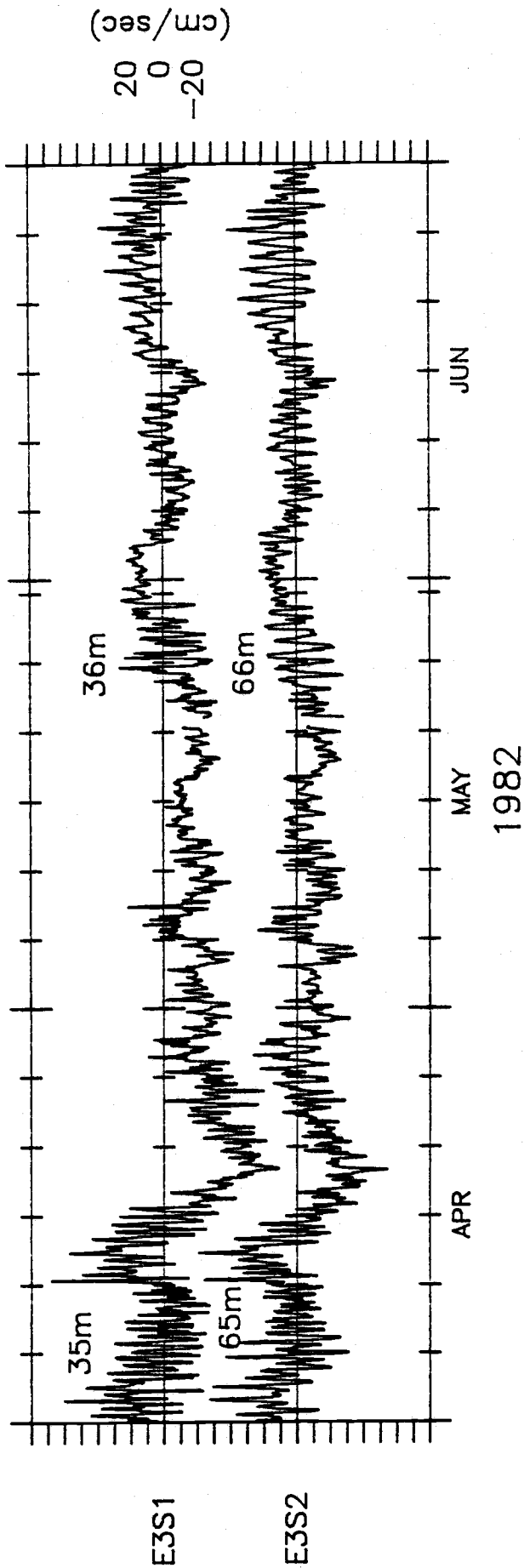
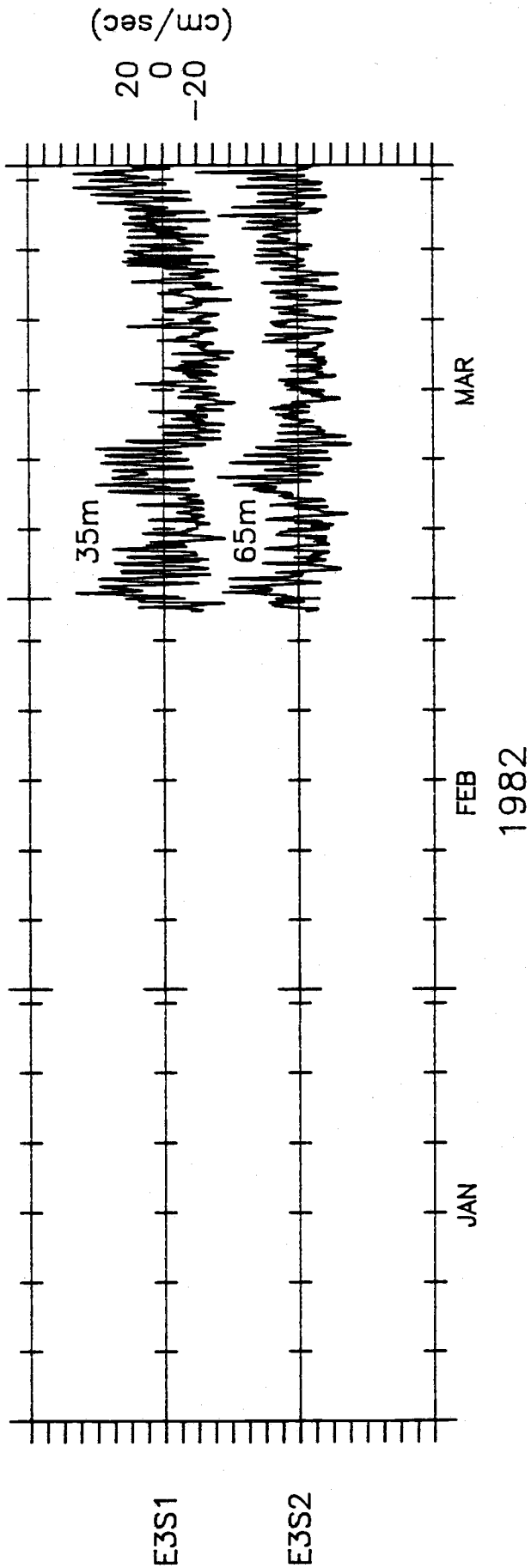


E3S2

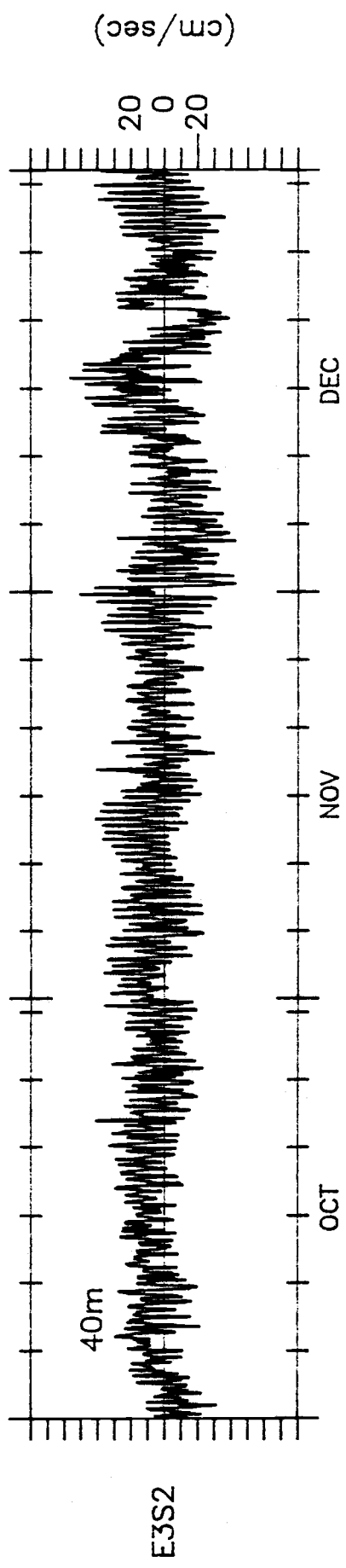
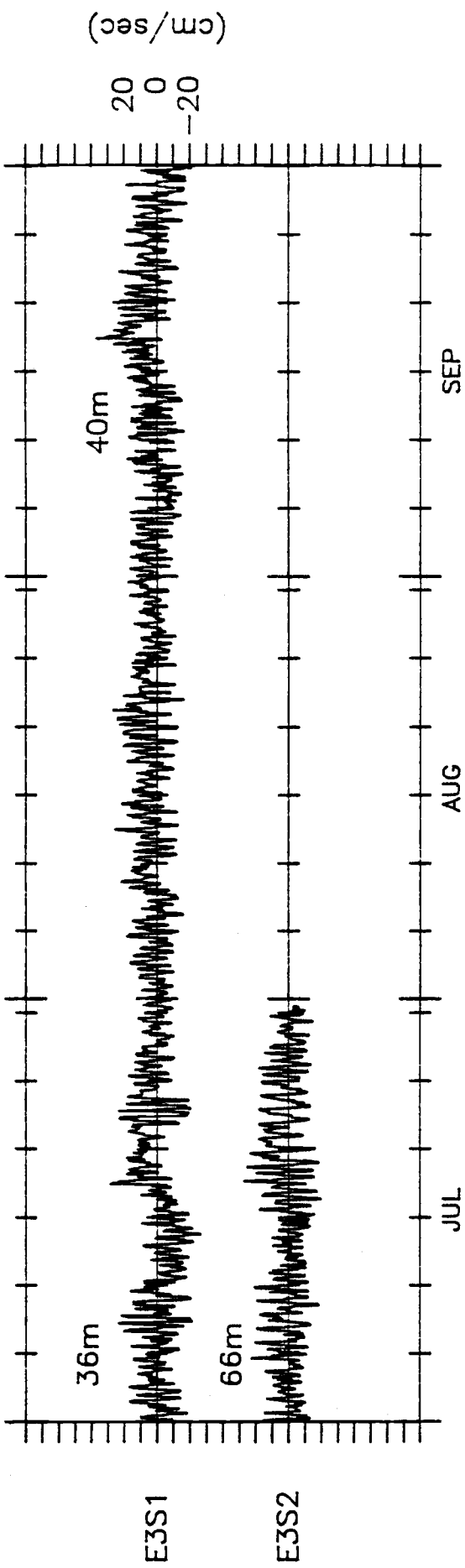
MAY 22, 1982 0100 - JUL 31, 1982 1200



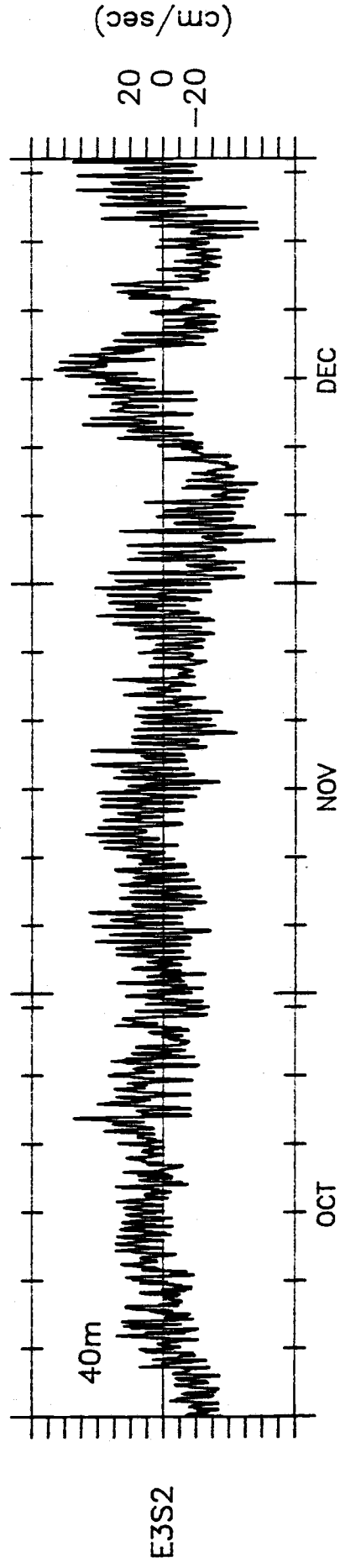
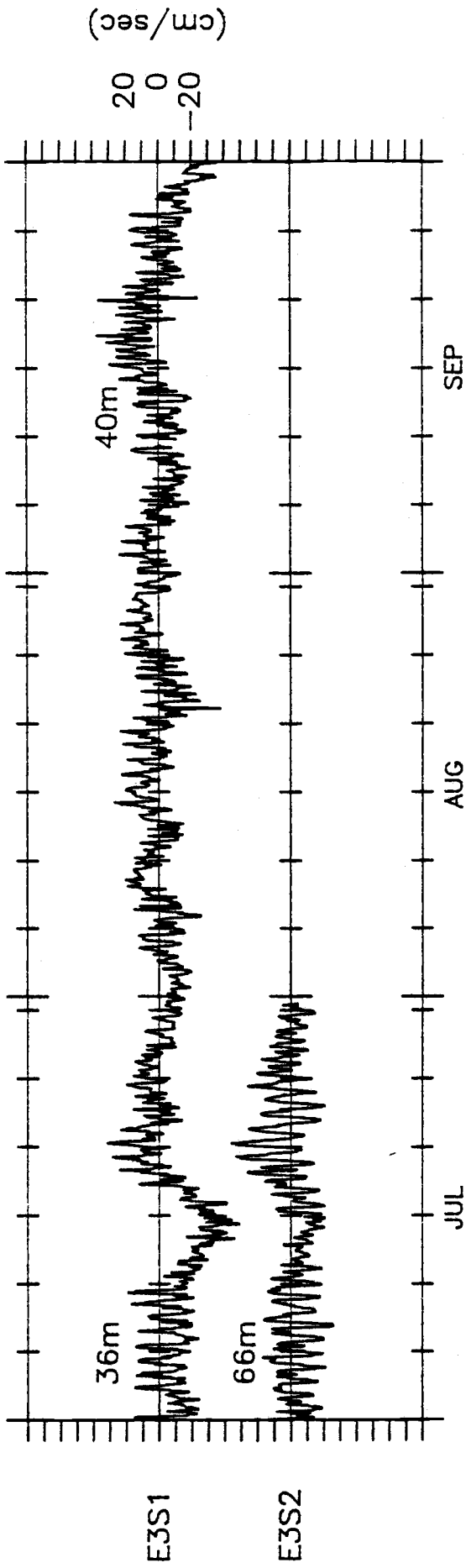
EUREKA U velocity



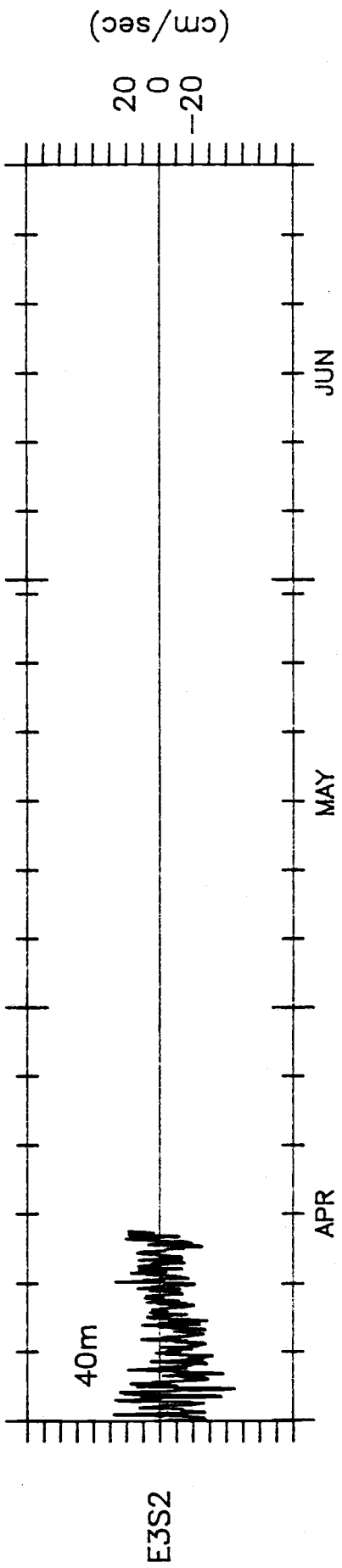
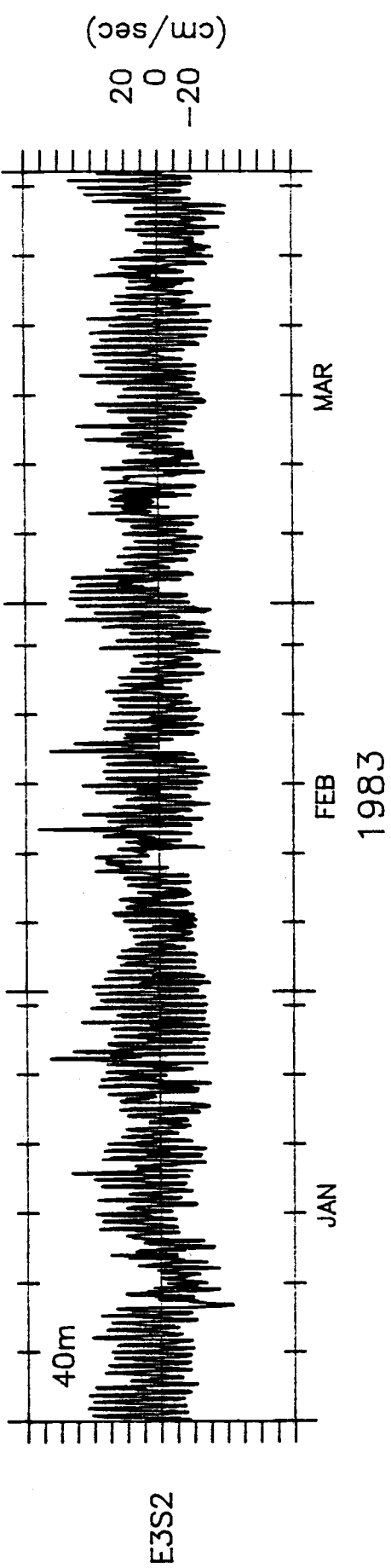
EUREKA V velocity



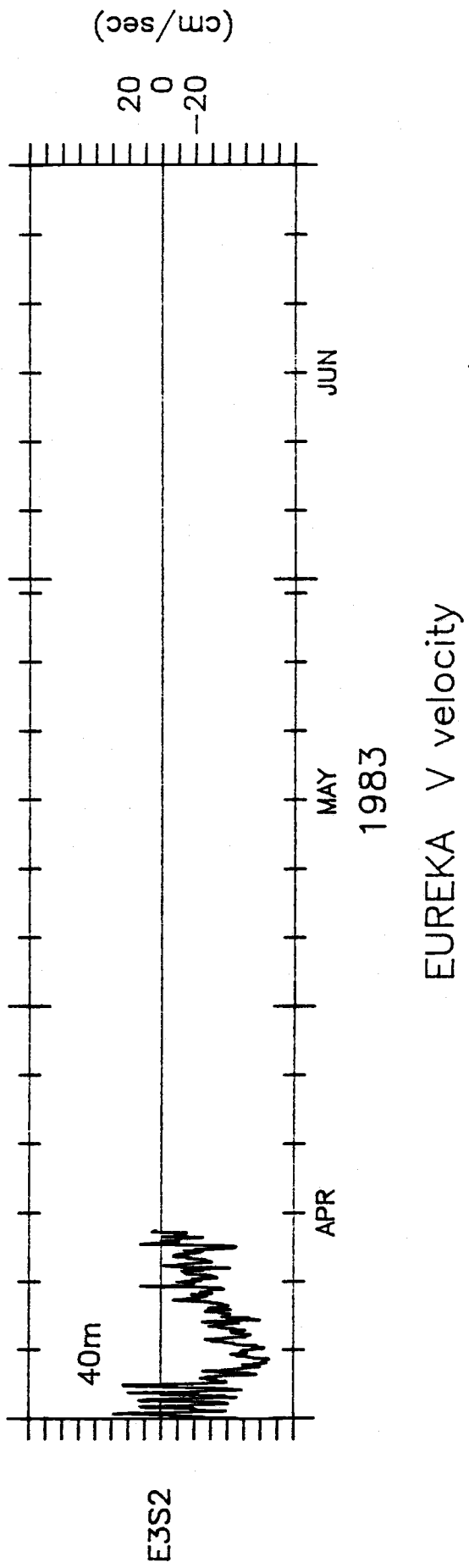
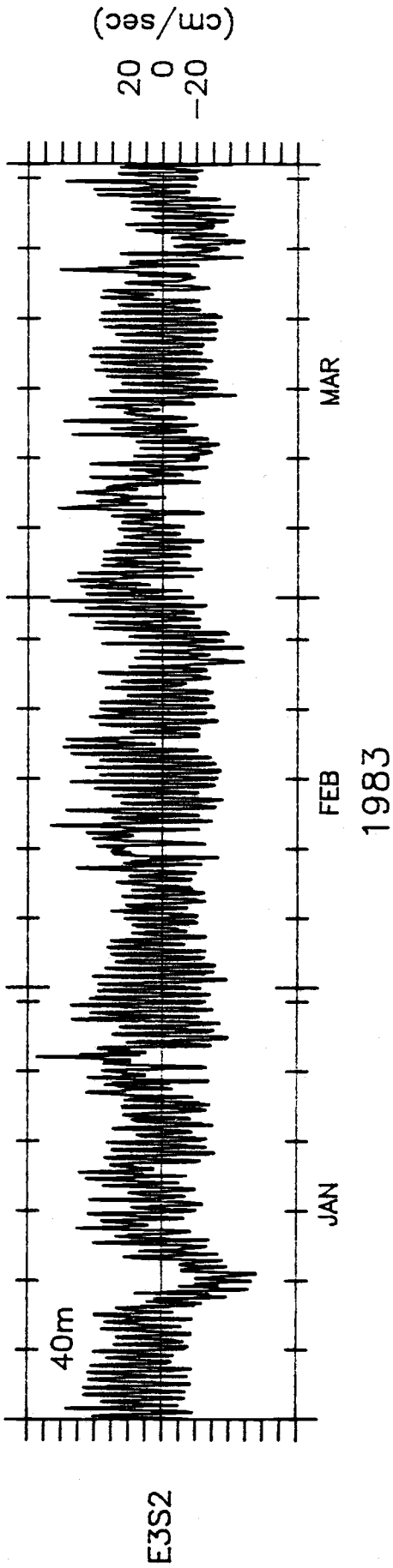
EUREKA U velocity



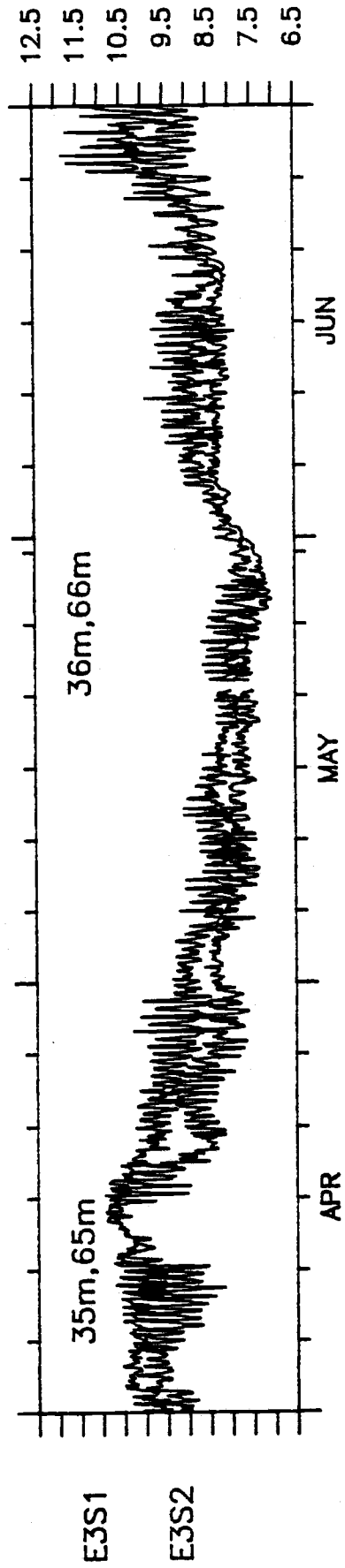
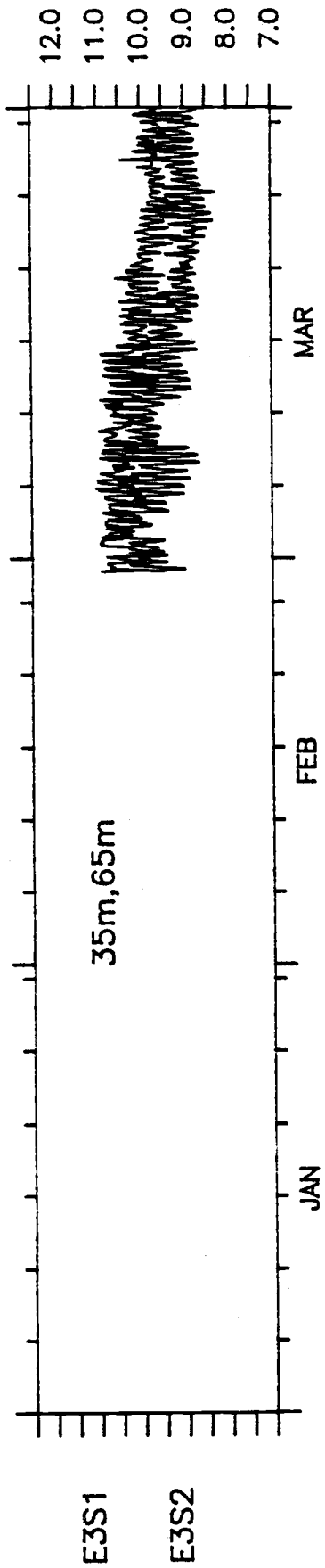
EUREKA V velocity



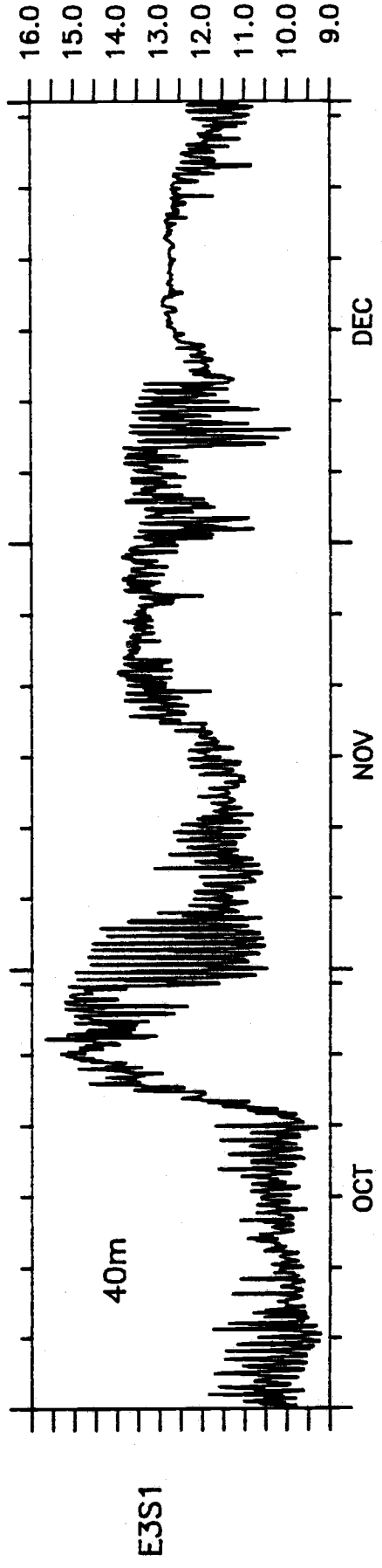
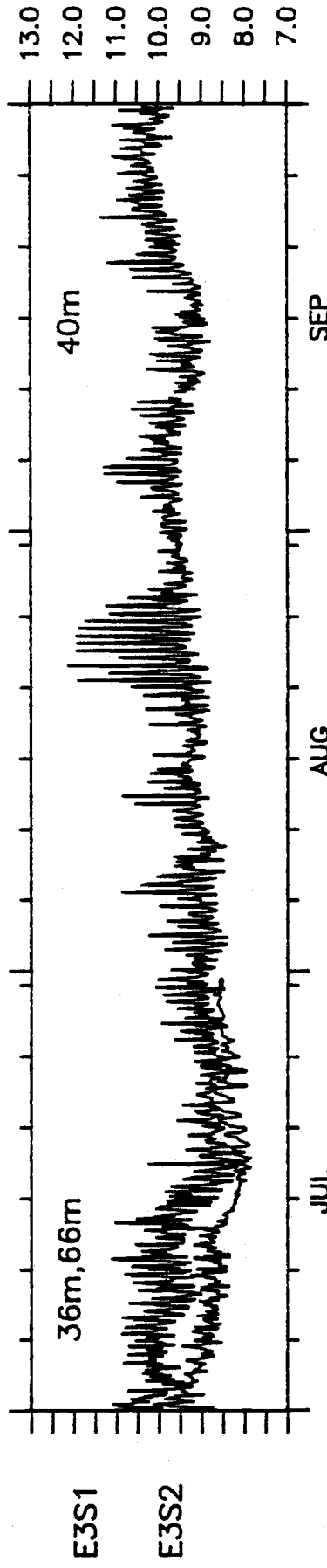
EUREKA U velocity



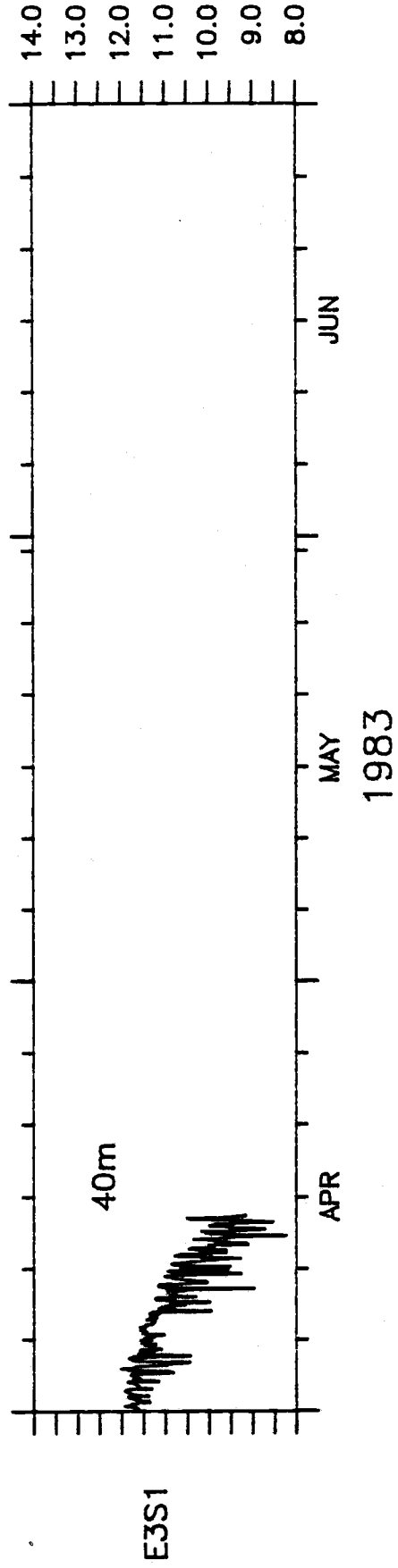
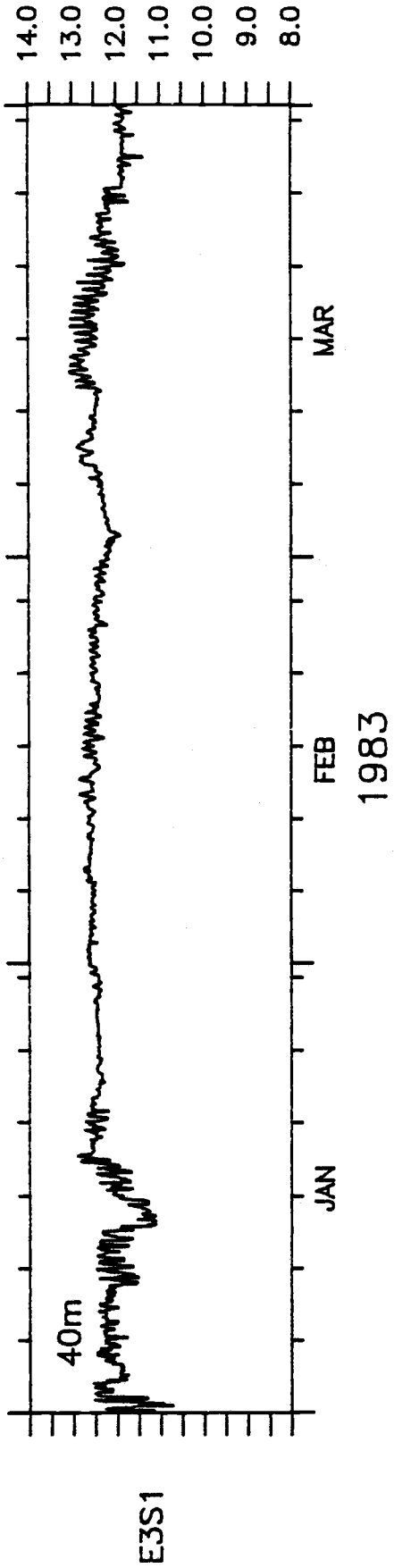




EUREKA SHALLOW Temperature



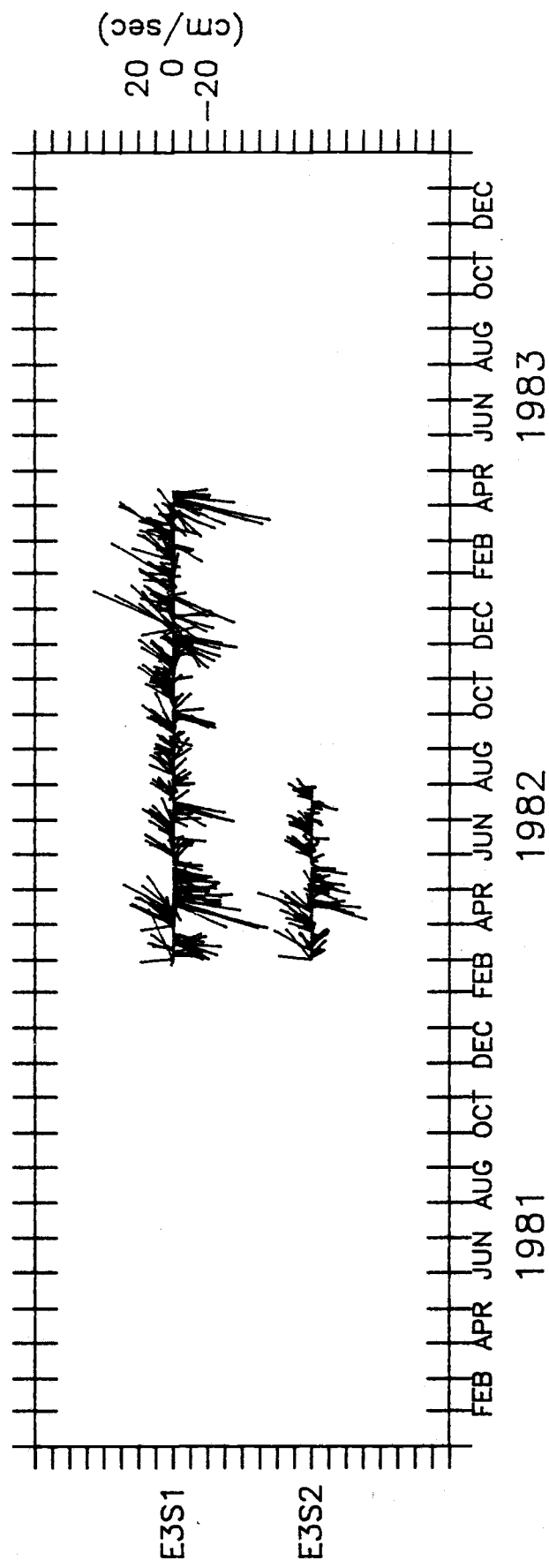
EUREKA SHALLOW Temperature



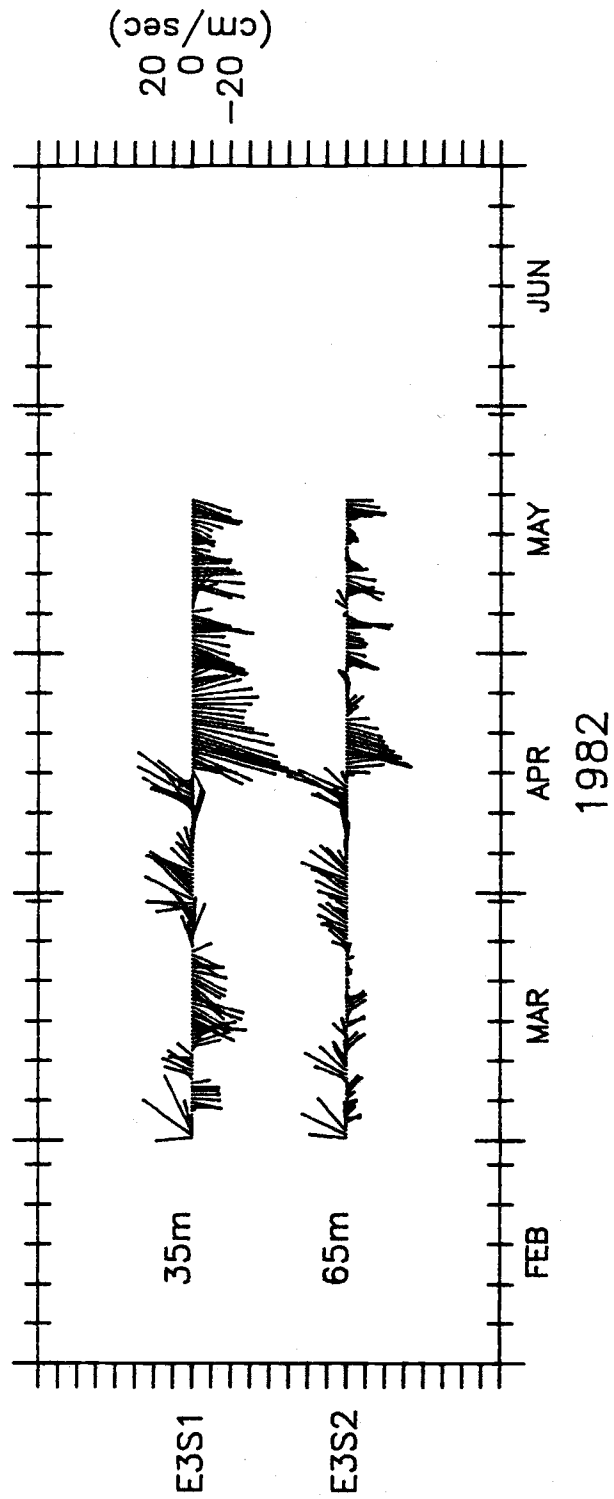
EUREKA SHALLOW Temperature

## SAMPLING INTERVAL = 360 MINUTES

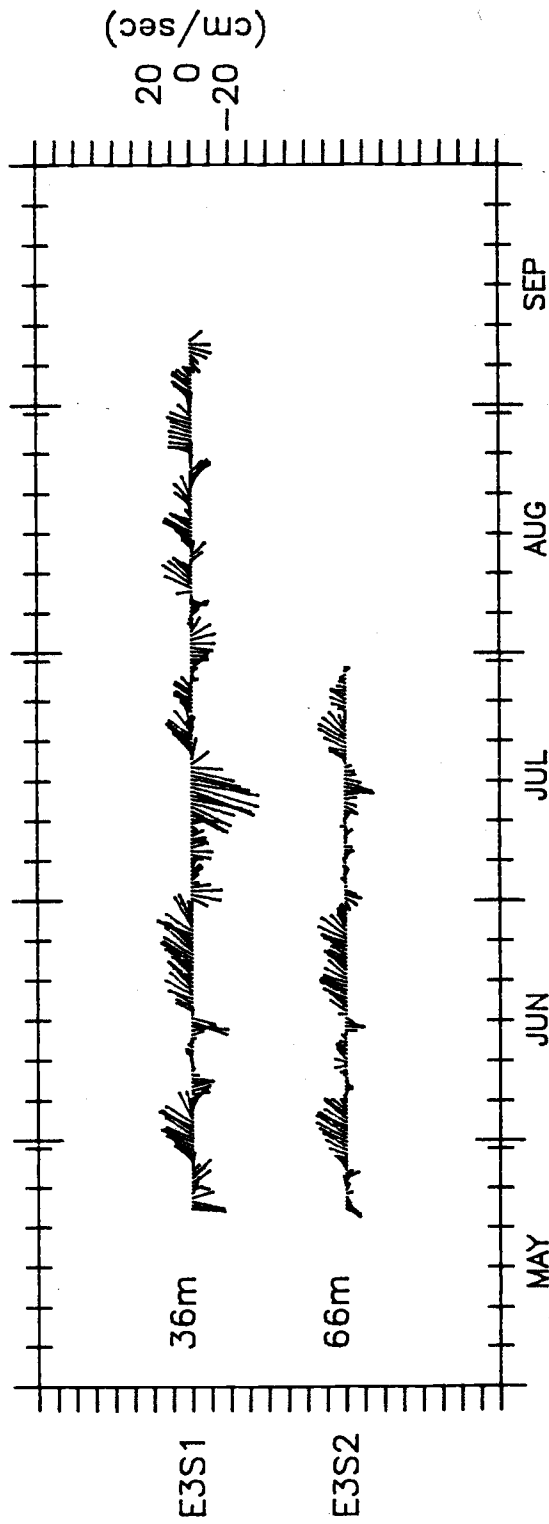
STATION	START TIME (GMT)	MIN	MAX	MEAN	STD	STOP TIME	
E3S1	MAR 1,1982 0600	U	-16.2	28.2	1.5	9.1	MAY 20,1982 1200
		V	-56.4	30.5	-9.2	17.6	MAY 20,1982 1200
		T	7.9	10.8	9.7	0.8	MAY 20,1982 1200
		PRINCIPAL AXIS =	22.5				
E3S1	MAY 23,1982 0600	U	-12.5	16.1	3.5	5.0	SEP 9,1982 1200
		V	-35.3	18.3	-0.2	10.6	SEP 9,1982 1200
		T	7.7	10.7	9.2	0.7	SEP 9,1982 1200
		PRINCIPAL AXIS =	20.7				
E3S1	SEP 12,1982 0000	U	-26.2	26.9	3.4	8.3	APR 13,1983 1800
		V	-57.1	46.4	0.4	15.6	APR 13,1983 1800
		T	9.1	14.9	11.9	1.1	APR 13,1983 1800
		PRINCIPAL AXIS =	23.8				
E3S2	MAR 1,1982 0600	U	-9.7	16.3	3.3	5.5	MAY 20,1982 1200
		V	-33.0	30.8	-1.7	11.7	MAY 20,1982 1200
		T	7.5	10.8	9.0	0.8	MAY 20,1982 1200
		PRINCIPAL AXIS =	20.2				
E3S2	MAY 23,1982 0600	U	-4.6	10.1	2.4	3.3	JUL 30,1982 1200
		V	-14.9	15.3	2.7	6.6	JUL 30,1982 1200
		T	7.2	9.7	8.4	0.5	JUL 30,1982 1200
		PRINCIPAL AXIS =	23.6				



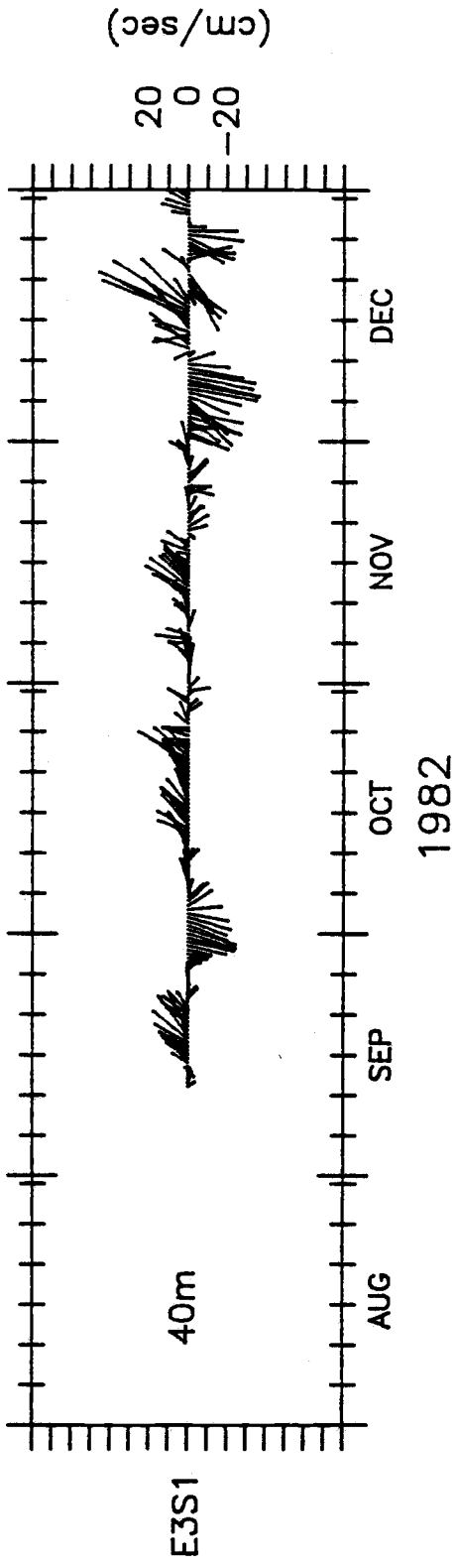
EUREKA velocity



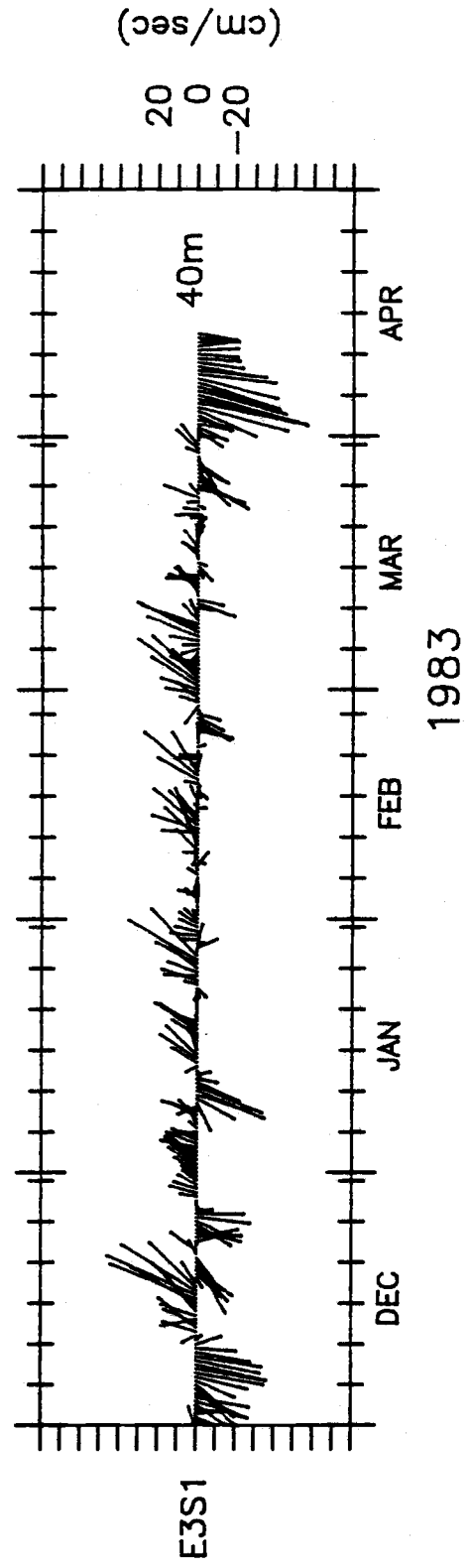
EUREKA velocity



EUREKA velocity

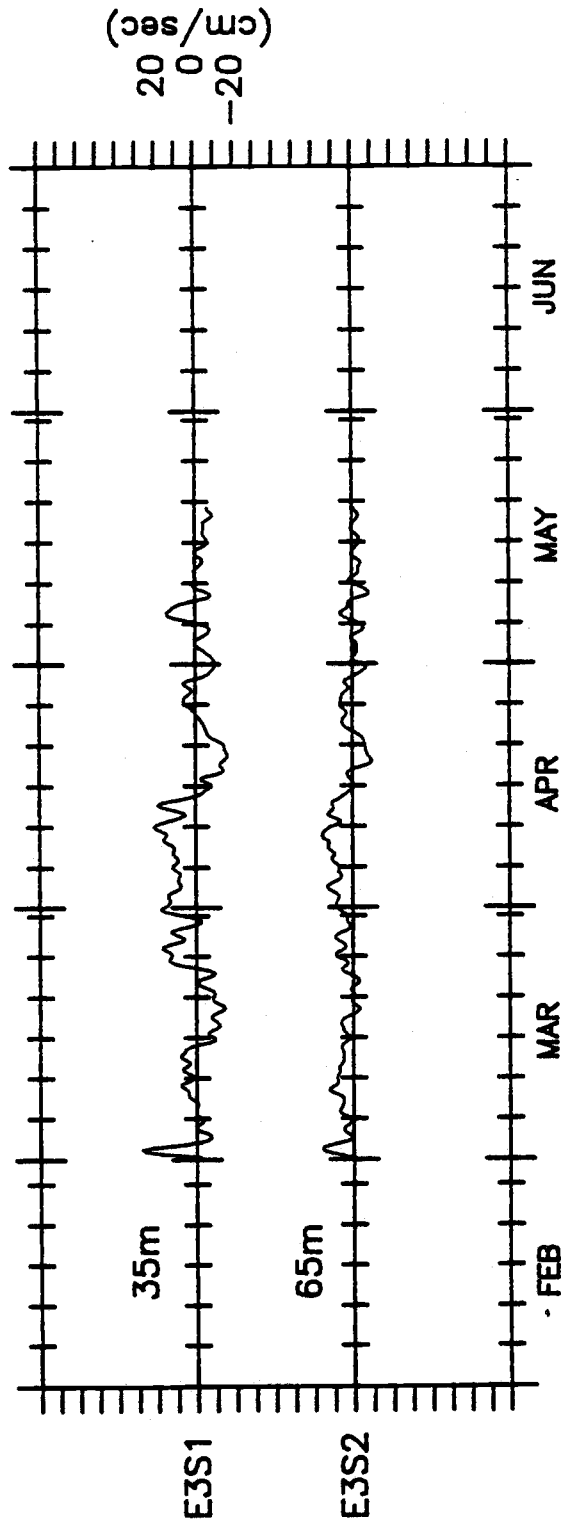


EUREKA velocity



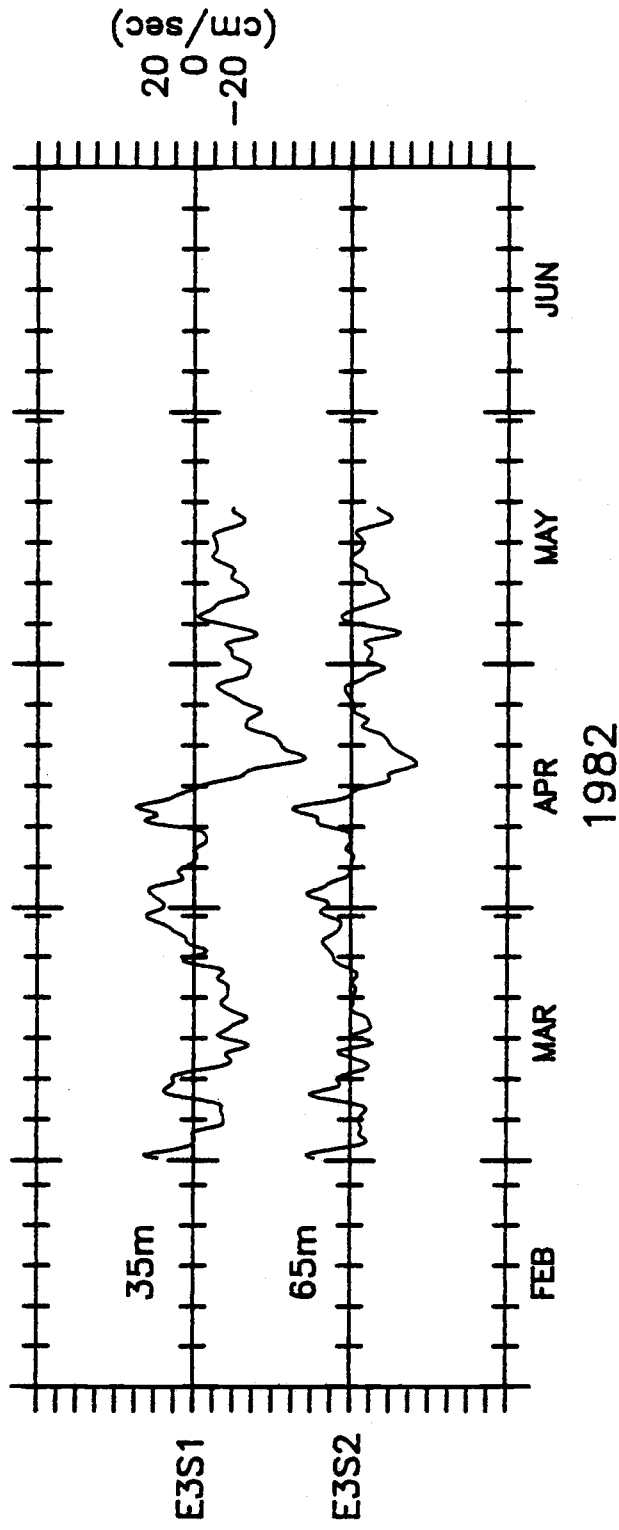
EUREKA velocity



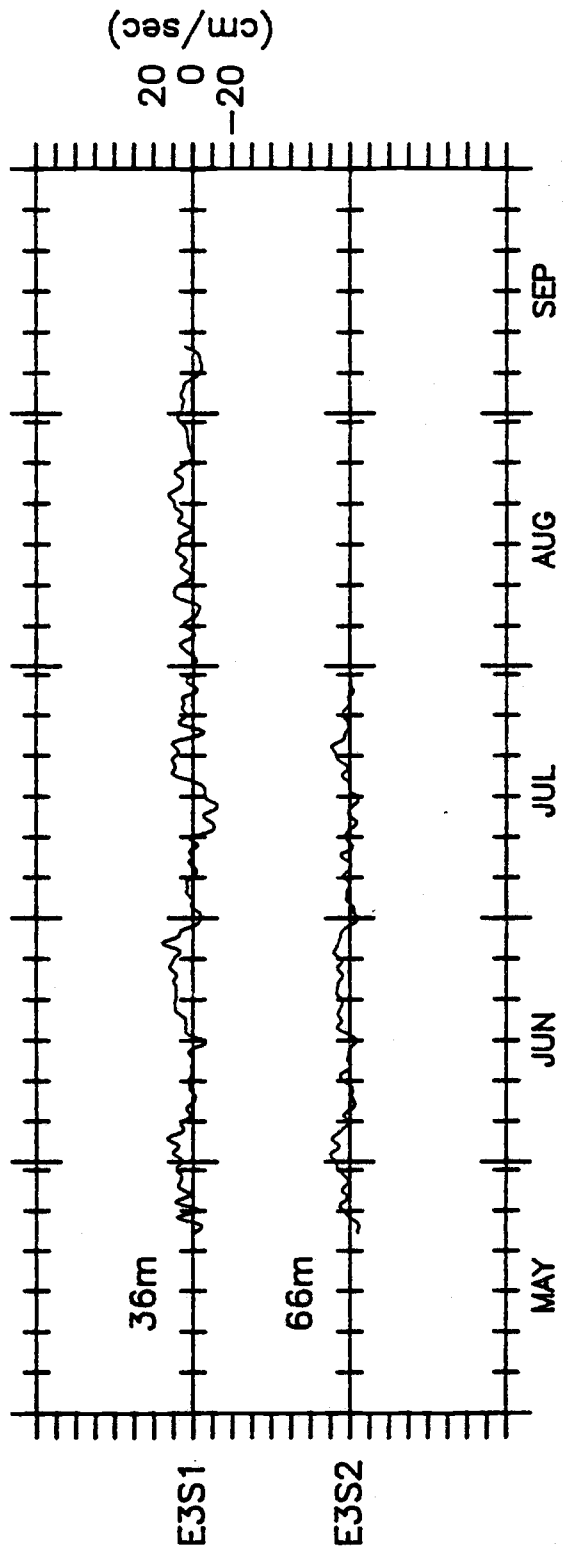


1982

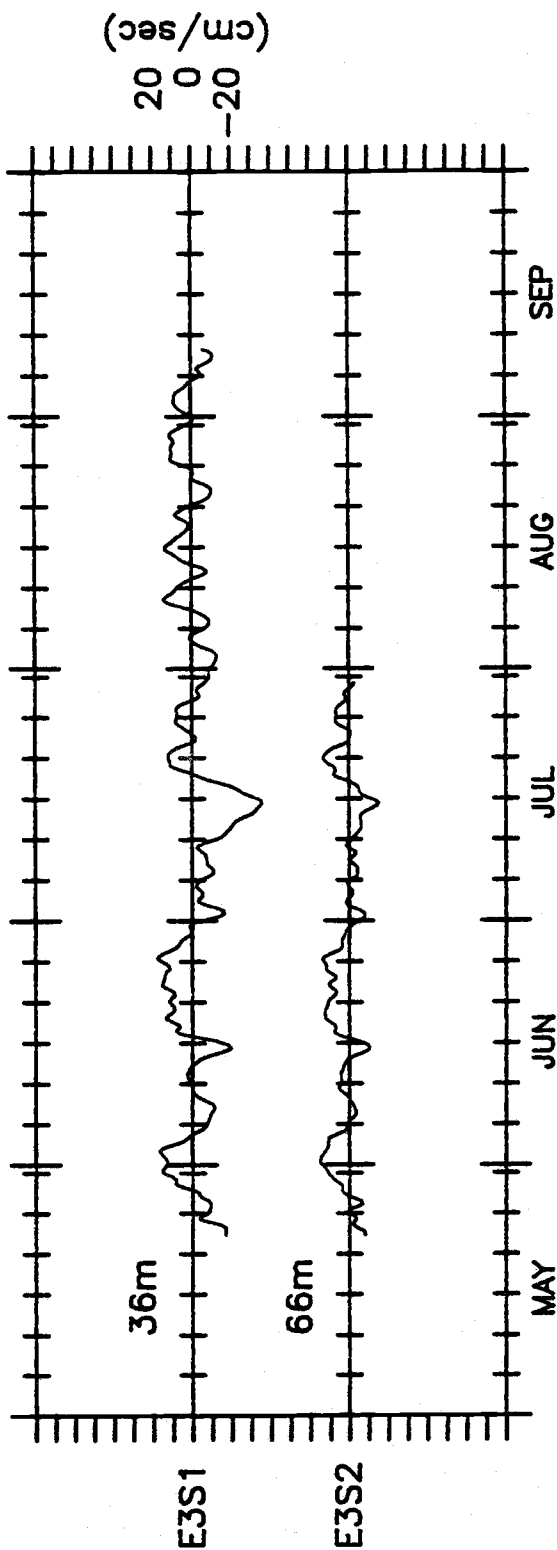
EUREKA U velocity



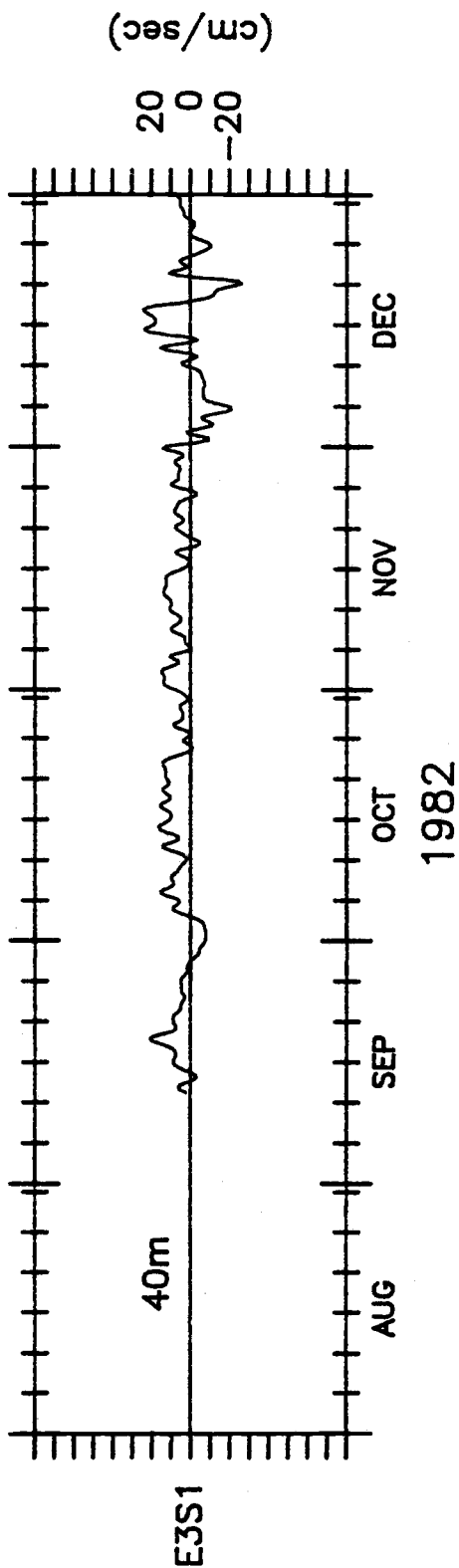
EUREKA V velocity



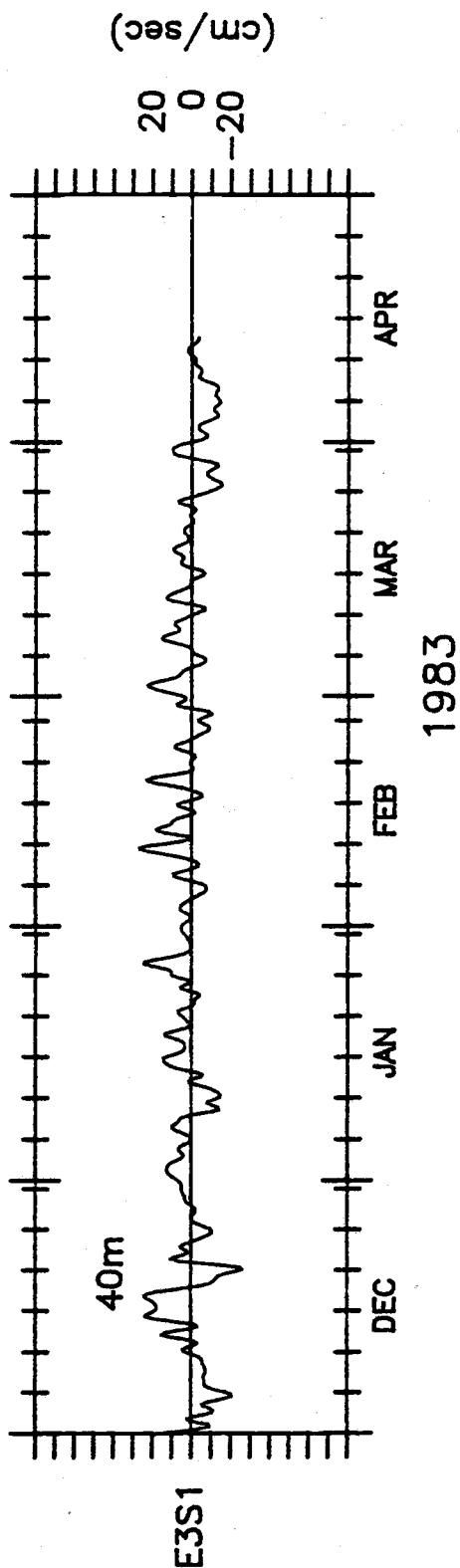
EUREKA U velocity



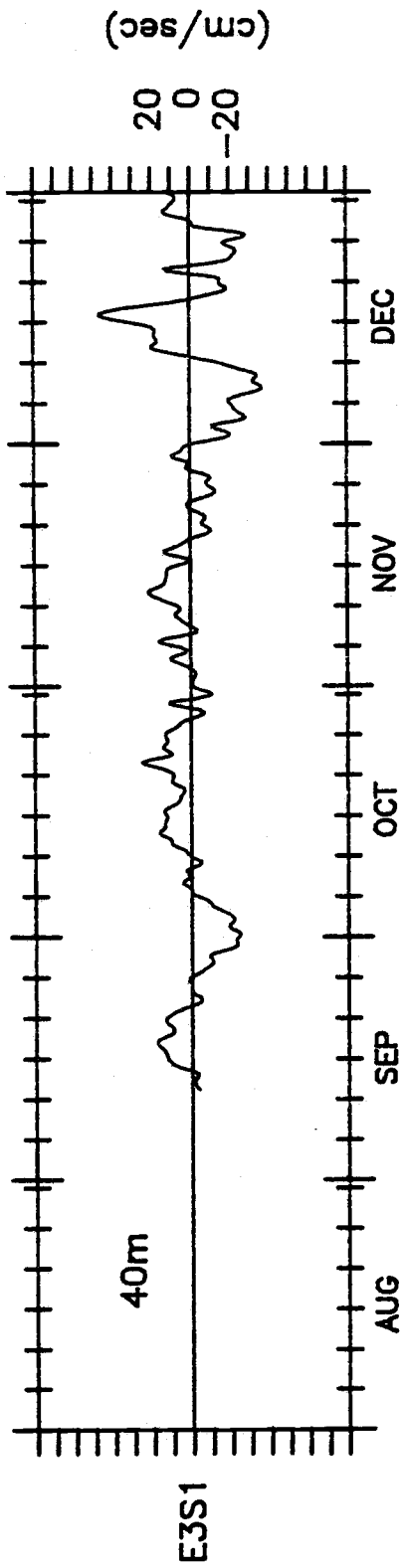
EUREKA V velocity



EUREKA U velocity

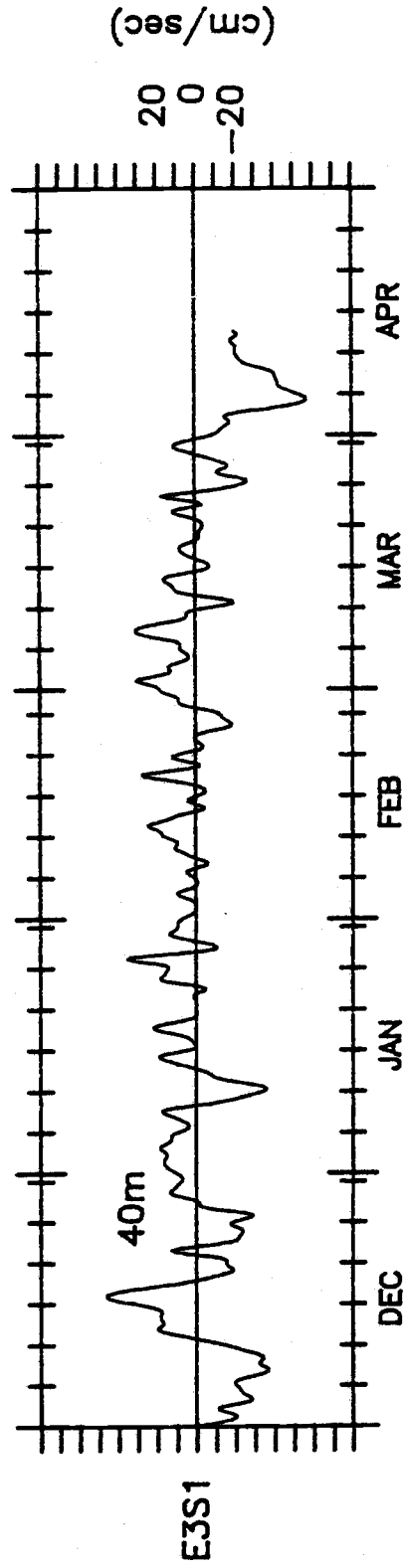


EUREKA U velocity



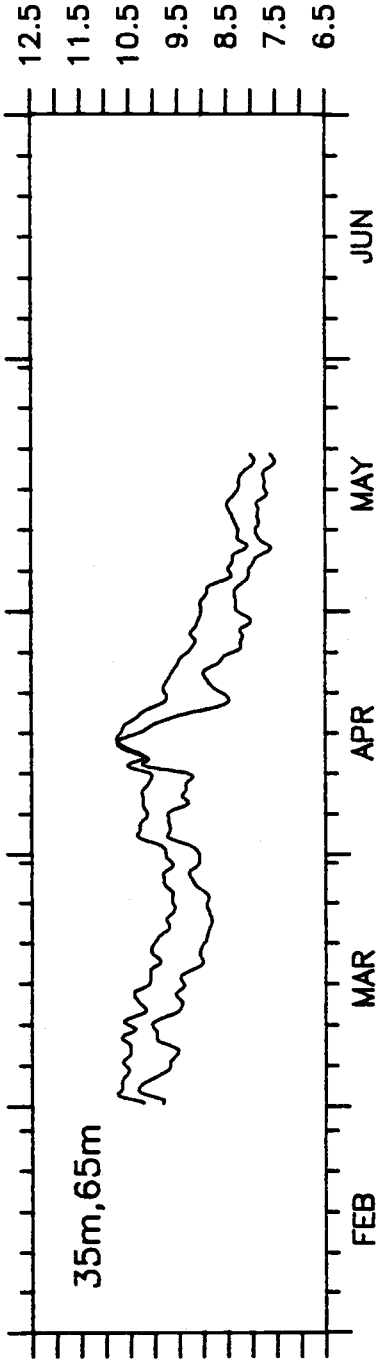
1982

EUREKA V velocity



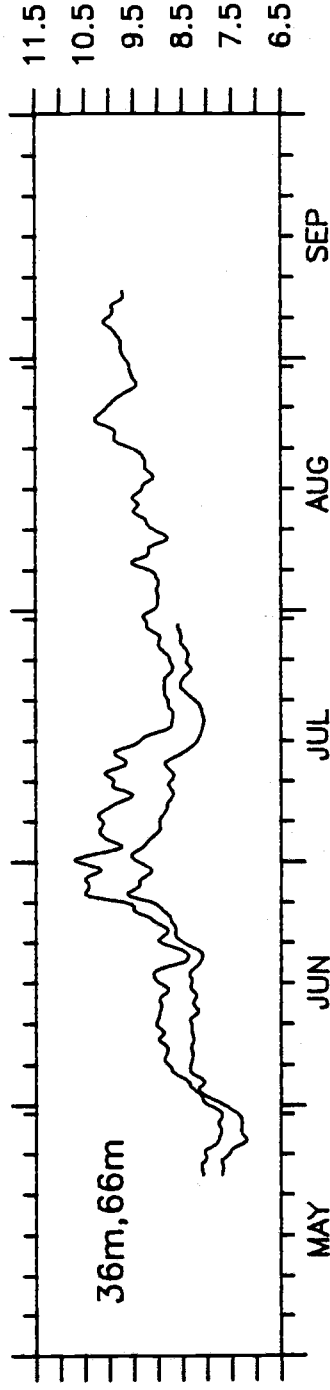
1983

EUREKA V velocity



E3S1

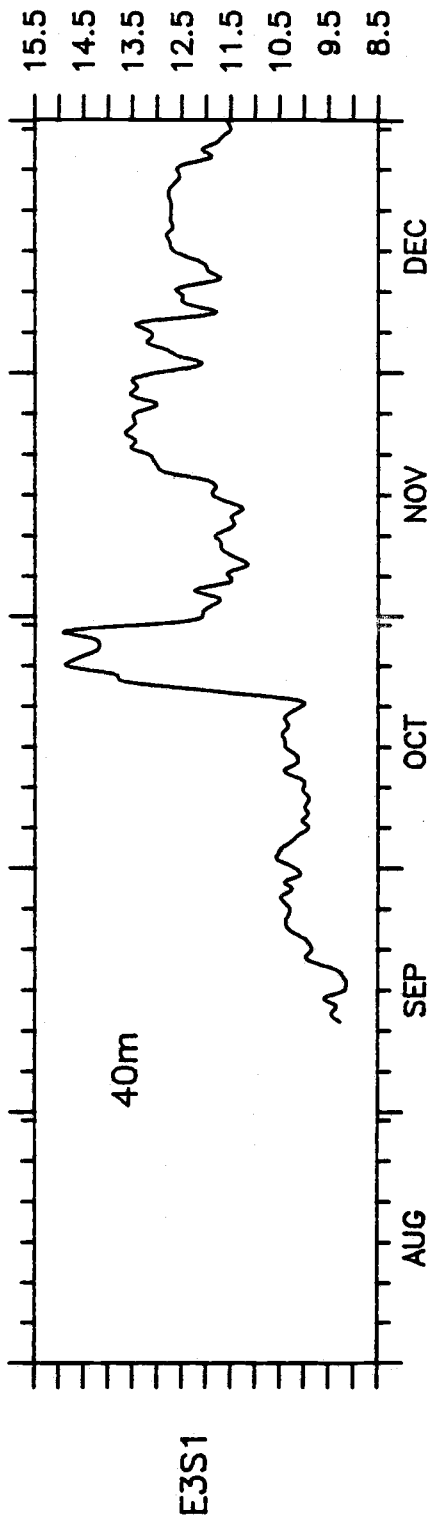
E3S2



E3S1

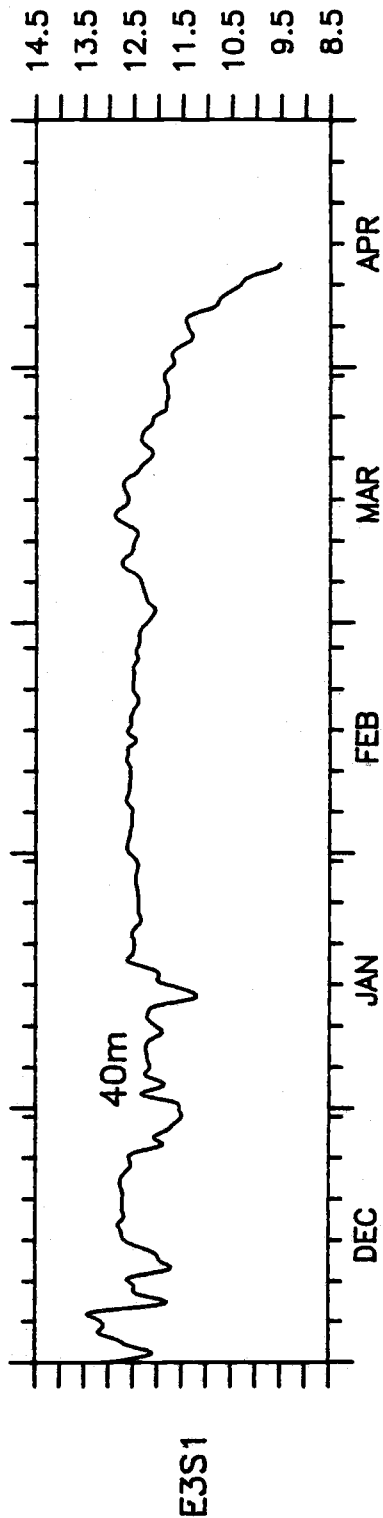
E3S2

### EUREKA SHALLOW Temperature



EUREKA SHALLOW Temperature

1982



EUREKA SHALLOW Temperature

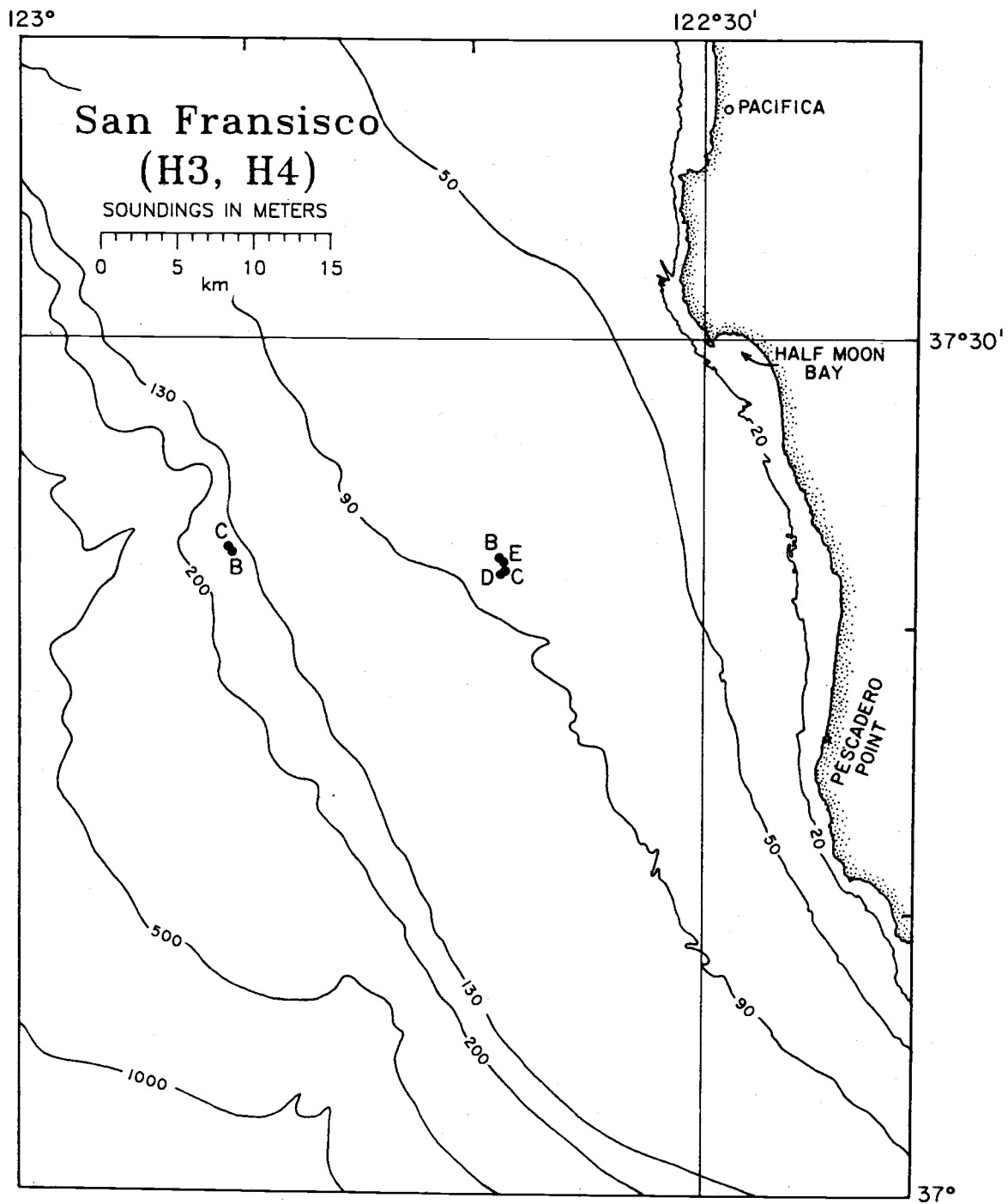
1983





SAN FRANCISCO

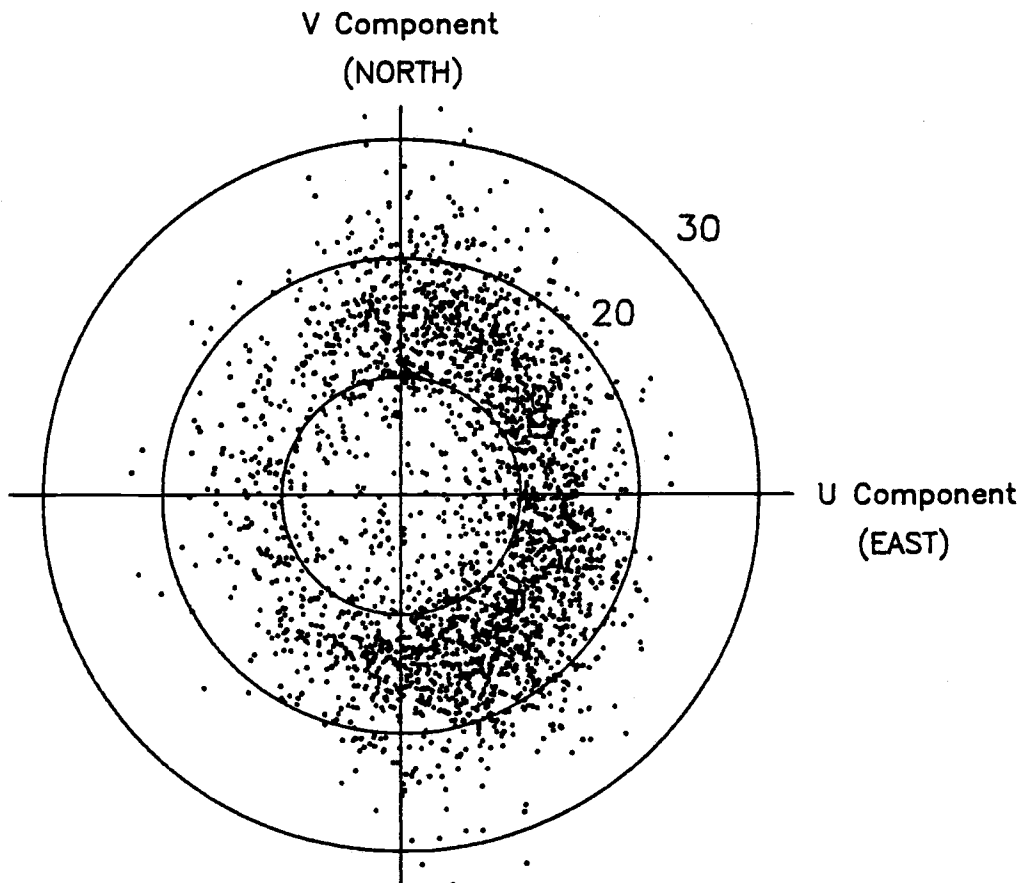
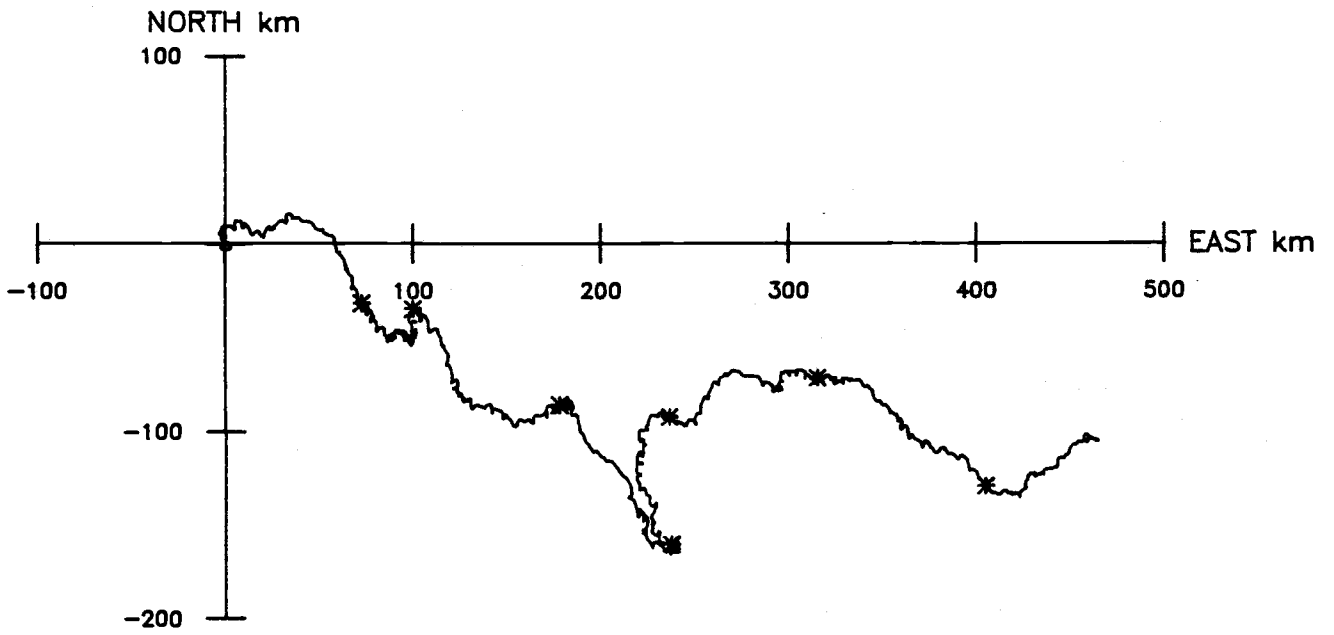


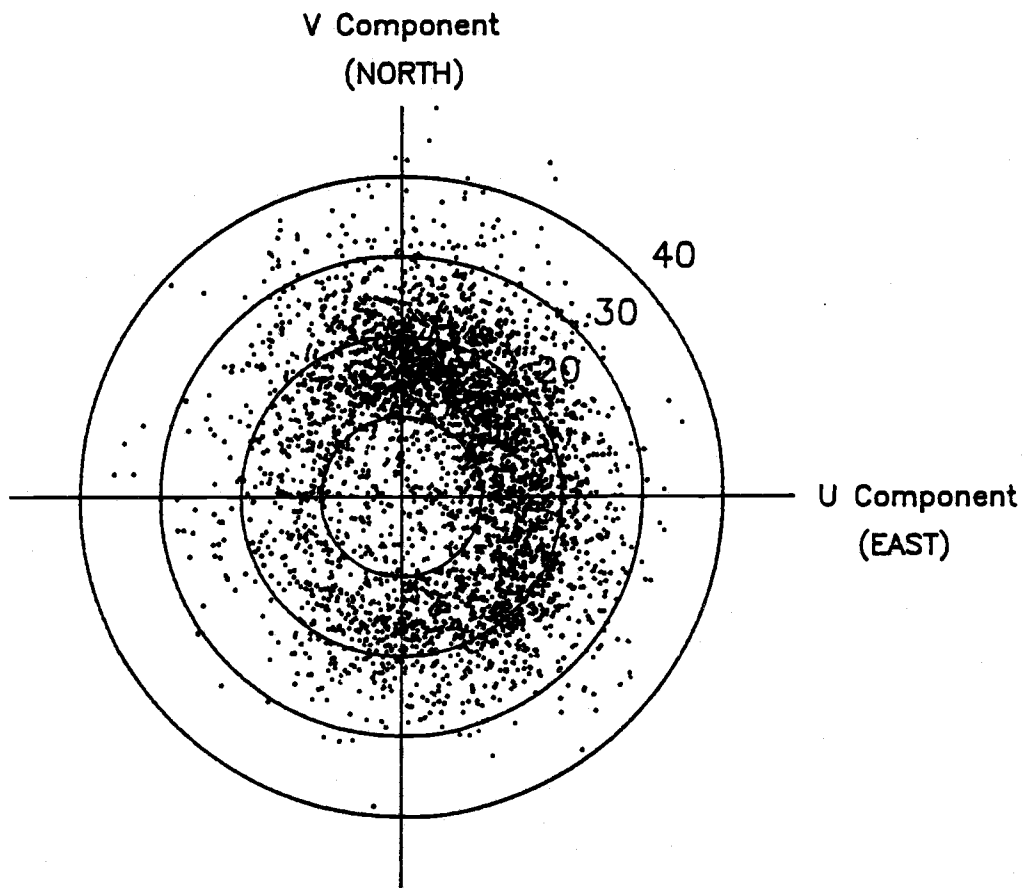
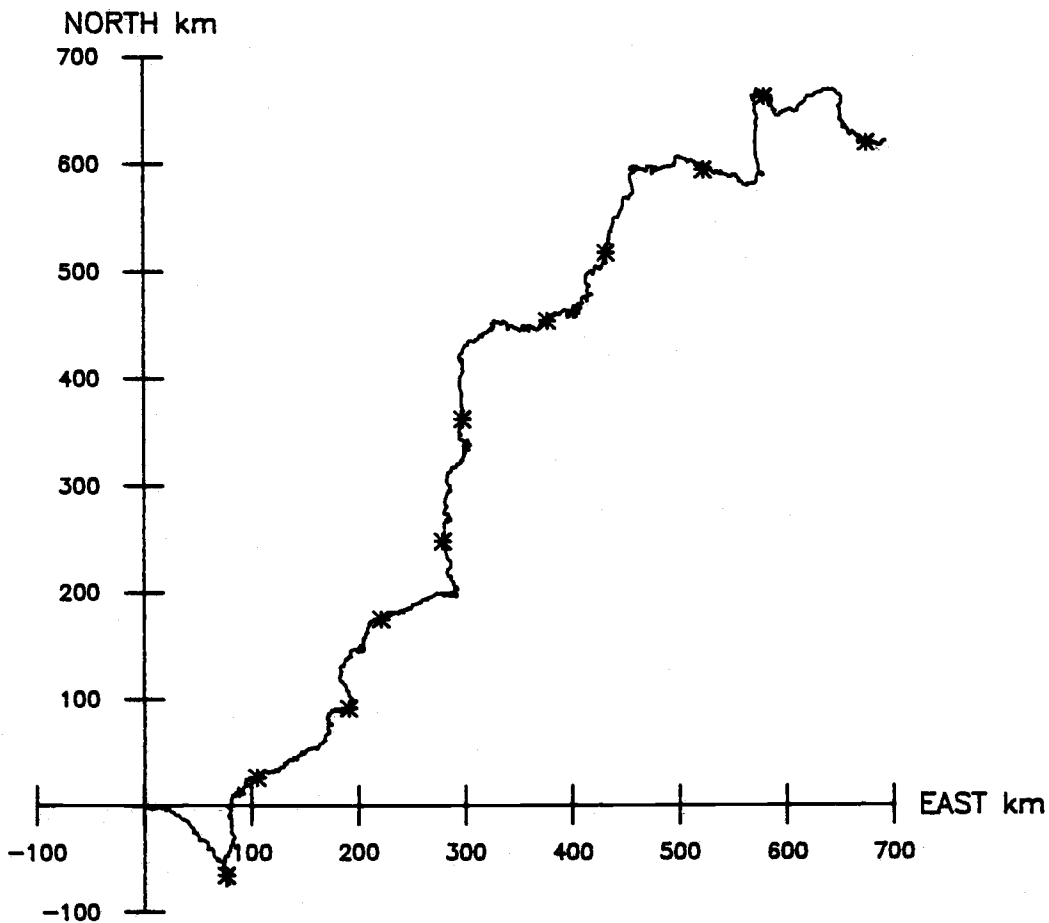




## SAMPLING INTERVAL = 60 MINUTES

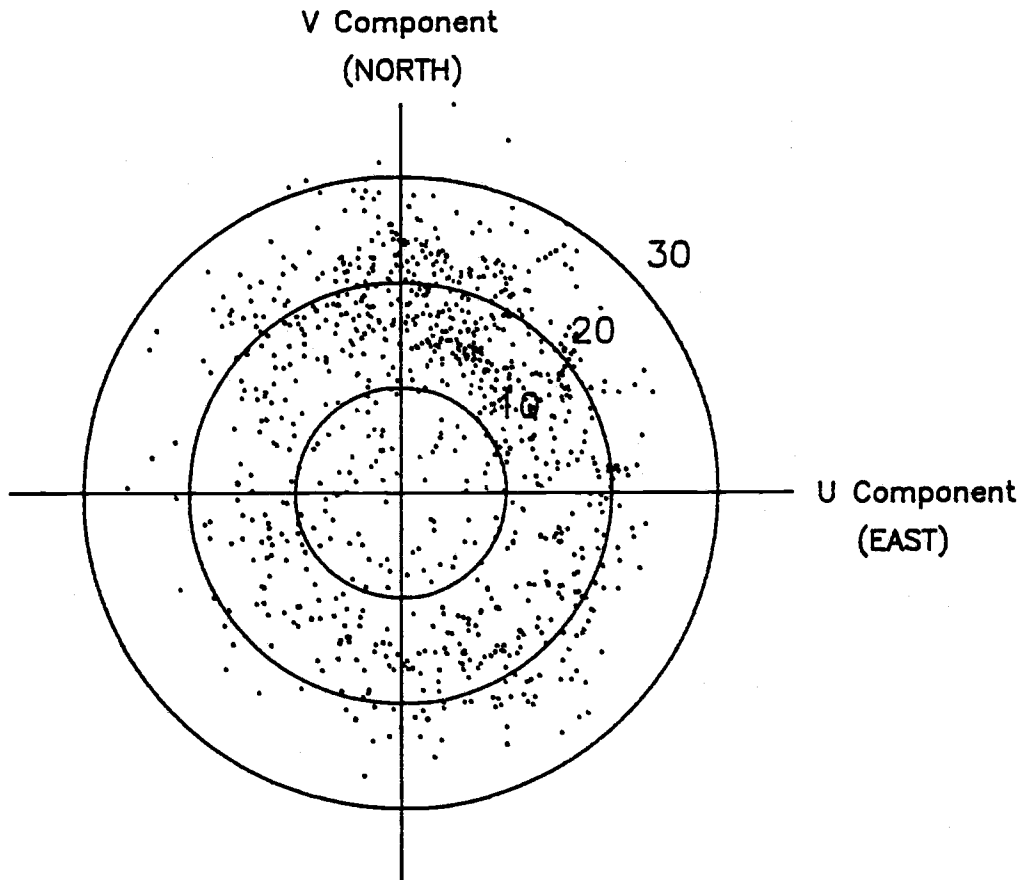
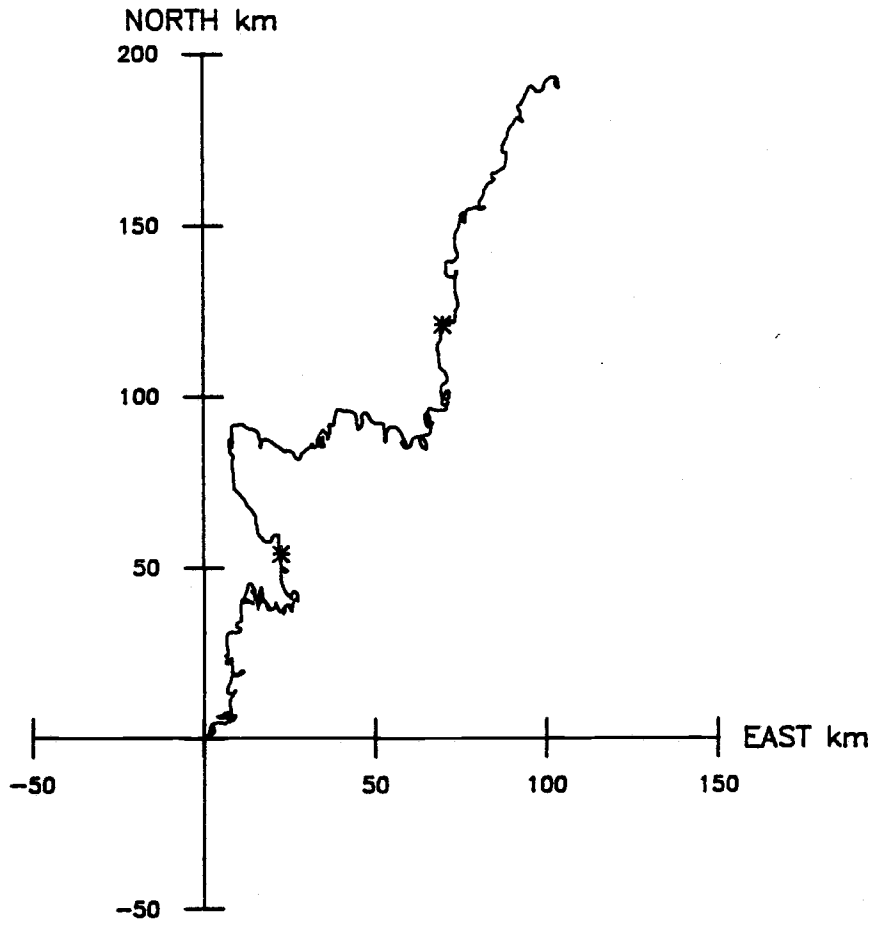
STATION	START TIME	(GMT)		MIN	MAX	MEAN	STD	STOP TIME	
H3S1	APR 22,1981	2300	U	-22.6	22.6	4.6	7.6	AUG 16,1981	1000
			V	-32.8	32.6	-1.1	12.1	AUG 16,1981	1000
			T	8.5	12.4	9.6	0.7	AUG 16,1981	1000
H3S1	AUG 17,1981	0100	U	-35.7	34.8	4.8	10.6	JAN 30,1982	1300
			V	-38.7	48.7	4.3	14.3	JAN 30,1982	1300
			T	9.5	14.7	11.6	1.1	JAN 30,1982	1300
H3S1	JAN 31,1982	0500	U	-25.9	23.8	3.1	9.9	MAR 10,1982	0800
			V	-26.9	37.0	5.8	13.7	MAR 10,1982	0800
			T	10.5	12.3	11.3	0.3	MAR 10,1982	0800
H3S1	MAY 23,1982	0100	U	-18.9	30.9	5.3	8.0	SEP 11,1982	0800
			V	-29.8	28.8	-2.1	11.7	SEP 11,1982	0800
			T	9.0	13.4	10.4	0.8	SEP 11,1982	0800
H3S2	APR 23,1981	0000	U	-31.8	15.0	0.7	6.0	AUG 16,1981	1000
			V	-23.1	22.3	0.8	8.5	AUG 16,1981	1000
			T	8.5	10.3	9.0	0.4	AUG 16,1981	1000
H3S2	AUG 17,1981	0100	U	-38.5	25.4	-1.3	8.4	JAN 30,1982	1300
			V	-32.6	40.0	3.1	10.4	JAN 30,1982	1300
			T	9.2	13.3	10.5	0.8	JAN 30,1982	1300
H3S2	JAN 31,1982	0500	U	-36.3	24.5	-0.5	8.7	MAY 22,1982	1100
			V	-27.5	32.1	2.1	10.3	MAY 22,1982	1100
			T	8.7	11.5	10.1	0.8	MAY 22,1982	1100
H3S2	MAY 23,1982	0100	U	-29.6	19.0	-0.1	7.0	SEP 11,1982	0700
			V	-21.8	28.9	1.0	8.9	SEP 11,1982	0700
			T	8.8	10.8	9.4	0.3	SEP 11,1982	0700
H4S1	MAY 8,1981	0700	U	-22.4	39.5	3.5	12.2	JUN 4,1981	1400
			V	-41.6	24.6	-4.4	14.0	JUN 4,1981	1400
			T	8.7	11.6	9.9	0.6	JUN 4,1981	1400
H4S2	MAY 8,1981	0800	U	-16.1	32.2	4.3	9.3	JUN 4,1981	1400
			V	-31.5	29.6	1.1	11.7	JUN 4,1981	1400
			T	8.3	10.6	9.2	0.4	JUN 4,1981	1400
H4S3	MAY 8,1981	0700	U	-29.8	22.3	-2.5	9.0	JUN 4,1981	1300
			V	-23.2	33.1	4.4	10.3	JUN 4,1981	1300
			T	8.0	9.9	8.7	0.2	JUN 4,1981	1300
H4S3	AUG 17,1981	0300	U	-43.7	34.4	-2.7	9.8	MAR 6,1982	1000
			V	-31.5	59.9	7.1	11.6	MAR 6,1982	1000
			T	8.6	11.6	9.8	0.5	MAR 6,1982	1000

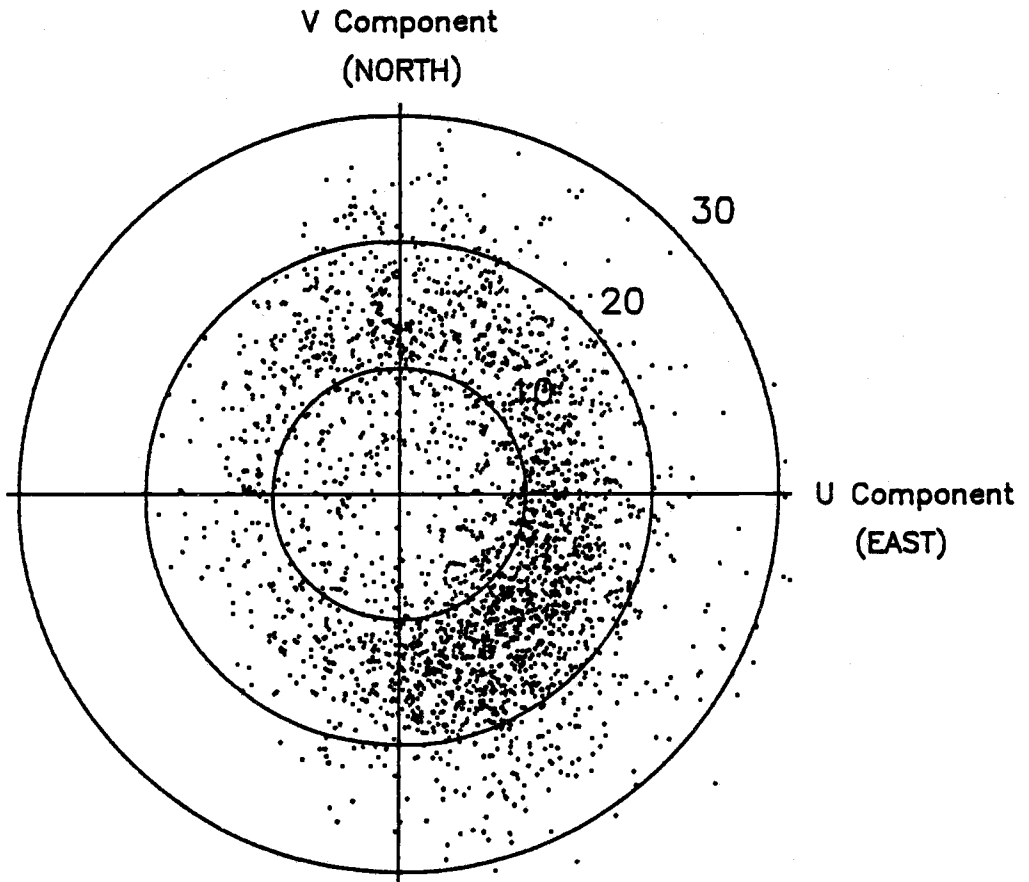
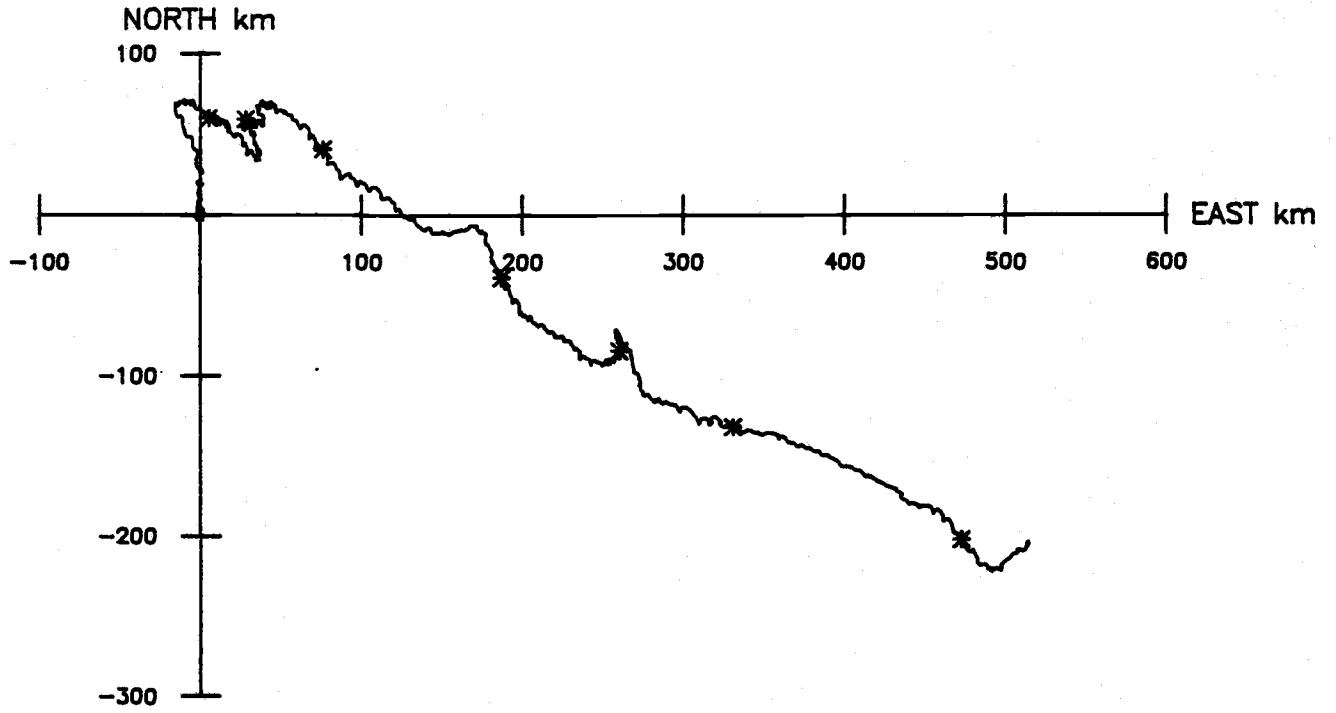


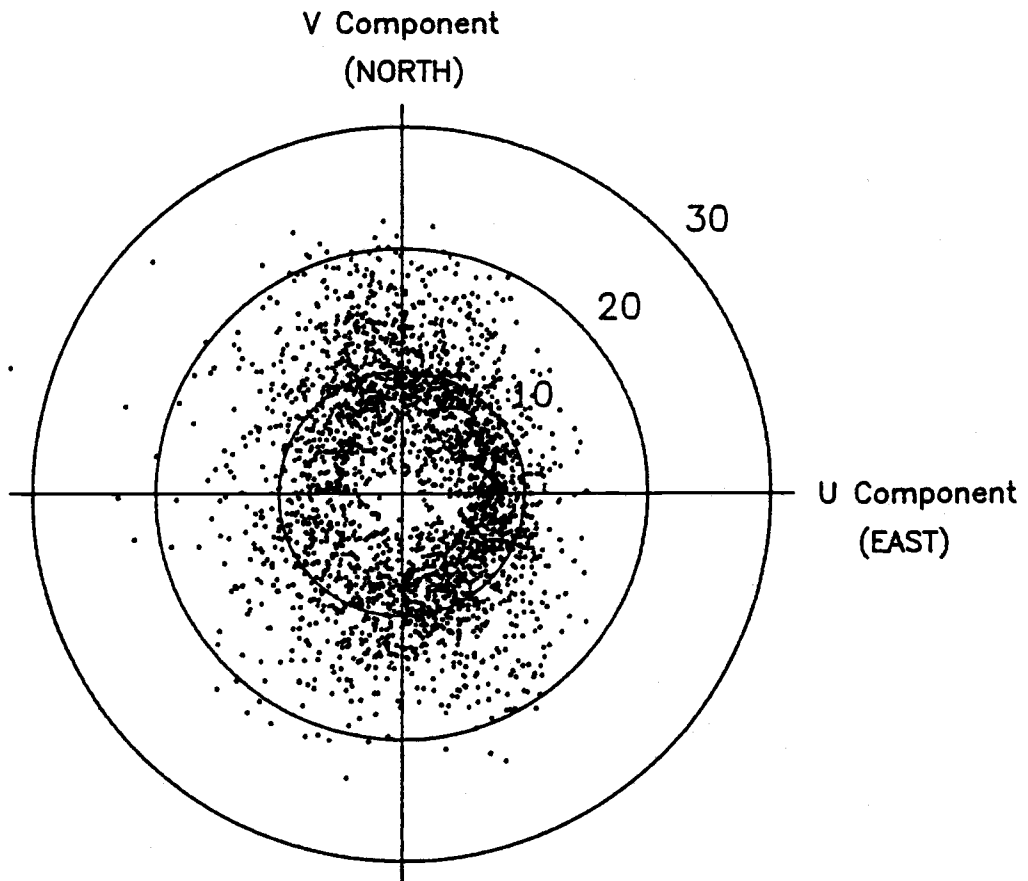
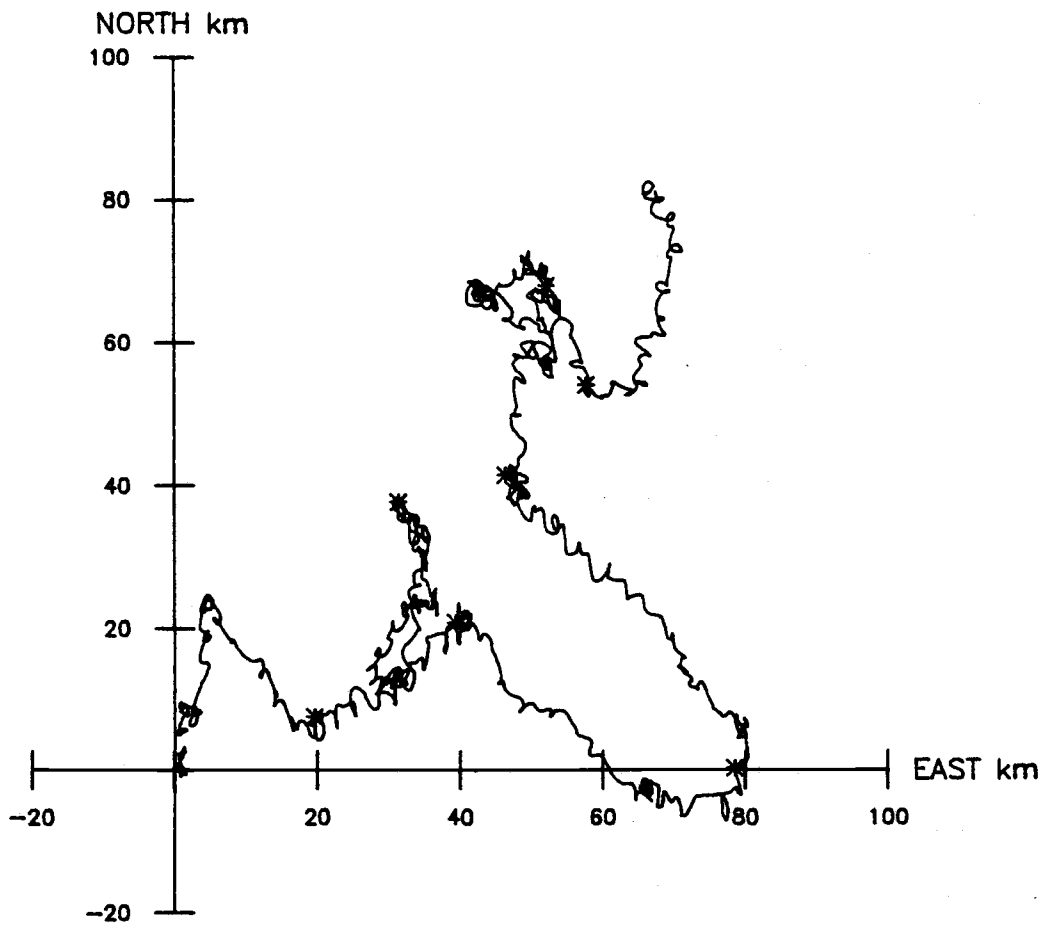


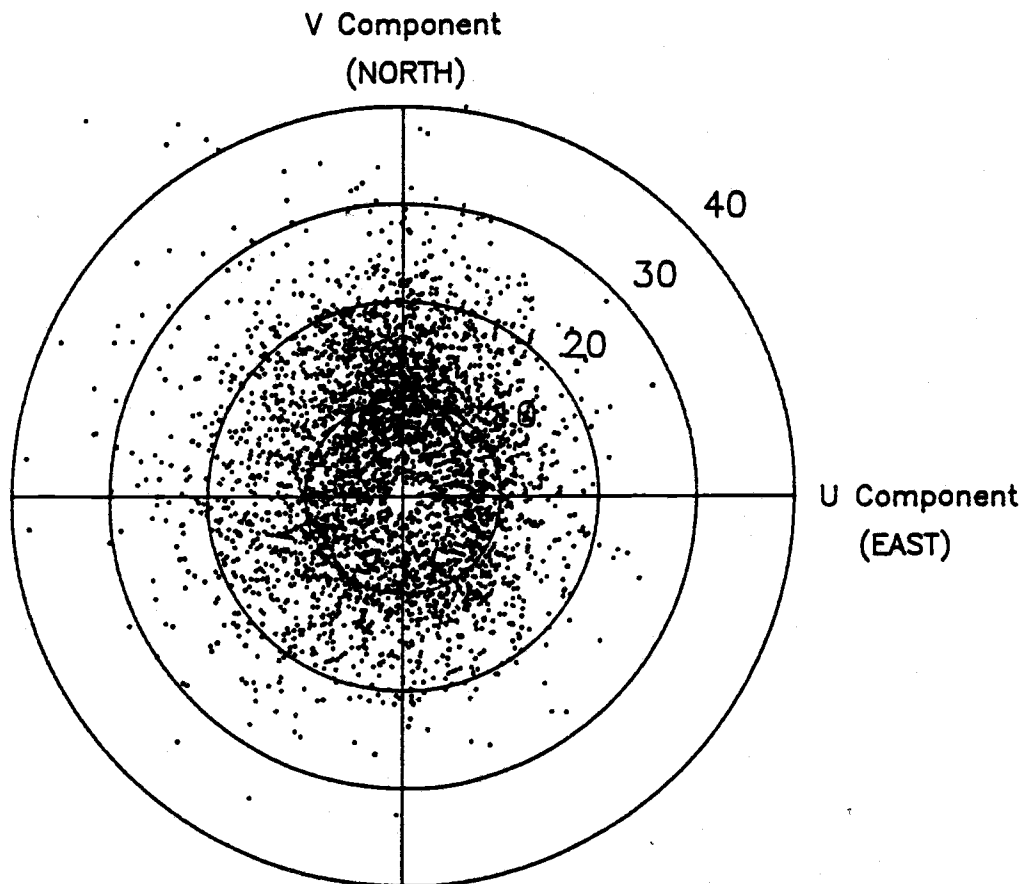
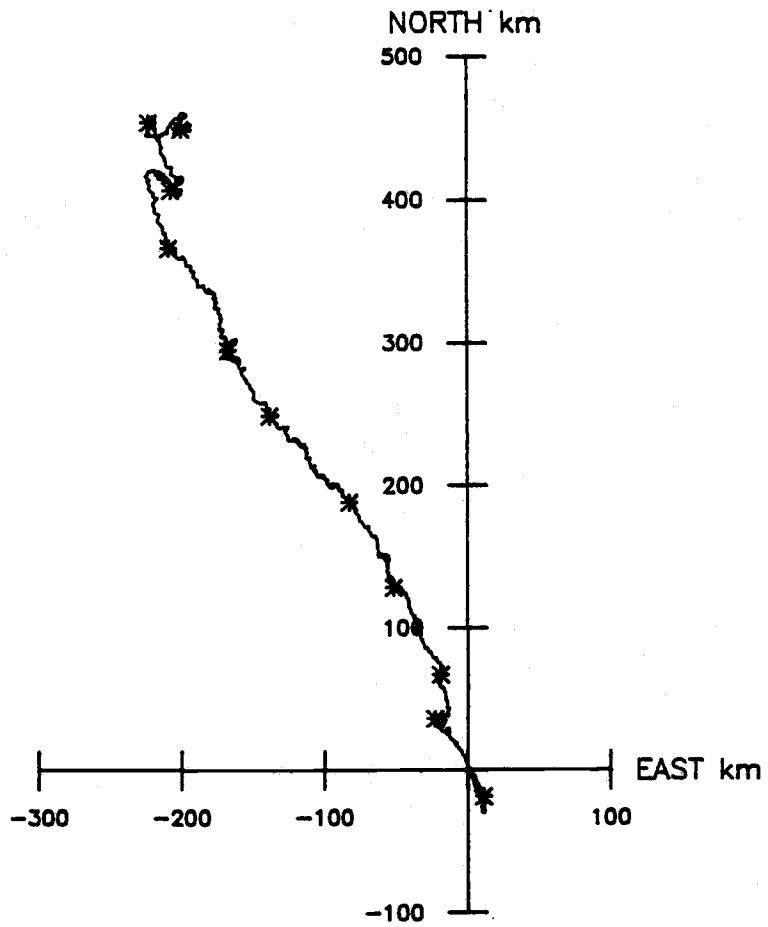
H3S1      AUG 17,1981 0100      -      JAN 30,1982 1300

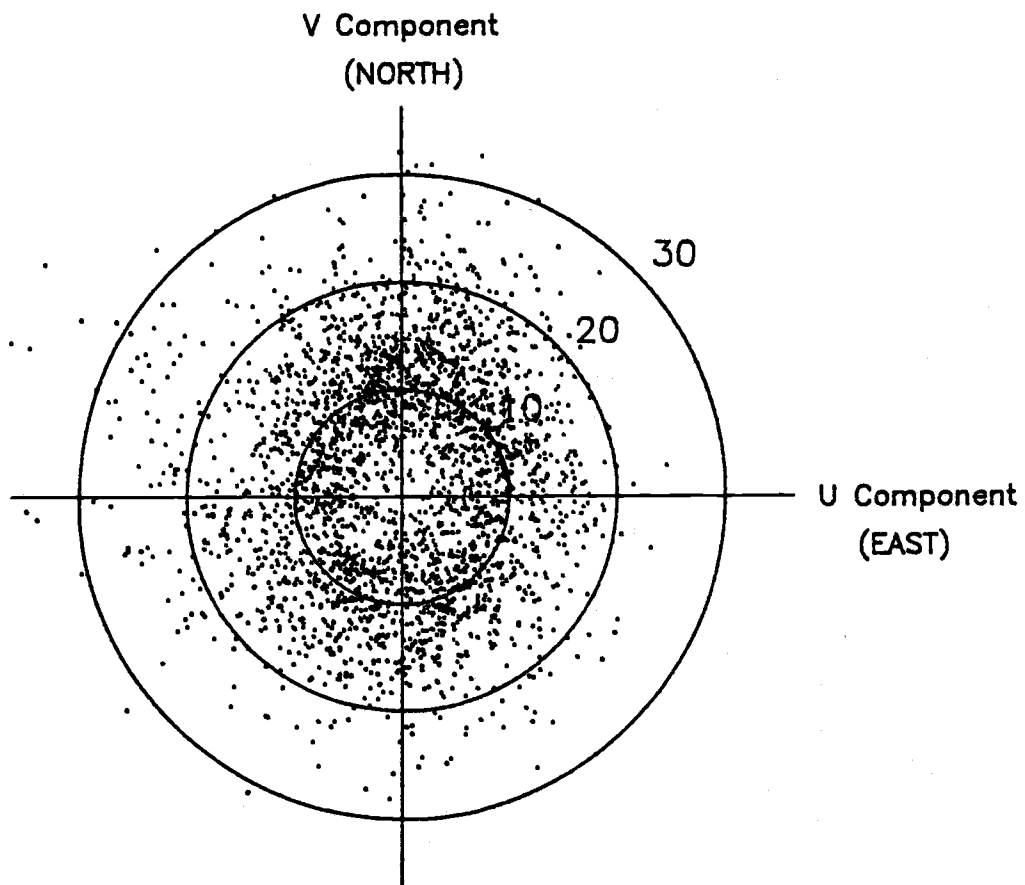
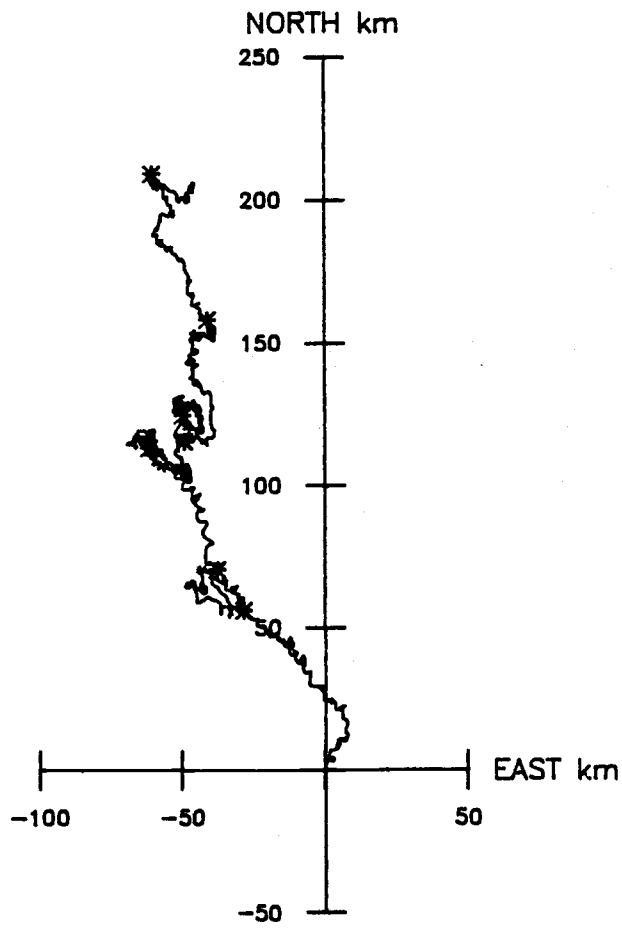


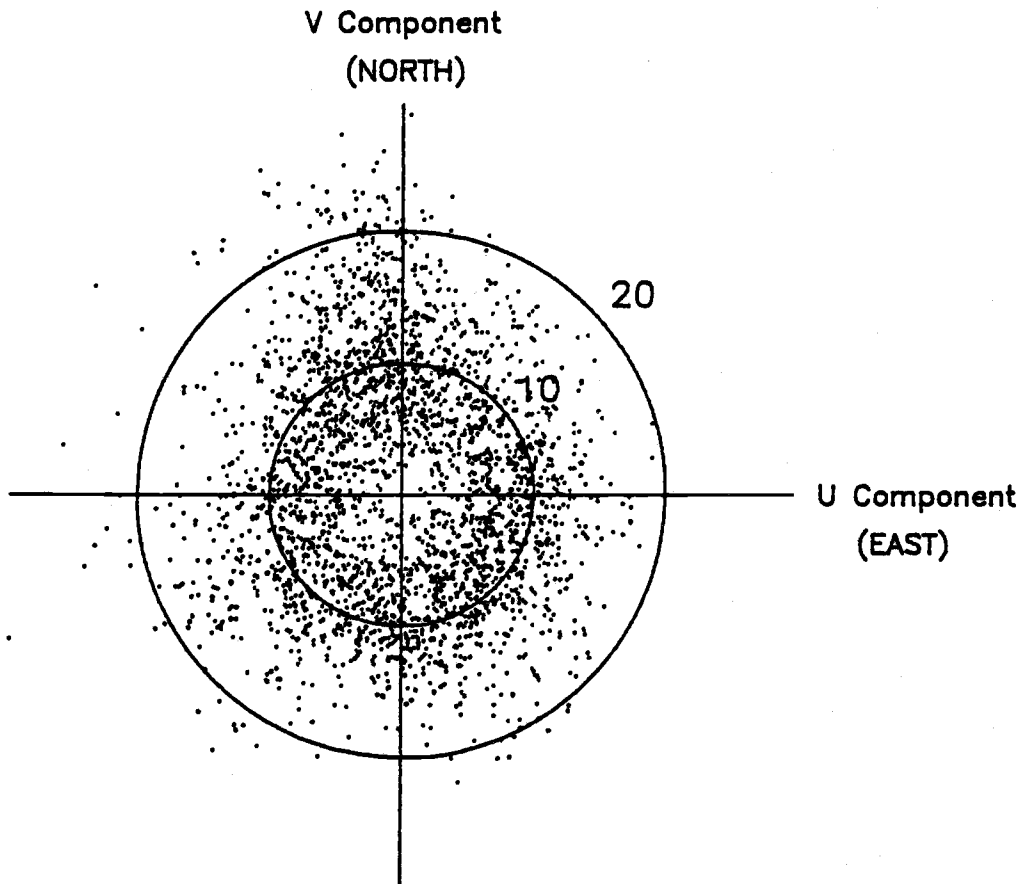
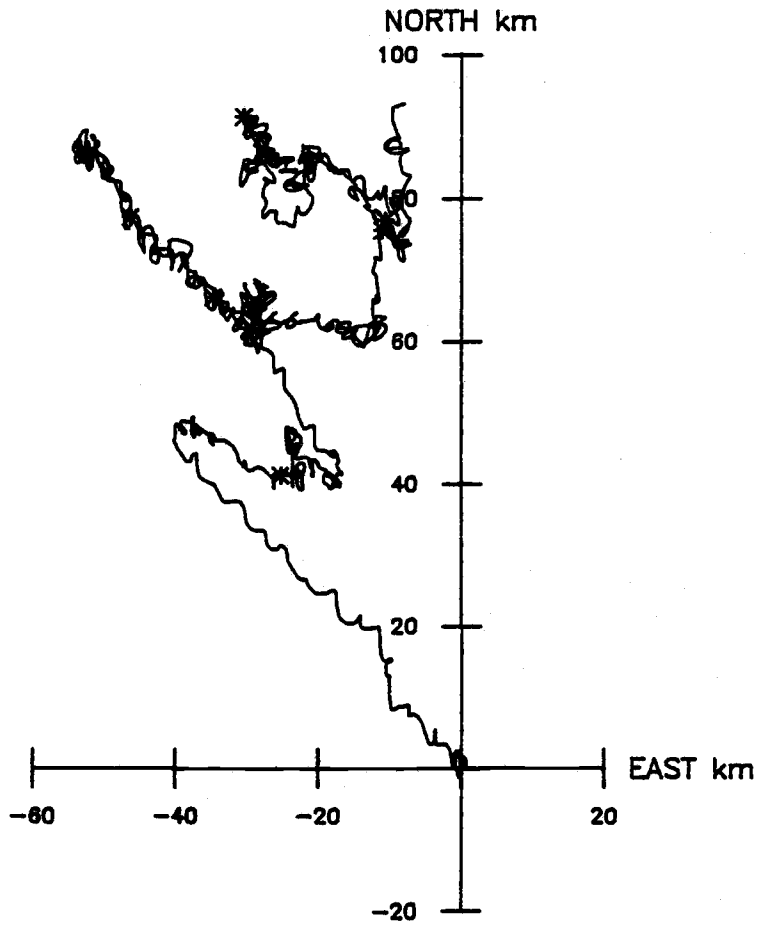


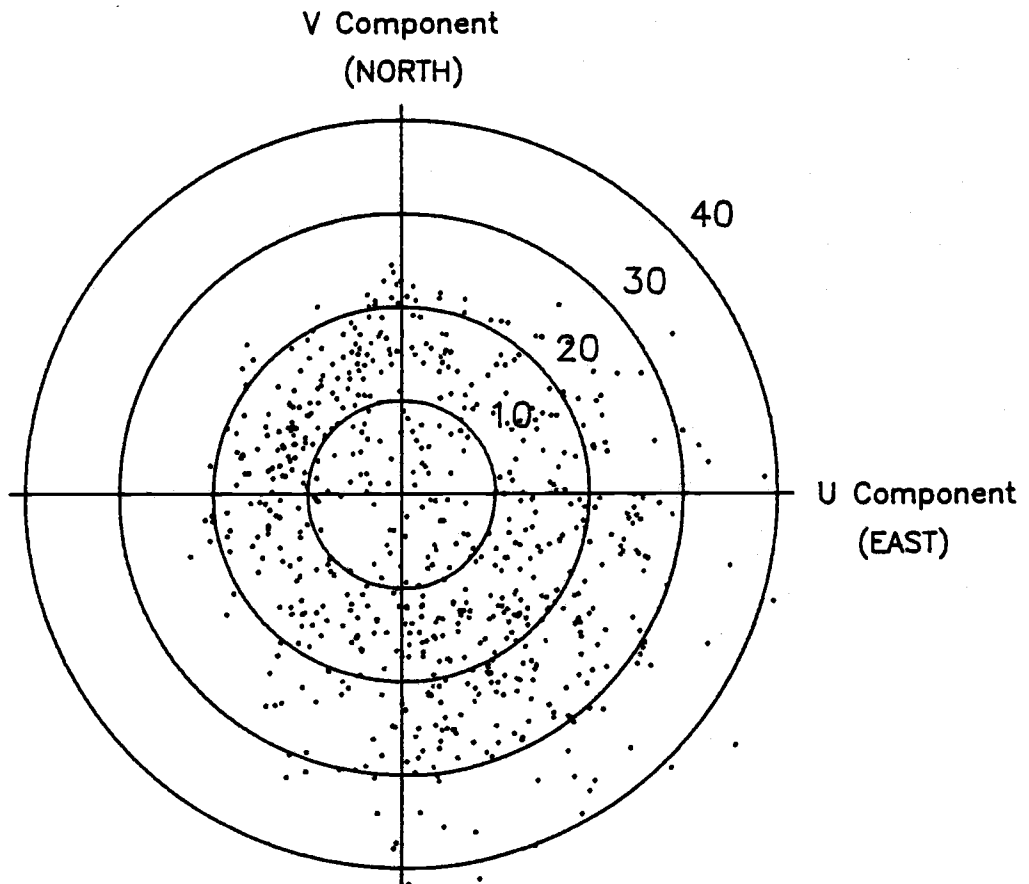
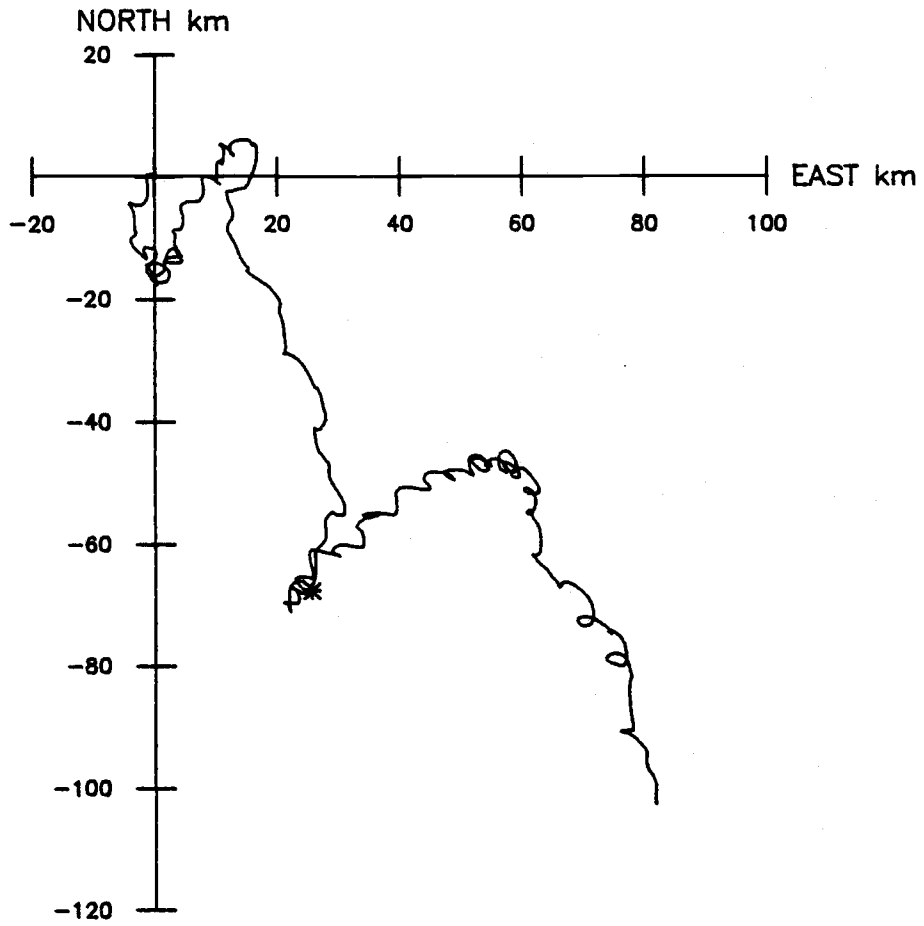


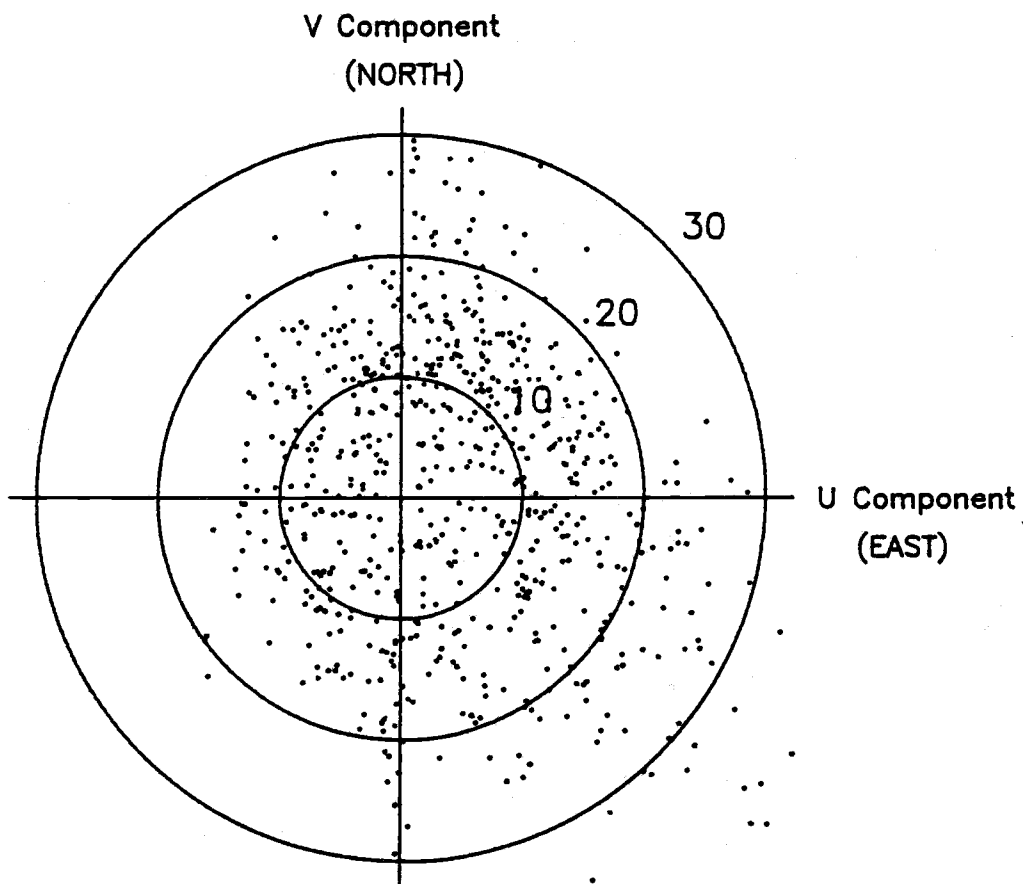
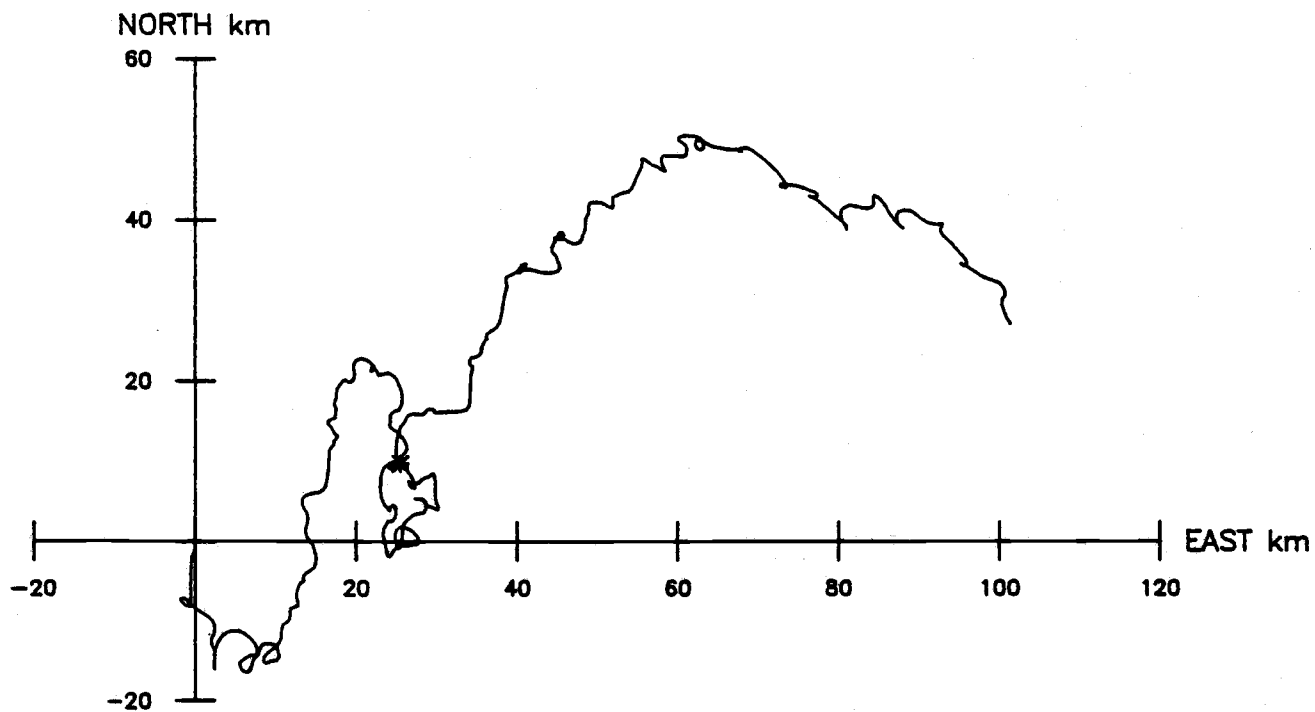






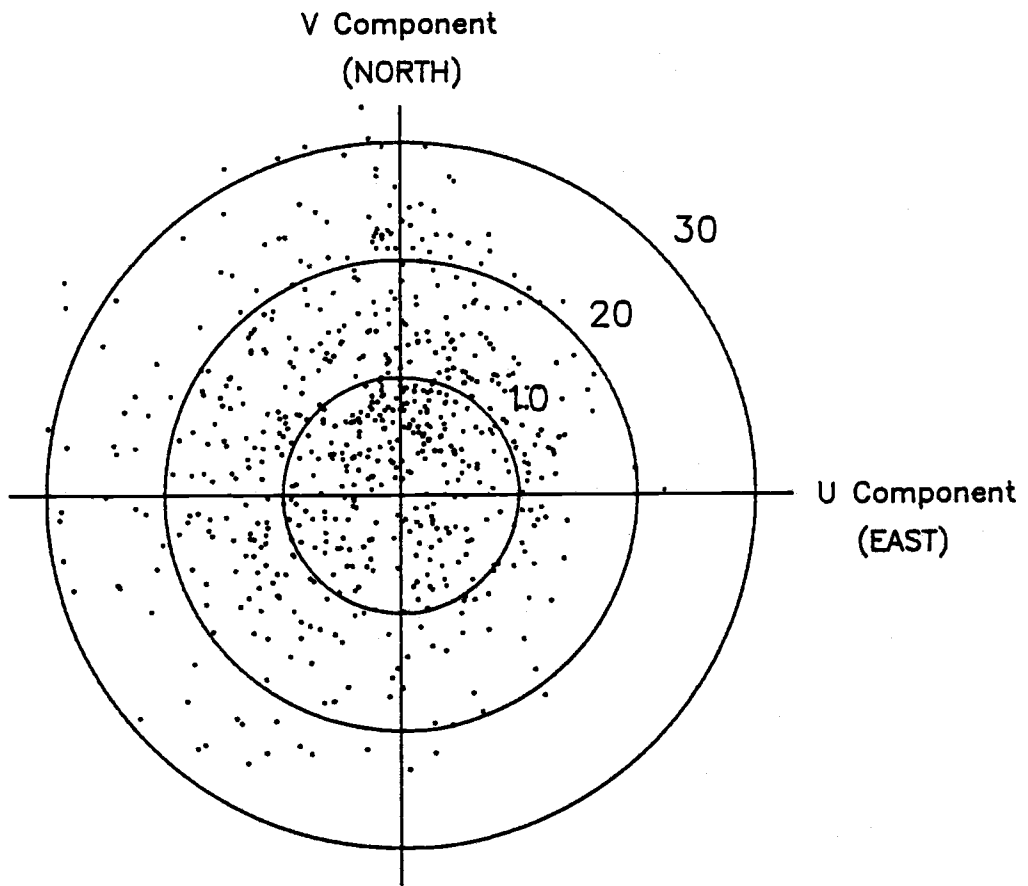
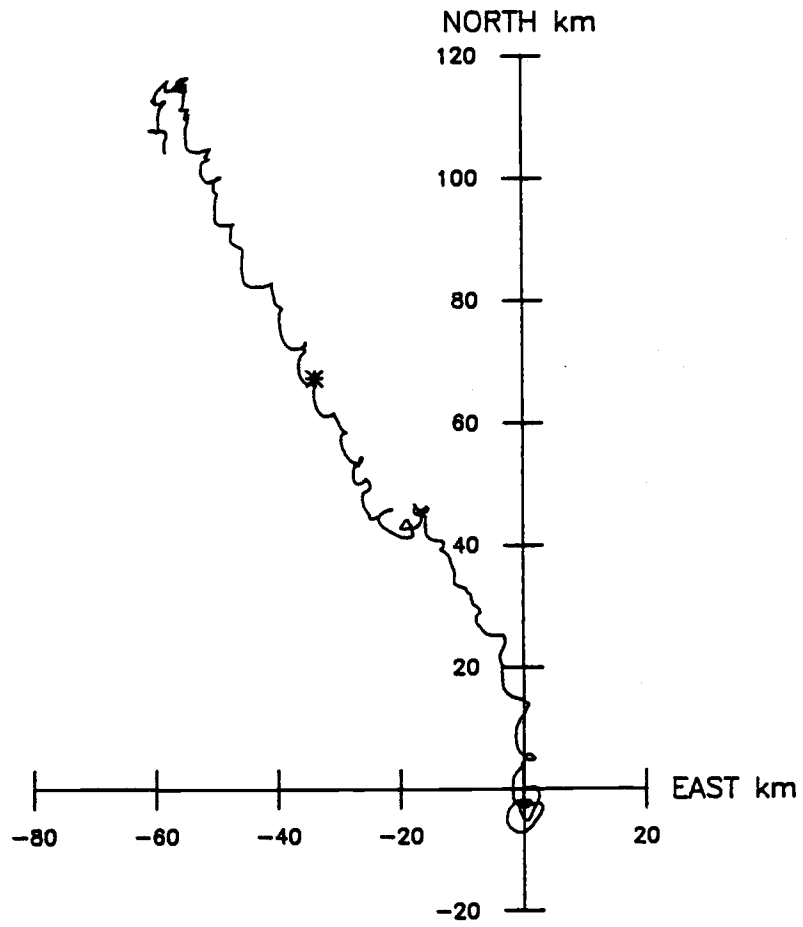


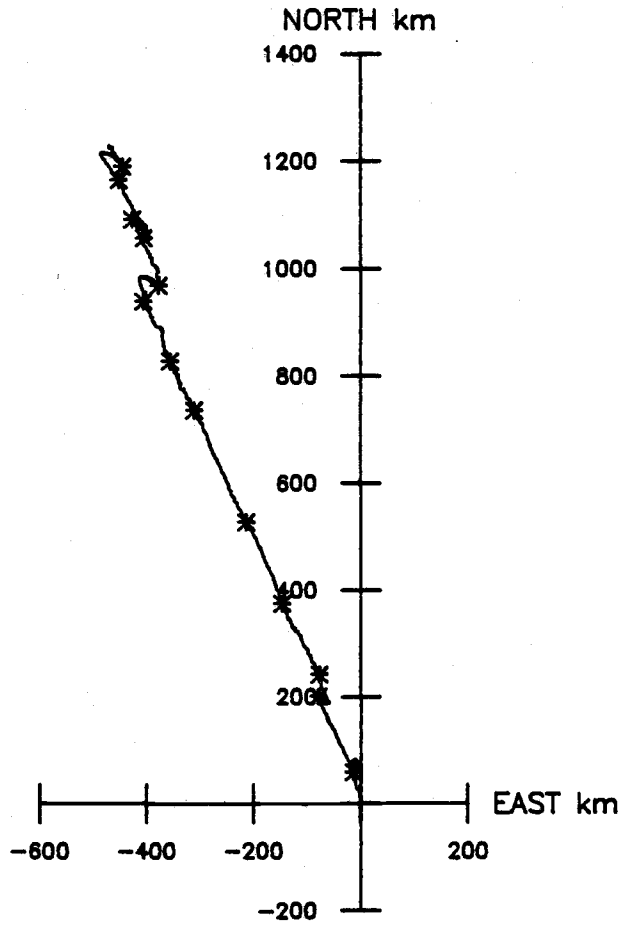




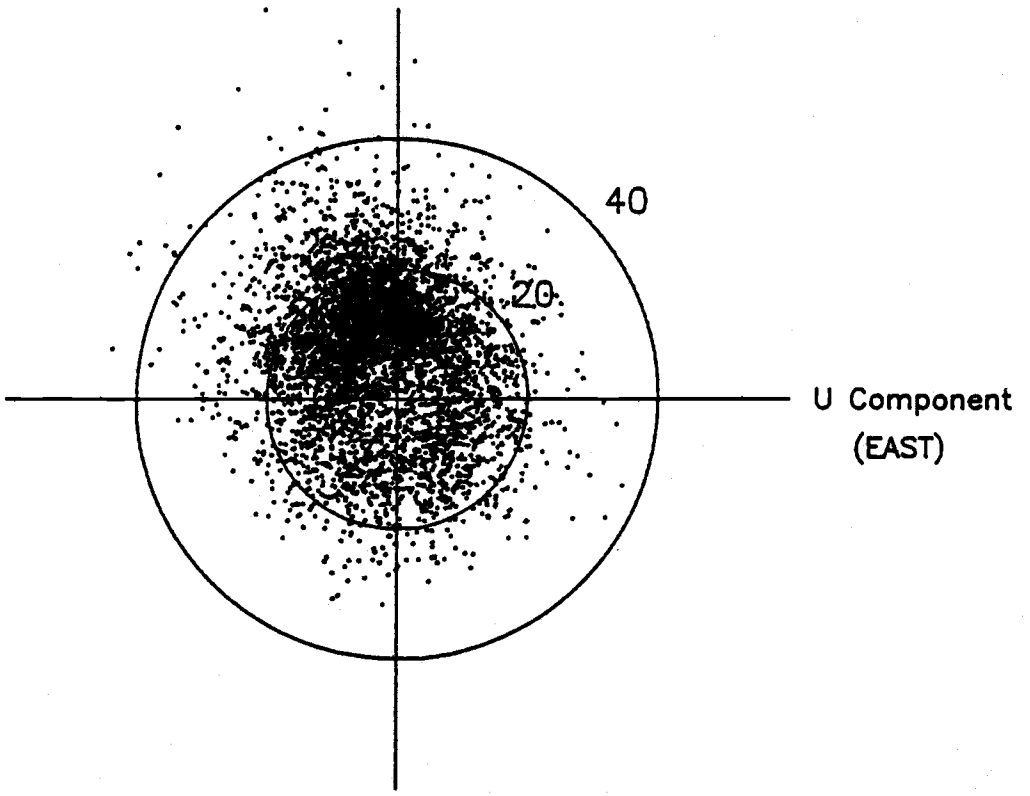
H4S2      MAY 8, 1981 0800      -      JUN 4, 1981 1400





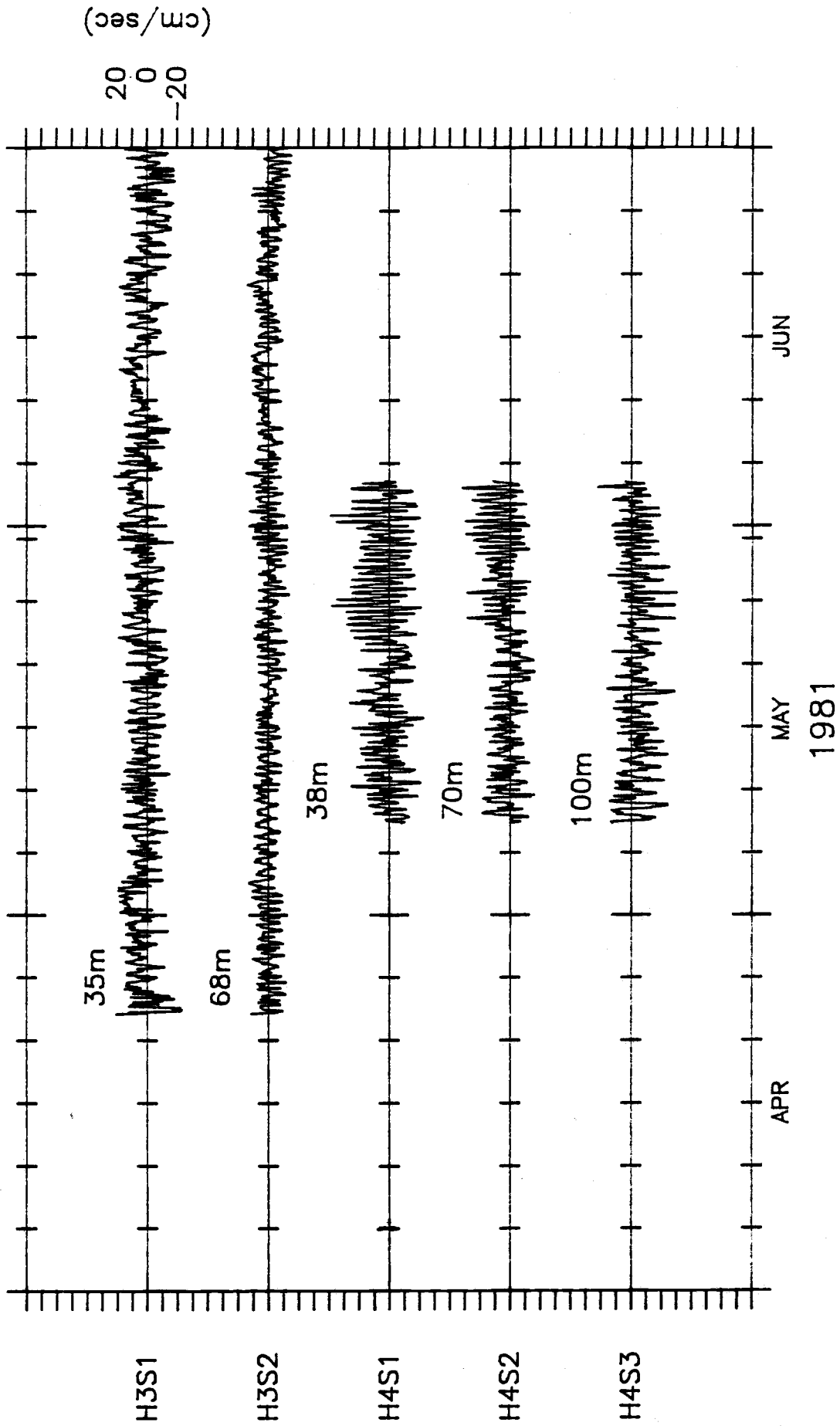


V Component  
(NORTH)

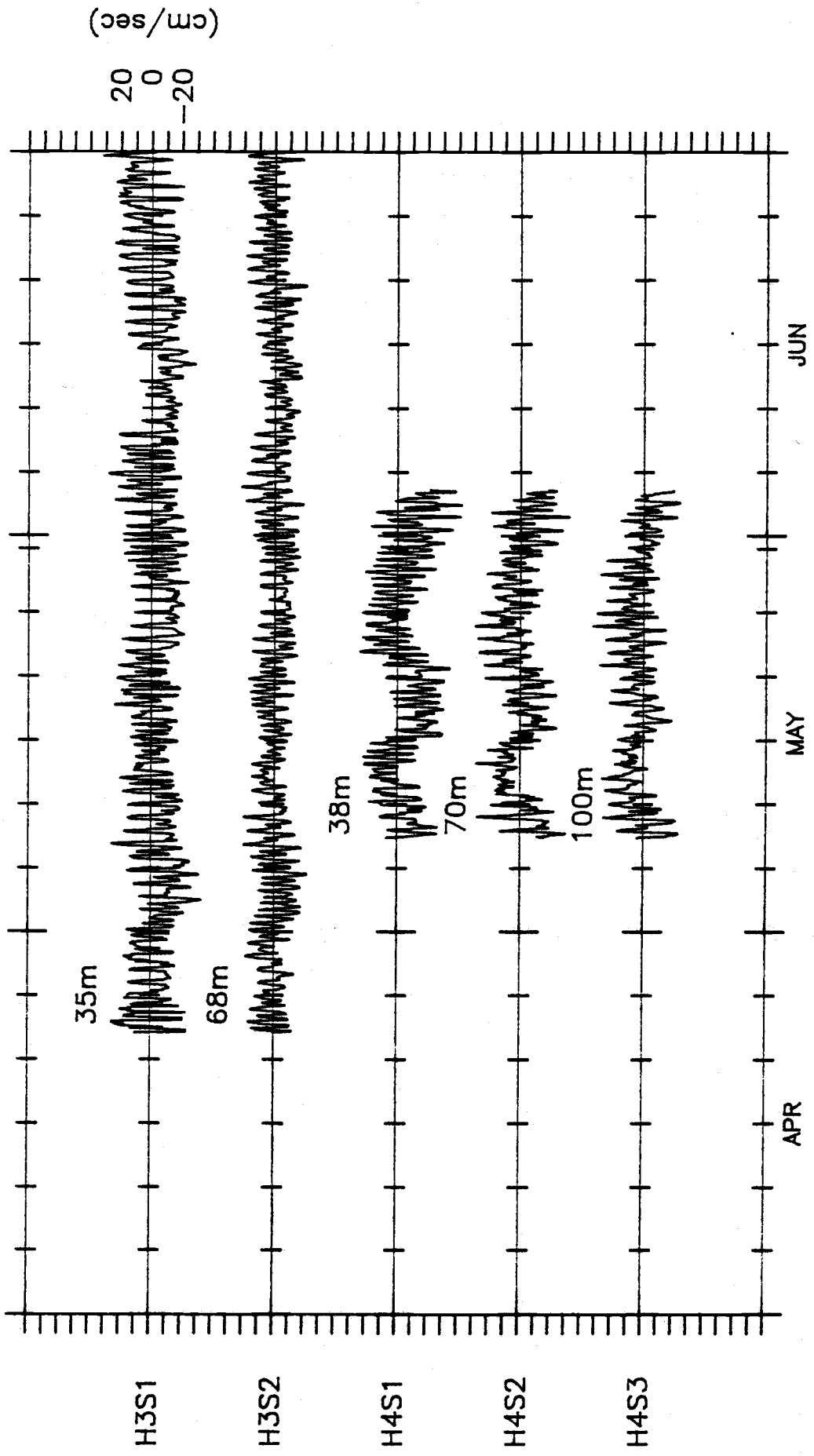


H4S3

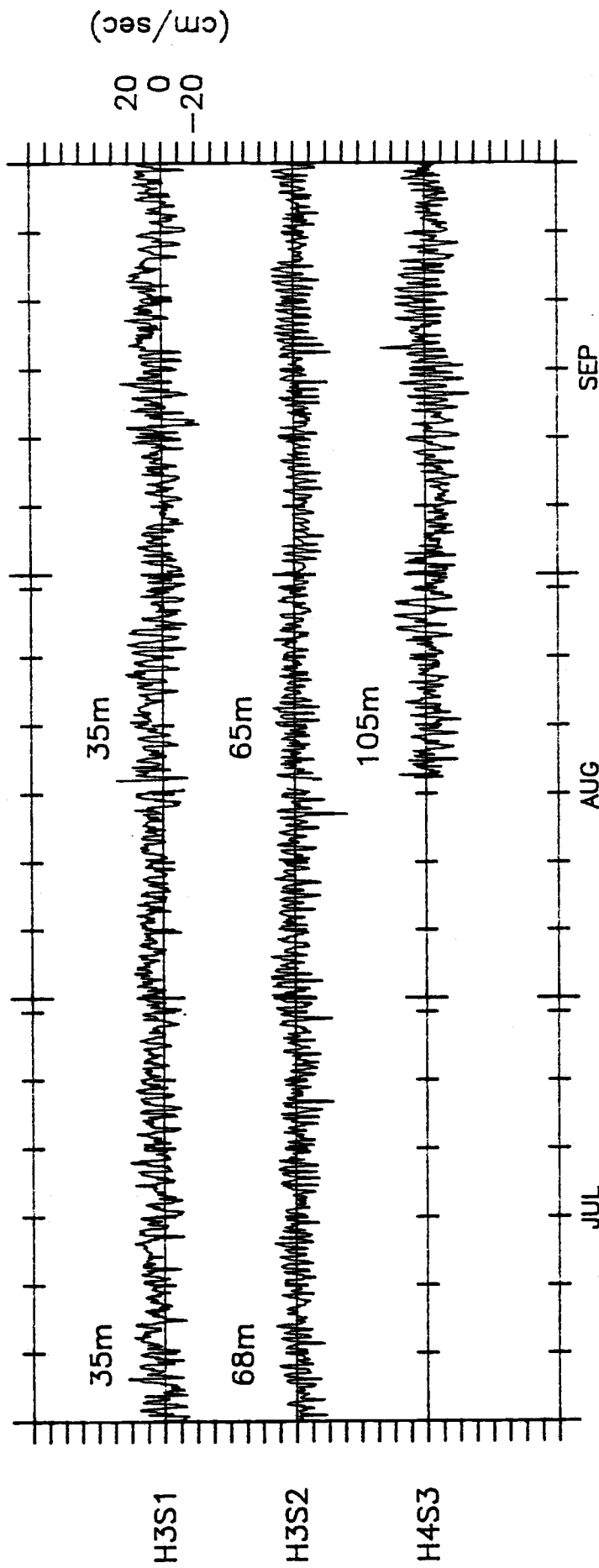
AUG 17, 1981 0300 - MAR 6, 1982 1000



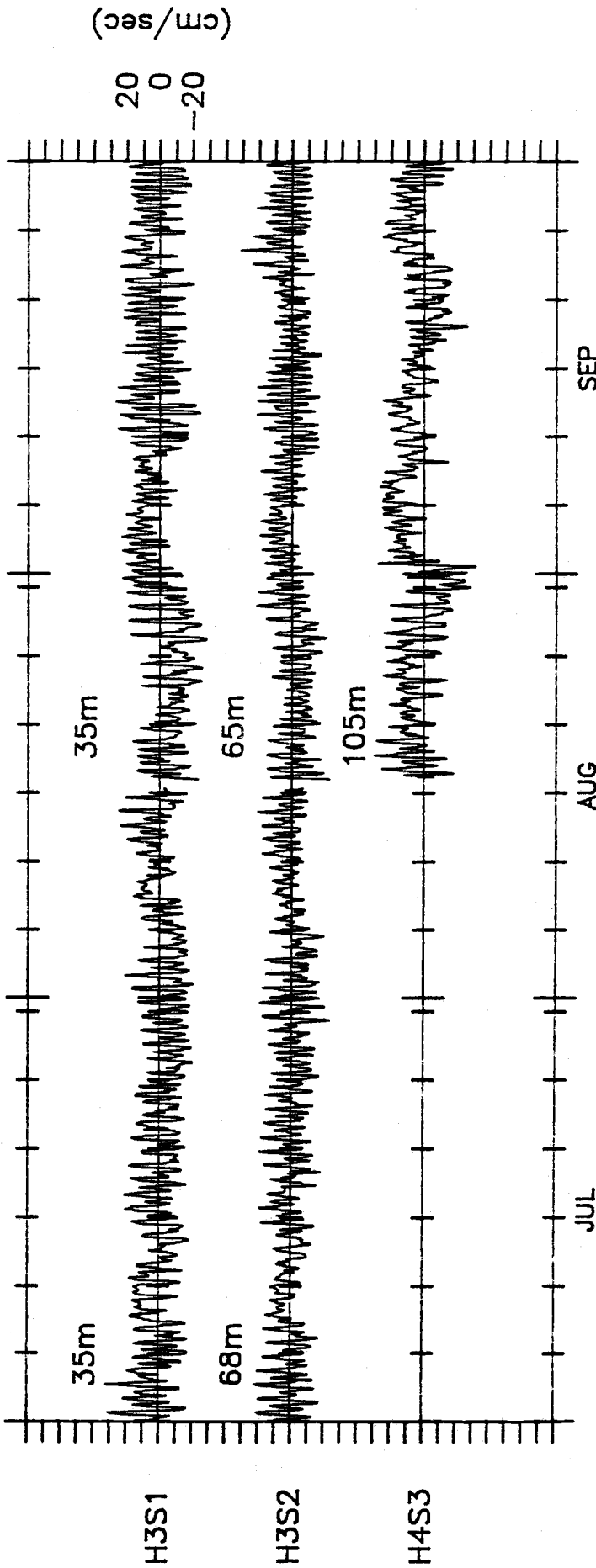
SAN FRANCISCO U velocity



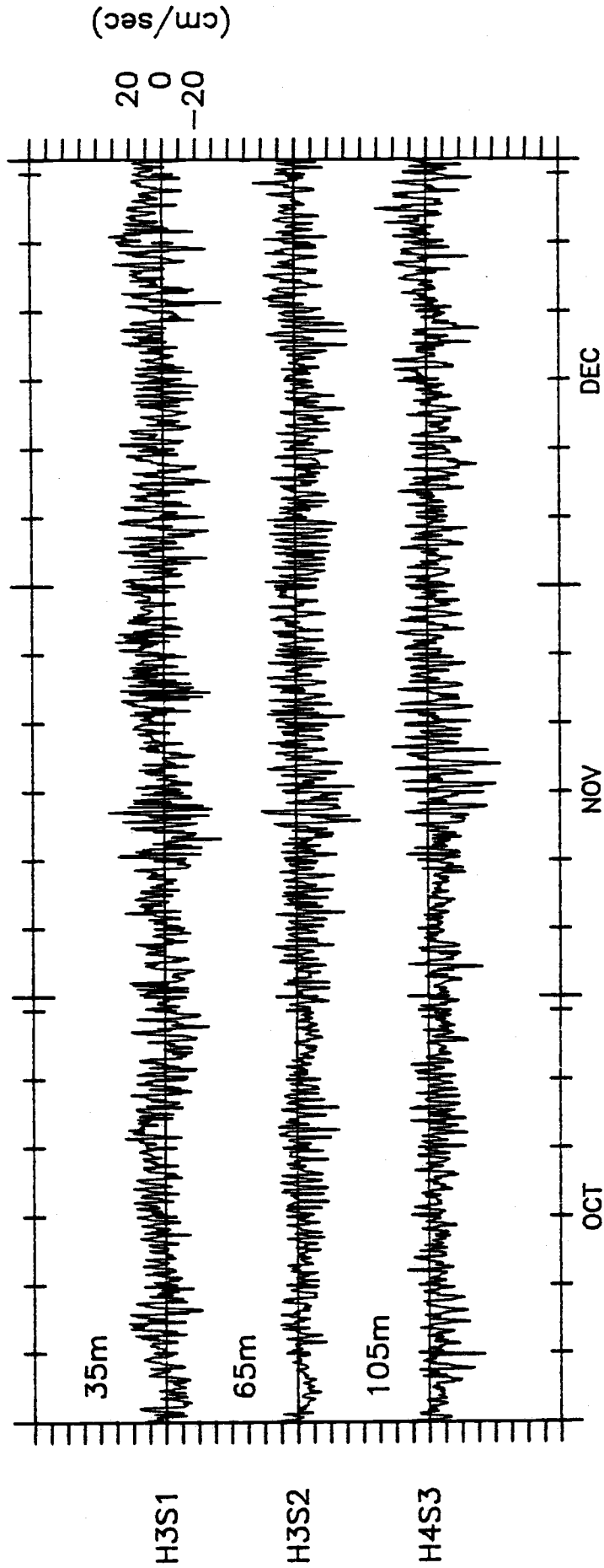
SAN FRANCISCO V velocity



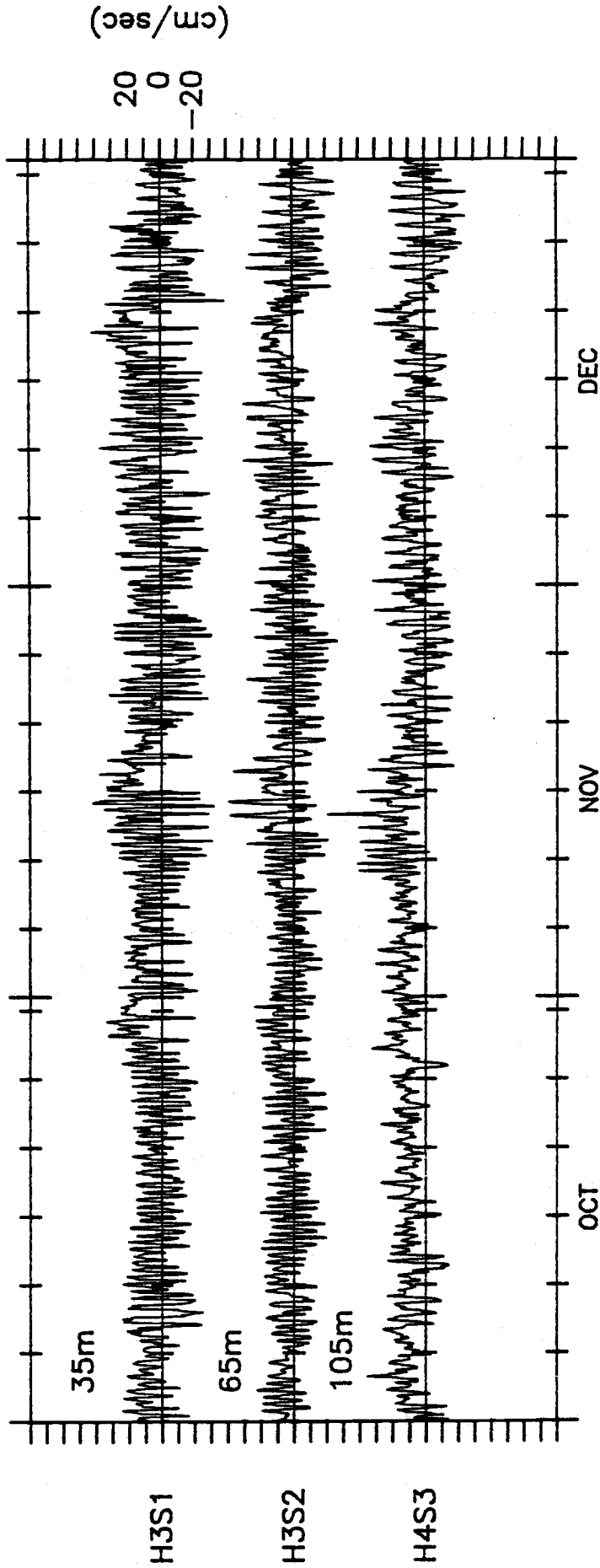
SAN FRANCISCO U velocity



SAN FRANCISCO V velocity



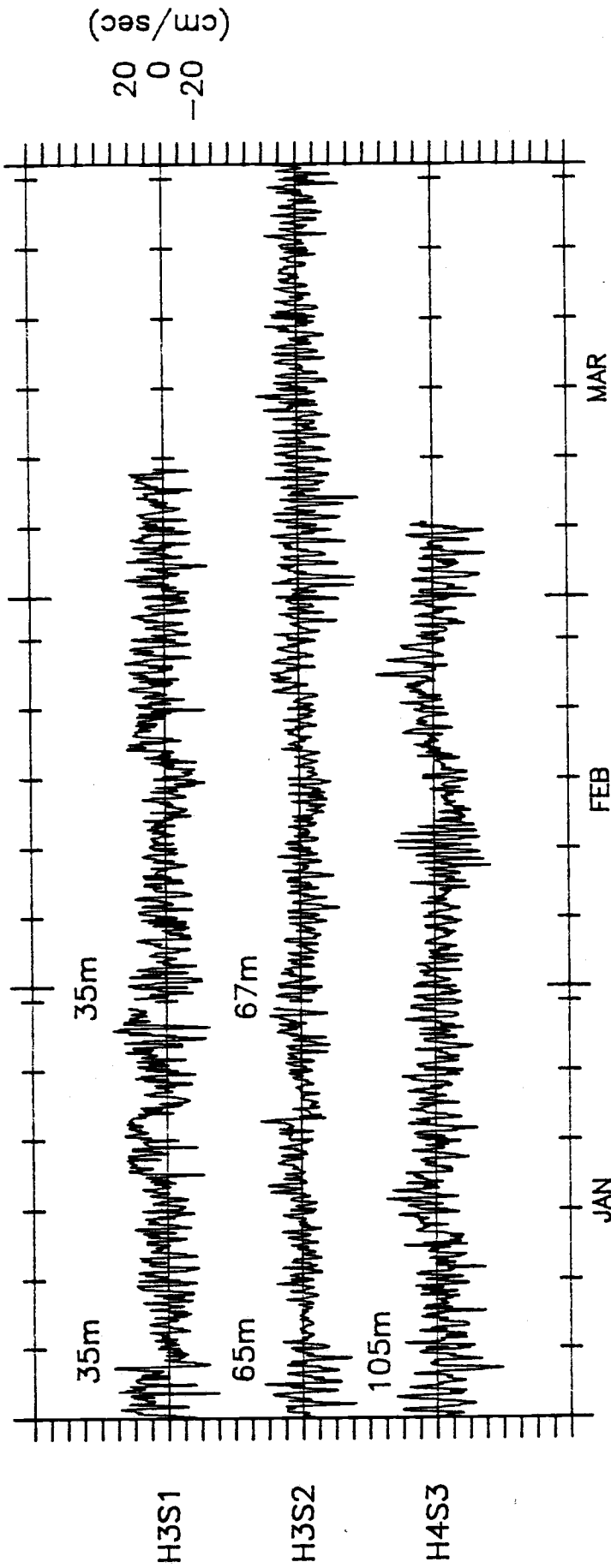
SAN FRANCISCO U velocity



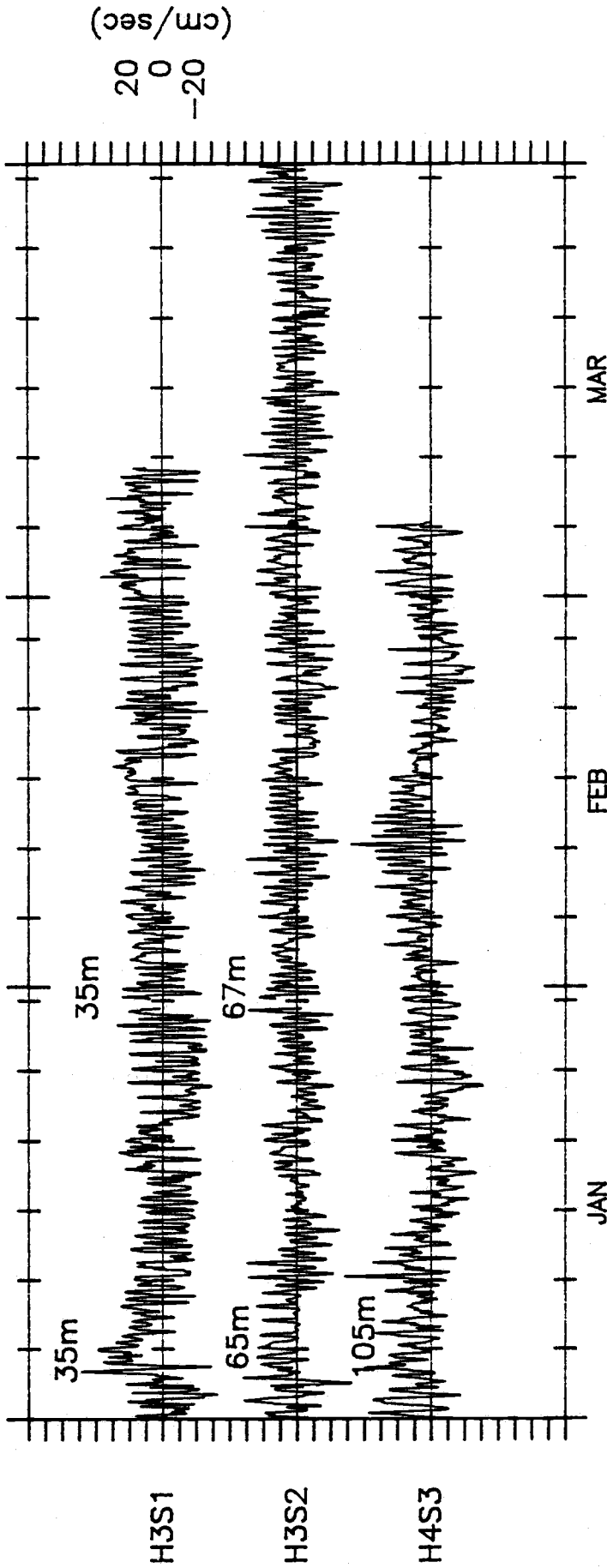
1981

SAN FRANCISCO V velocity

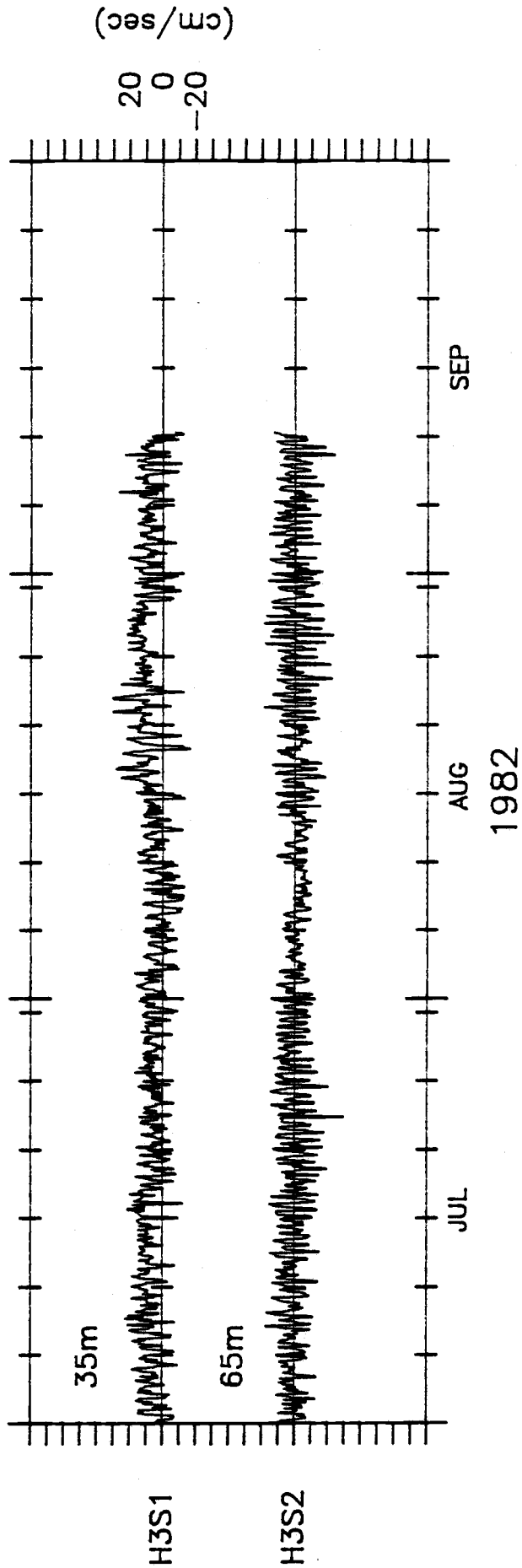
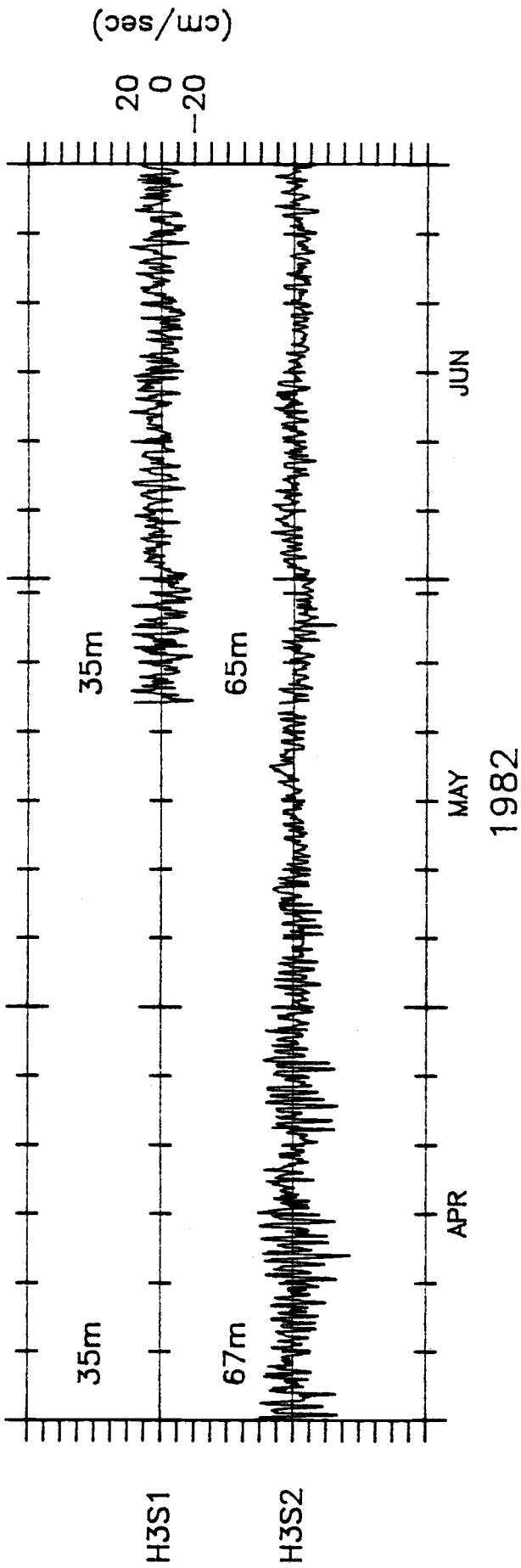




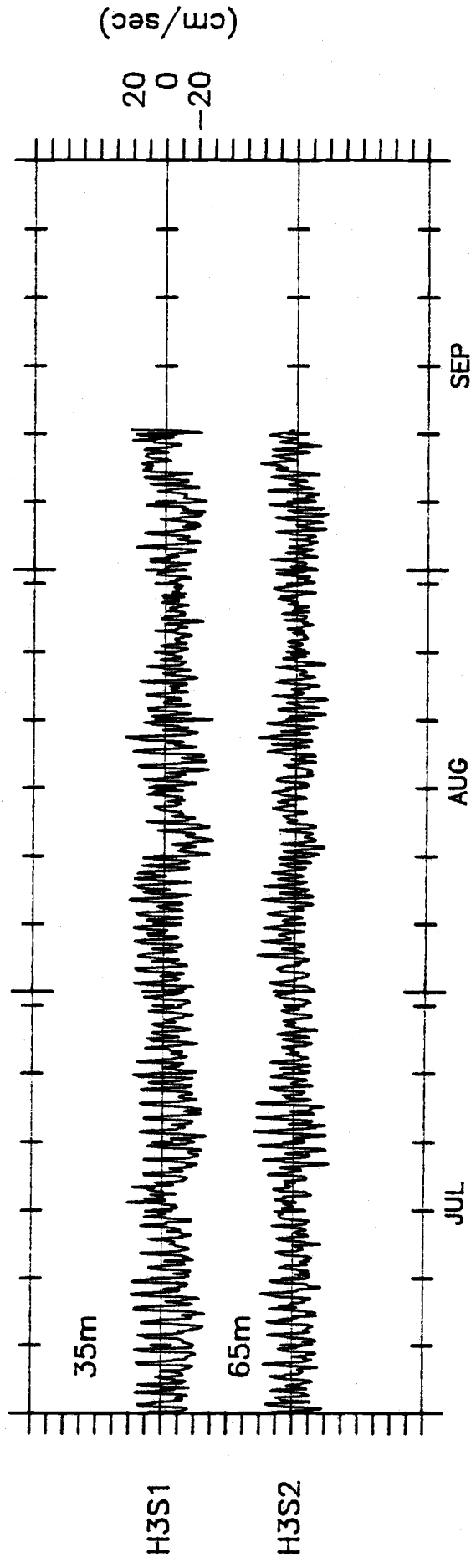
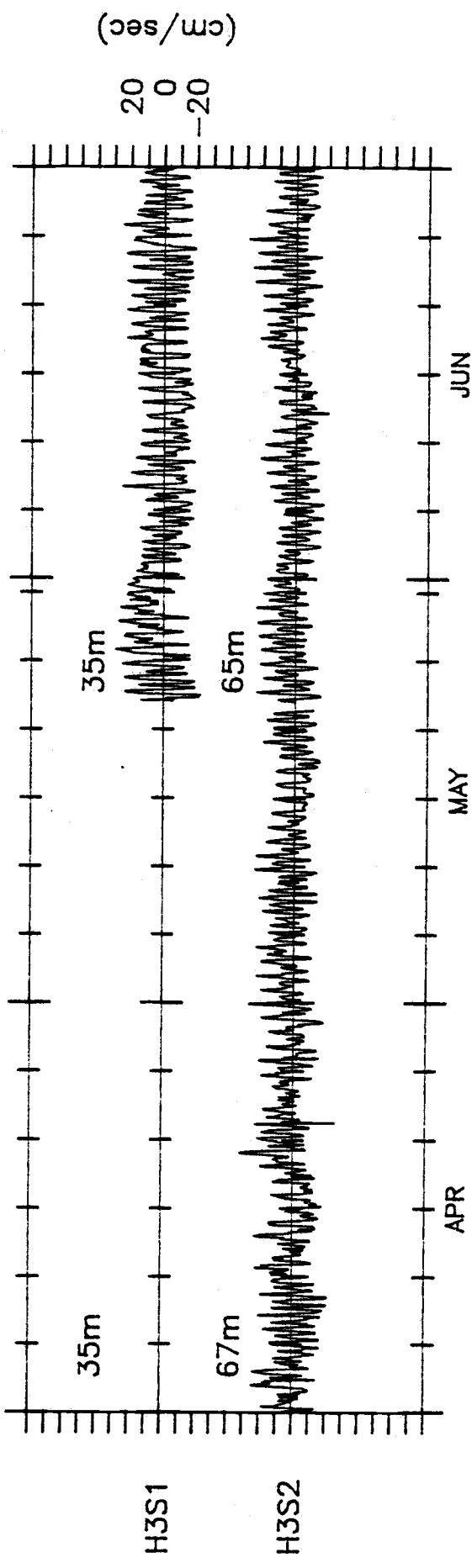
SAN FRANCISCO U velocity



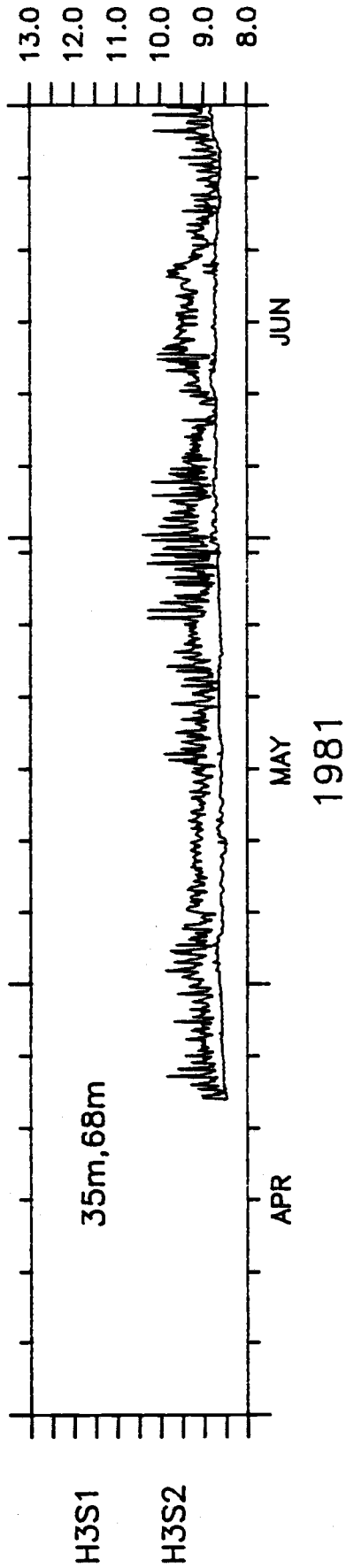
SAN FRANCISCO V velocity



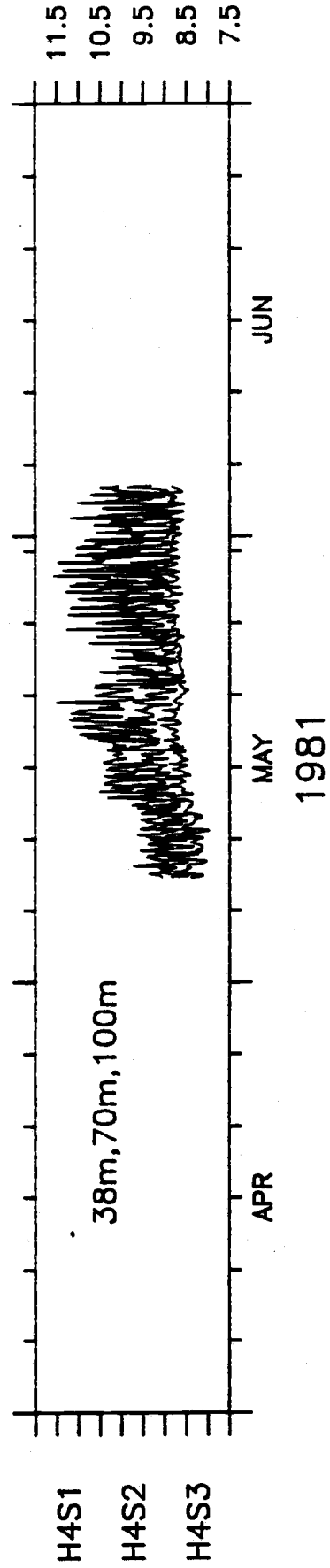
SAN FRANCISCO U velocity



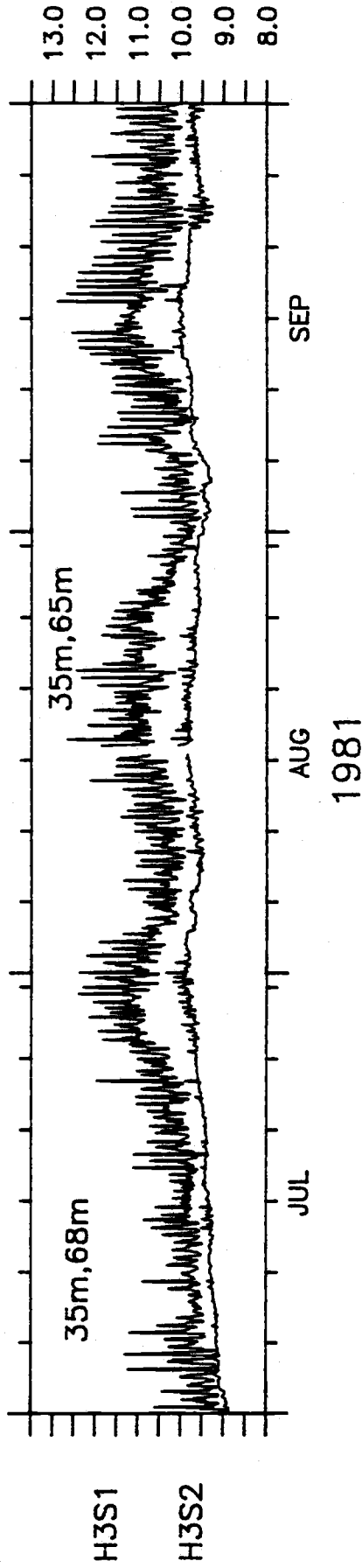
SAN FRANCISCO V velocity



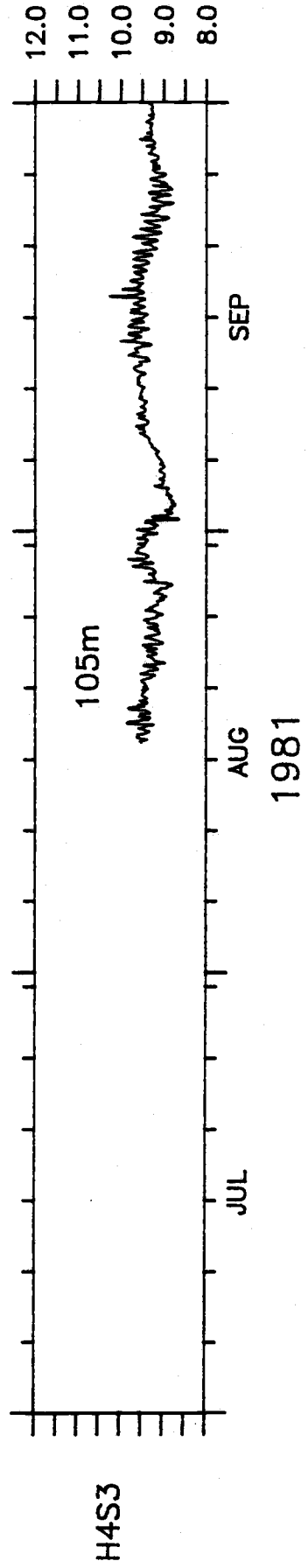
SAN FRANCISCO SHALLOW Temperature



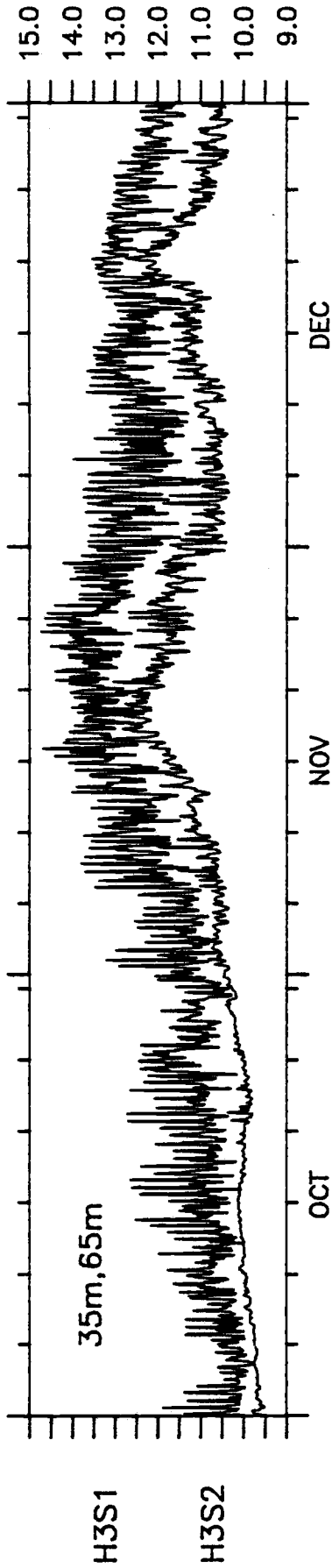
SAN FRANCISCO DEEP Temperature



SAN FRANCISCO SHALLOW Temperature

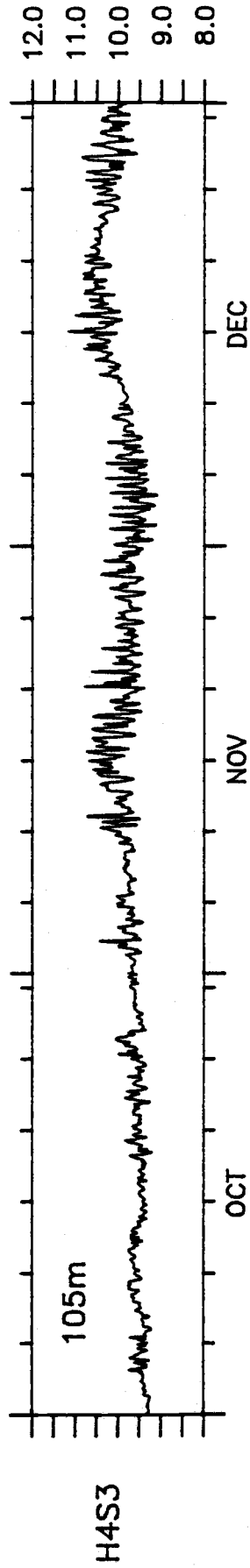


SAN FRANCISCO DEEP Temperature



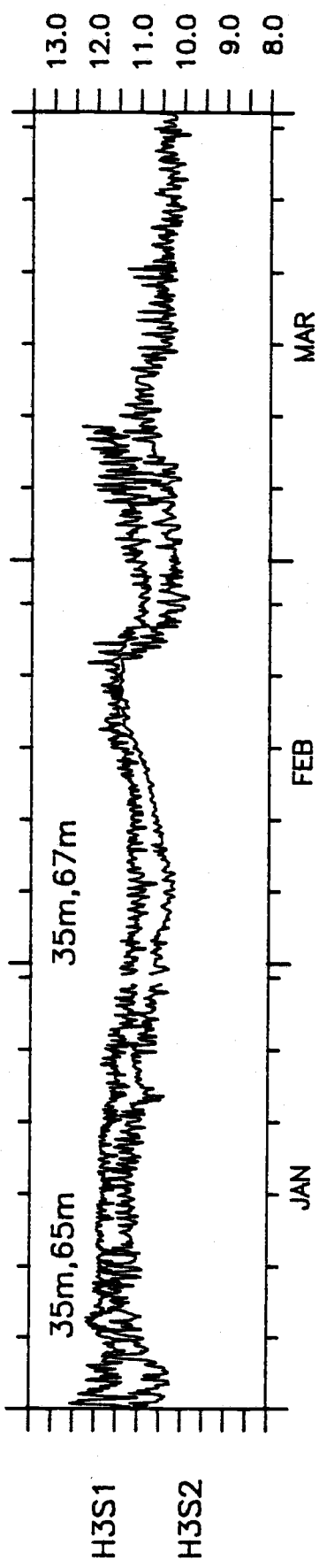
H3S1  
H3S2

### SAN FRANCISCO SHALLOW Temperature

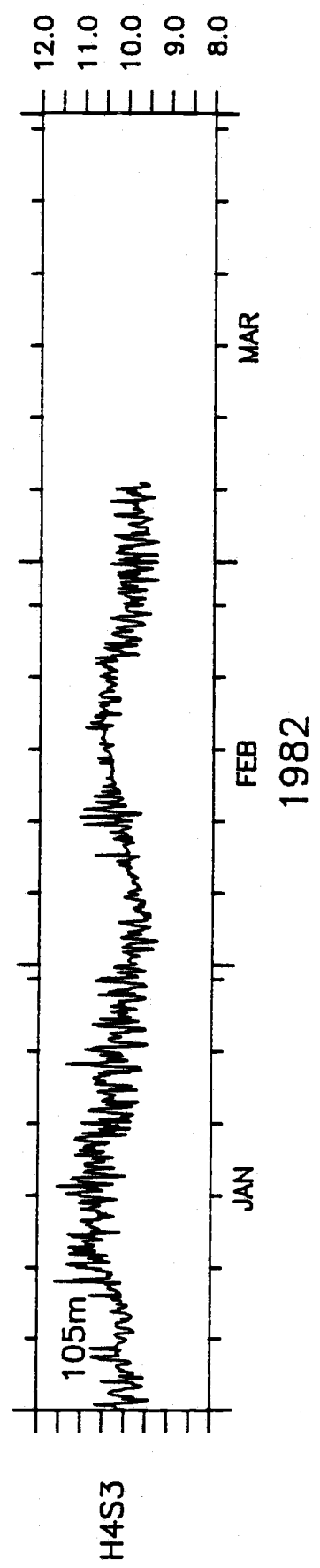


H4S3

### SAN FRANCISCO DEEP Temperature

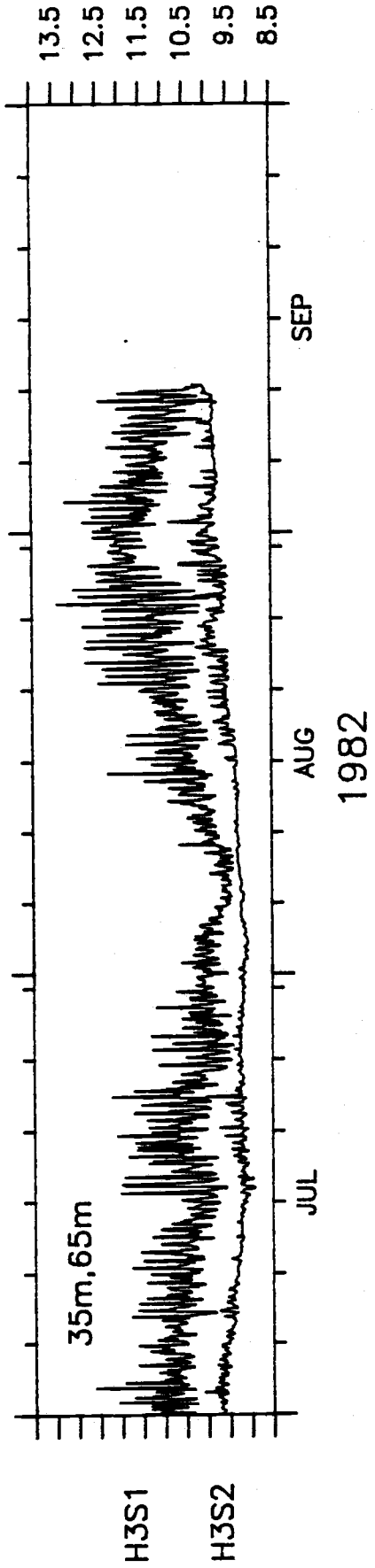
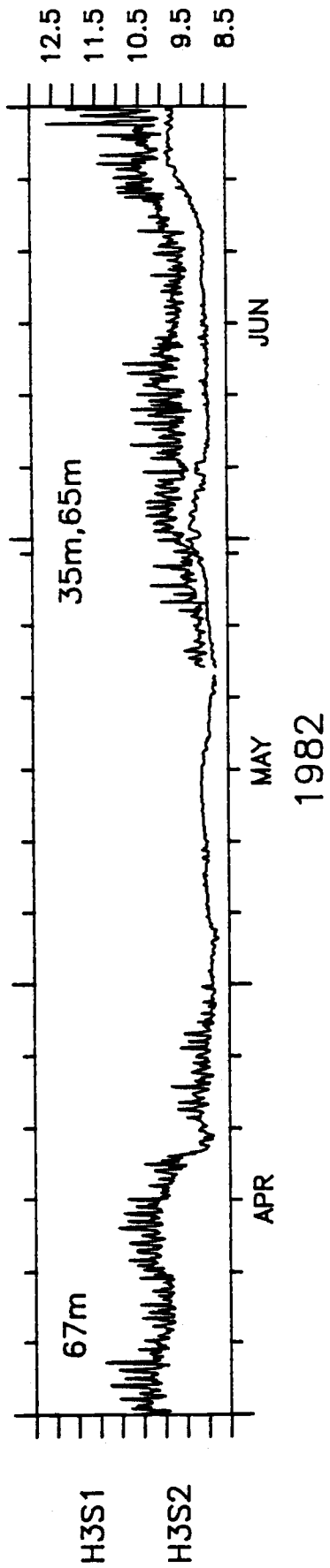


### SAN FRANCISCO SHALLOW Temperature



### SAN FRANCISCO DEEP Temperature



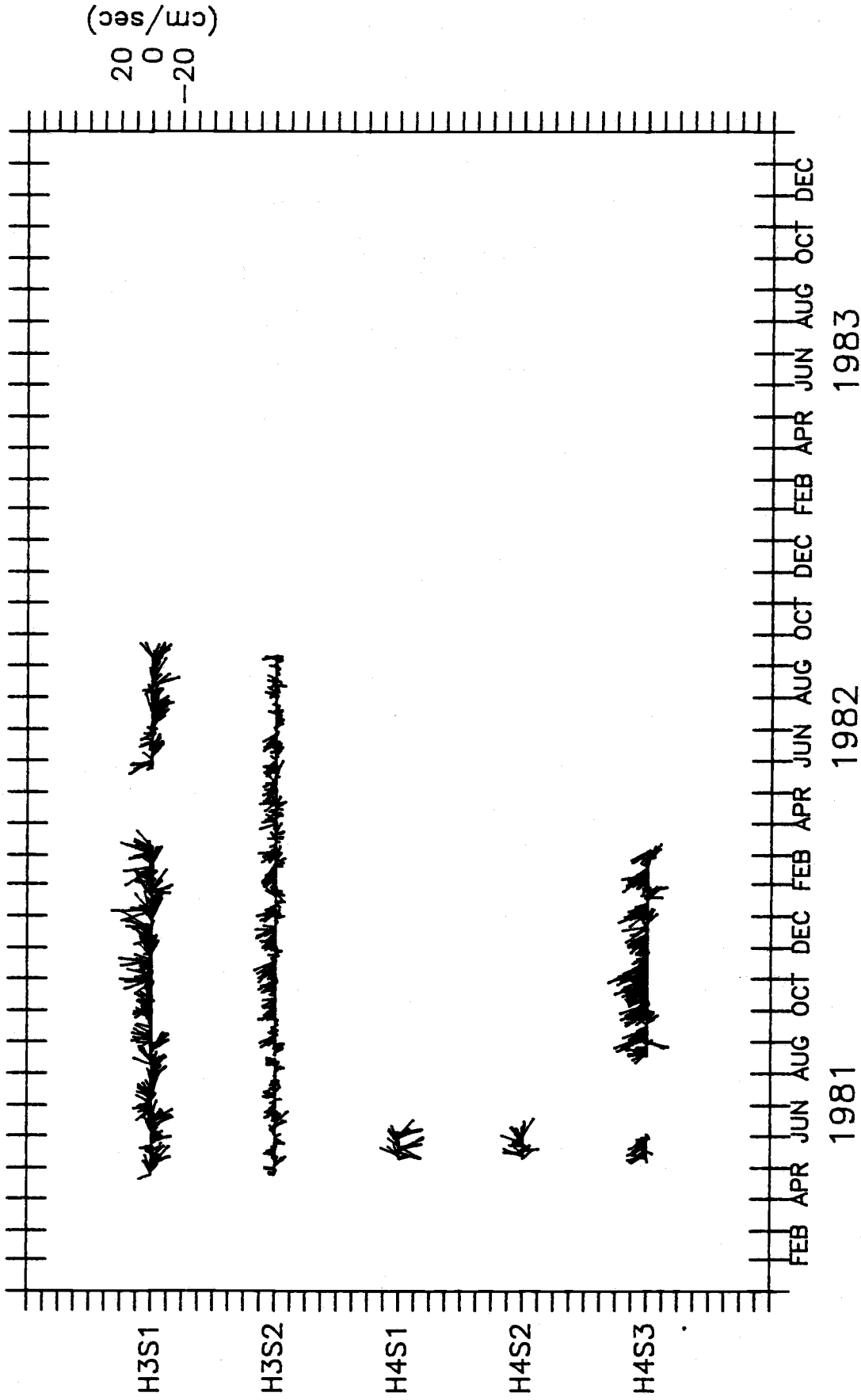


SAN FRANCISCO SHALLOW Temperature

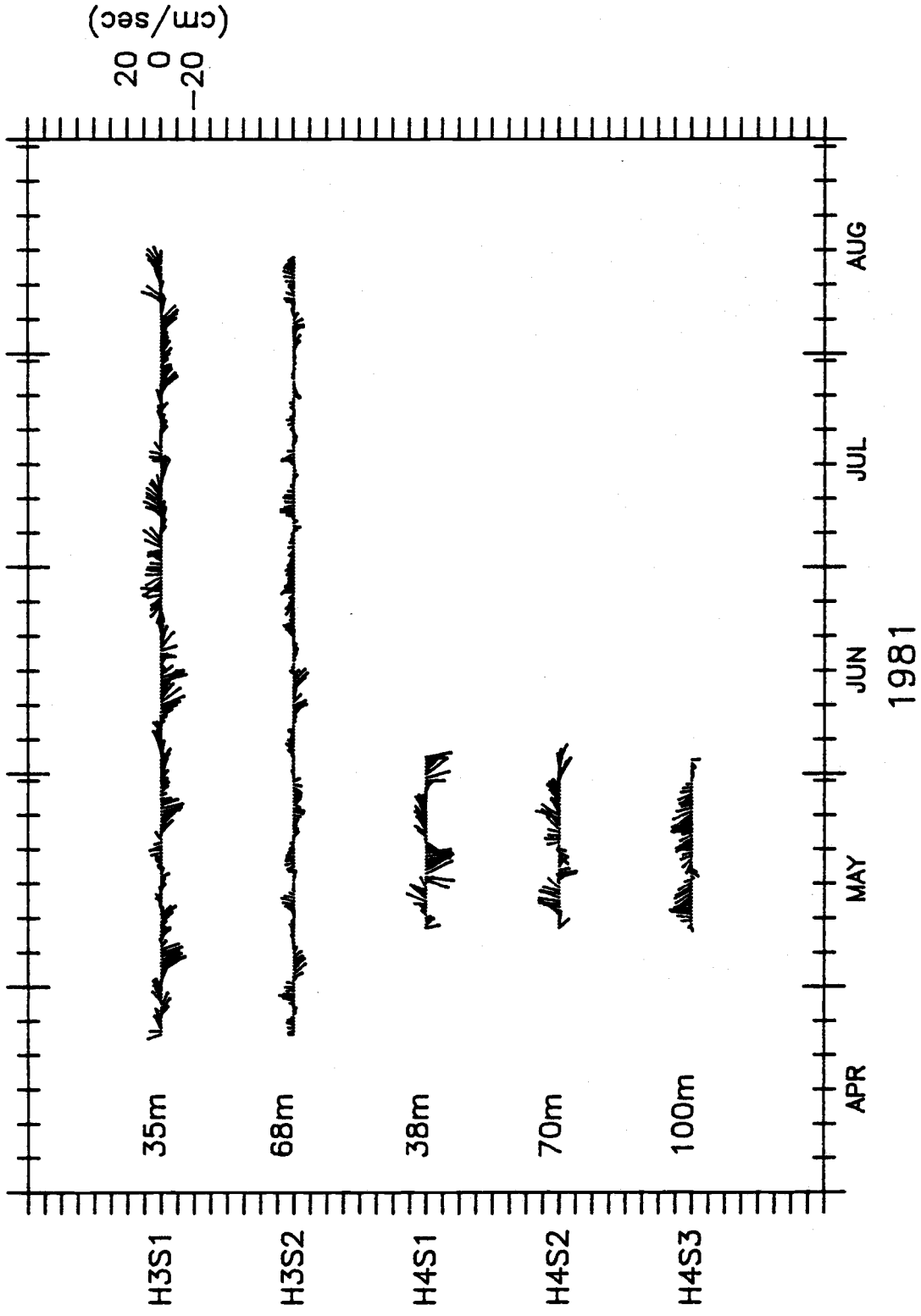
## SAMPLING INTERVAL = 360 MINUTES

STATION	START TIME (GMT)	MIN	MAX	MEAN	STD	STOP TIME	
H3S1	APR 24, 1981 0000	U	-8.5	15.4	4.7	3.9	AUG 15, 1981 0600
		V	-15.3	11.7	-1.1	6.0	AUG 15, 1981 0000
		T	8.8	11.3	9.6	0.6	AUG 15, 1981 0600
		PRINCIPAL AXIS = -19.0					
H3S1	AUG 18, 1981 0600	U	-11.0	20.8	4.7	5.4	JAN 29, 1982 1200
		V	-13.3	27.0	4.4	7.4	JAN 29, 1982 1200
		T	9.9	13.9	11.6	1.0	JAN 29, 1982 1200
		PRINCIPAL AXIS = -23.1					
H3S1	FEB 1, 1982 0600	U	-11.4	13.6	2.9	4.8	MAR 9, 1982 1200
		V	-7.5	22.6	5.9	6.6	MAR 9, 1982 1200
		T	10.9	11.7	11.2	0.2	MAR 9, 1982 1200
		PRINCIPAL AXIS = -27.7					
H3S1	MAY 24, 1982 0600	U	-8.4	17.3	5.4	4.8	SEP 10, 1982 1200
		V	-17.3	14.8	-2.2	6.1	SEP 10, 1982 1200
		T	9.1	12.1	10.4	0.7	SEP 10, 1982 1200
		PRINCIPAL AXIS = -34.4					
H3S2	APR 24, 1981 0000	U	-6.7	7.2	0.7	2.5	AUG 15, 1981 1200
		V	-8.3	8.6	0.8	3.5	AUG 15, 1981 1200
		T	8.5	9.9	9.0	0.4	AUG 15, 1981 1200
		PRINCIPAL AXIS = -25.3					
H3S2	AUG 18, 1981 0600	U	-13.1	8.9	-1.4	3.3	JAN 29, 1982 1200
		V	-6.1	14.1	3.2	4.5	JAN 29, 1982 1200
		T	9.3	12.5	10.5	0.8	JAN 29, 1982 1200
		PRINCIPAL AXIS = -29.0					
H3S2	FEB 1, 1982 0600	U	-8.6	9.4	-0.5	3.3	MAY 21, 1982 1200
		V	-7.1	12.3	2.1	4.1	MAY 21, 1982 1200
		T	8.8	11.4	10.1	0.7	MAY 21, 1982 1200
		PRINCIPAL AXIS = -32.5					
H3S2	MAY 24, 1982 0600	U	-8.2	5.8	-0.1	2.8	SEP 10, 1982 1200
		V	-6.3	11.6	0.9	3.5	SEP 10, 1982 1200
		T	8.9	10.1	9.4	0.3	SEP 10, 1982 1200
		PRINCIPAL AXIS = -35.9					
H4S1	MAY 9, 1981 1200	U	-7.5	11.2	3.7	3.9	JUN 3, 1981 1800
		V	-16.8	11.4	-3.6	8.5	JUN 3, 1981 1800
		T	9.2	10.7	9.9	0.4	JUN 3, 1981 1800
		PRINCIPAL AXIS = 9.5					
H4S2	MAY 9, 1981 1200	U	-4.6	12.2	4.3	3.6	JUN 3, 1981 1200
		V	-11.0	13.5	2.3	6.4	JUN 3, 1981 1200
		T	8.7	9.6	9.2	0.2	JUN 3, 1981 1200
		PRINCIPAL AXIS = -0.2					
H4S3	MAY 9, 1981 1200	U	-8.3	1.1	-2.8	2.3	JUN 3, 1981 1200
		V	-5.4	12.8	5.3	4.6	JUN 3, 1981 1200
		T	8.2	9.0	8.7	0.2	JUN 3, 1981 1200
		PRINCIPAL AXIS = -16.5					
H4S3	AUG 18, 1981 0600	U	-13.3	11.3	-2.7	4.6	MAR 5, 1982 1200
		V	-15.2	25.1	7.1	7.3	MAR 5, 1982 1200
		T	8.8	10.9	9.8	0.4	MAR 5, 1982 1200
		PRINCIPAL AXIS = -29.6					

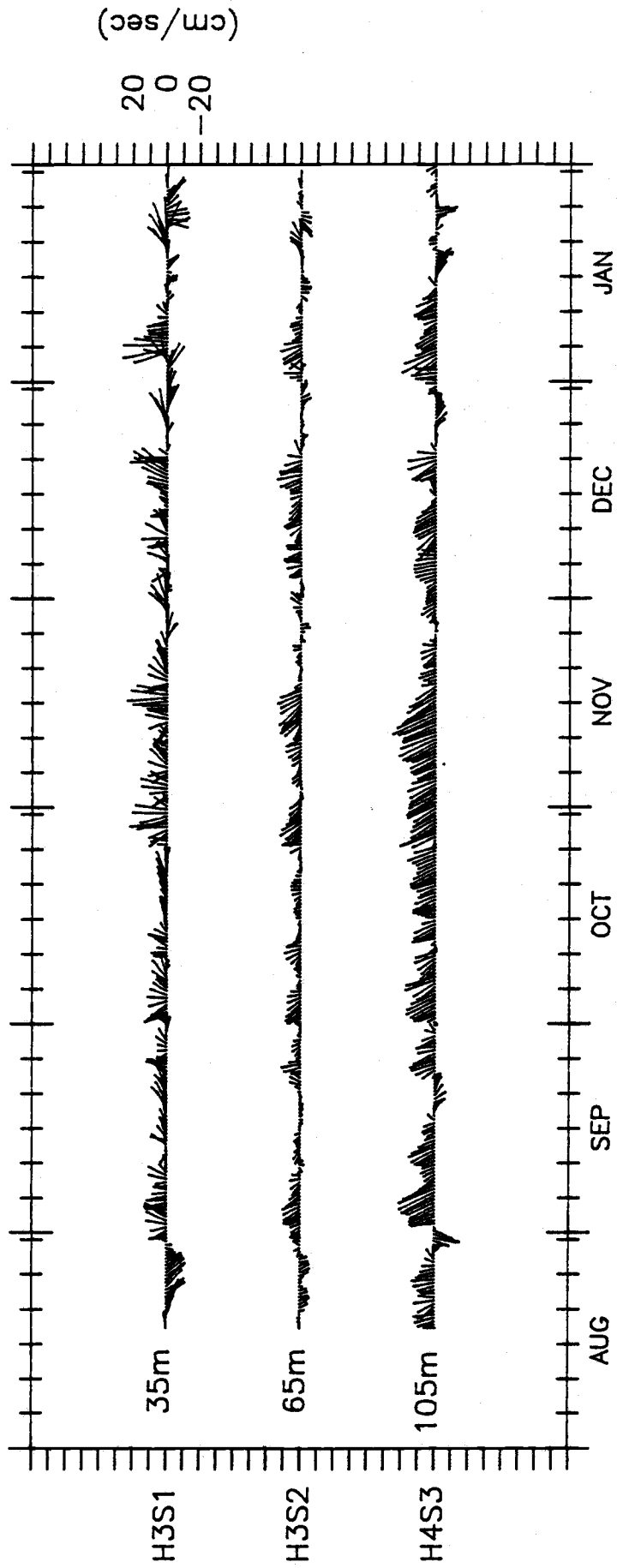




SAN FRANCISCO velocity

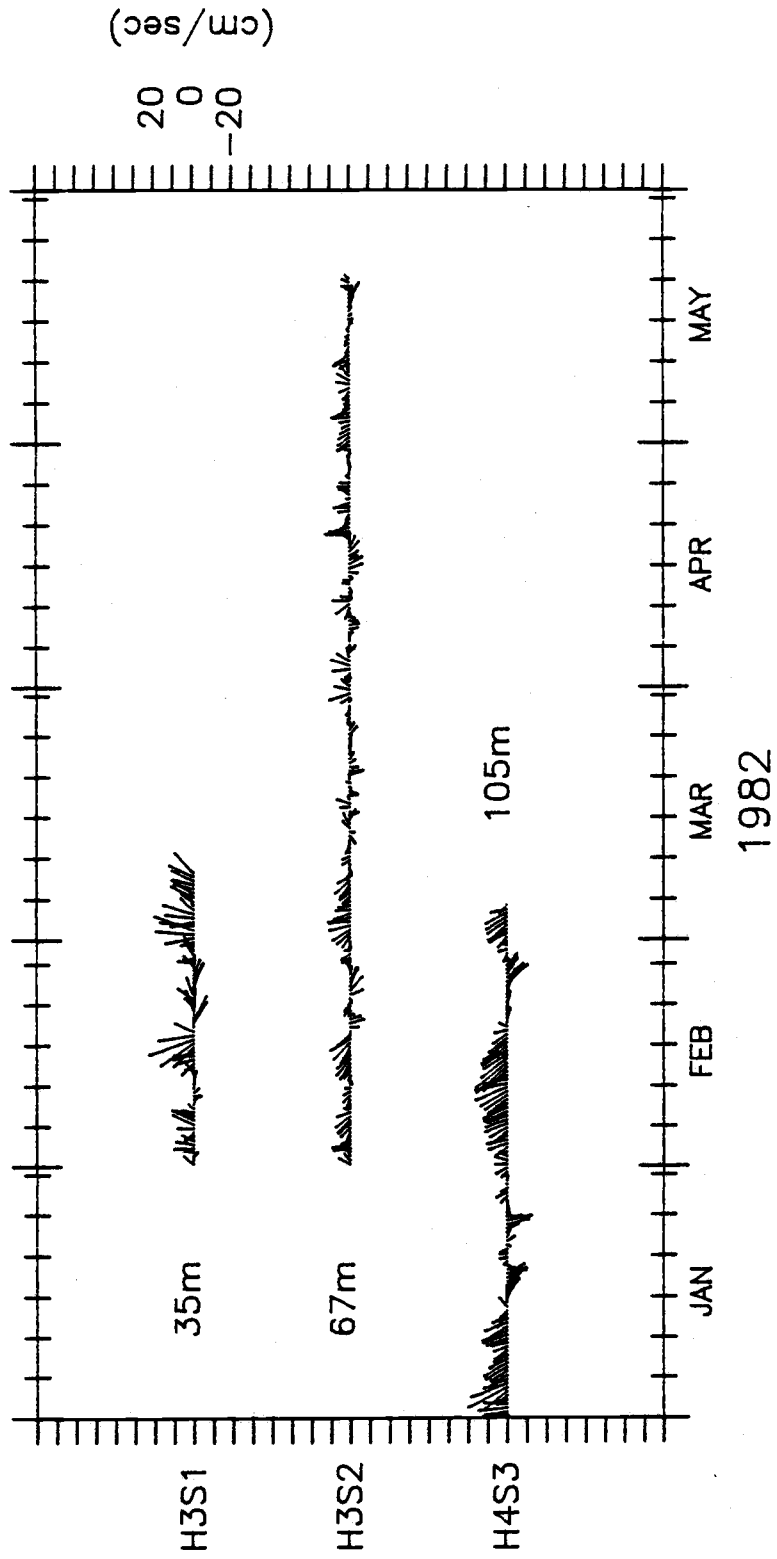


SAN FRANCISCO velocity

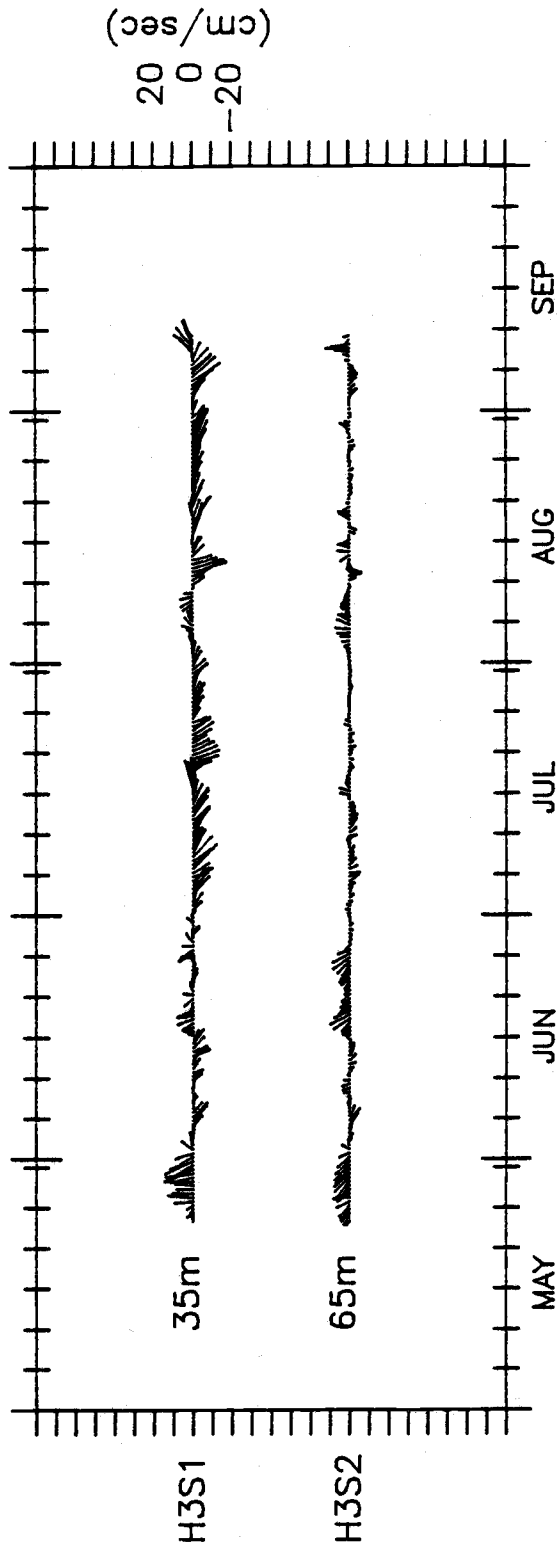


SAN FRANCISCO velocity

1981

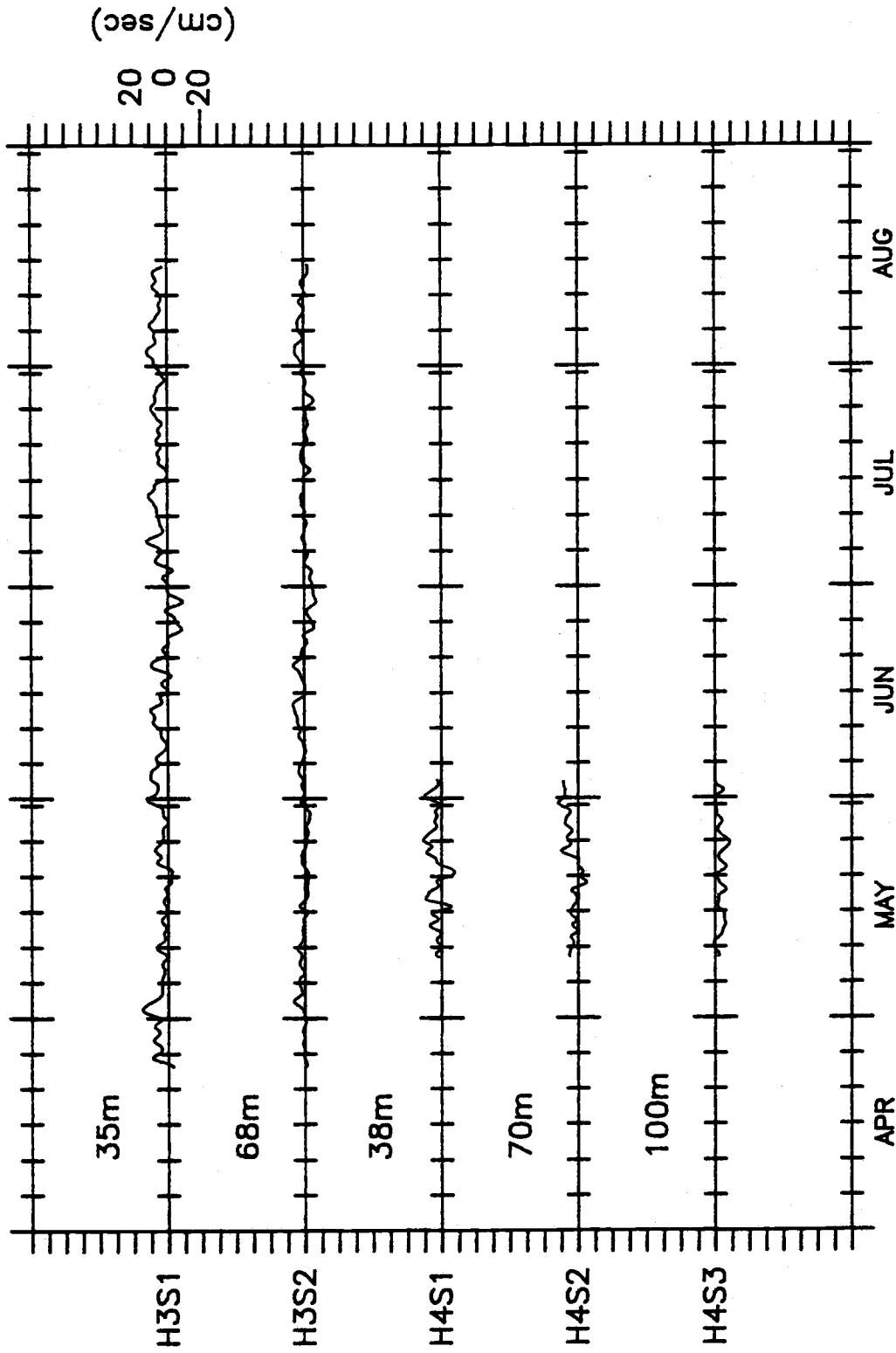


SAN FRANCISCO velocity



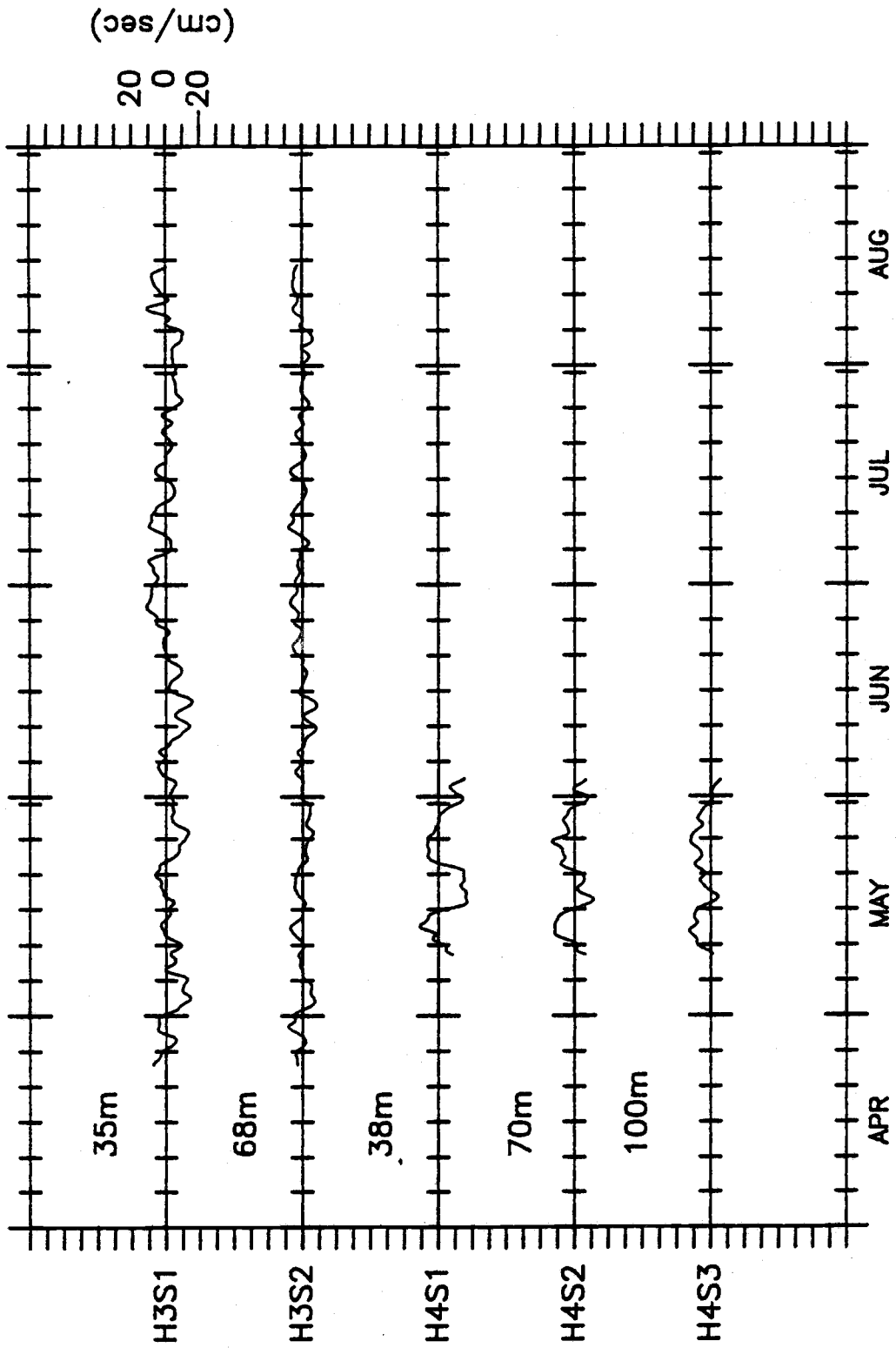
SAN FRANCISCO velocity





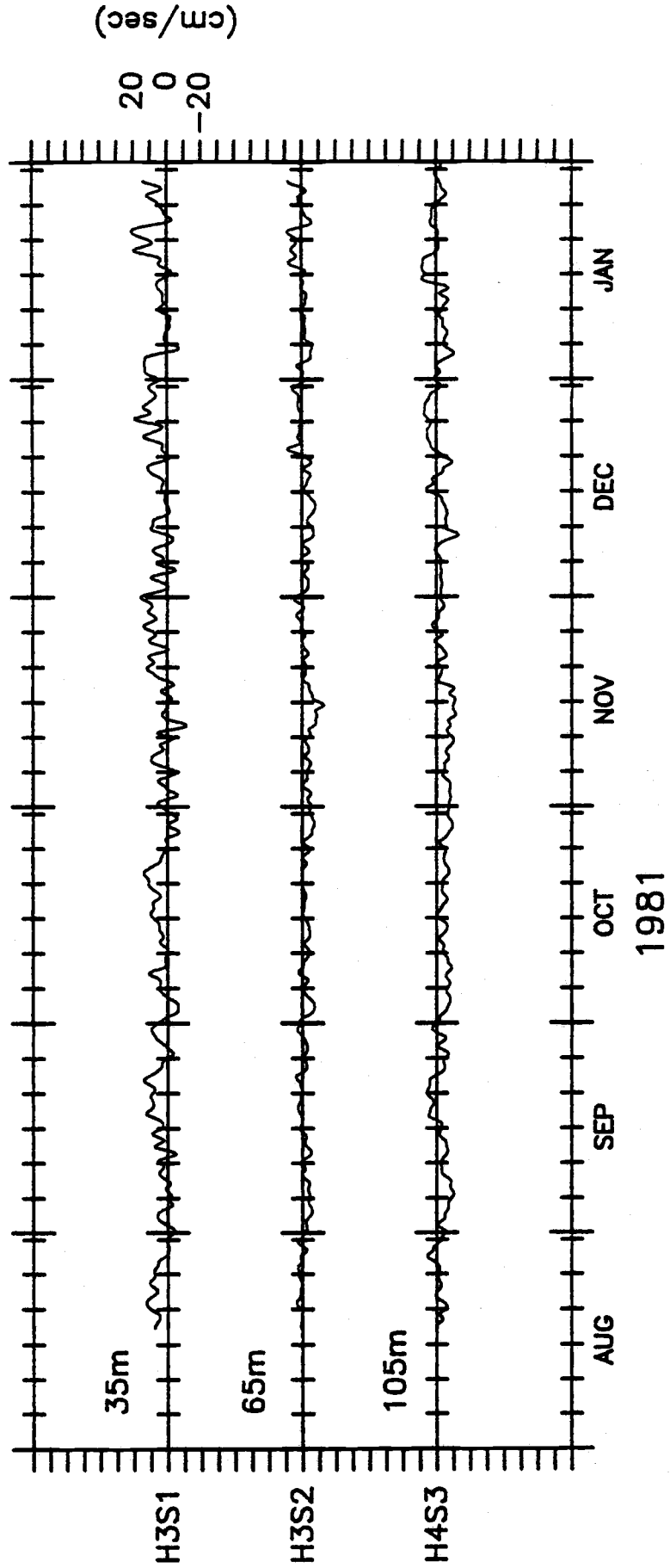
1981

SAN FRANCISCO U velocity

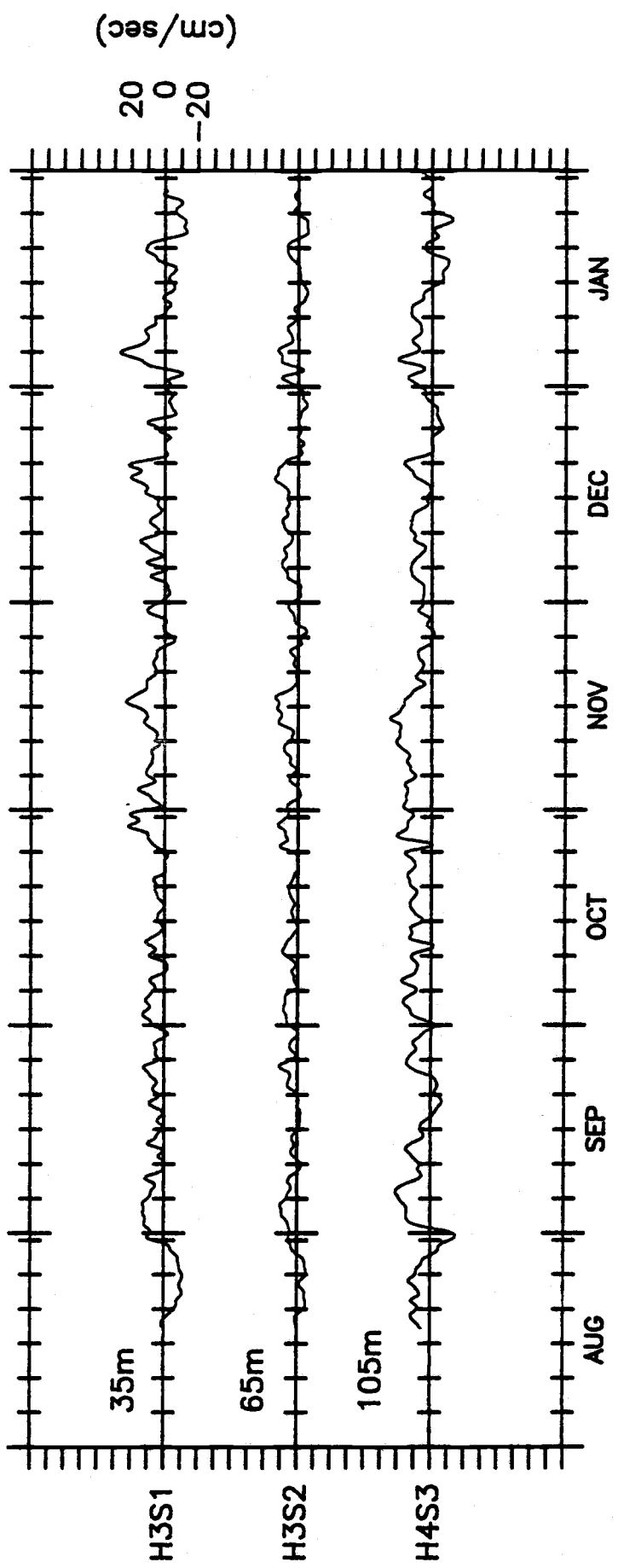


1981

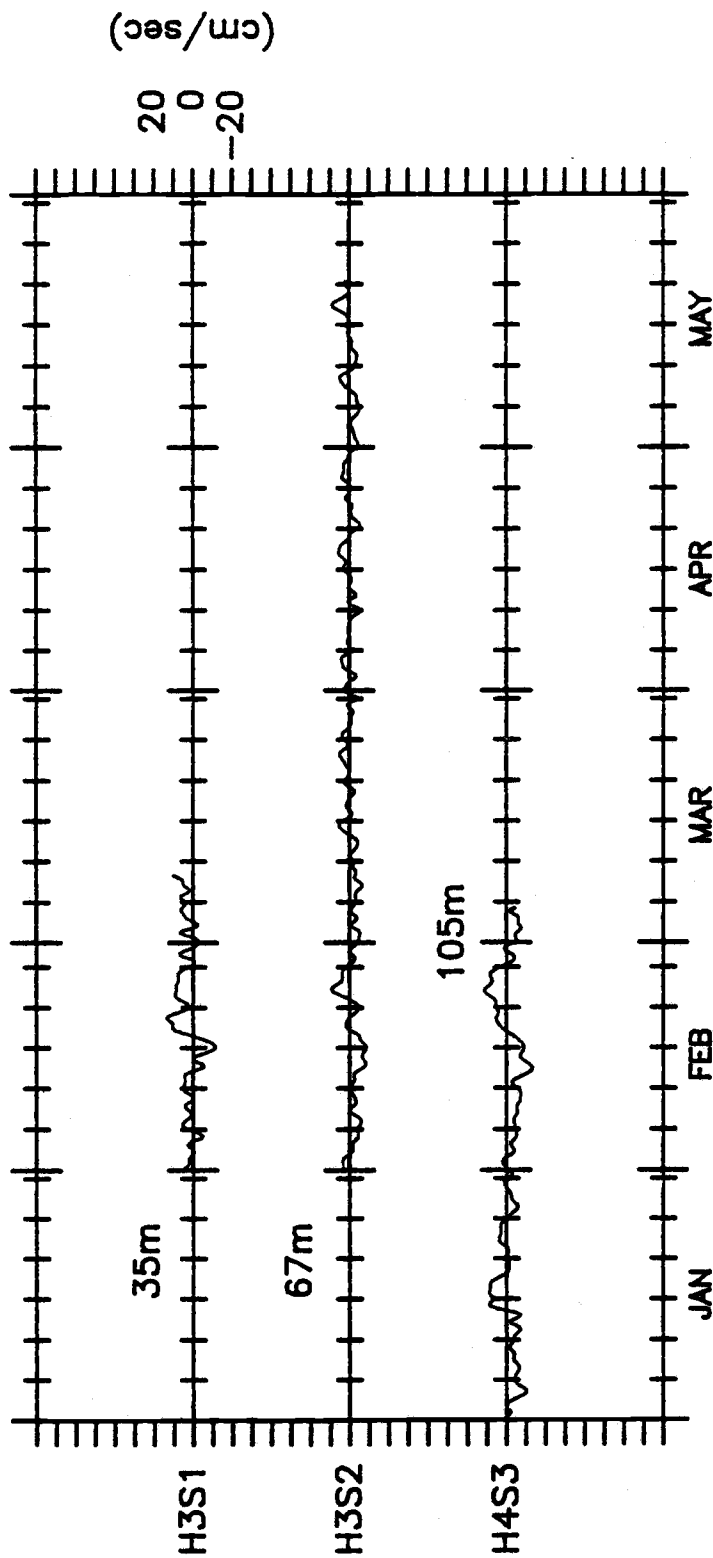
SAN FRANCISCO V velocity



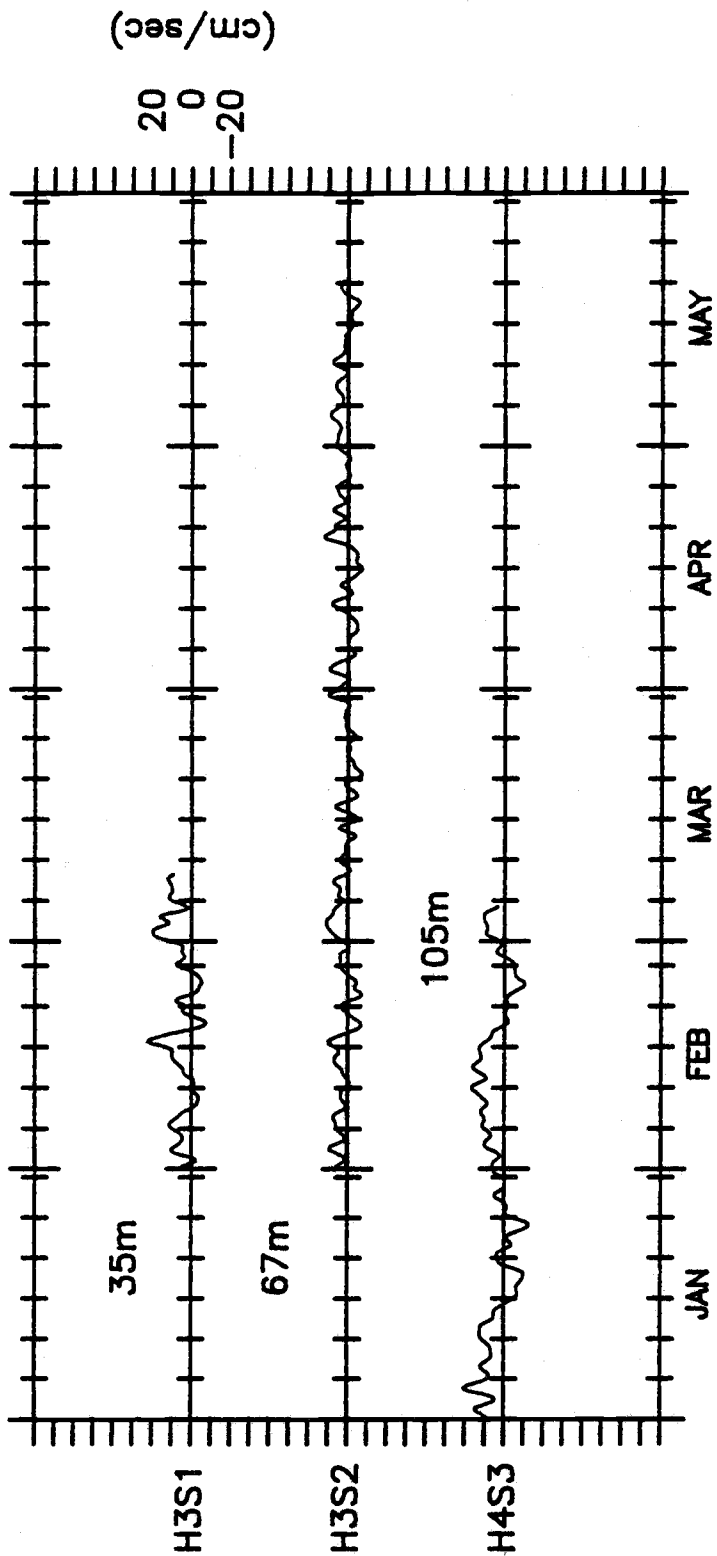
SAN FRANCISCO U velocity



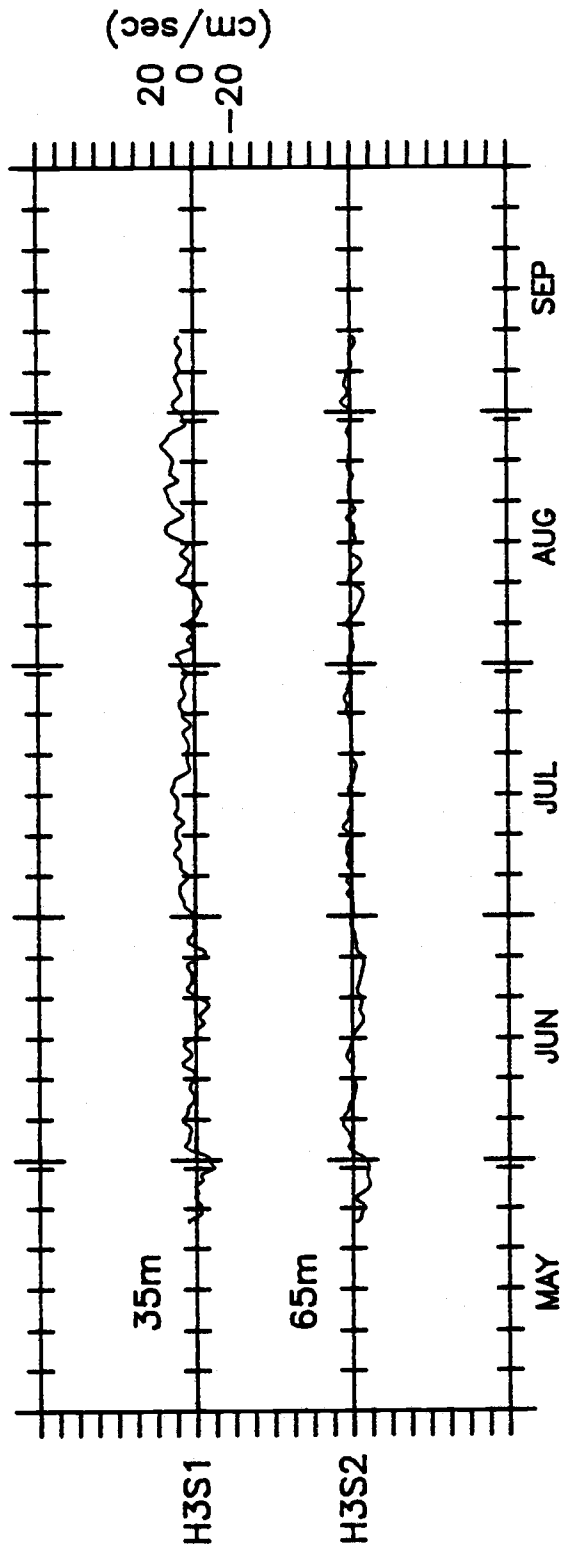
SAN FRANCISCO V velocity



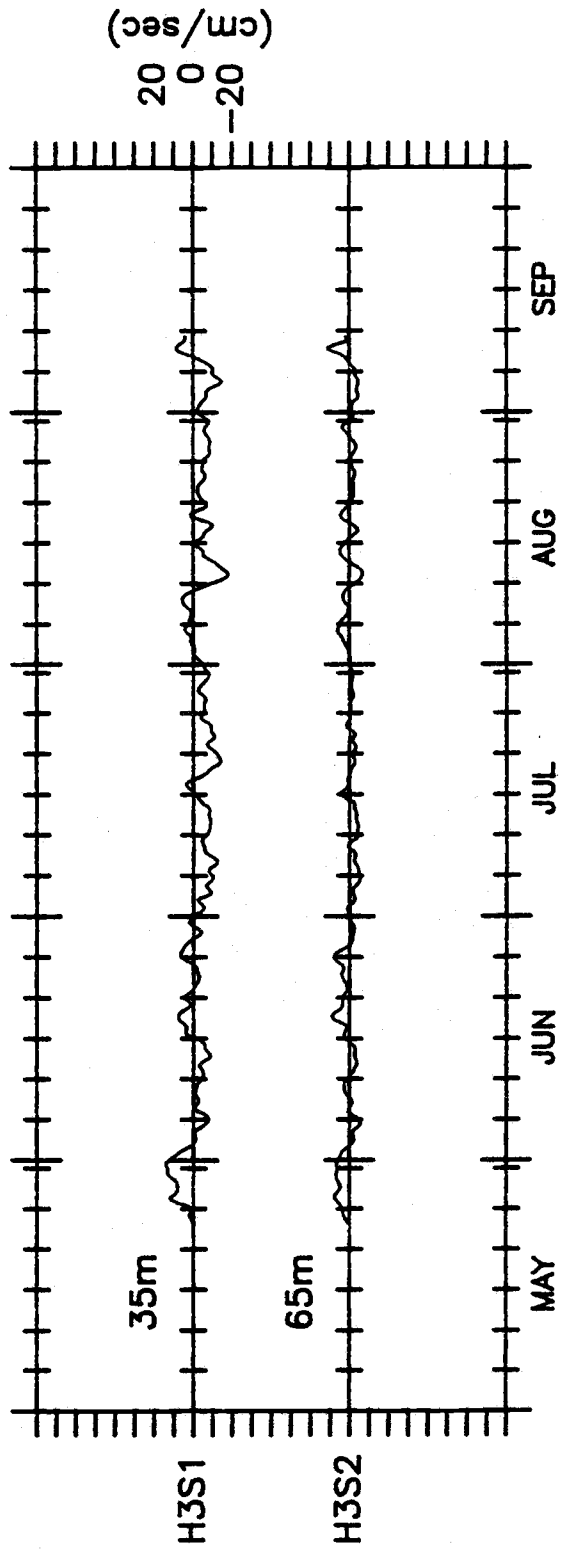
SAN FRANCISCO U velocity



1982  
SAN FRANCISCO V velocity

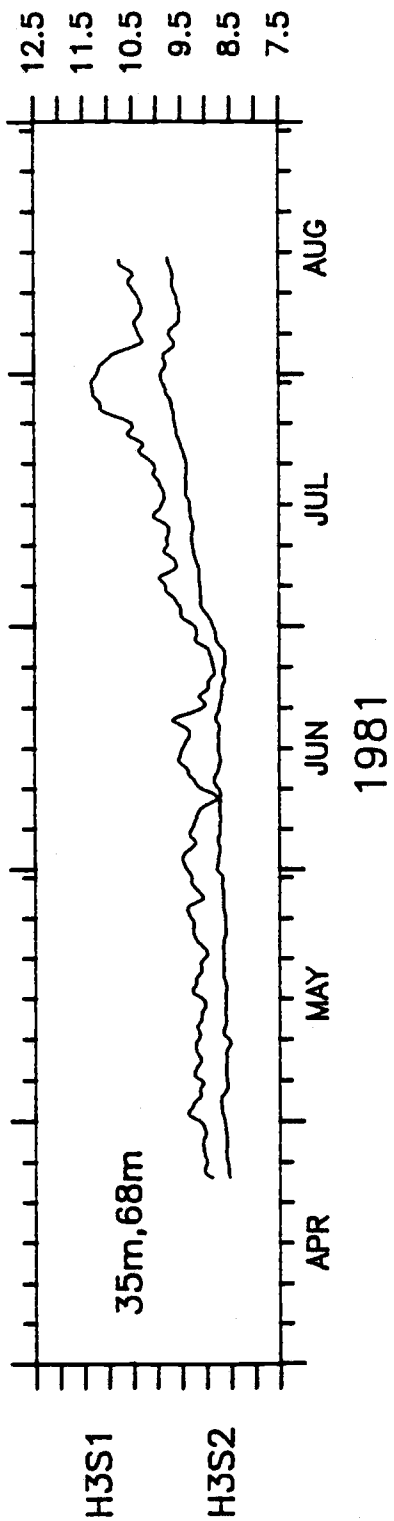


SAN FRANCISCO U velocity

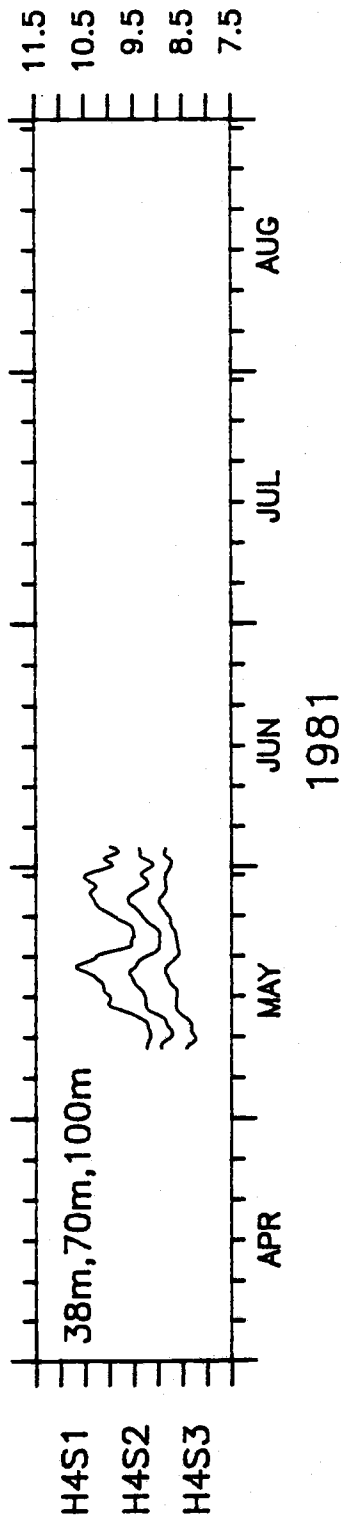


SAN FRANCISCO V velocity

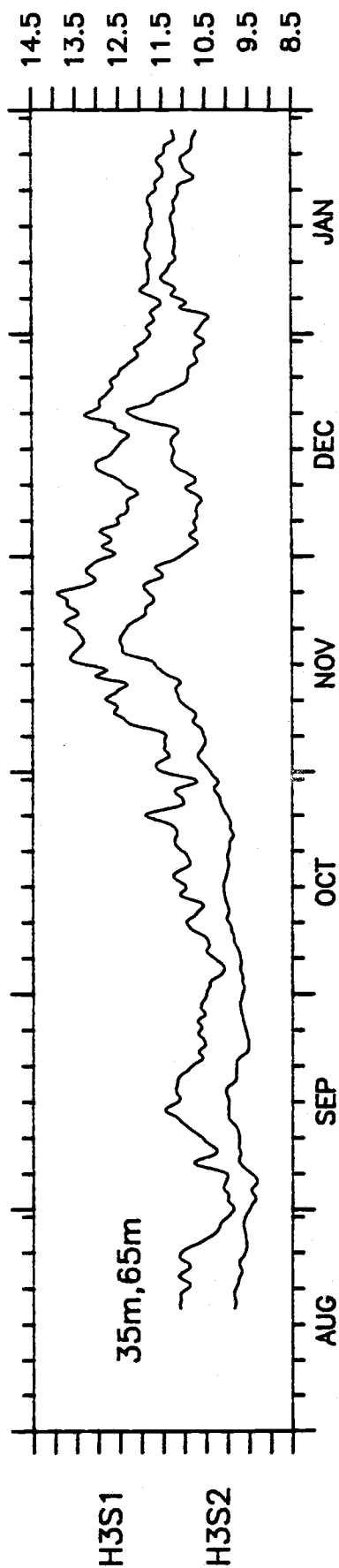




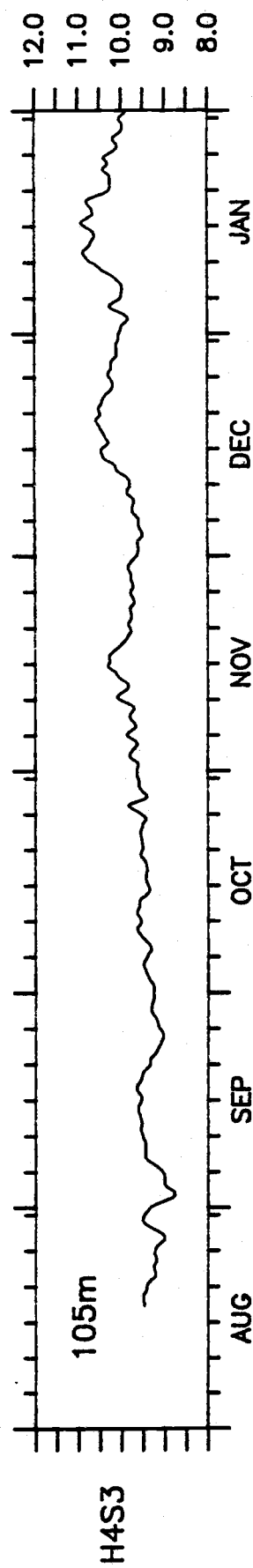
### SAN FRANCISCO SHALLOW Temperature



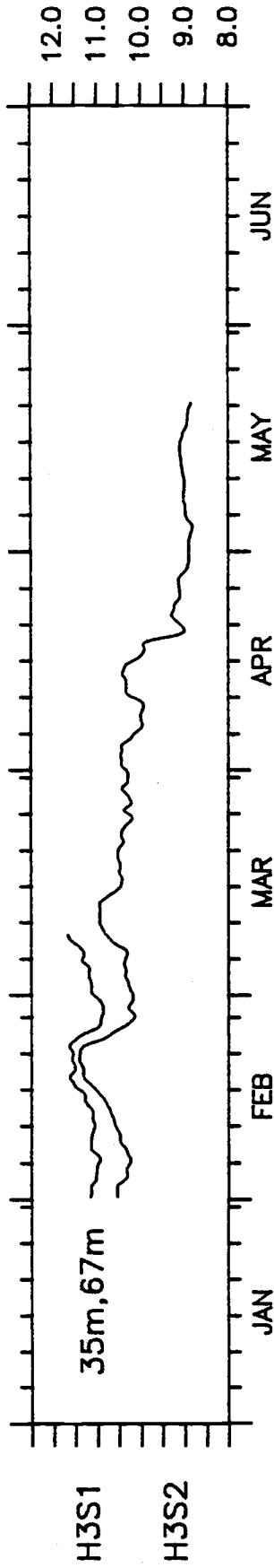
### SAN FRANCISCO DEEP Temperature



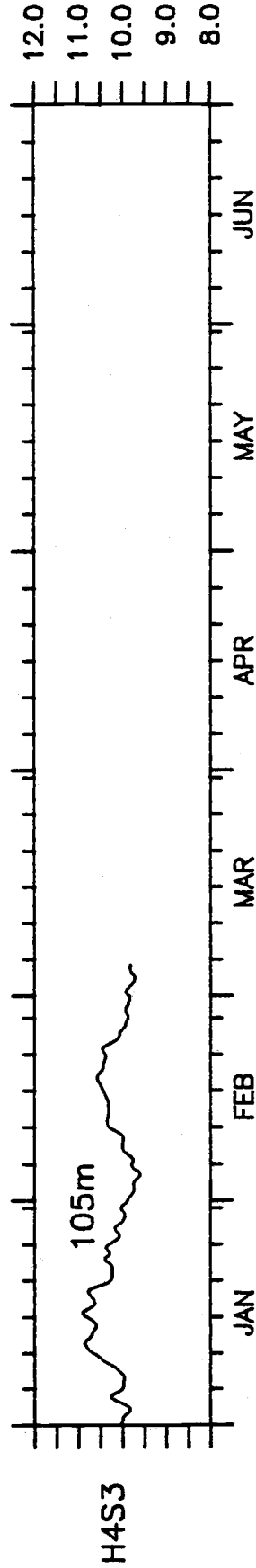
SAN FRANCISCO SHALLOW Temperature



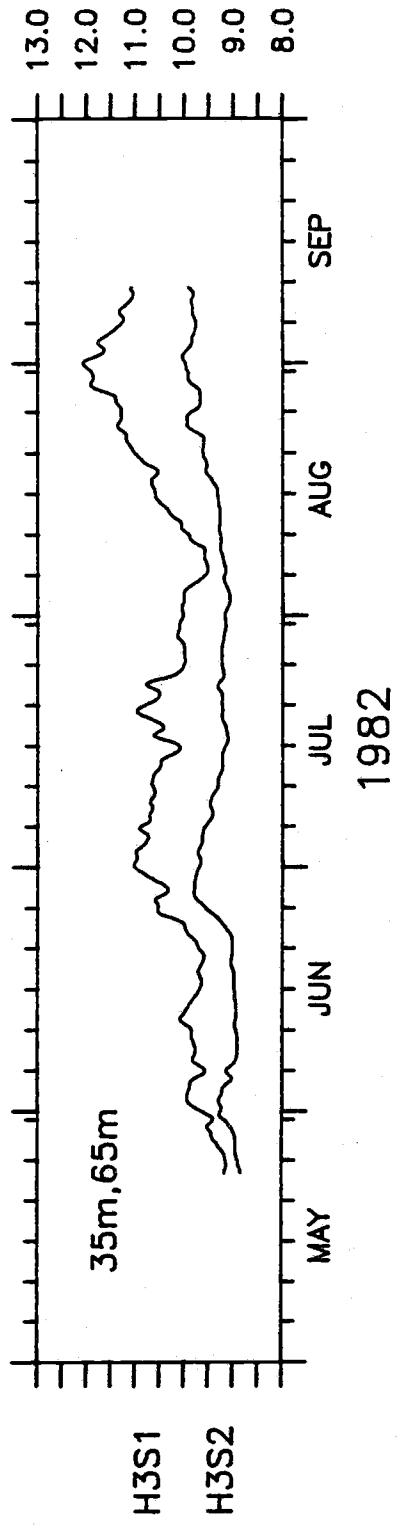
SAN FRANCISCO DEEP Temperature



SAN FRANCISCO SHALLOW Temperature



SAN FRANCISCO DEEP Temperature

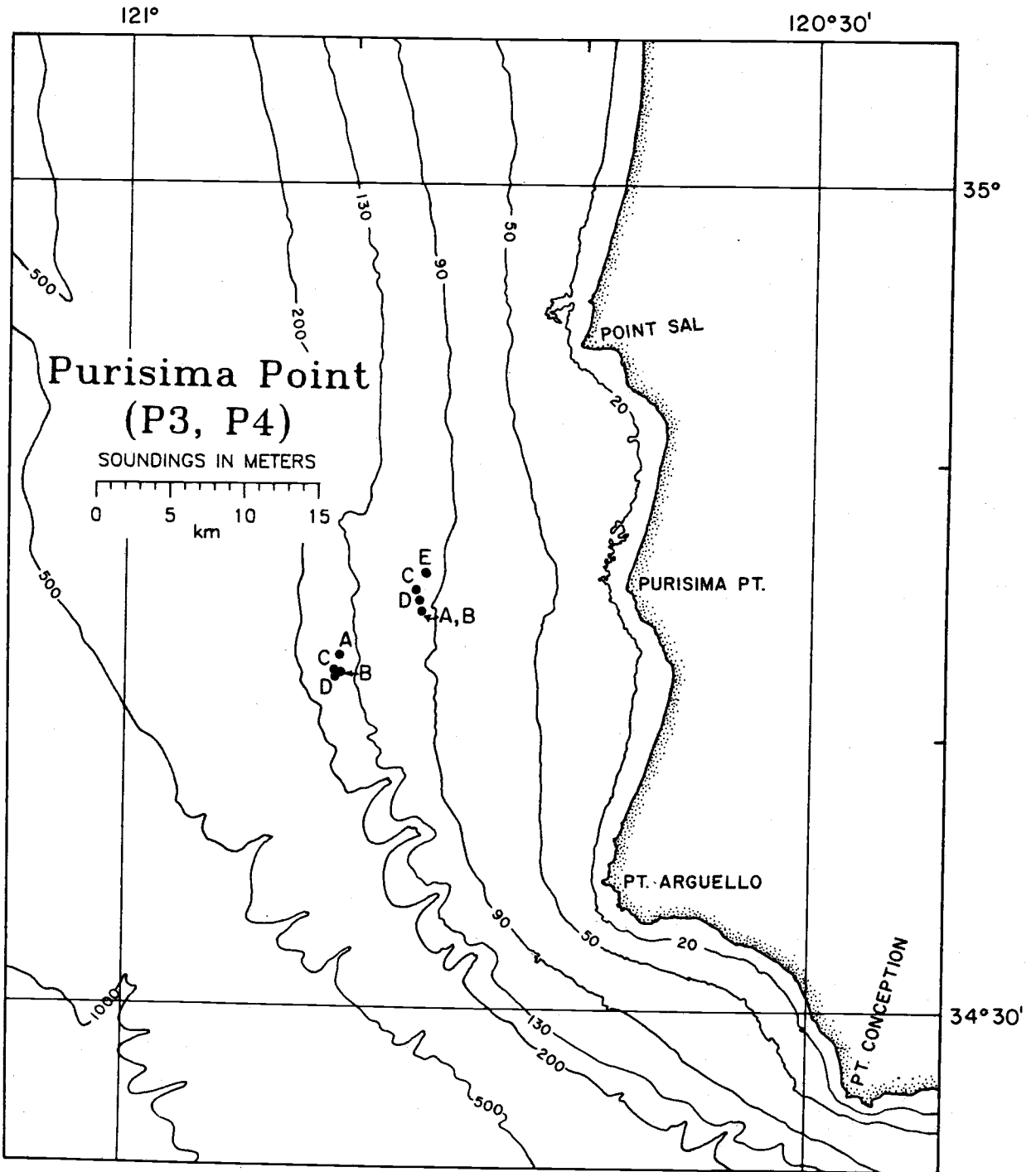


SAN FRANCISCO SHALLOW Temperature



PURISIMA POINT









## SAMPLING INTERVAL = 60 MINUTES

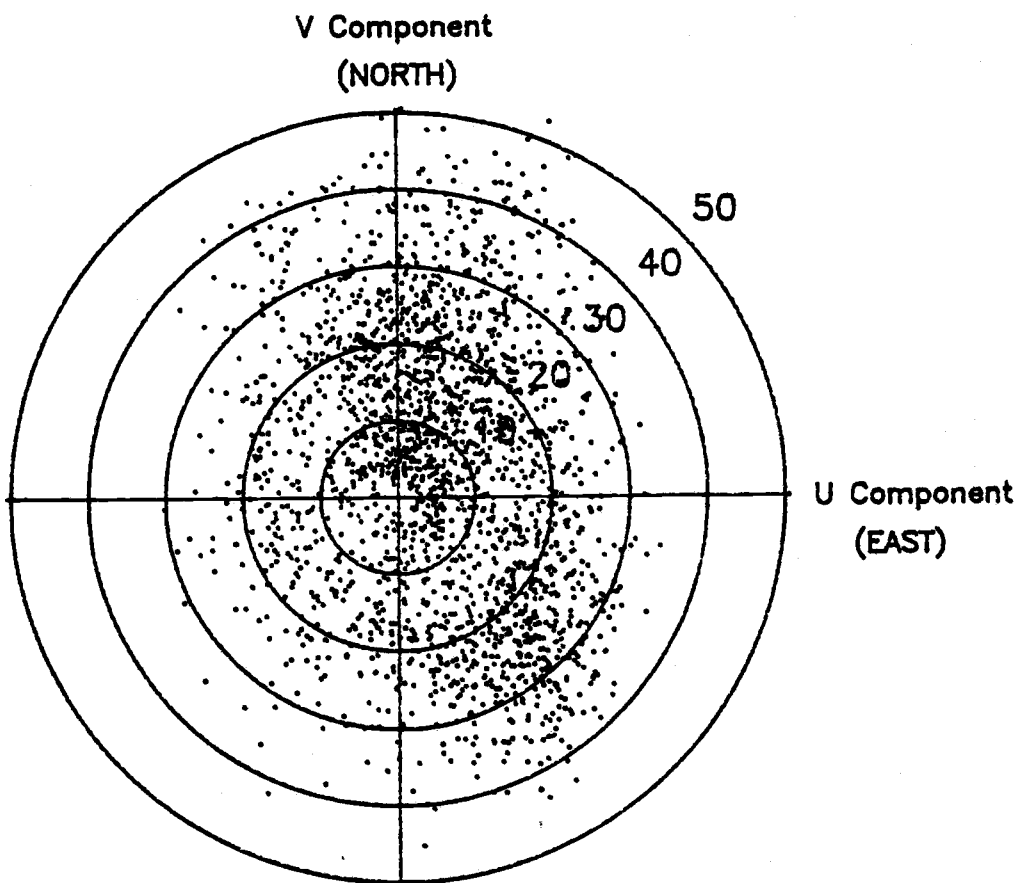
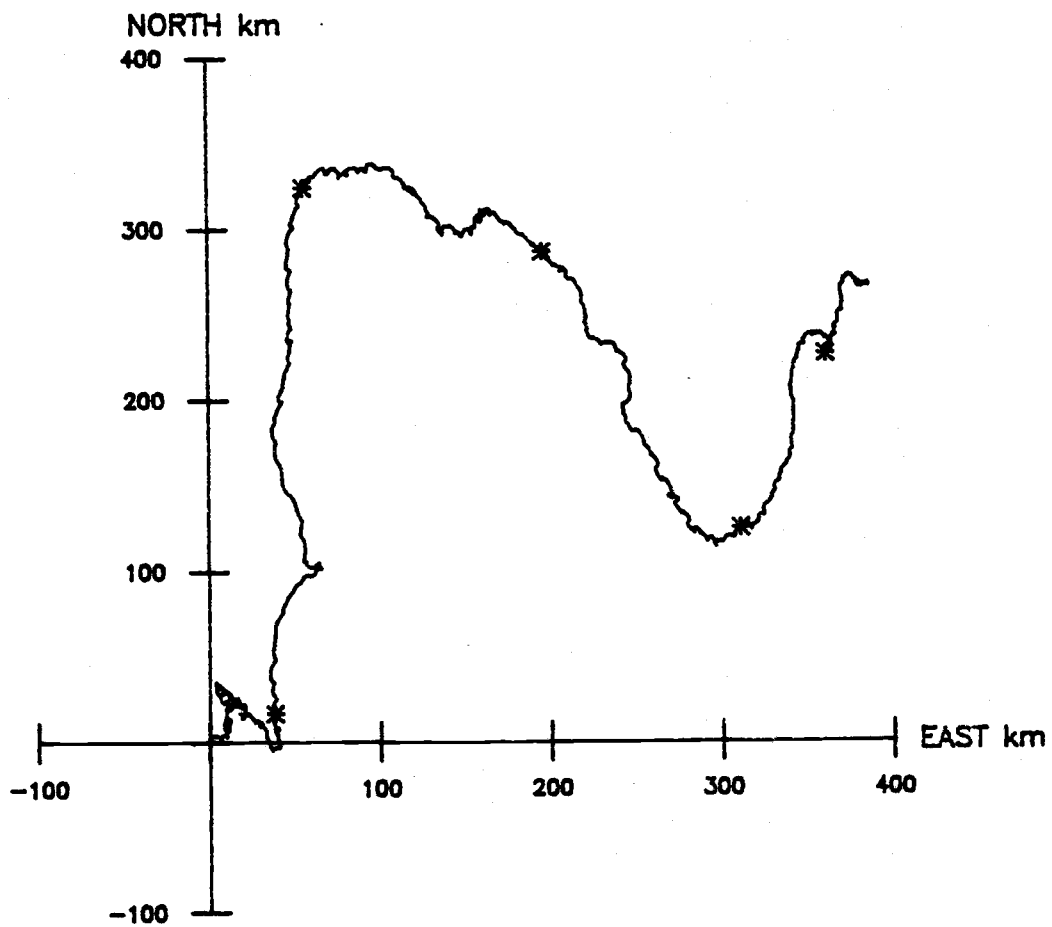
STATION	START TIME (GMT)	MIN	MAX	MEAN	STD	STOP TIME	
P3S1	FEB 8,1981 0500	U	-30.1	33.9	5.1	11.4	MAY 6,1981 0800
		V	-45.2	50.5	3.6	18.2	MAY 6,1981 0800
		T	9.4	14.3	11.8	1.2	MAY 6,1981 0800
P3S1	MAY 7,1981 0200	U	-27.4	32.1	4.0	10.0	AUG 17,1981 1100
		V	-28.4	44.8	7.6	12.6	AUG 17,1981 1100
		T	9.8	14.8	11.4	0.8	AUG 17,1981 1100
P3S1	AUG 18,1981 0600	U	-35.8	36.4	3.5	11.7	JAN 31,1982 1400
		V	-37.8	49.0	5.6	15.6	JAN 31,1982 1400
		T	10.3	15.0	12.3	0.8	JAN 31,1982 1400
P3S1	FEB 1,1982 0800	U	-27.8	29.5	4.1	9.8	MAY 23,1982 1000
		V	-62.0	40.1	-5.1	16.2	MAY 23,1982 1000
		T	9.2	13.5	11.5	0.8	MAY 23,1982 1000
P3S1	MAY 24,1982 0100	U	-21.6	31.5	2.0	9.2	SEP 12,1982 1000
		V	-32.2	53.2	3.5	13.9	SEP 12,1982 1000
		T	9.5	14.9	11.2	0.9	SEP 12,1982 1000
P3S2	FEB 8,1981 0500	U	-28.4	32.0	1.8	10.8	MAY 6,1981 0800
		V	-39.7	40.2	4.5	14.6	MAY 6,1981 0800
		T	8.9	13.9	10.9	1.1	MAY 6,1981 0800
P3S2	MAY 7,1981 0200	U	-28.1	26.2	0.8	8.8	AUG 17,1981 1100
		V	-27.5	34.1	7.1	10.2	AUG 17,1981 1100
		T	9.3	12.3	10.3	0.4	AUG 17,1981 1100
P3S2	AUG 18,1981 0500	U	-33.9	28.3	0.4	9.8	JAN 31,1982 1400
		V	-27.4	52.9	5.7	11.2	JAN 31,1982 1400
		T	9.8	13.9	11.1	0.6	JAN 31,1982 1400
P3S2	FEB 1,1982 0800	U	-30.1	29.0	2.0	9.8	MAR 21,1982 1300
		V	-36.4	39.9	3.7	13.4	MAR 21,1982 1300
		T	9.1	13.1	10.7	0.8	MAY 23,1982 1000
P3S2	MAY 25,1982 0600	U	-30.1	24.3	0.6	8.2	JUL 12,1982 1100
		V	-36.4	29.6	0.0	9.8	JUL 12,1982 1100
		T	9.0	13.5	10.4	0.7	SEP 13,1982 1500
P4S1	FEB 8,1981 0600	U	-34.9	43.0	0.0	11.2	MAY 6,1981 1200
		V	-46.4	50.5	6.0	18.6	MAY 6,1981 1200
		T	9.2	14.3	11.8	1.2	MAY 6,1981 1200
P4S1	MAY 7,1981 0400	U	-37.2	26.9	-2.0	11.5	AUG 17,1981 1100
		V	-37.8	53.2	10.0	15.2	AUG 17,1981 1100
		T	10.0	13.0	11.5	0.6	MAY 26,1981 2000

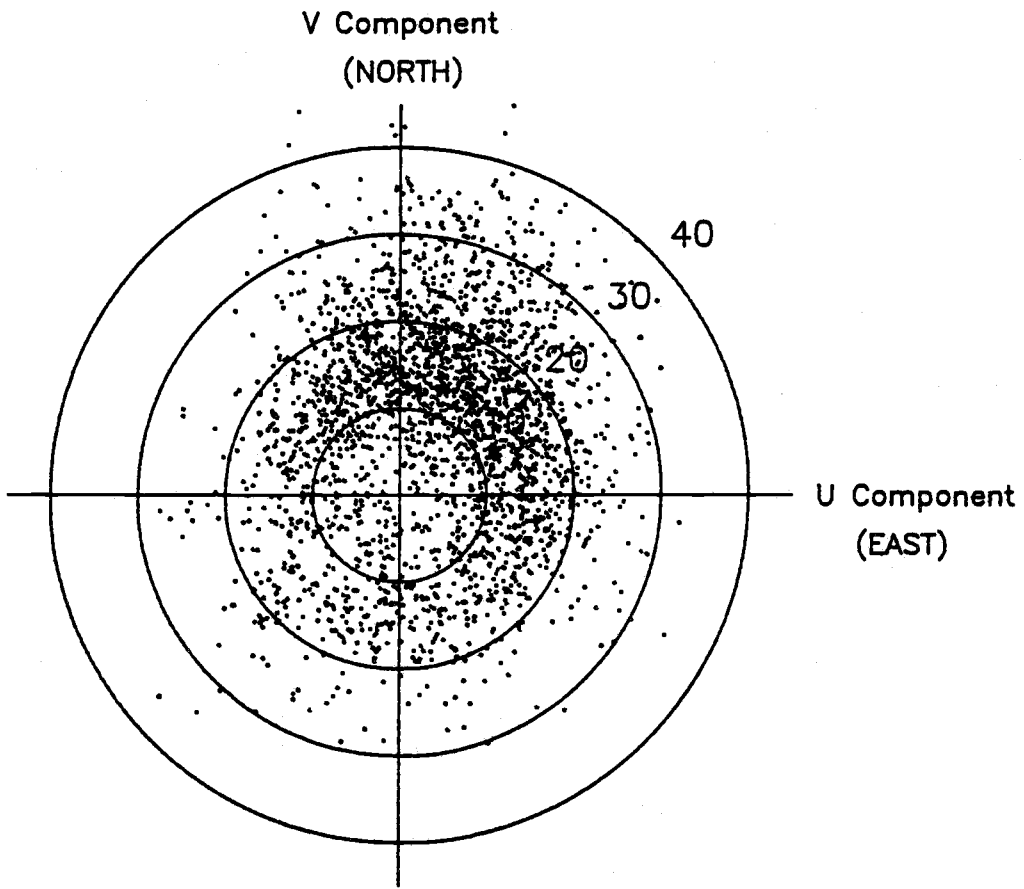
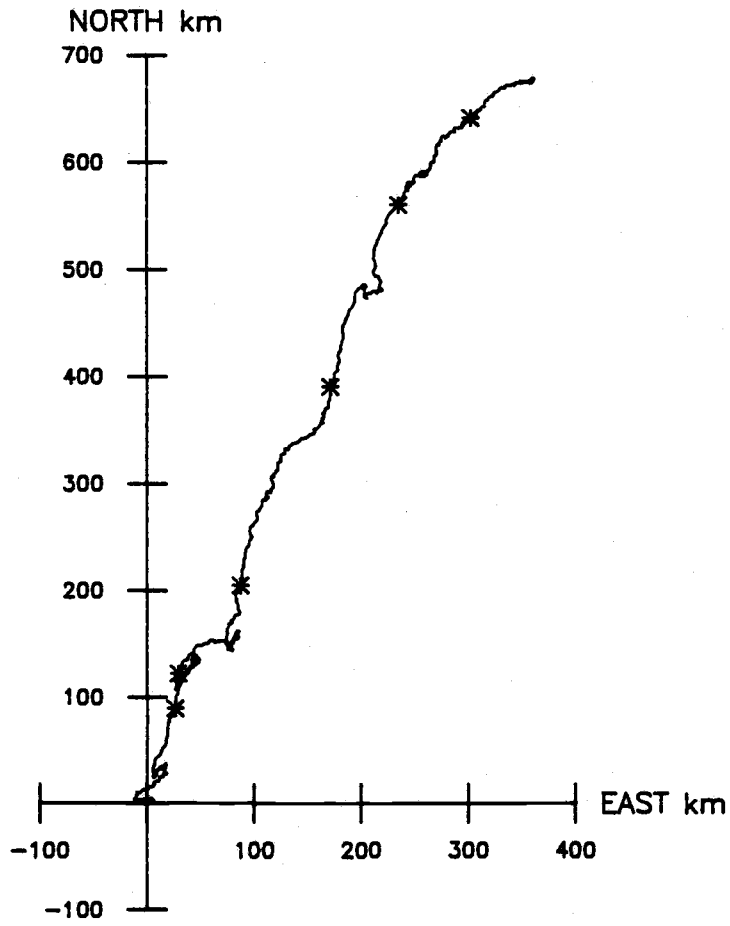
## SAMPLING INTERVAL = 60 MINUTES

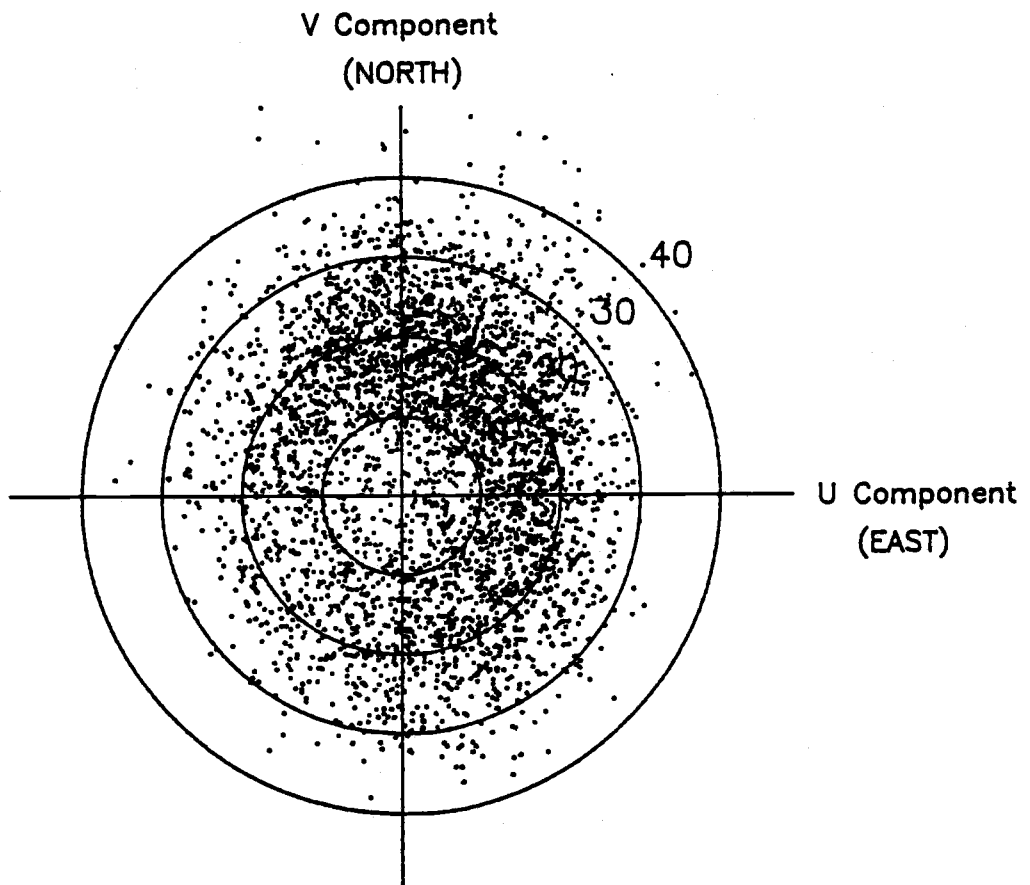
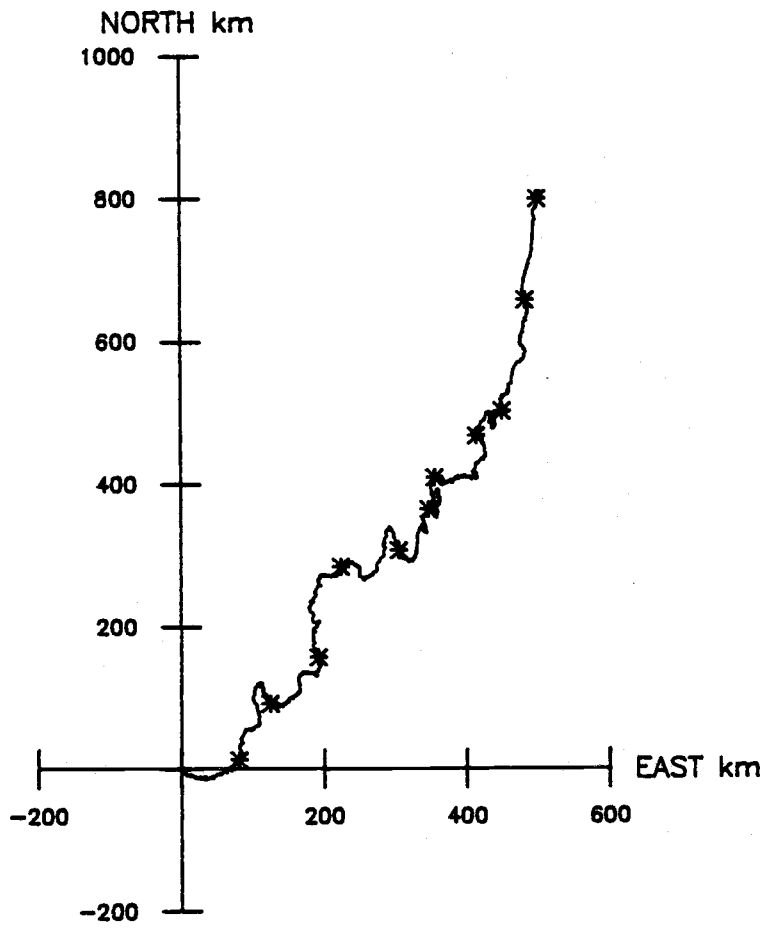
STATION	START TIME (GMT)	MIN	MAX	MEAN	STD	STOP TIME	
P4S1	AUG 18,1981 0300	U	-31.8	35.4	-2.6	10.0	OCT 14,1981 1400
		V	-42.3	58.6	11.2	16.9	OCT 14,1981 1400
		T	9.9	14.9	12.0	0.8	JAN 18,1982 2300
P4S1	FEB 1,1982 0700	U	-36.1	36.5	-0.7	11.3	MAY 23,1982 0800
		V	-61.4	49.5	-3.8	19.3	MAY 23,1982 0800
		T	9.8	13.5	11.8	0.7	MAY 23,1982 0800
P4S1	MAY 23,1982 2300	U	-32.2	29.3	-2.2	8.2	SEP 12,1982 1100
		V	-32.6	51.2	6.9	13.9	SEP 12,1982 1100
		T	9.4	15.4	11.1	0.9	SEP 12,1982 1100
P4S2	FEB 8,1981 0600	U	-29.3	30.1	1.4	9.5	MAY 6,1981 1200
		V	-41.2	47.4	5.6	15.8	MAY 6,1981 1200
		T	8.8	13.5	10.7	0.8	MAY 6,1981 1200
P4S2	MAY 7,1981 0400	U	-28.3	28.9	-0.9	9.9	AUG 6,1981 0700
		V	-29.6	50.4	11.8	13.8	AUG 6,1981 0700
		T	9.3	12.2	10.4	0.5	AUG 17,1981 1100
P4S2	AUG 18,1981 0300	U	-30.3	35.1	-0.7	8.6	JAN 18,1982 2300
		V	-31.2	49.7	11.4	12.9	JAN 18,1982 2300
		T	9.4	13.0	10.7	0.5	JAN 18,1982 2300
P4S2	FEB 1,1982 0700	U	-25.7	38.0	1.4	10.3	MAY 23,1982 0800
		V	-51.7	47.6	0.0	16.1	MAY 23,1982 0800
		T	9.1	12.9	10.7	0.7	MAY 23,1982 0800
P4S2	MAY 23,1982 2300	U	-27.6	26.0	-1.6	8.4	SEP 12,1982 1100
		V	-26.7	58.6	11.2	14.6	SEP 12,1982 1100
		T	9.2	12.7	10.2	0.6	SEP 12,1982 1100
P4S3	FEB 8,1981 0600	U	-39.6	43.1	-0.2	12.4	MAY 6,1981 1200
		V	-38.8	48.8	6.1	12.3	MAY 6,1981 1200
		T	7.8	11.4	9.5	0.5	MAY 6,1981 1200
P4S3	MAY 7,1981 0400	U	-35.0	24.3	0.7	10.2	AUG 17,1981 1100
		V	-26.1	45.1	6.6	11.6	AUG 17,1981 1100
		T	8.8	10.6	9.5	0.3	AUG 17,1981 1100
P4S3	AUG 18,1981 0300	U	-45.4	31.1	-1.3	11.4	JAN 18,1982 2300
		V	-33.0	48.4	8.4	11.9	JAN 18,1982 2300
		T	8.8	11.6	9.8	0.4	JAN 18,1982 2300
P4S3	FEB 1,1982 0700	U	-37.3	34.8	0.6	11.6	MAY 23,1982 0800
		V	-37.5	48.2	3.0	12.1	MAY 23,1982 0800
		T	8.2	11.9	9.5	0.5	MAY 23,1982 0800

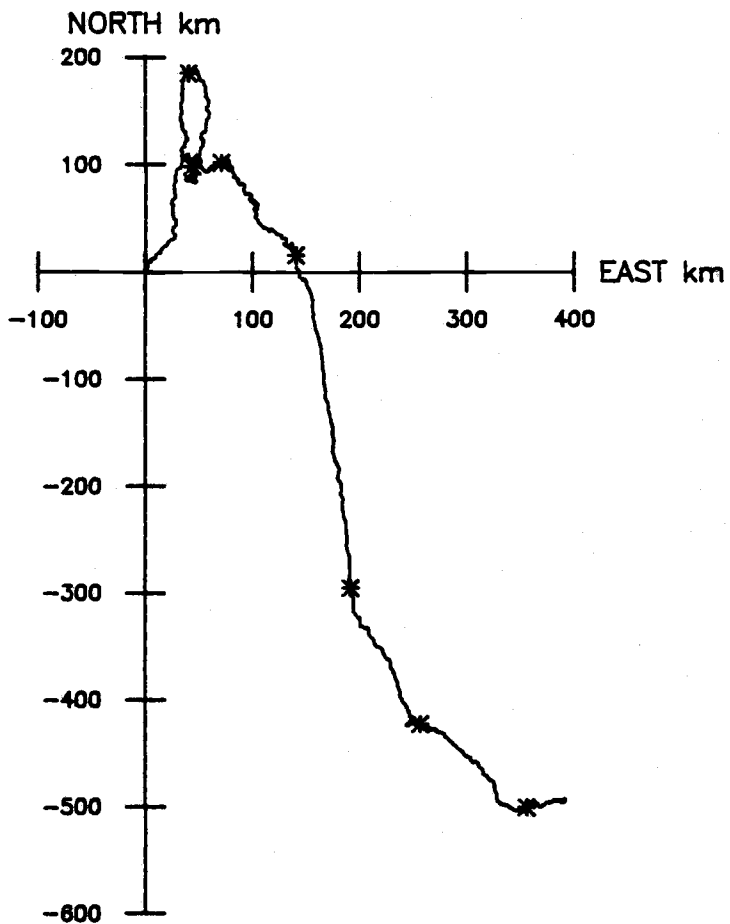
## SAMPLING INTERVAL = 60 MINUTES

STATION	START TIME (GMT)		MIN	MAX	MEAN	STD	STOP TIME		
P4S3	MAY 23,1982	2300	U	-44.5	34.5	-1.7	12.3	SEP 12,1982	1100
			V	-27.2	54.8	7.7	12.6	SEP 12,1982	1100
			T	8.8	11.6	9.6	0.4	SEP 12,1982	1100

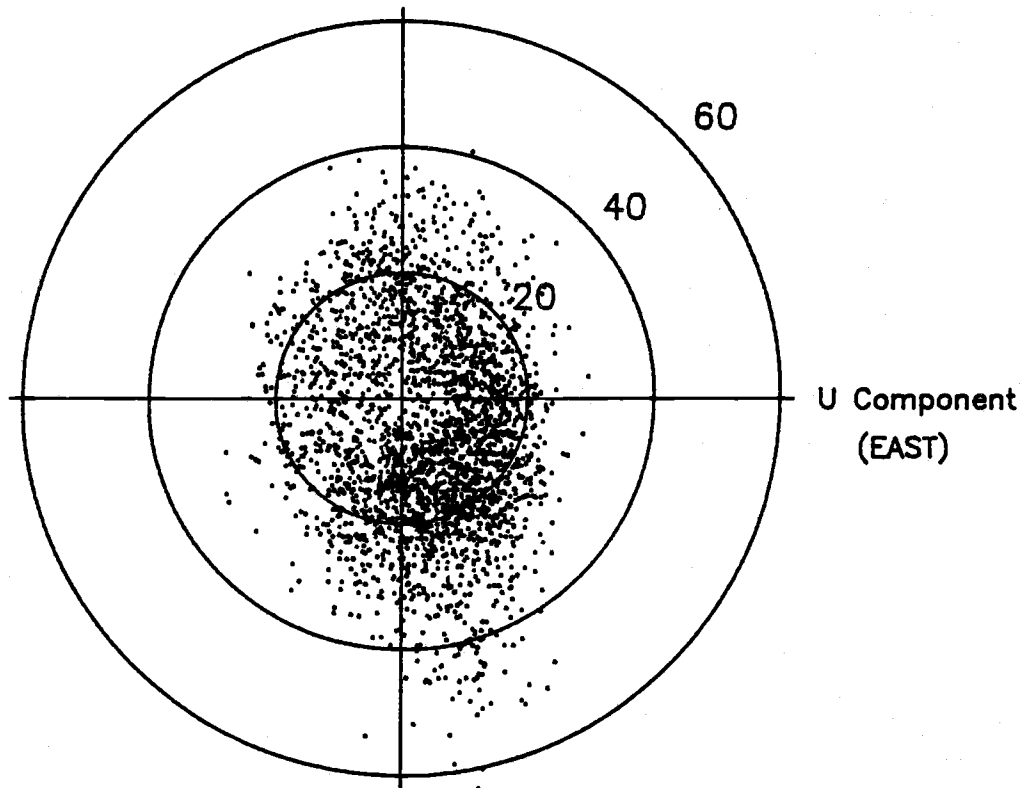




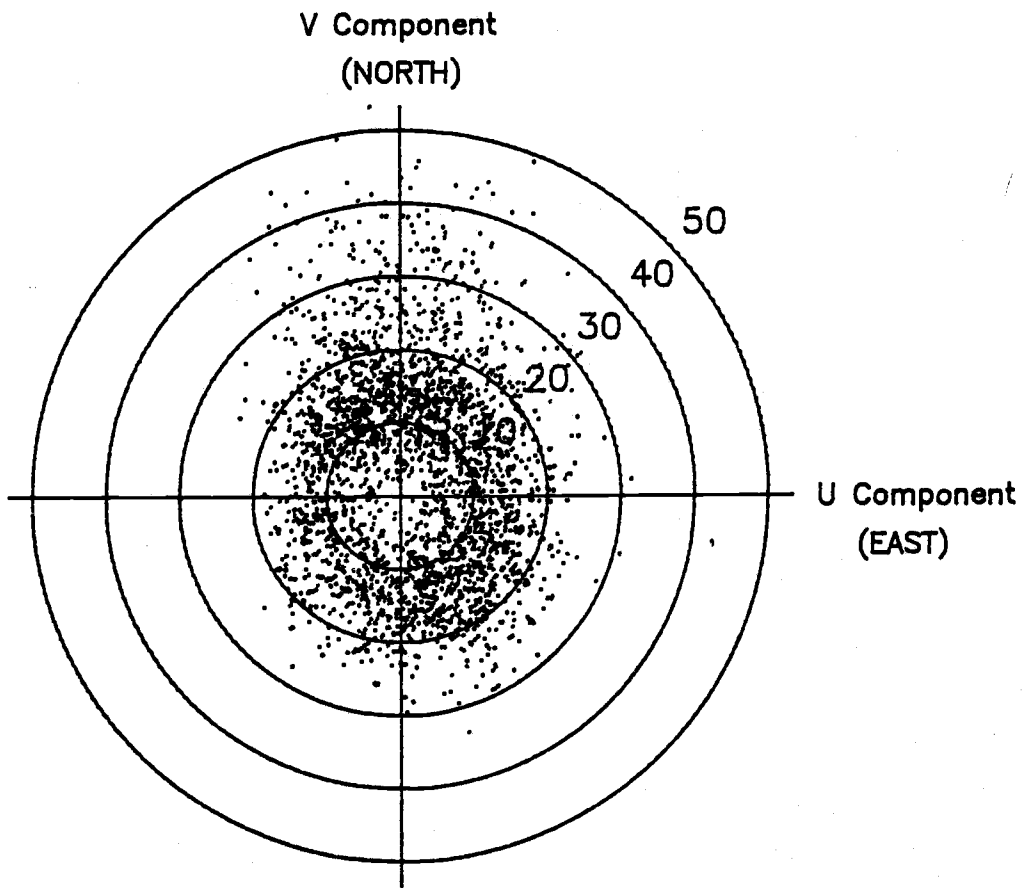
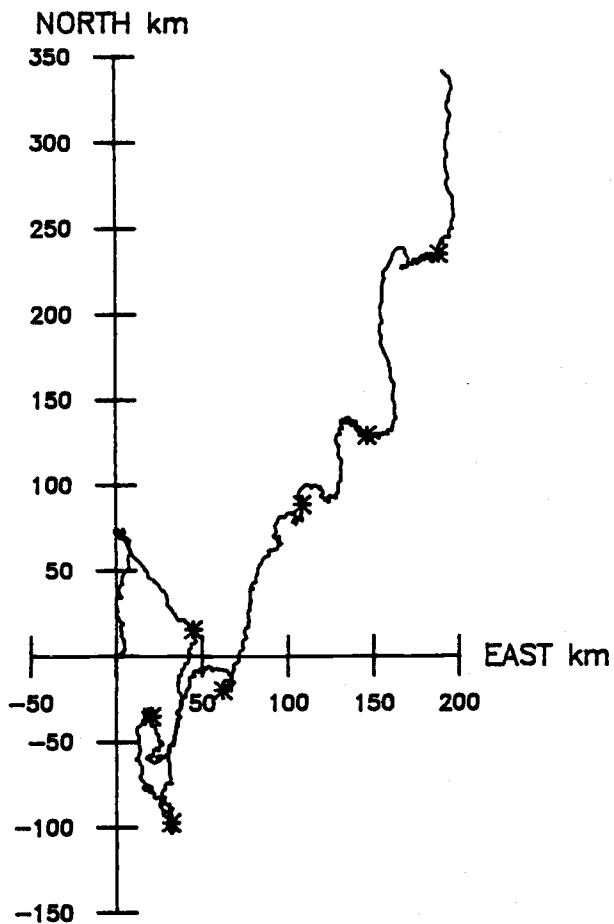


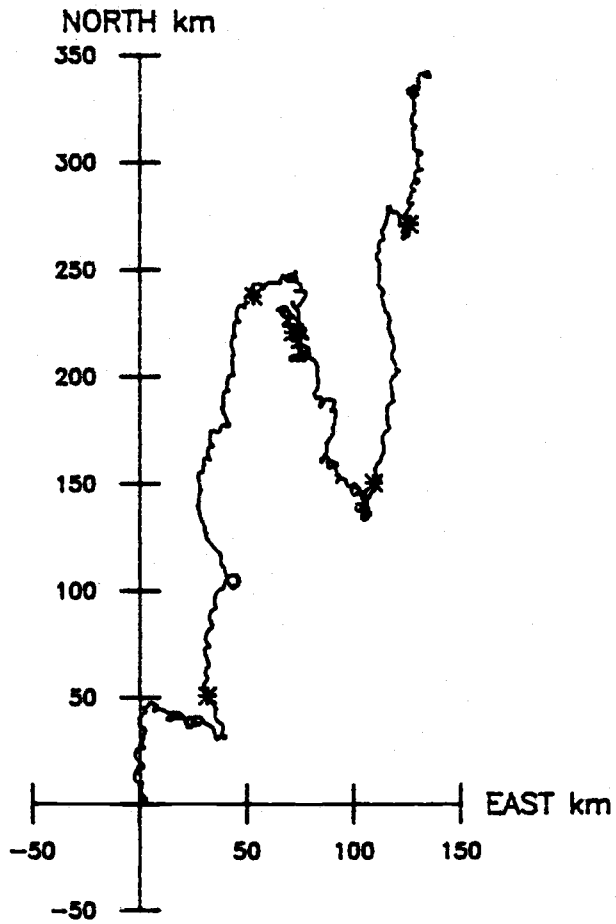


V Component  
(NORTH)

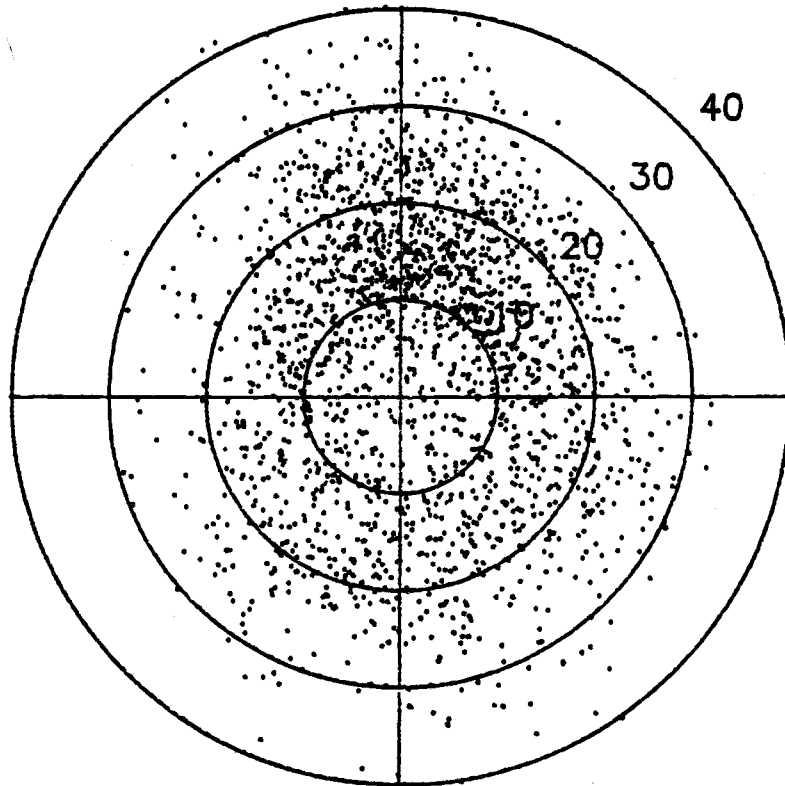




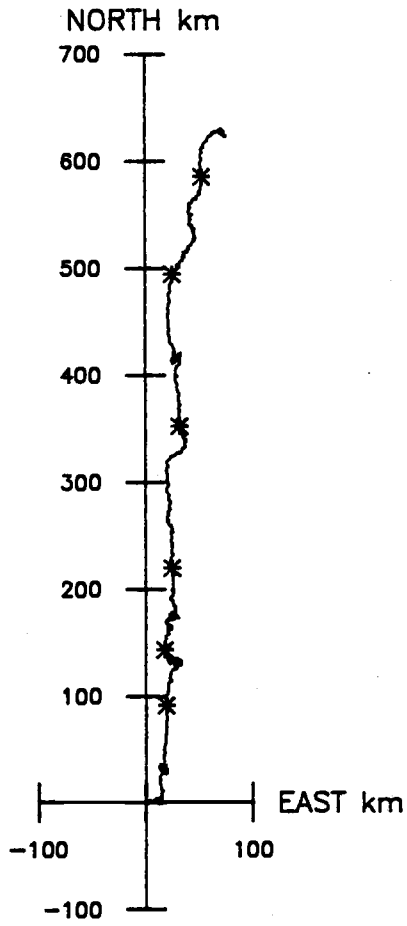




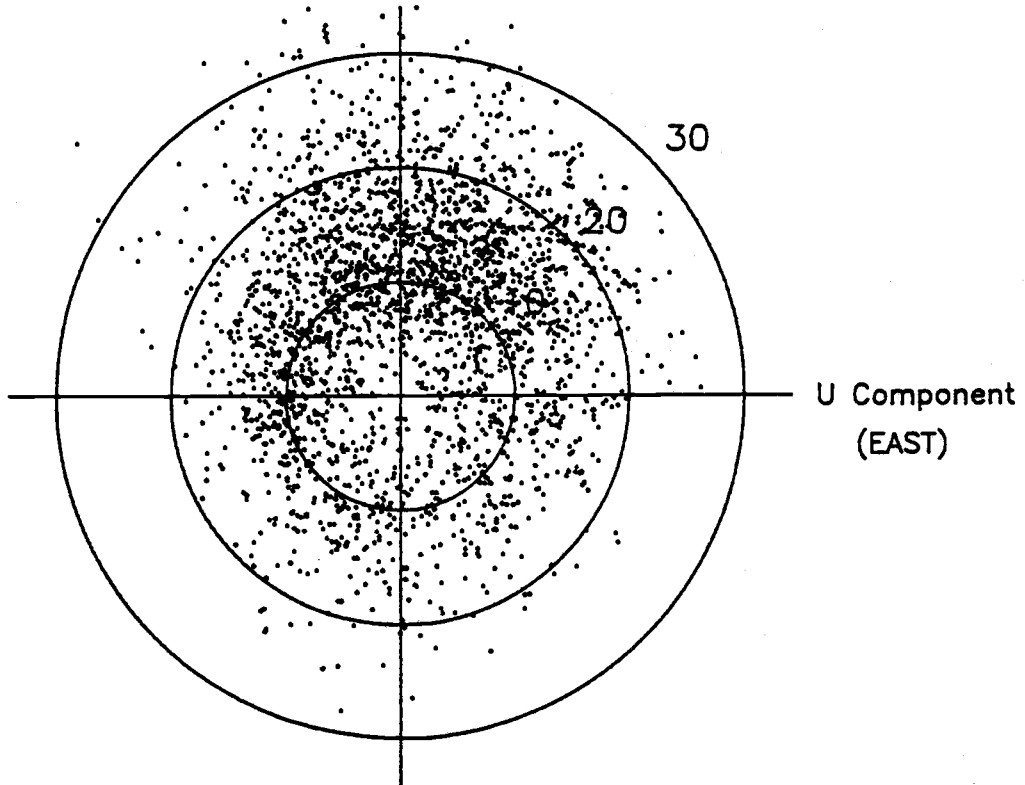
V Component  
(NORTH)

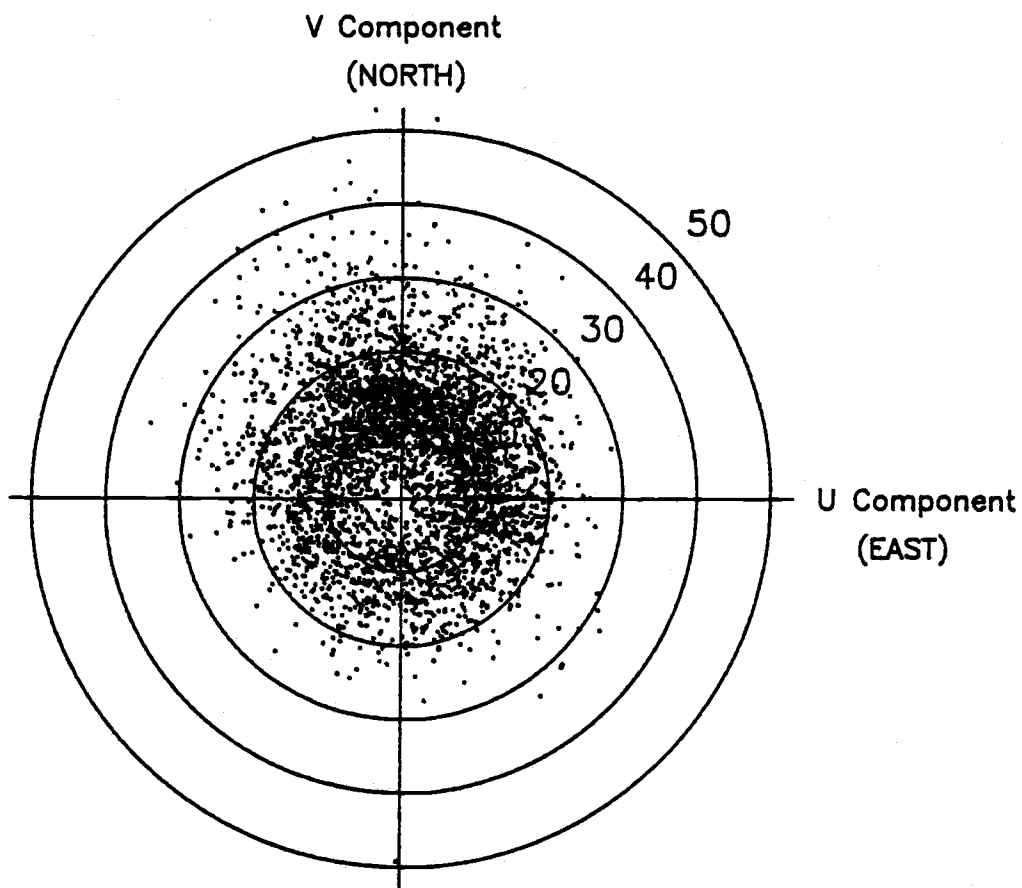
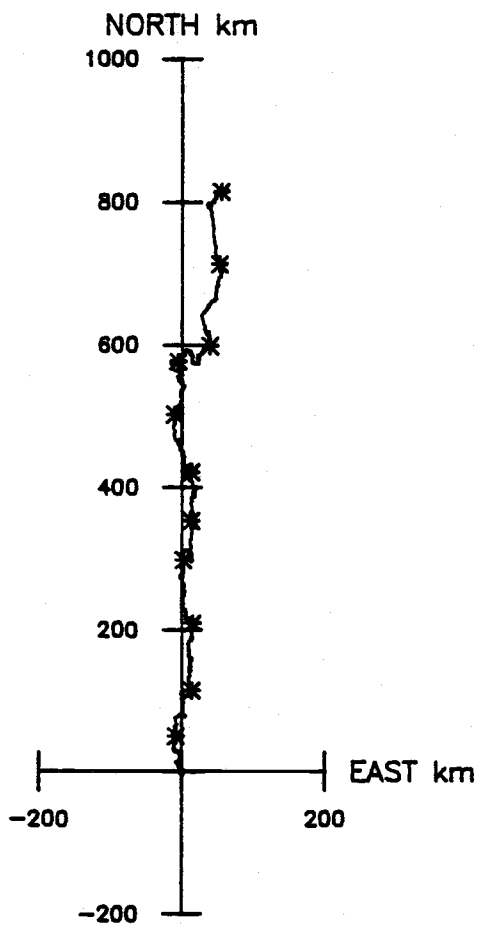


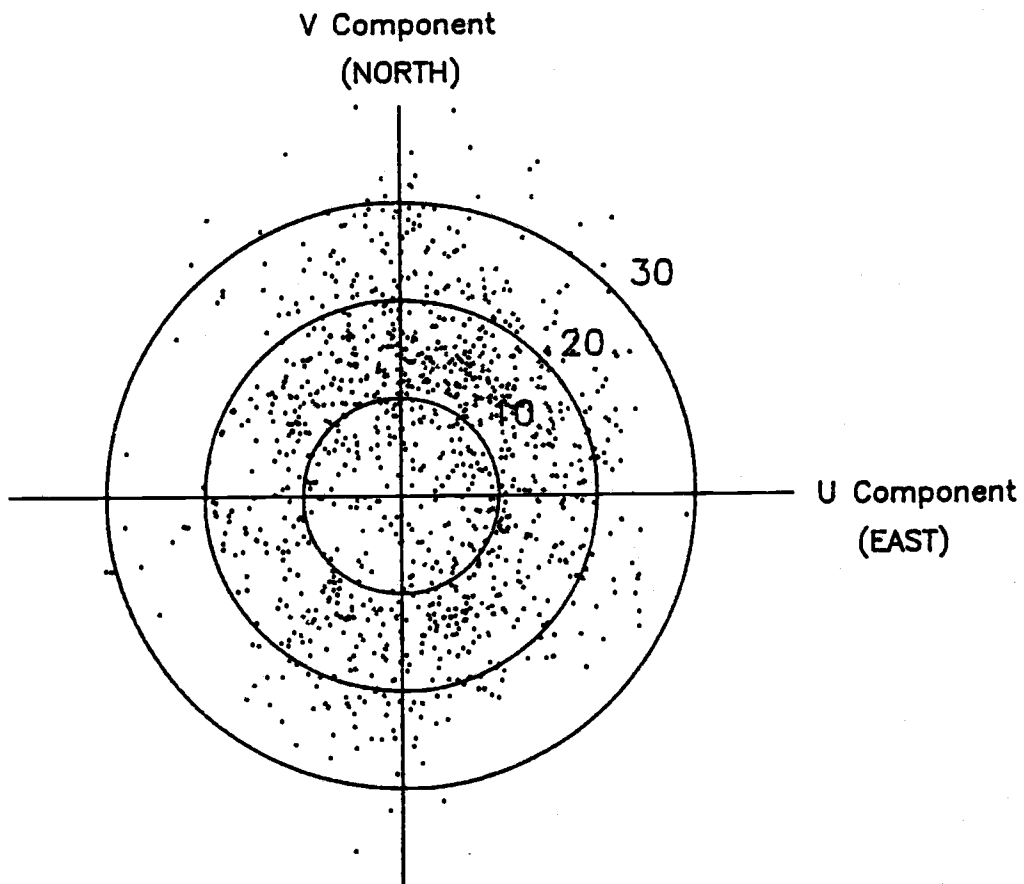
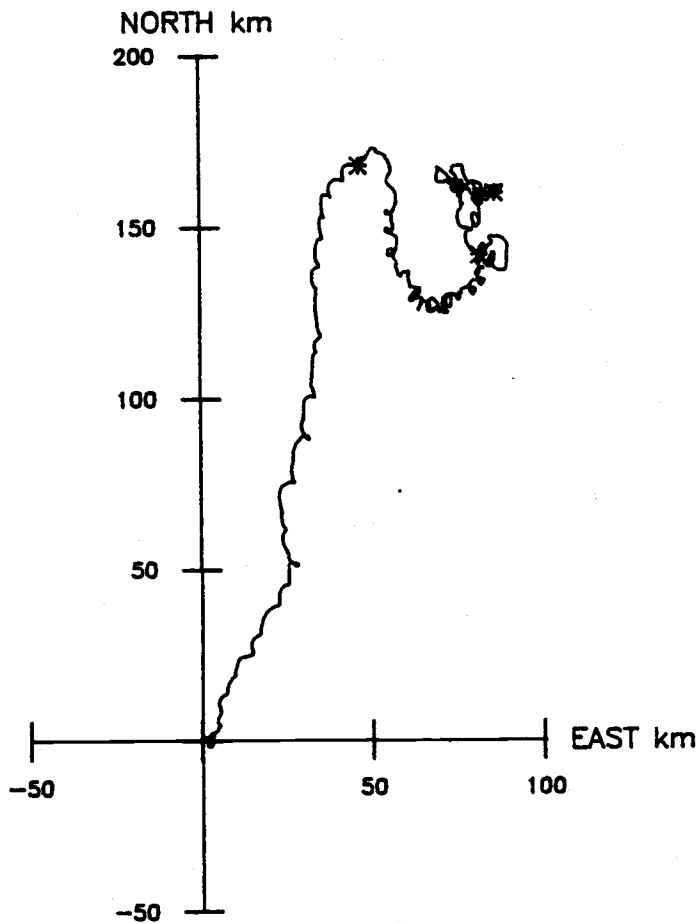
U Component  
(EAST)

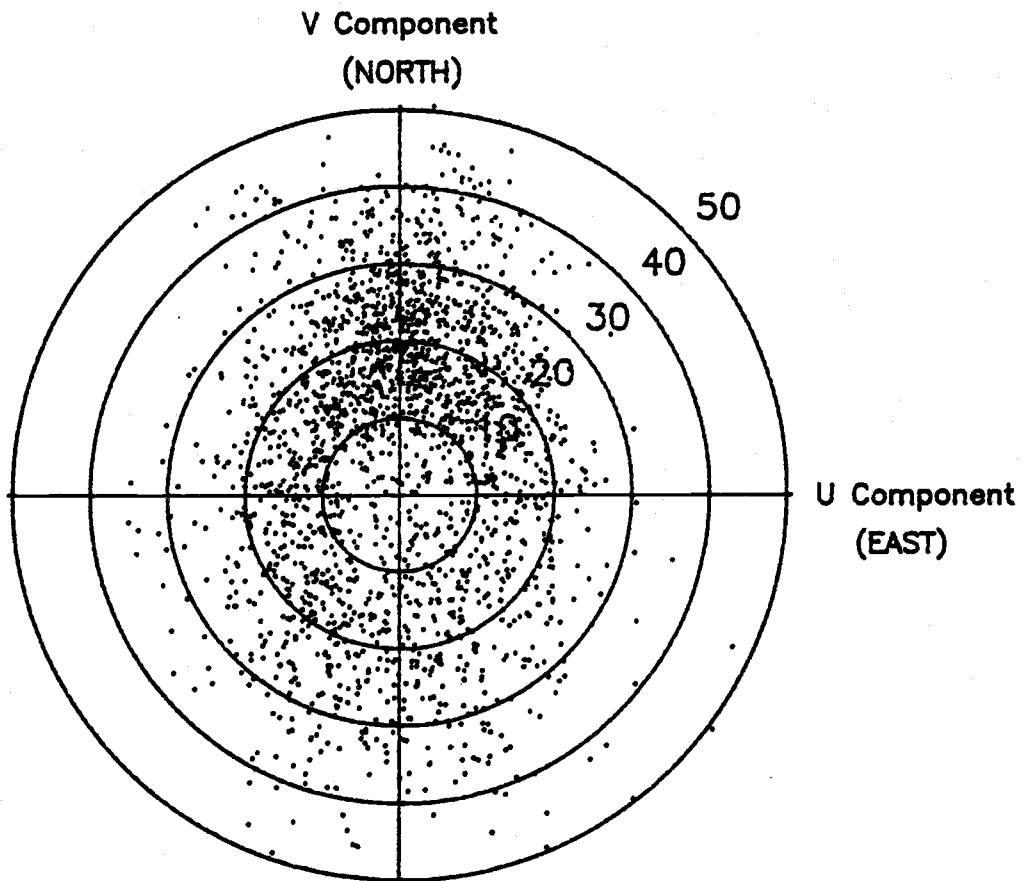
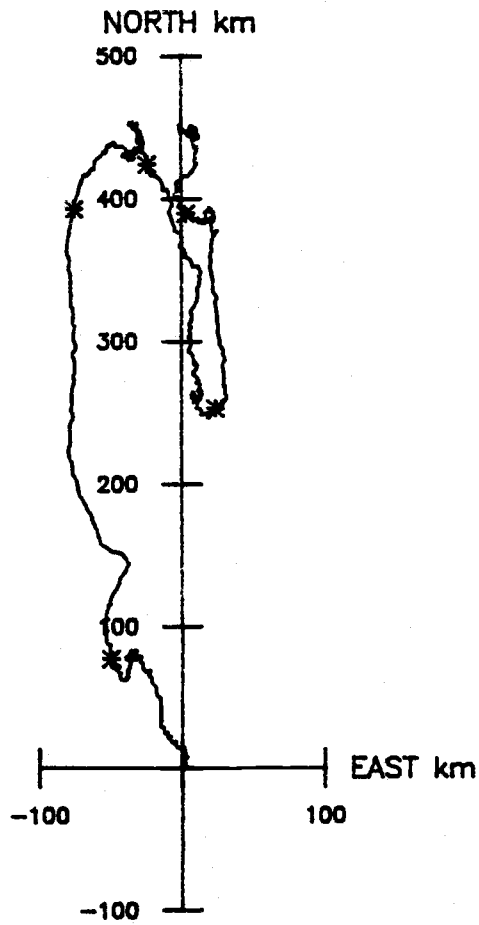


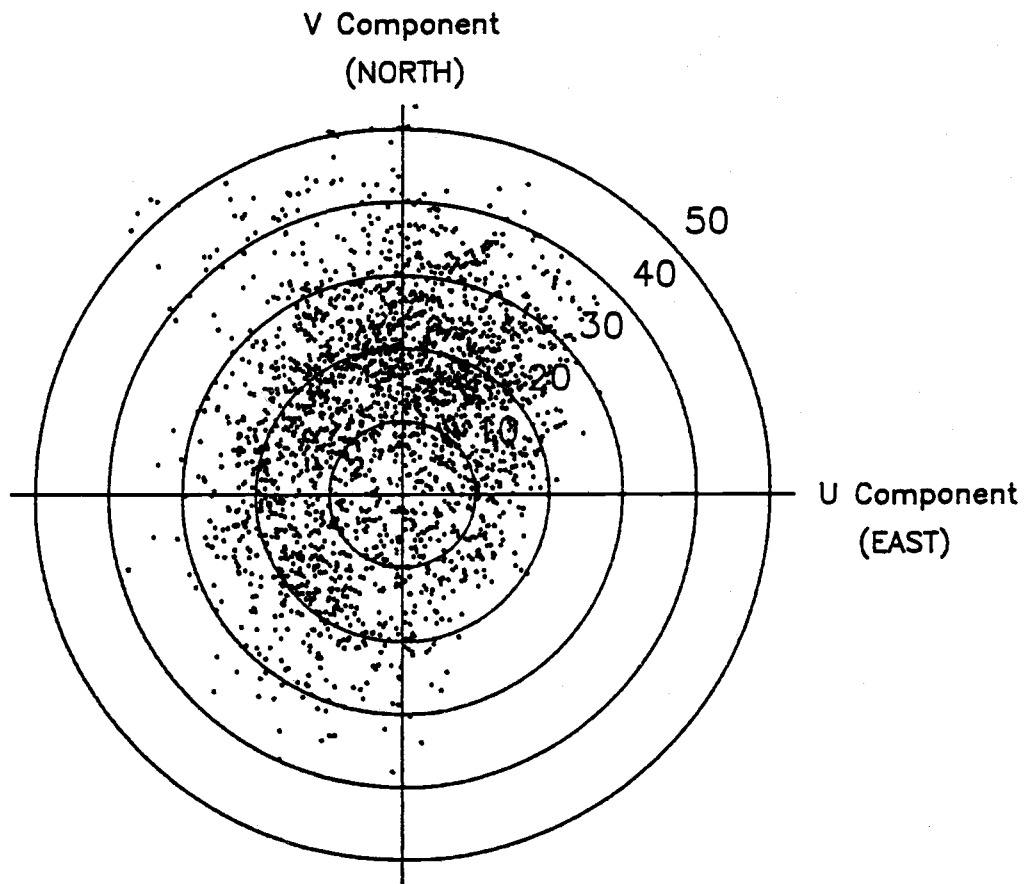
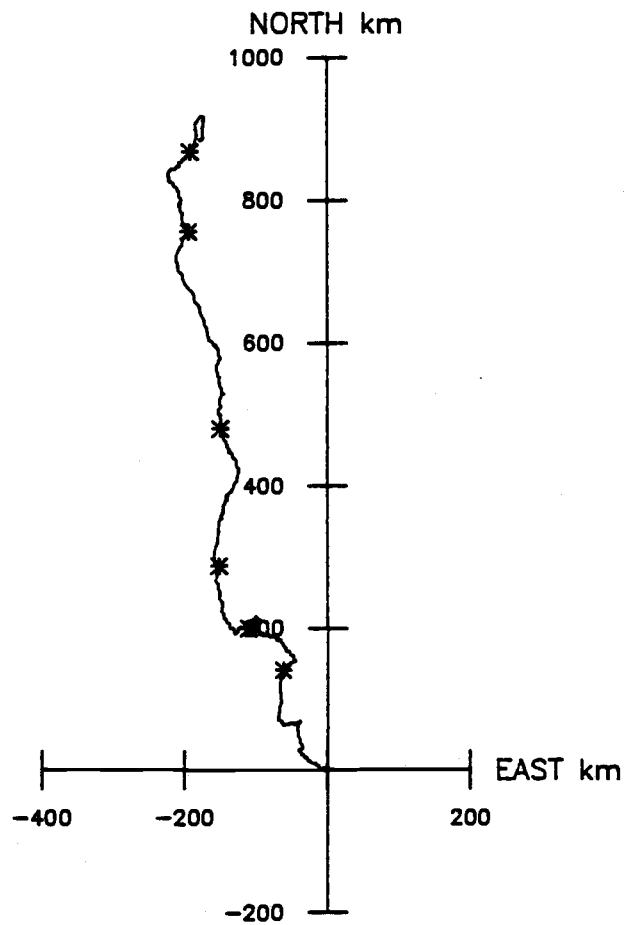
V Component  
(NORTH)

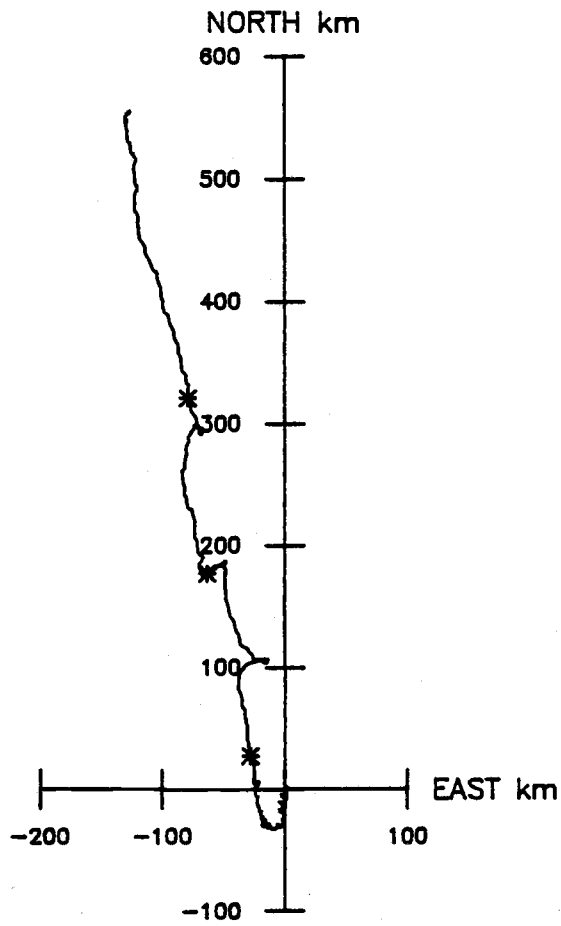




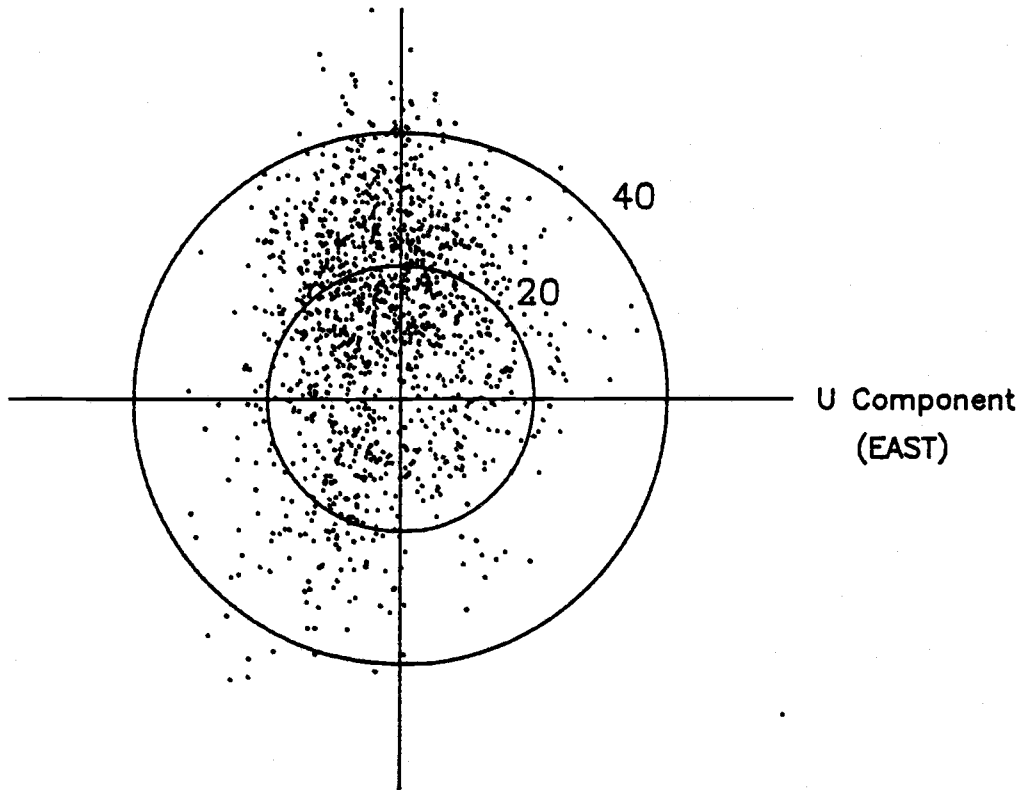








V Component  
(NORTH)



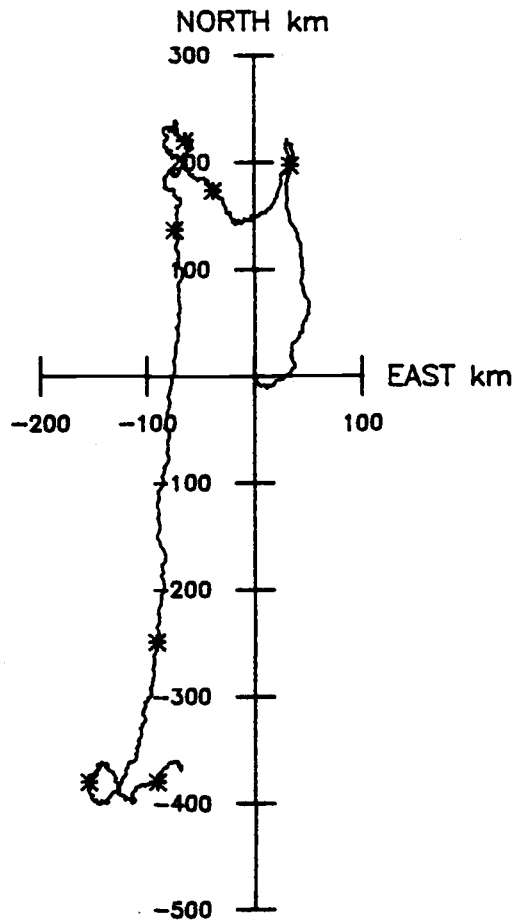
P4S1

AUG 18, 1981 0300

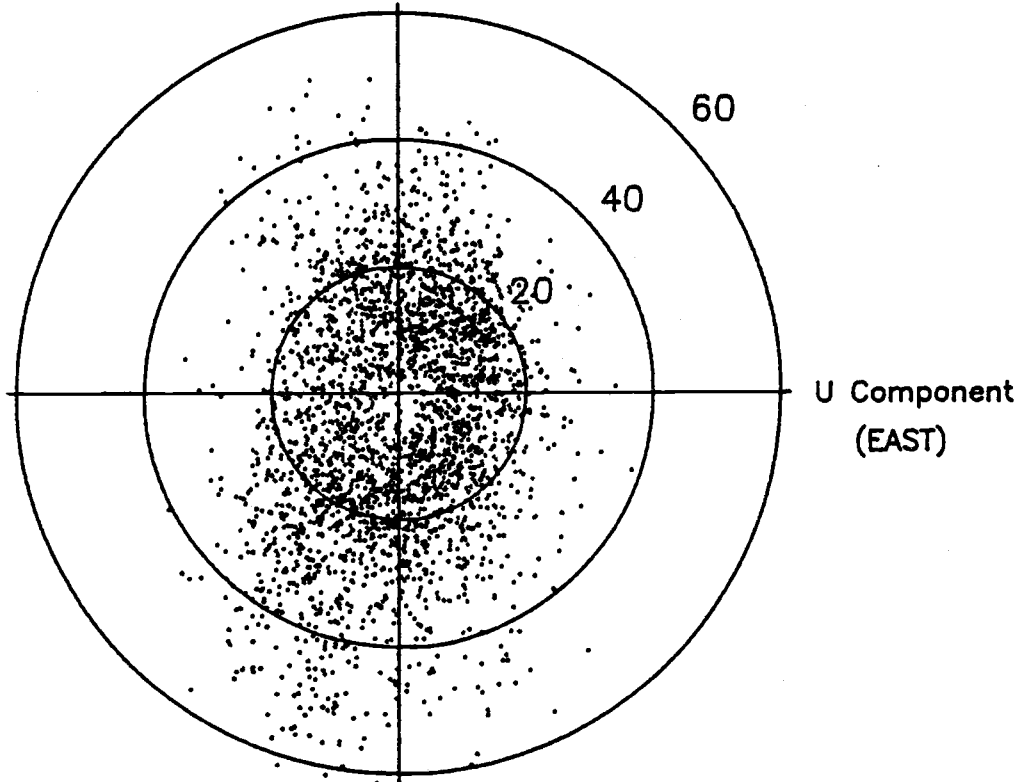
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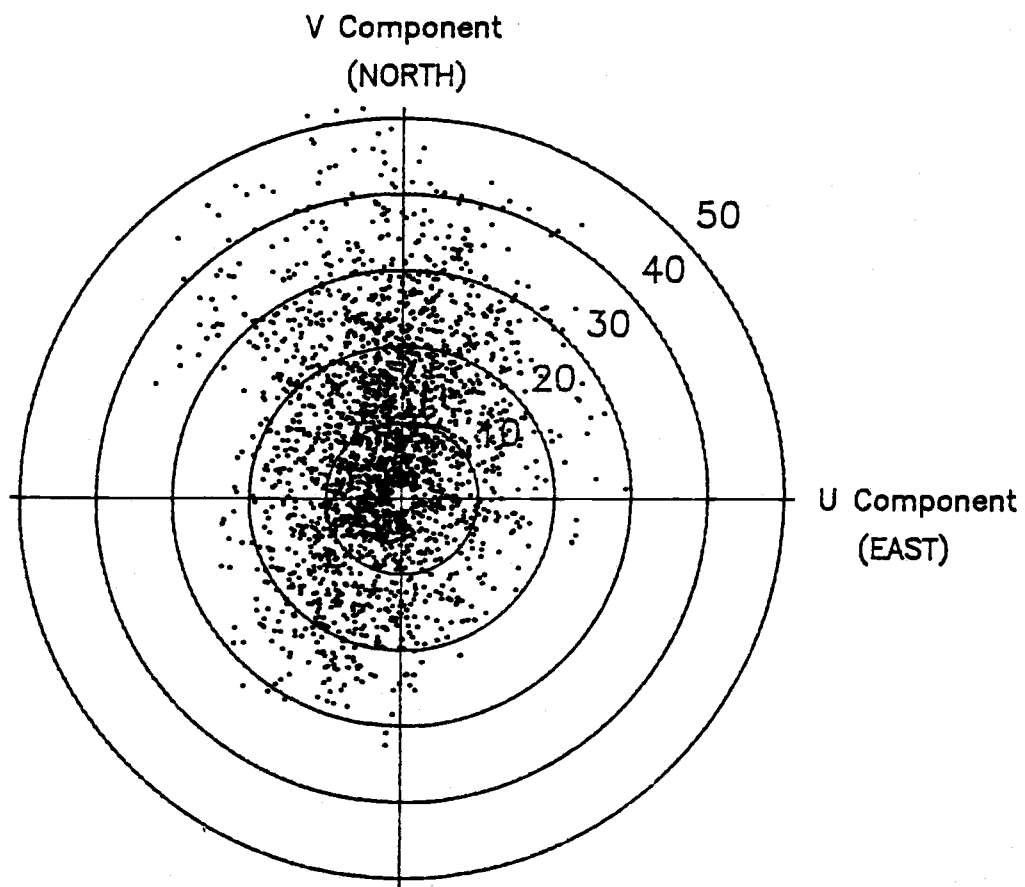
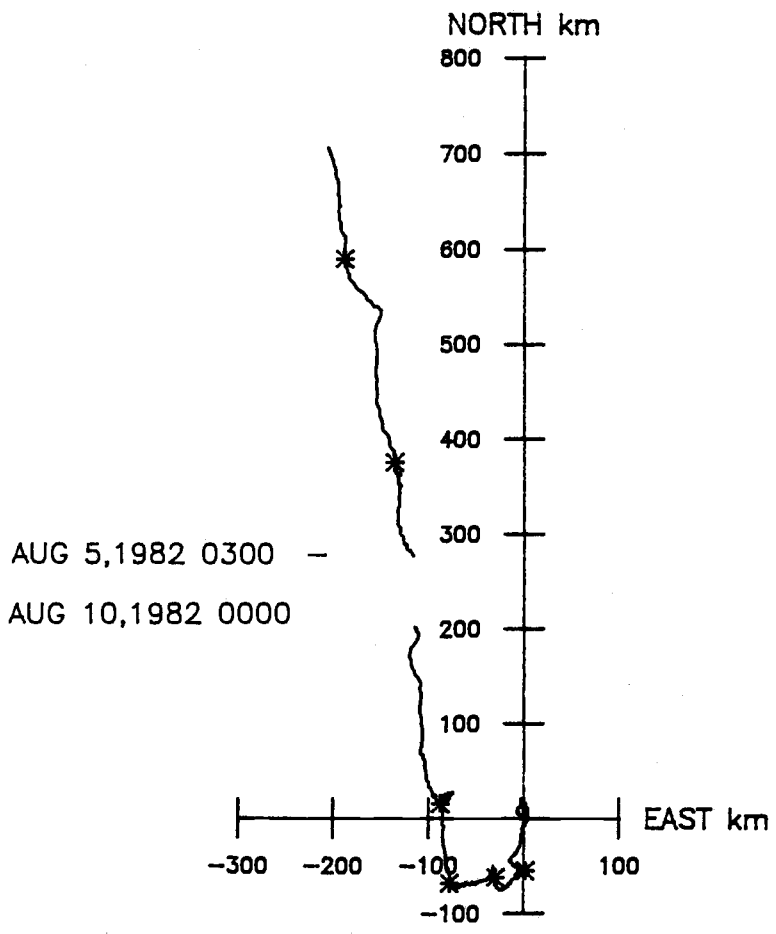
OCT 14, 1981 1400

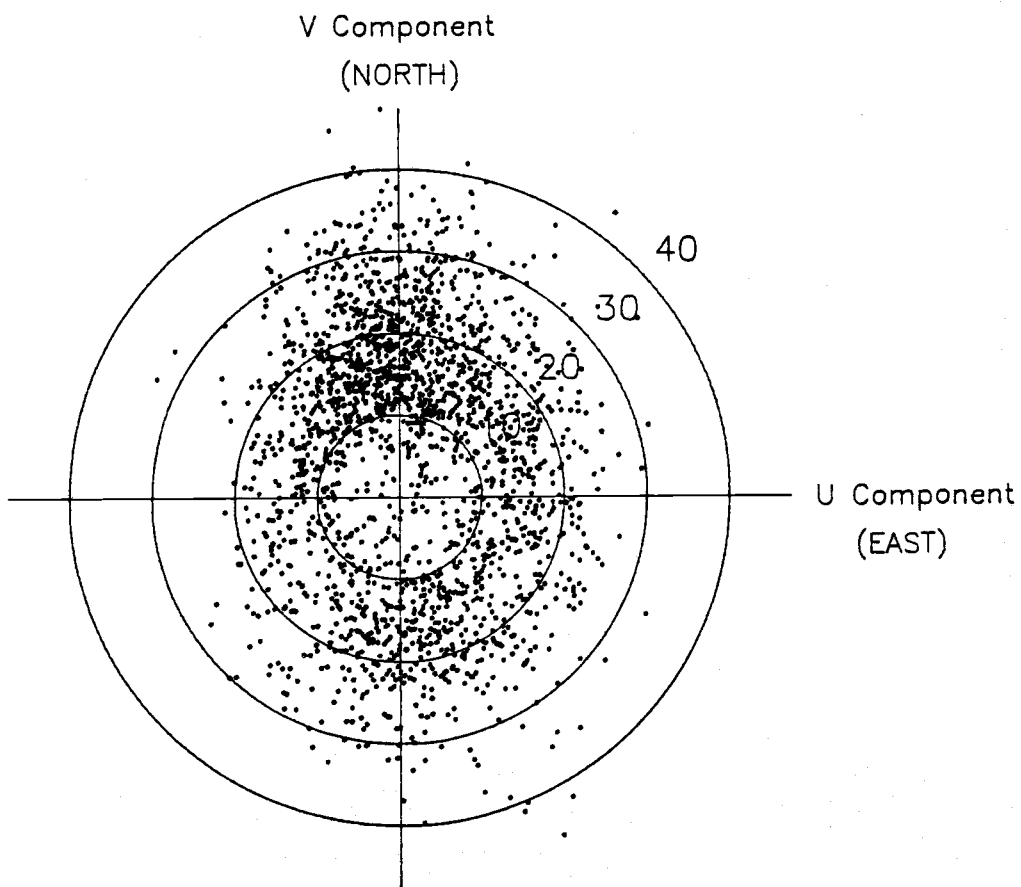
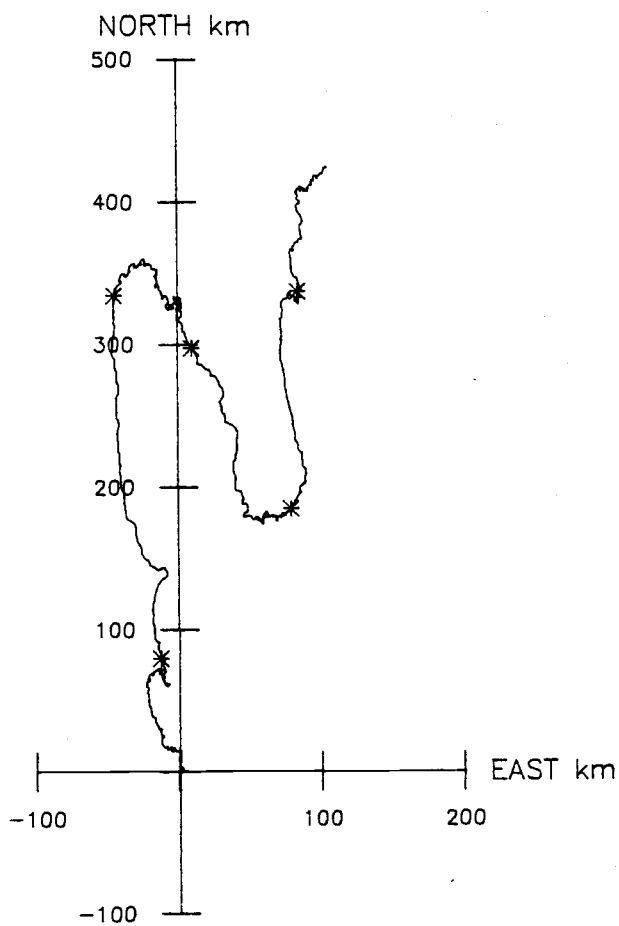


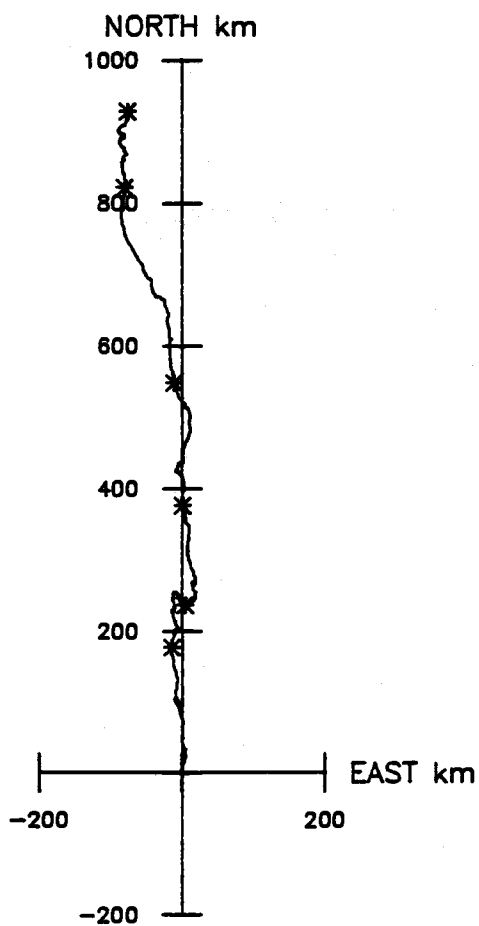


V Component  
(NORTH)

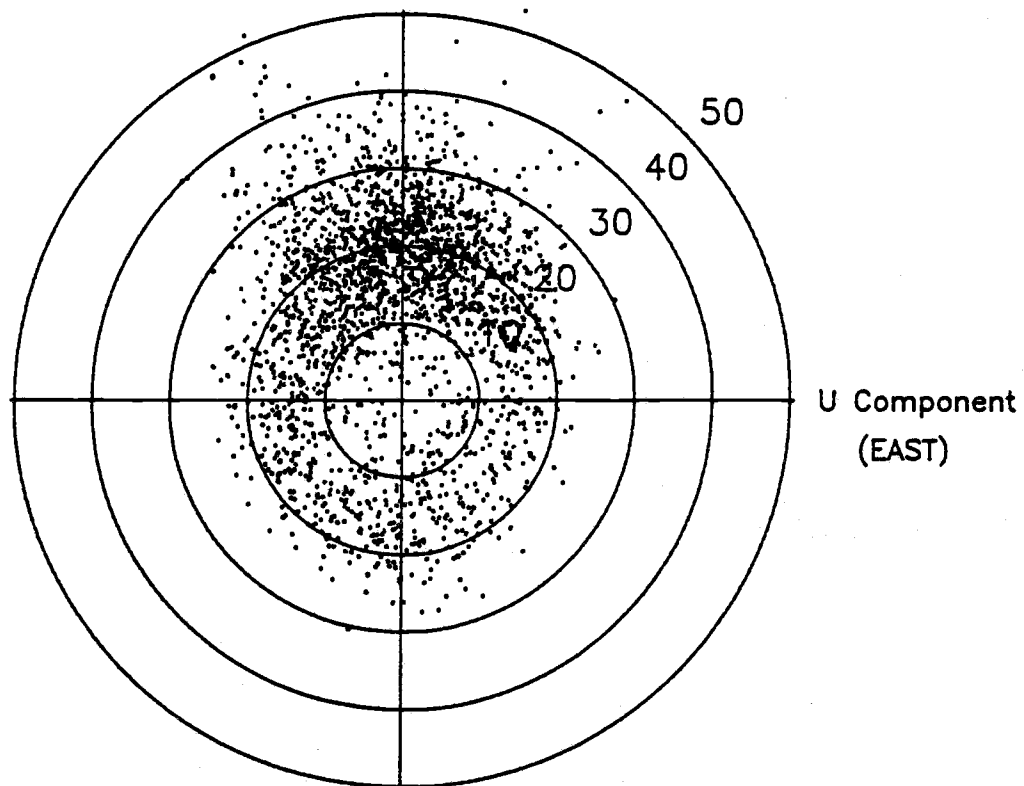






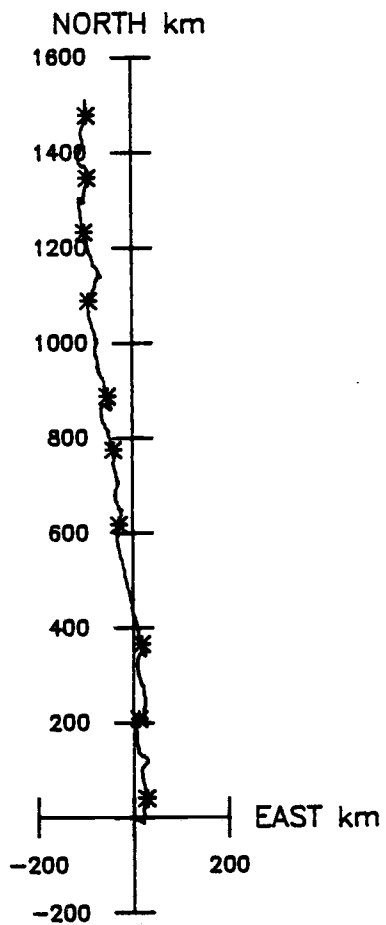


V Component  
(NORTH)

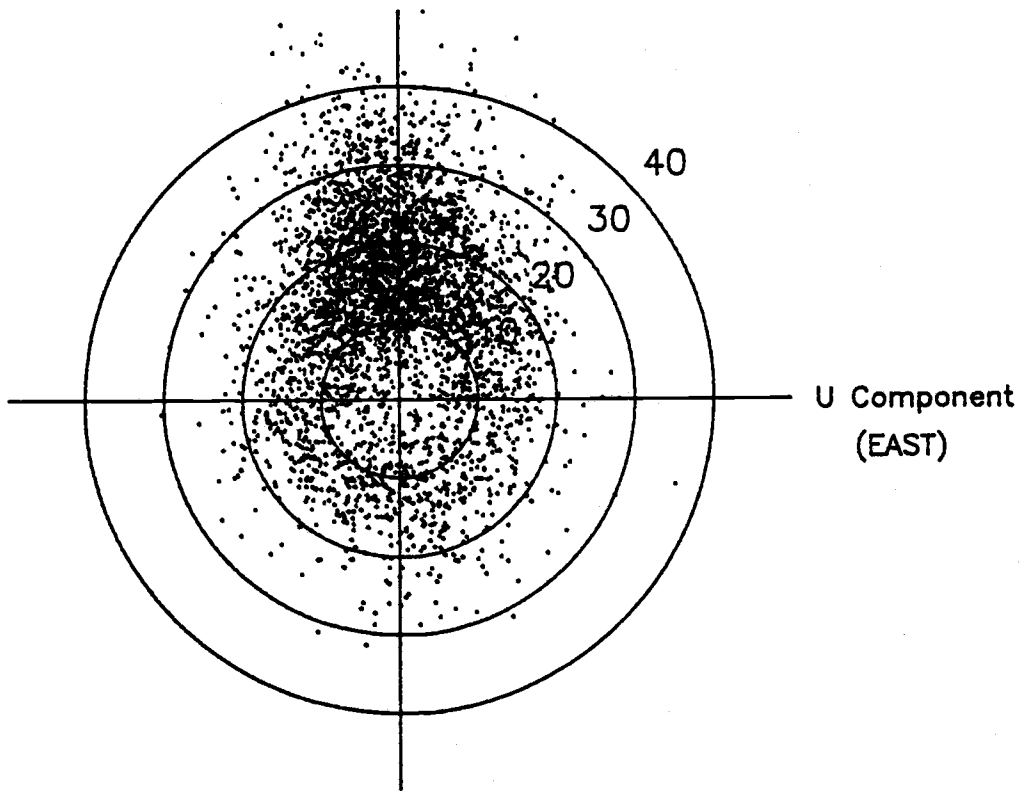


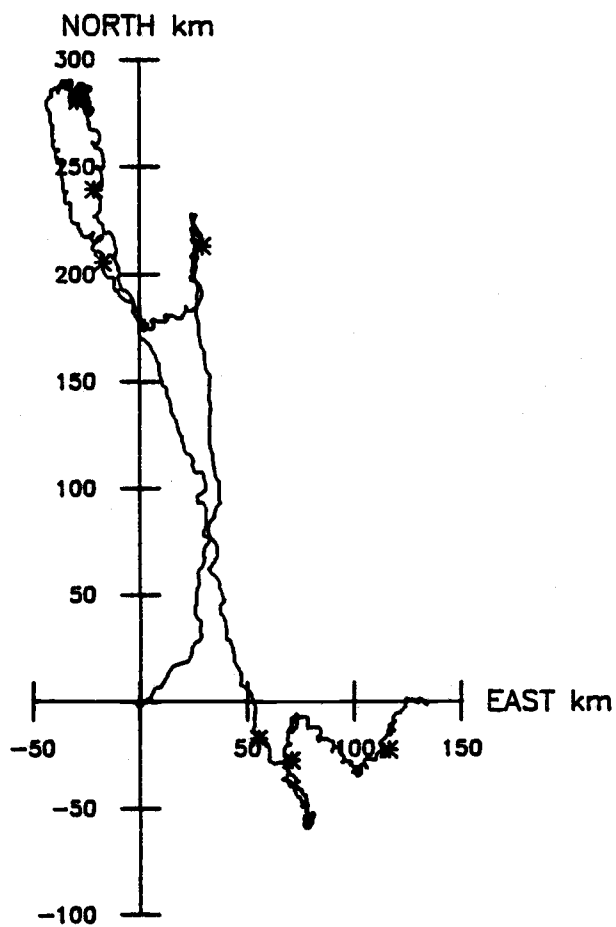
P4S2

MAY 7, 1981 0400 - AUG 6, 1981 0700

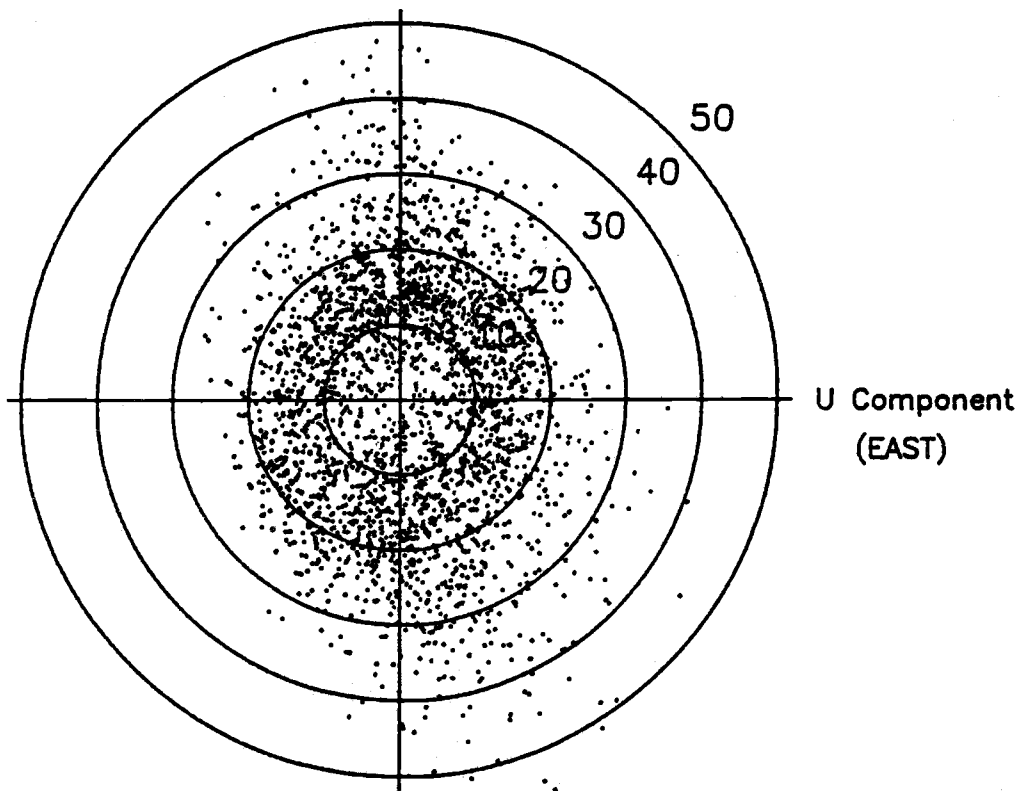


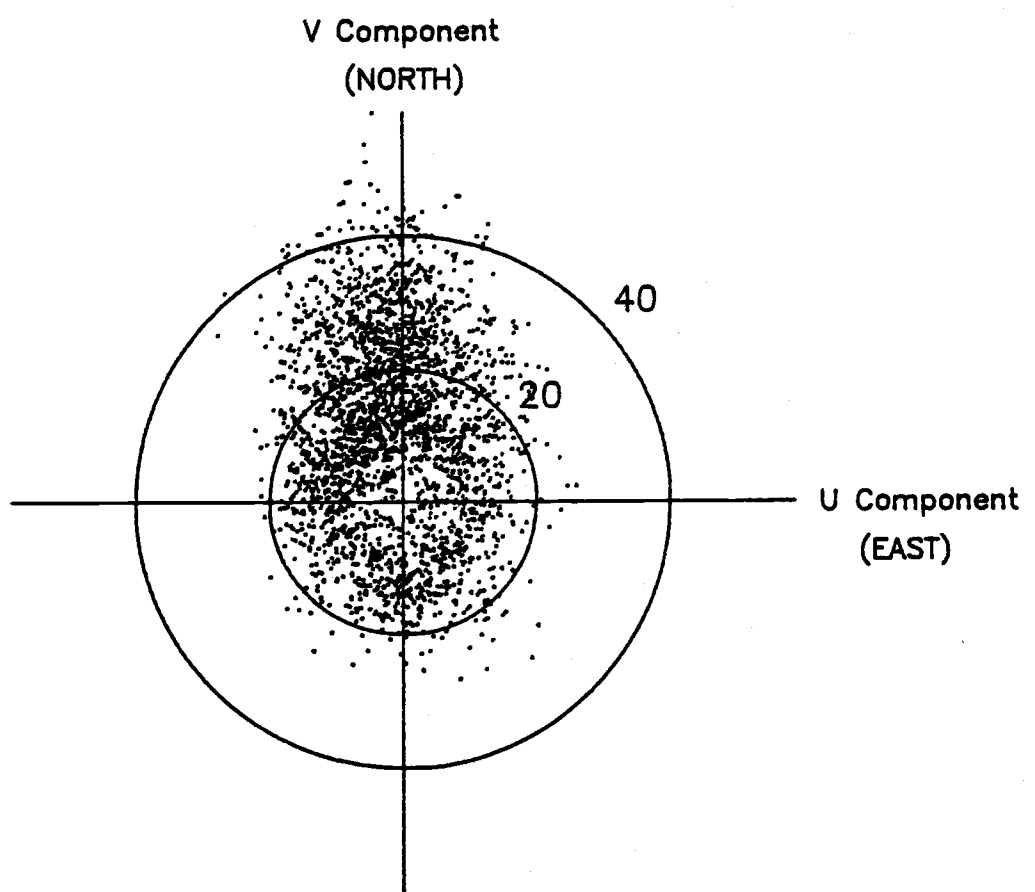
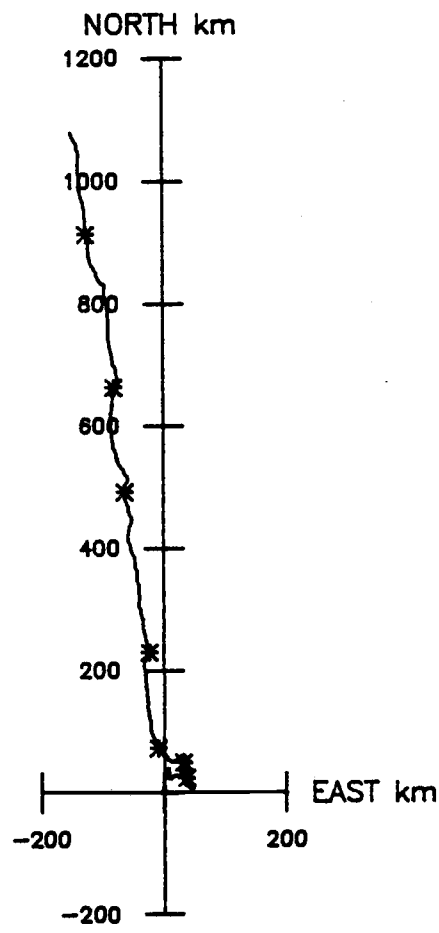
V Component  
(NORTH)

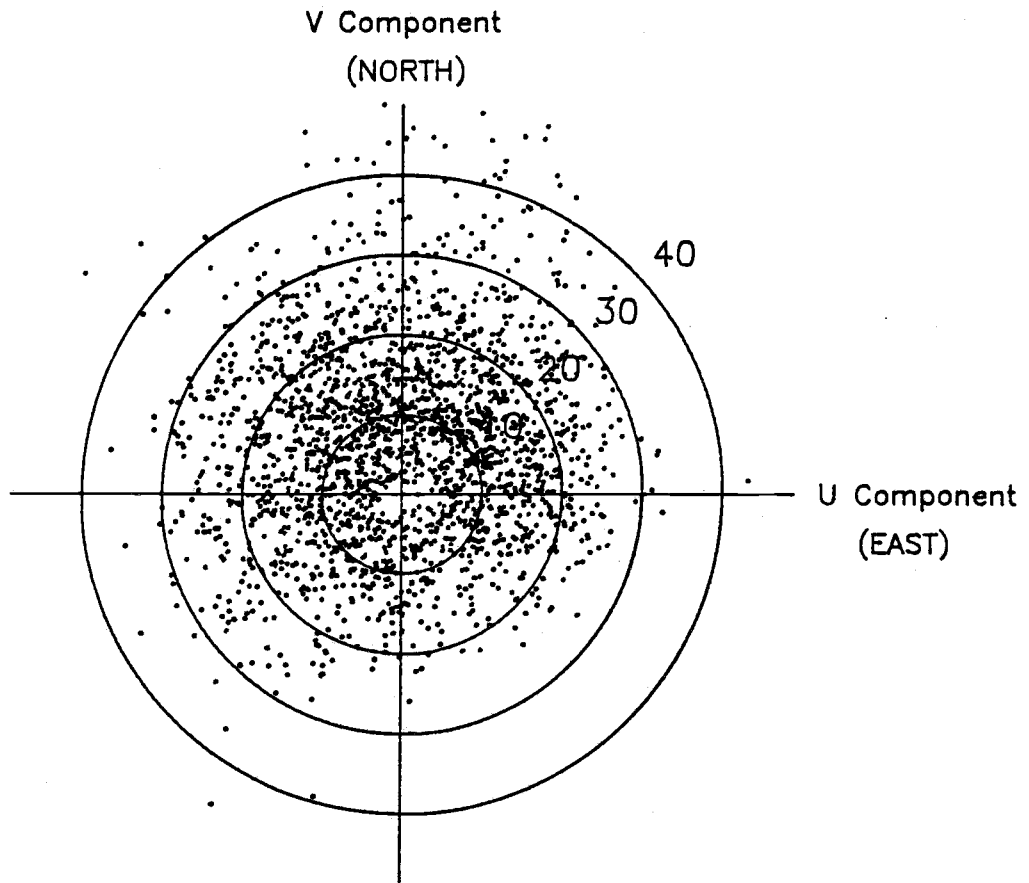
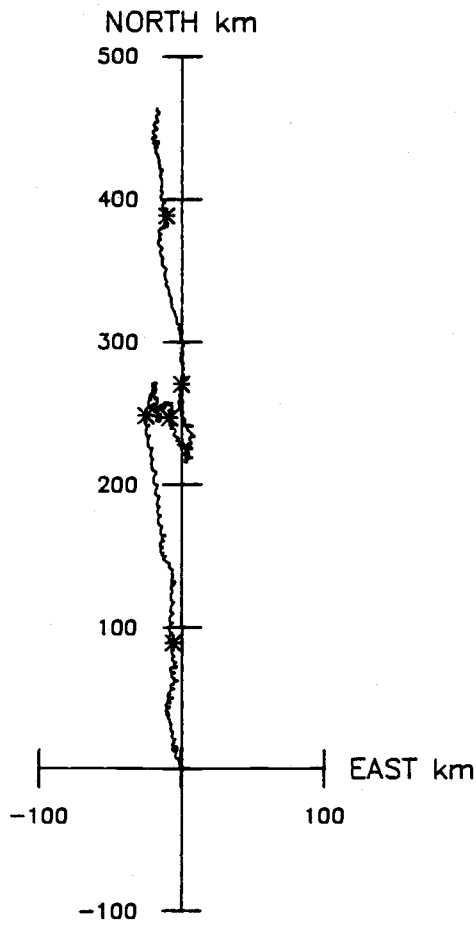




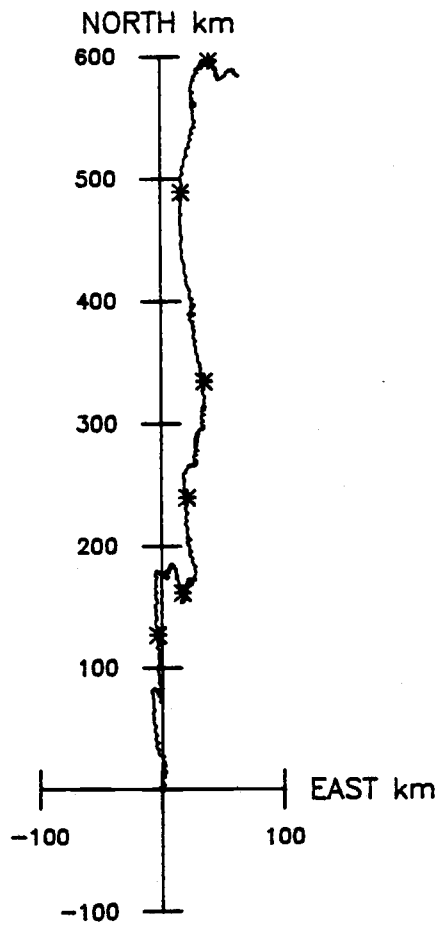
V Component  
(NORTH)



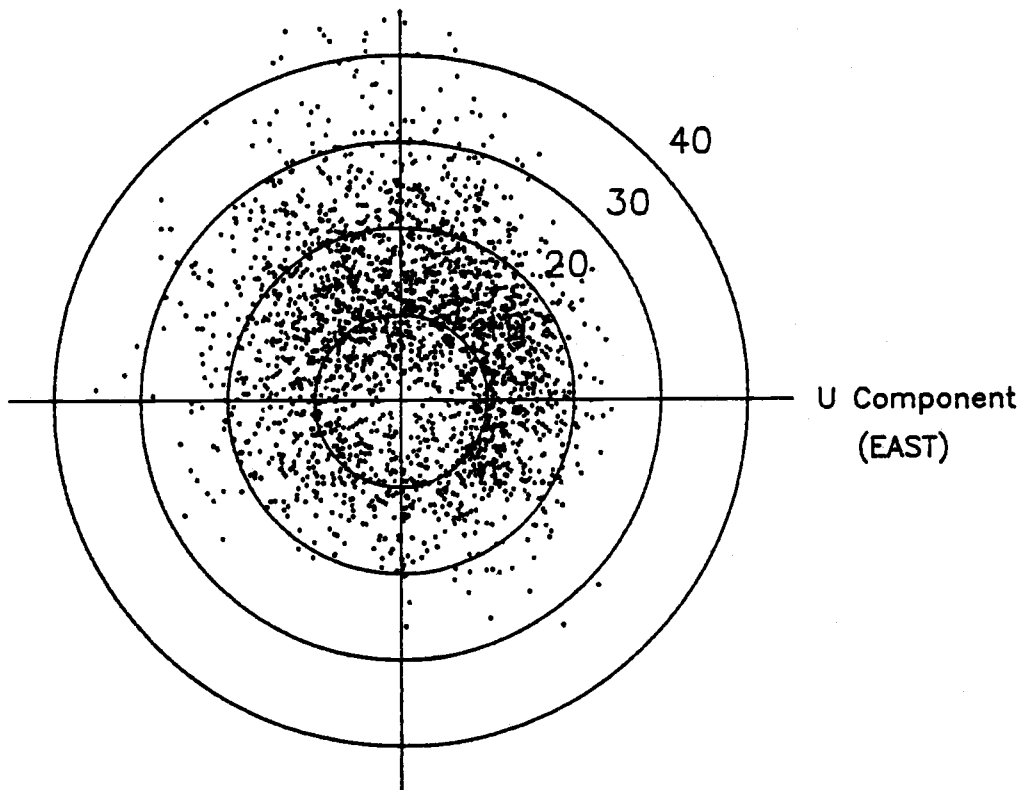






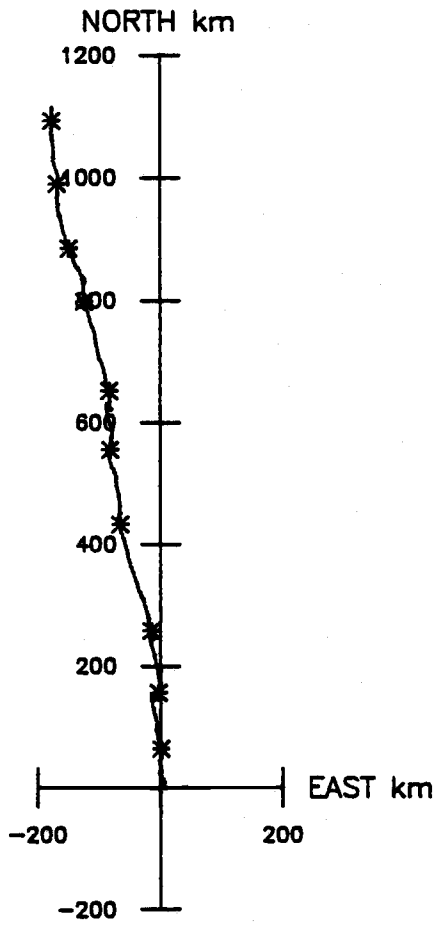


V Component  
(NORTH)

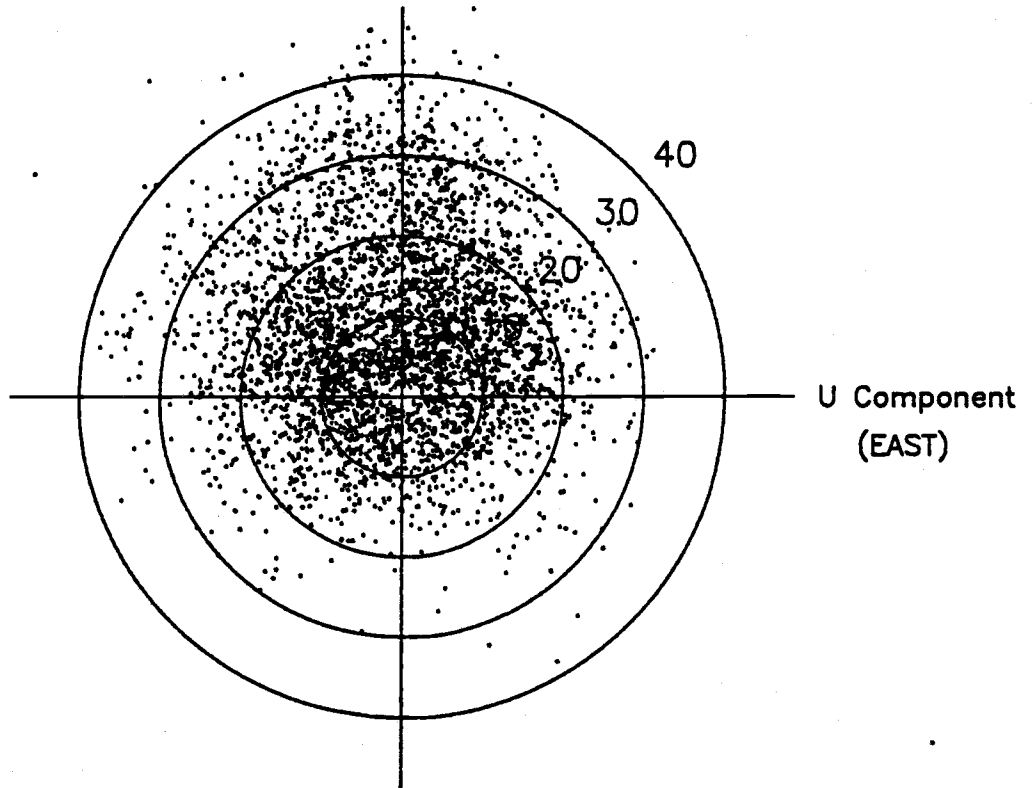


P4S3

MAY 7, 1981 0400 - AUG 17, 1981 1100

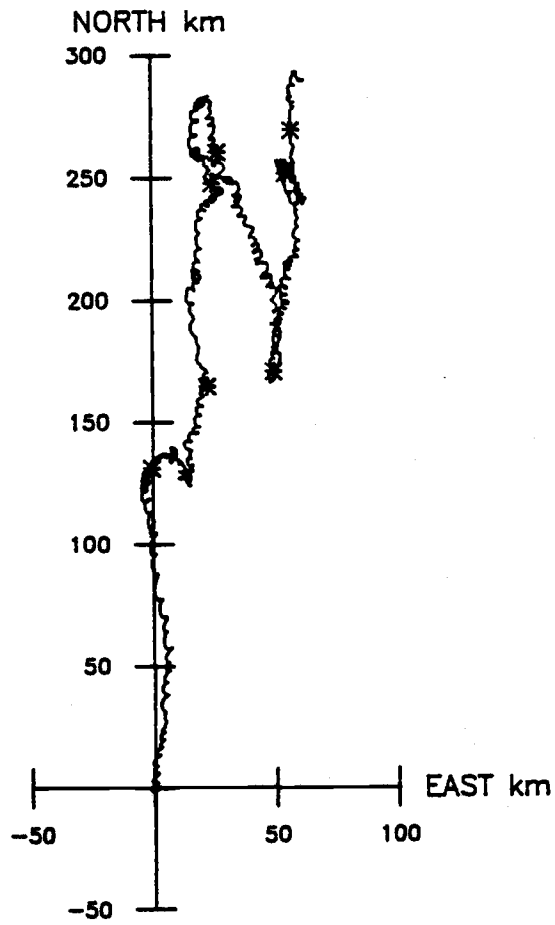


V Component  
(NORTH)

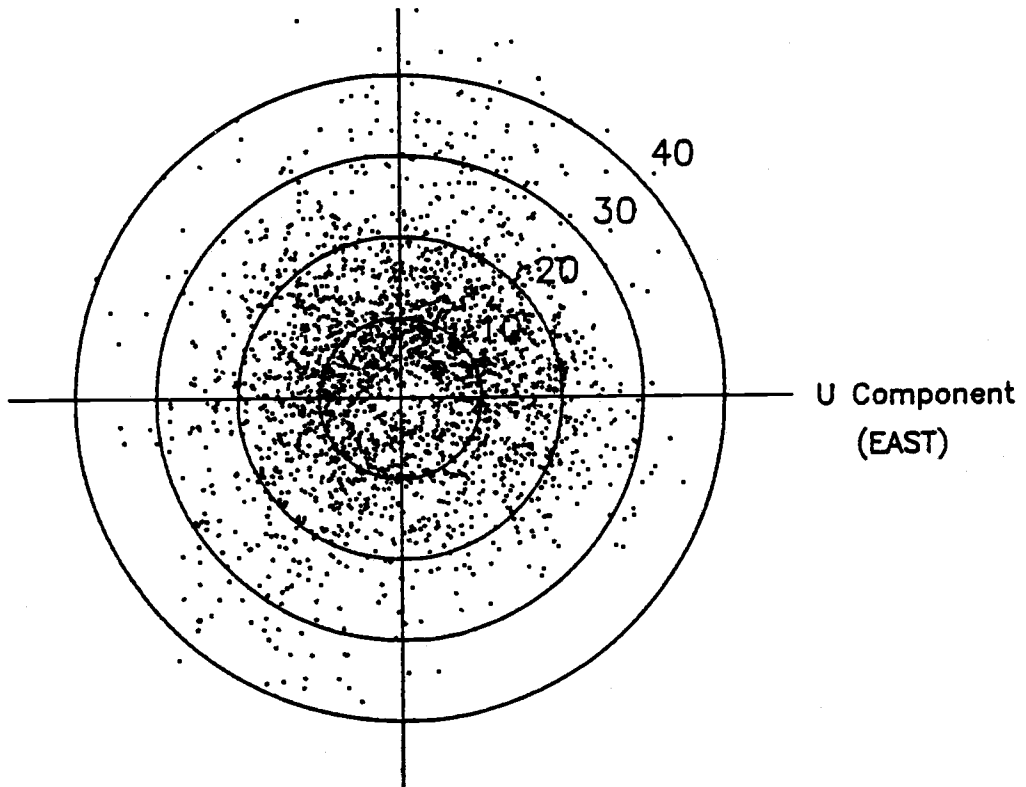


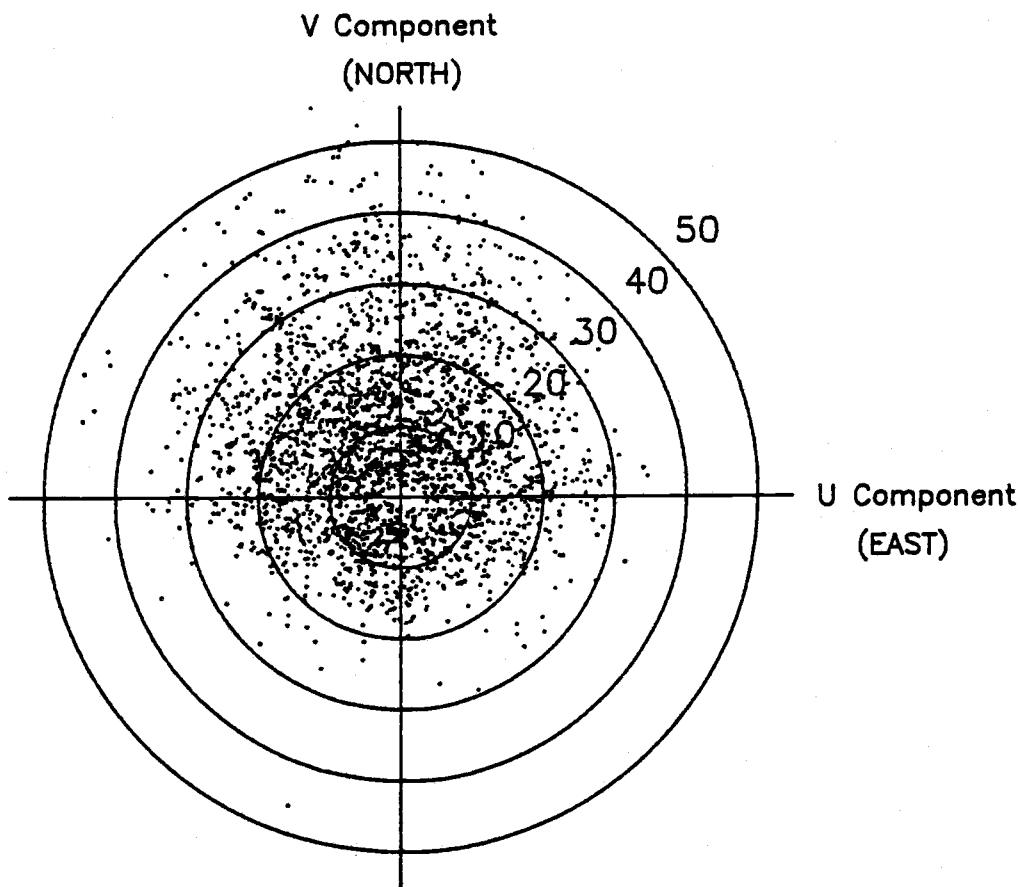
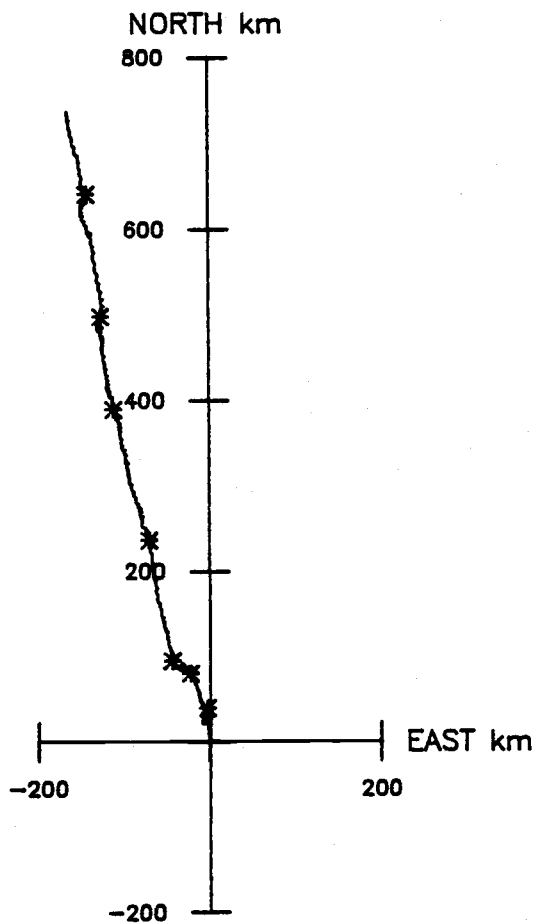
P4S3

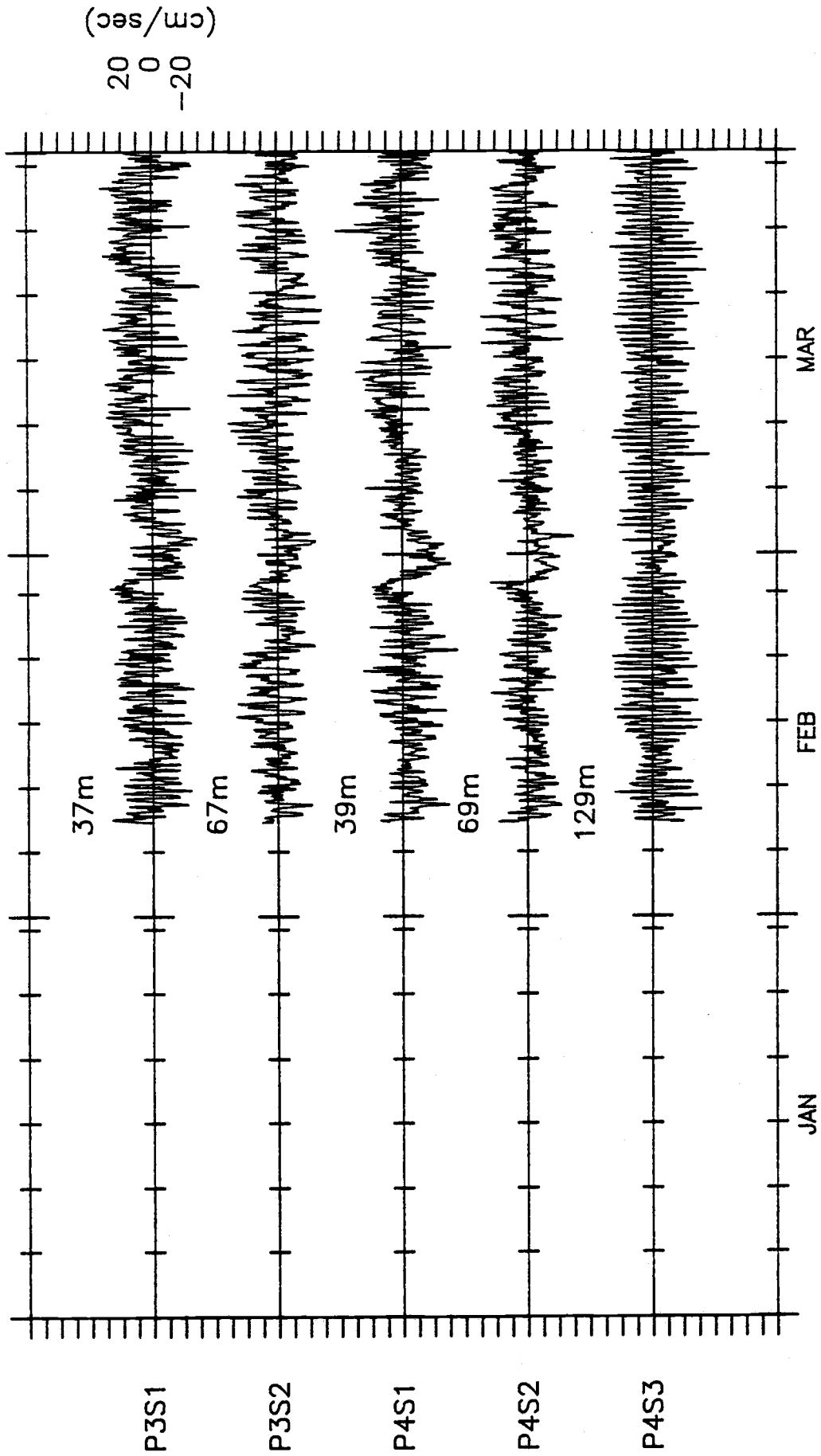
AUG 18,1981 0300 - JAN 18,1982 2300



V Component  
(NORTH)

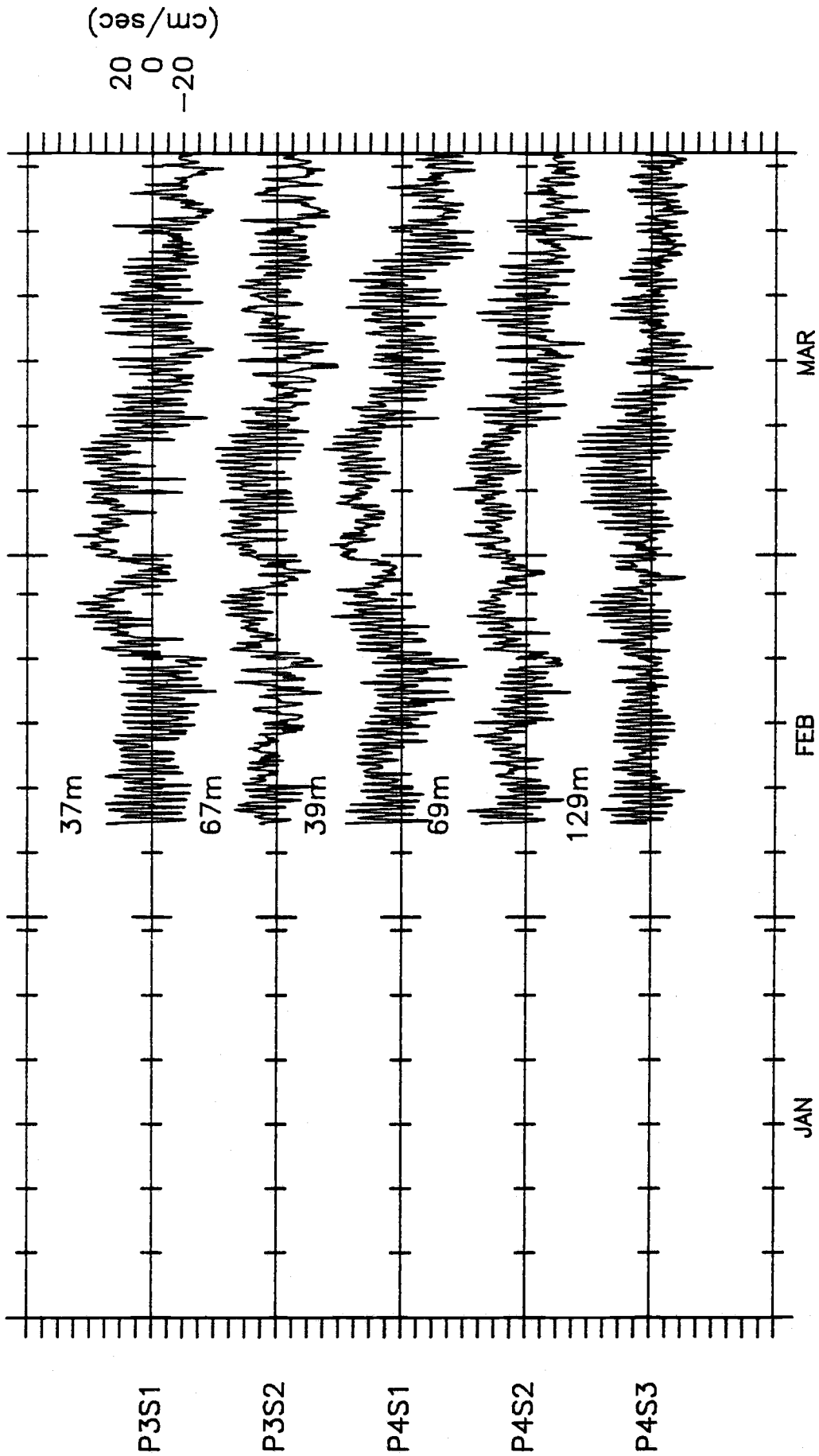




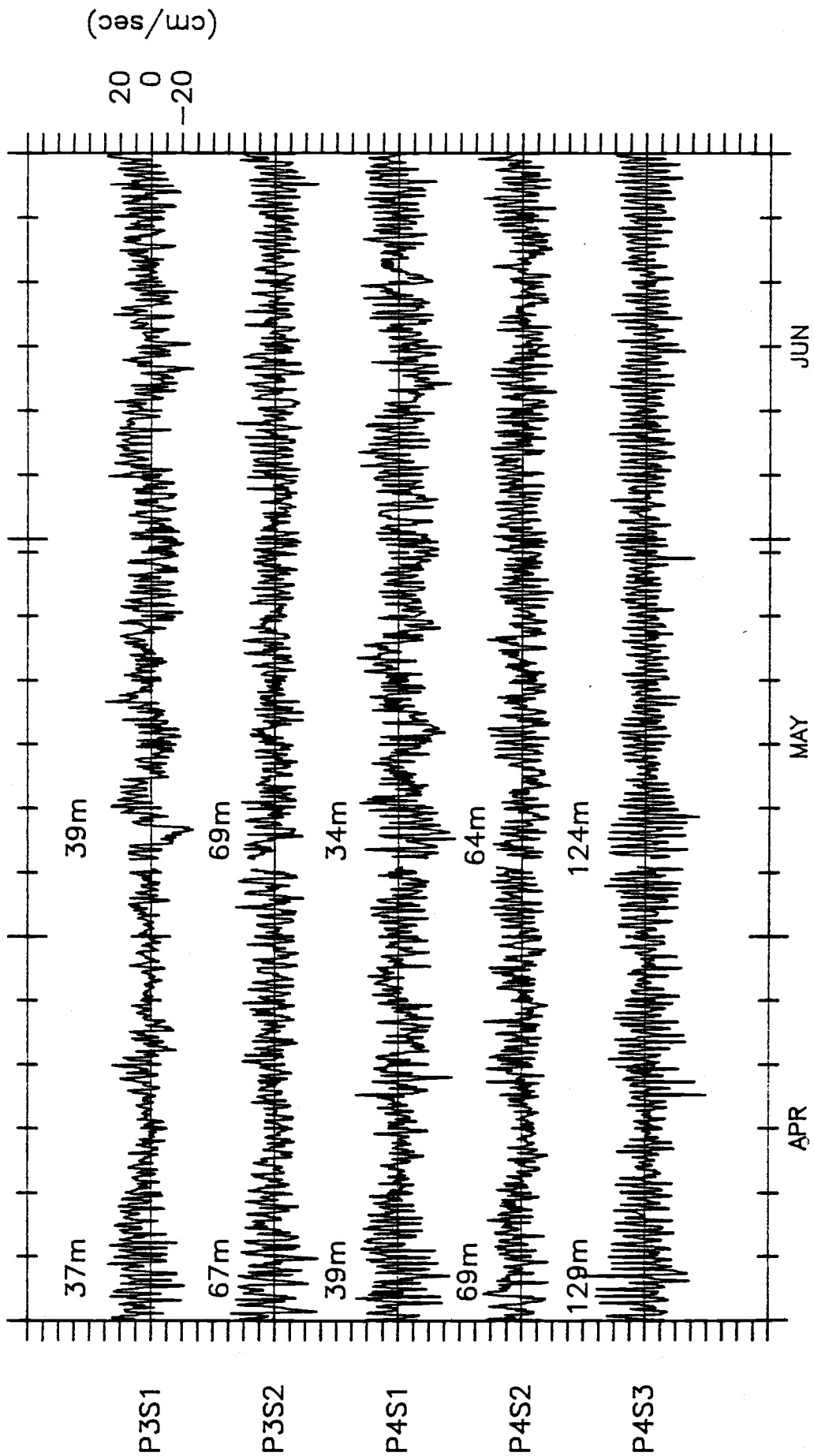


PURISIMA POINT U velocity

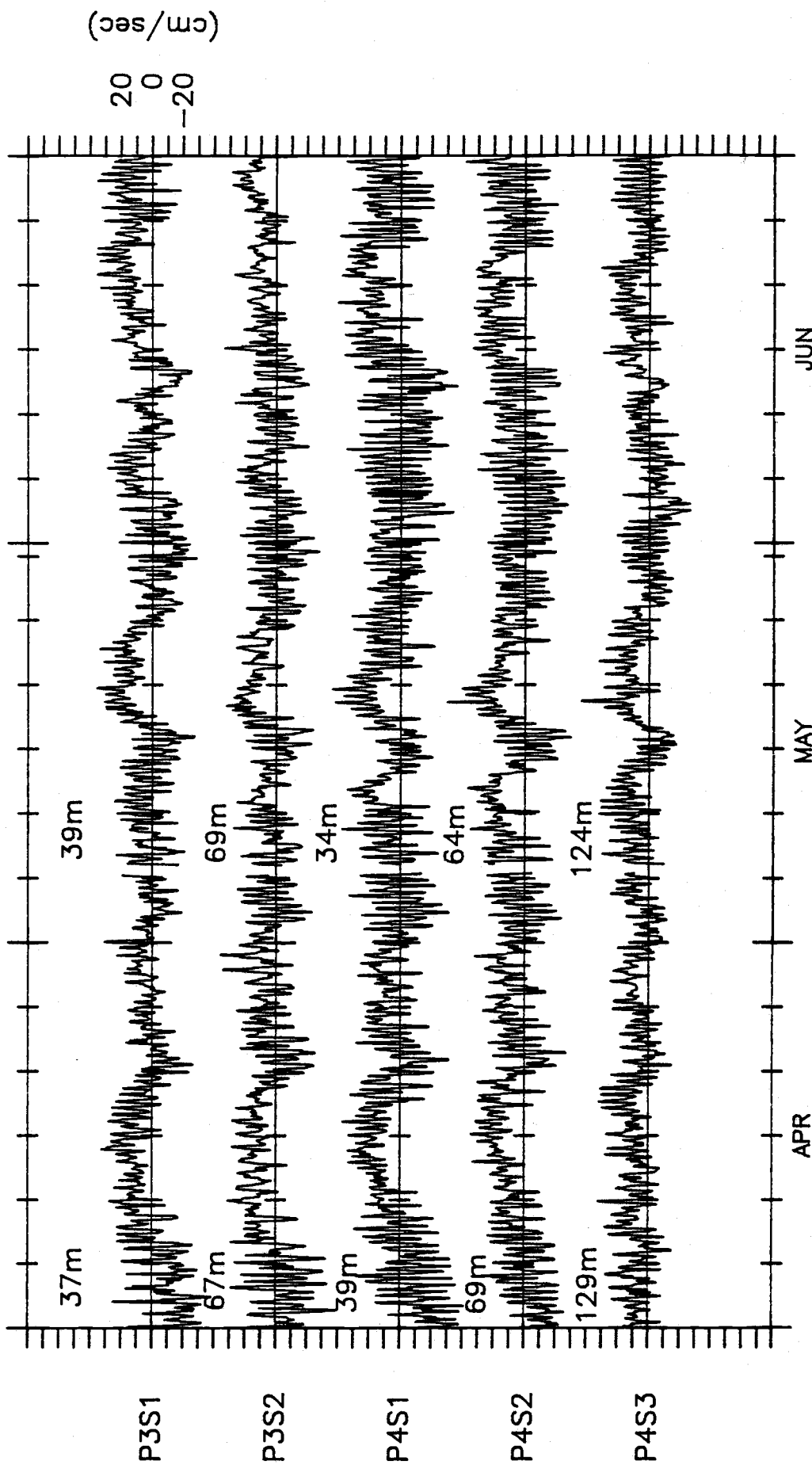
1981



PURISIMA POINT V velocity



PURISIMA POINT U velocity



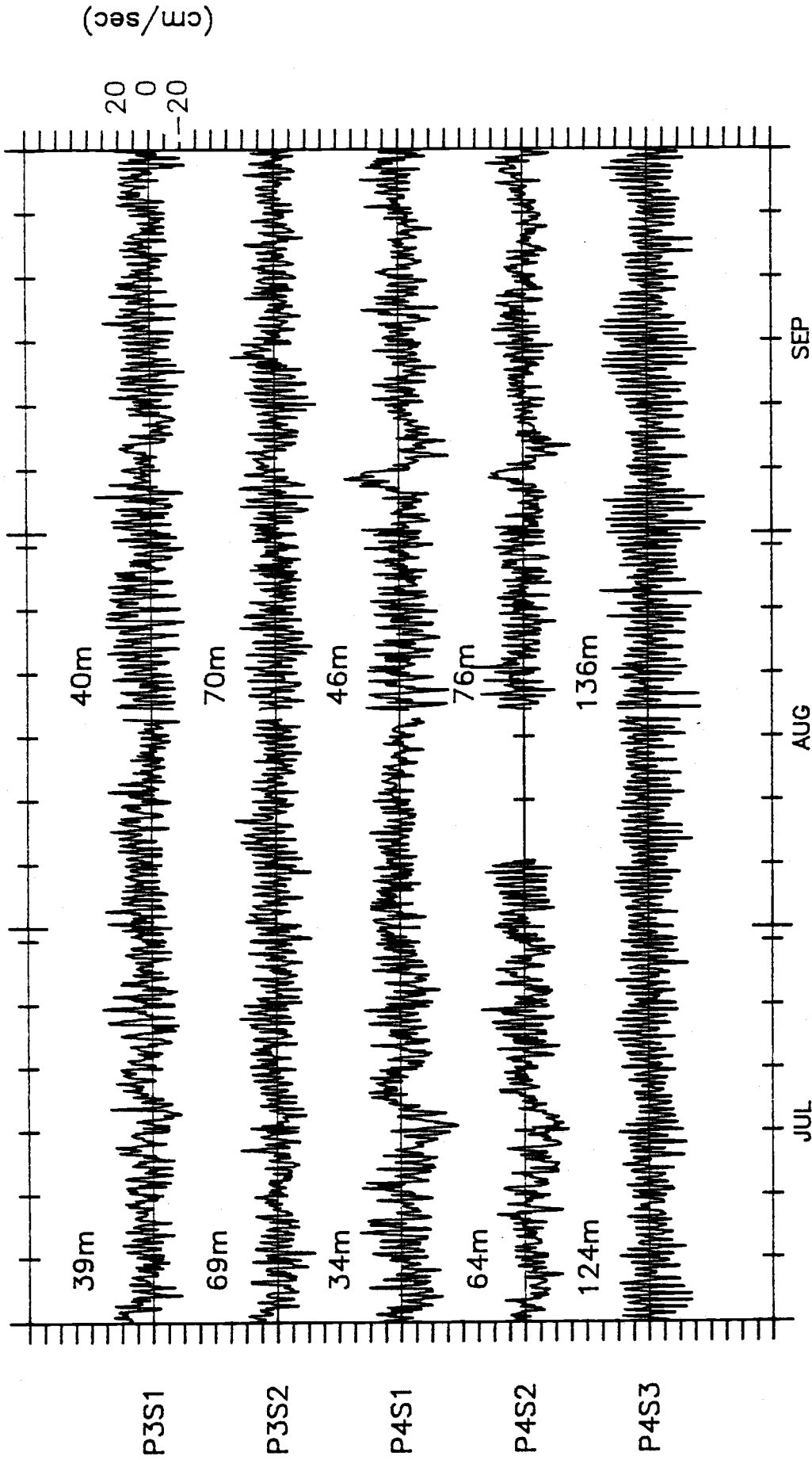
P3S1  
P3S2  
P4S1  
P4S2  
P4S3

APR MAY JUN

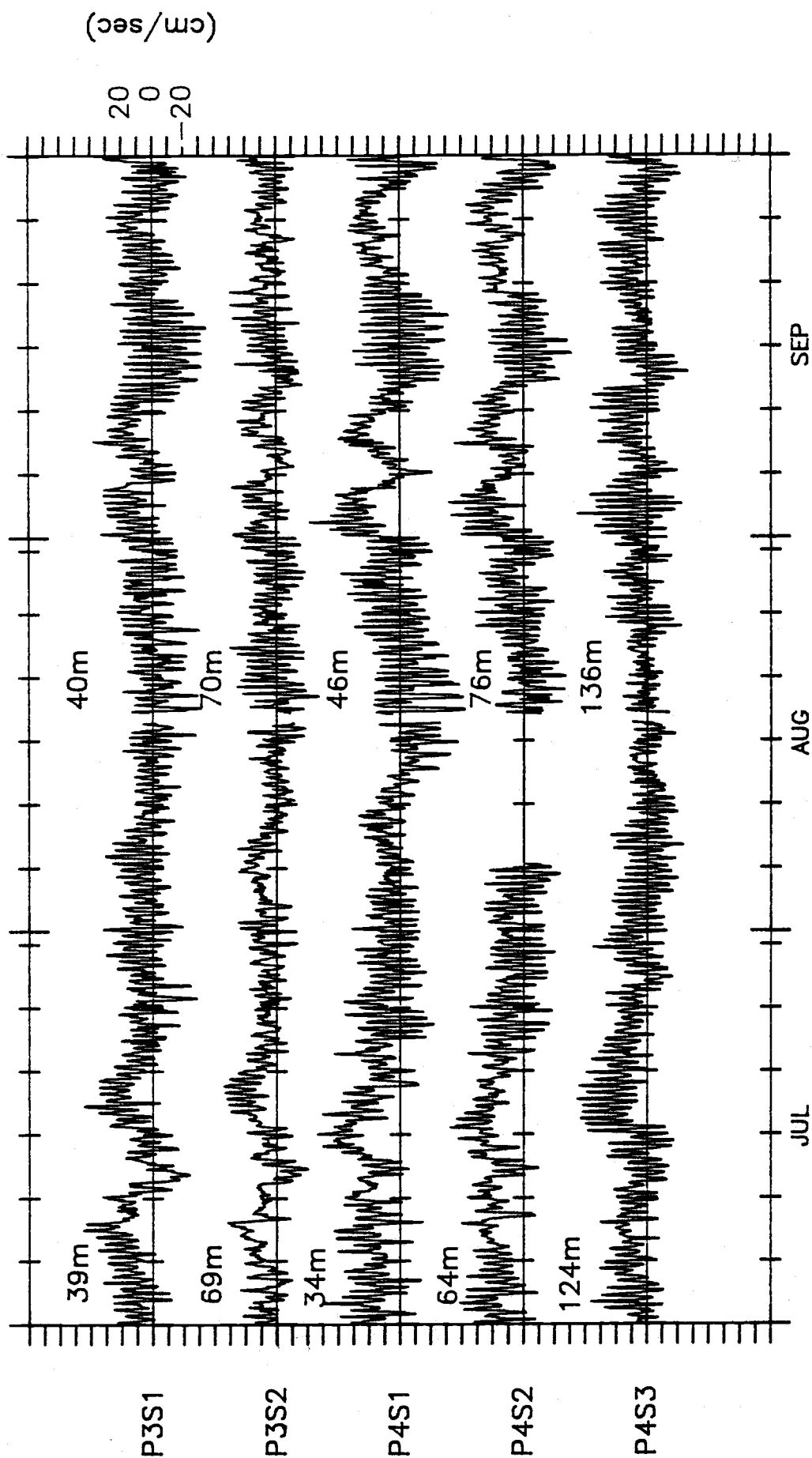
1981

PURISIMA POINT V velocity

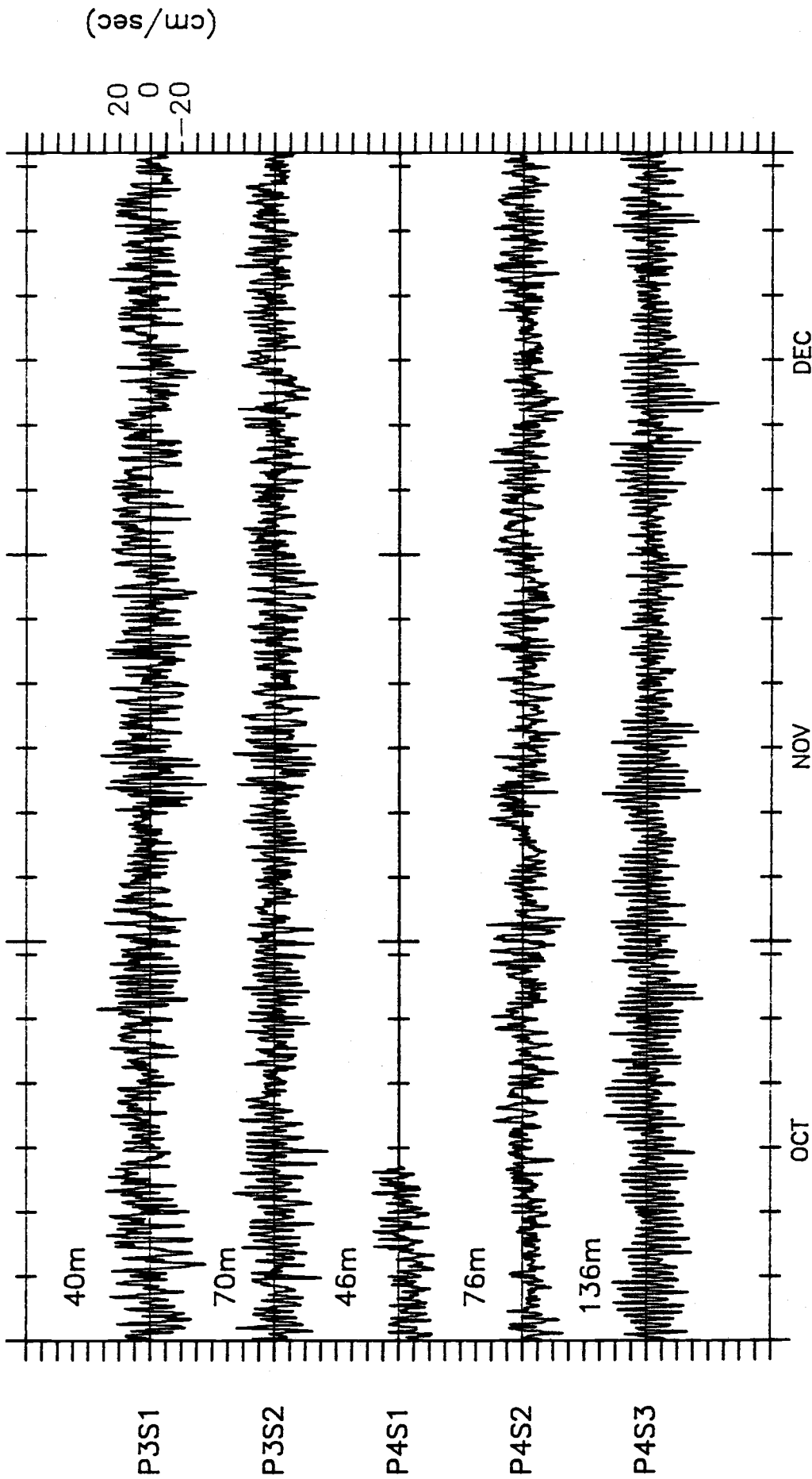




PURISIMA POINT U velocity



PURISIMA POINT V velocity

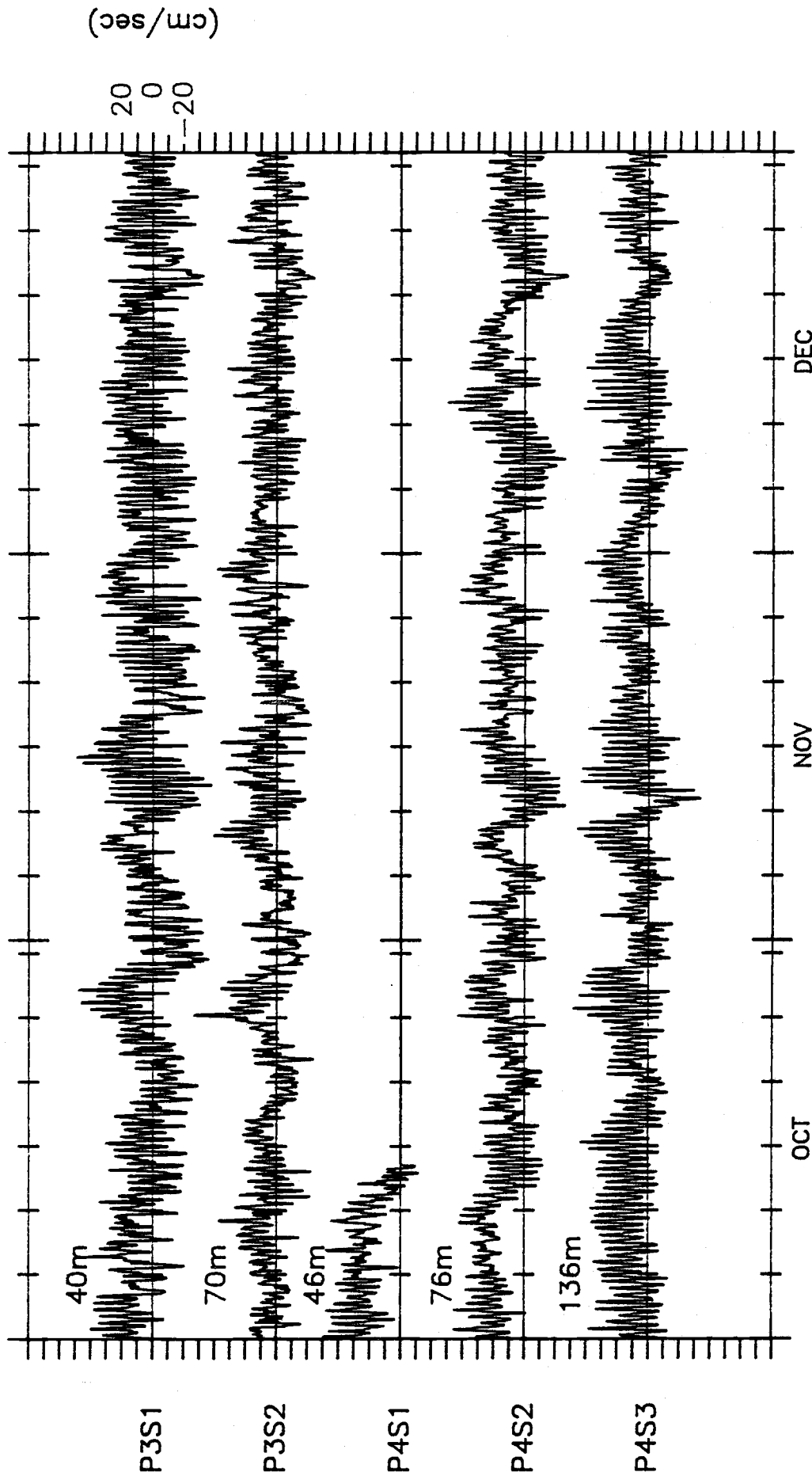


NOV  
1981

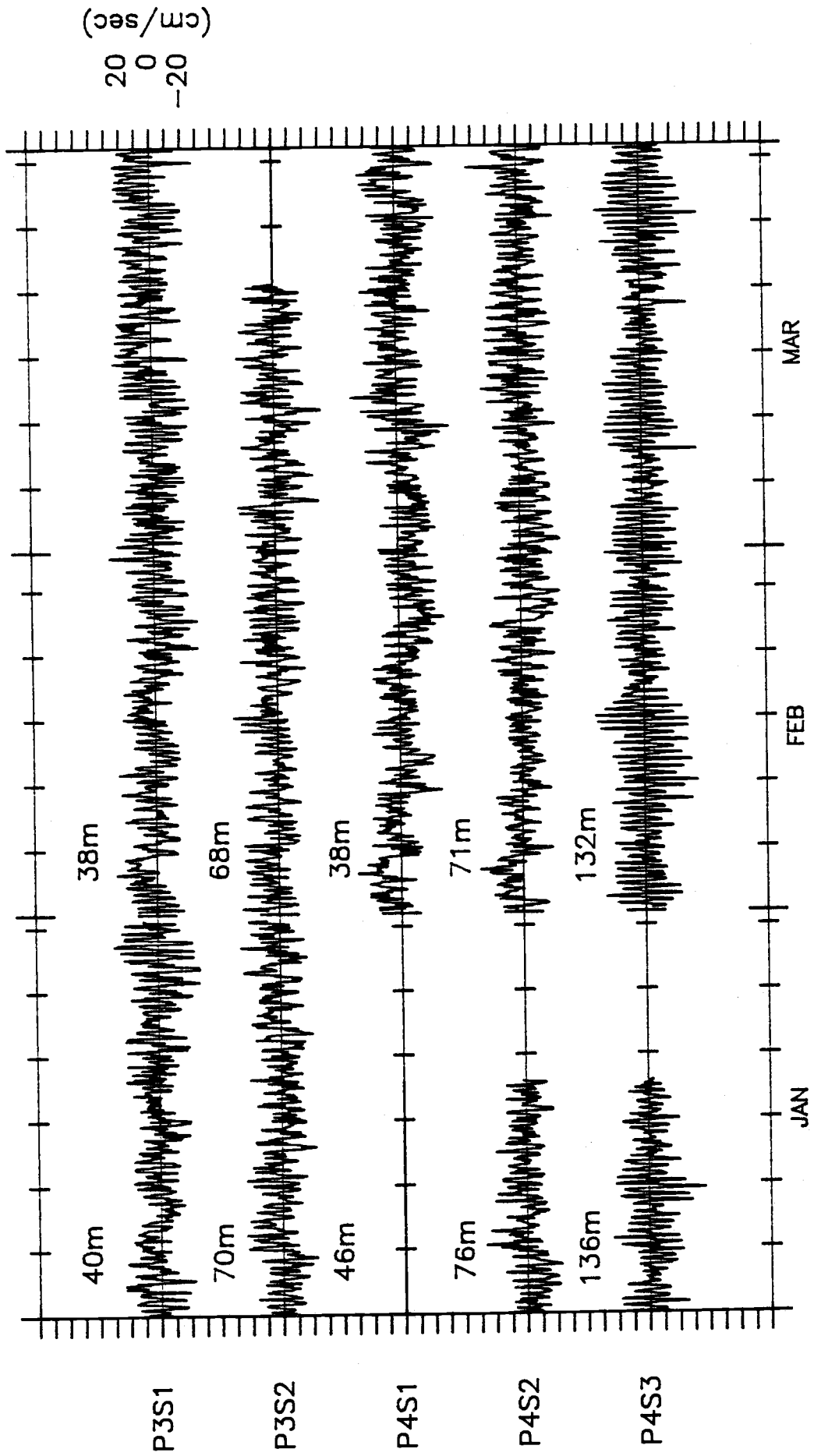
DEC

OCT

PURISIMA POINT U velocity

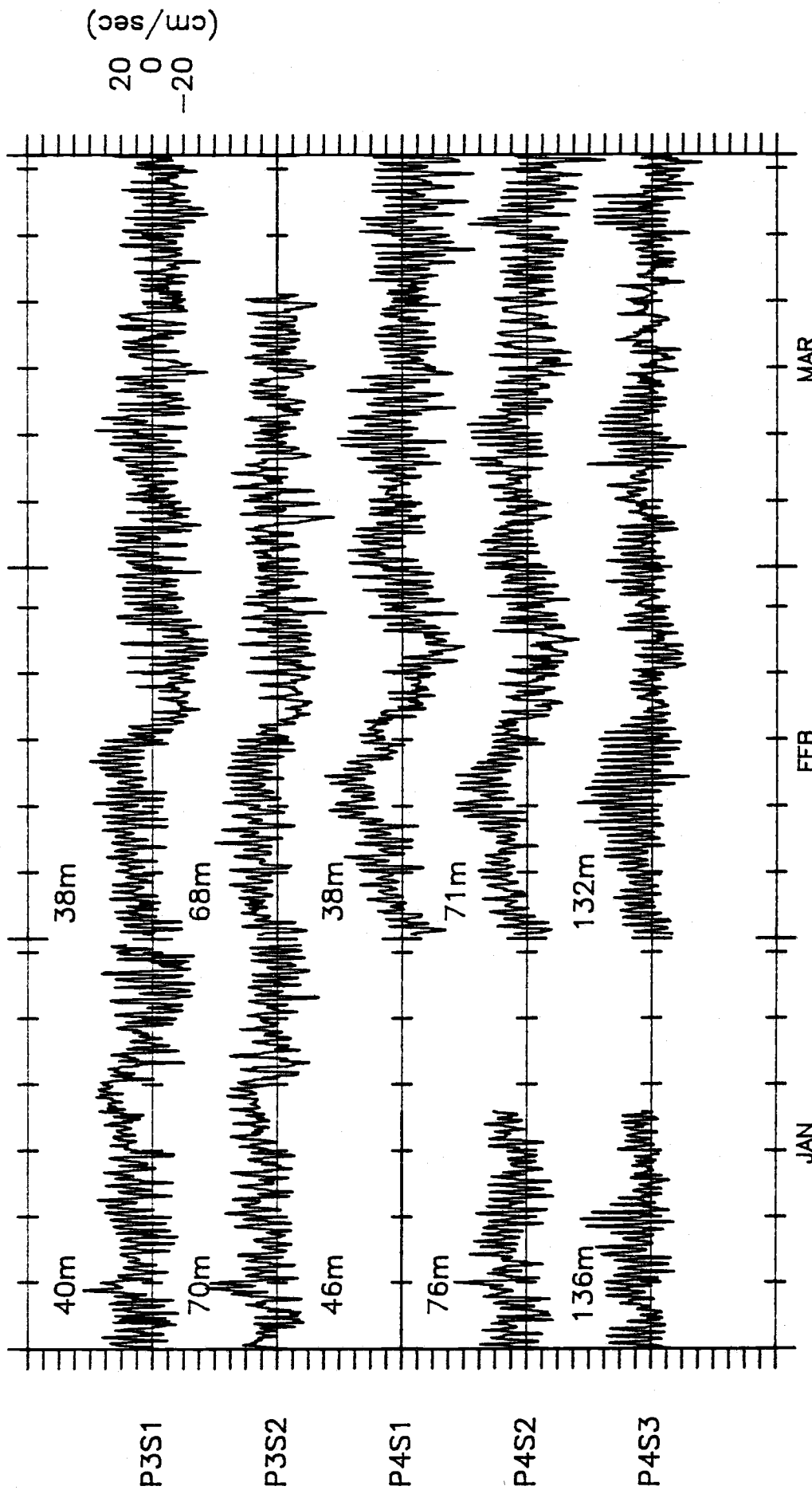


PURISIMA POINT V velocity

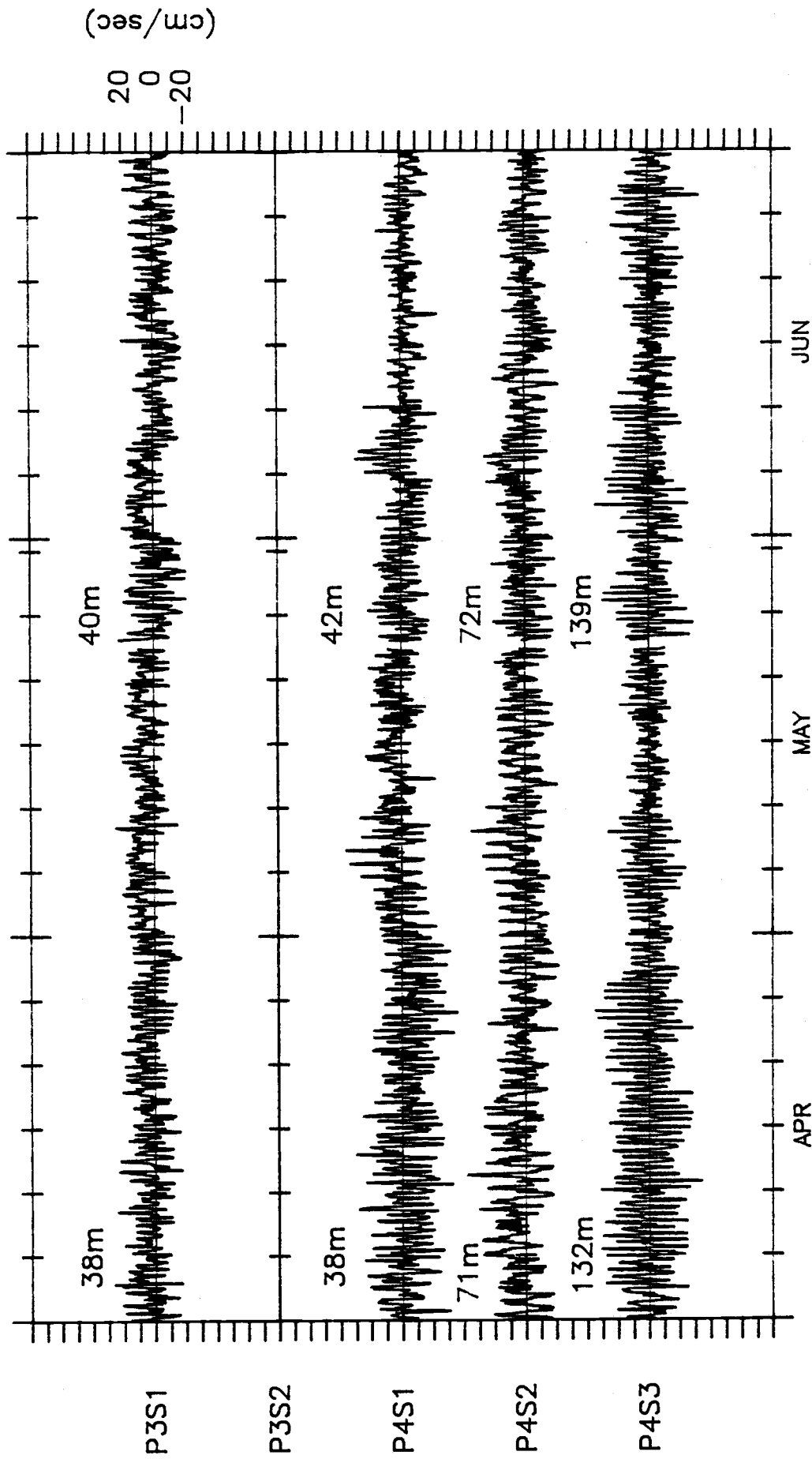


PURISIMA POINT U velocity

1982



PURISIMA POINT V velocity



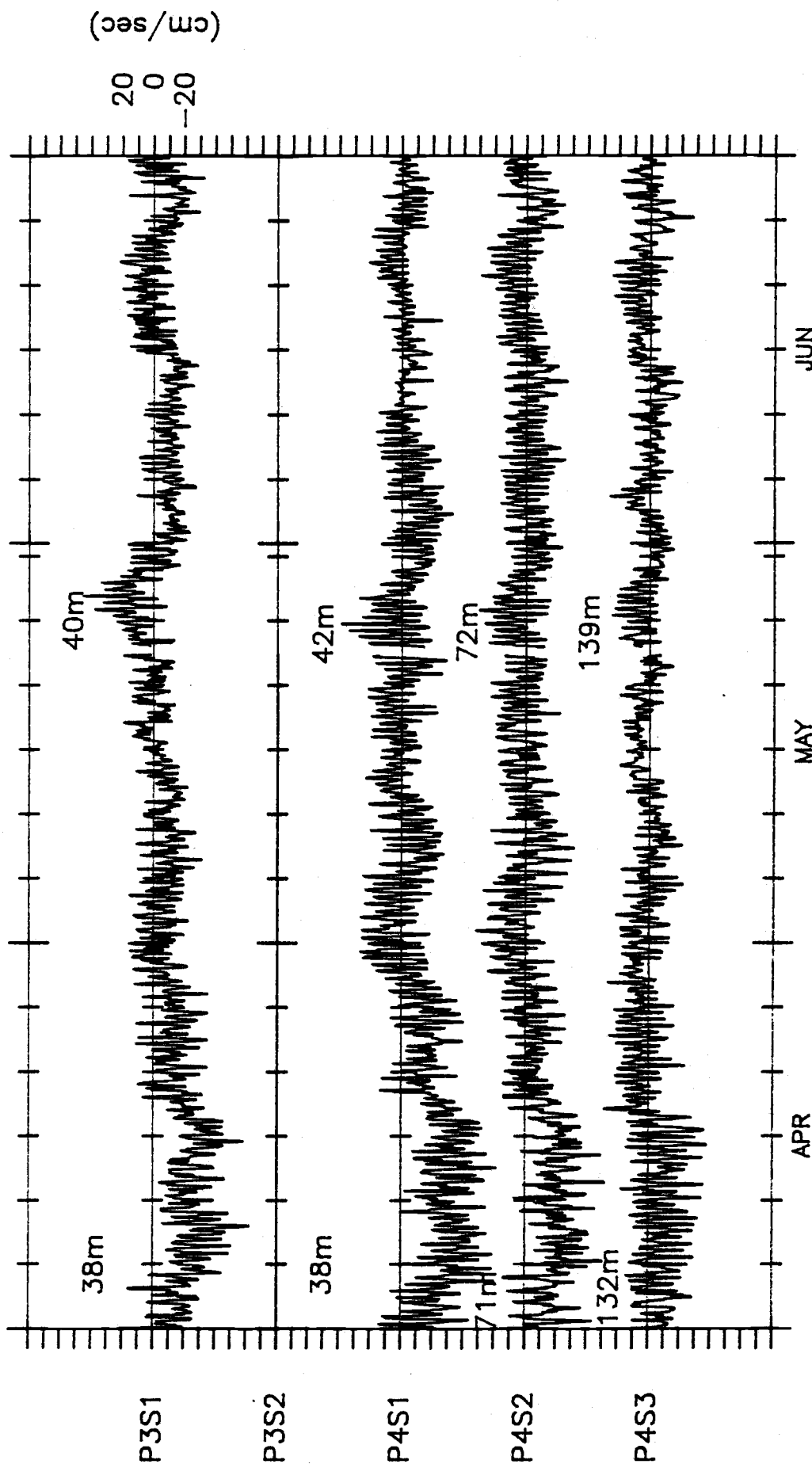
PURISIMA POINT U velocity

1982

JUN

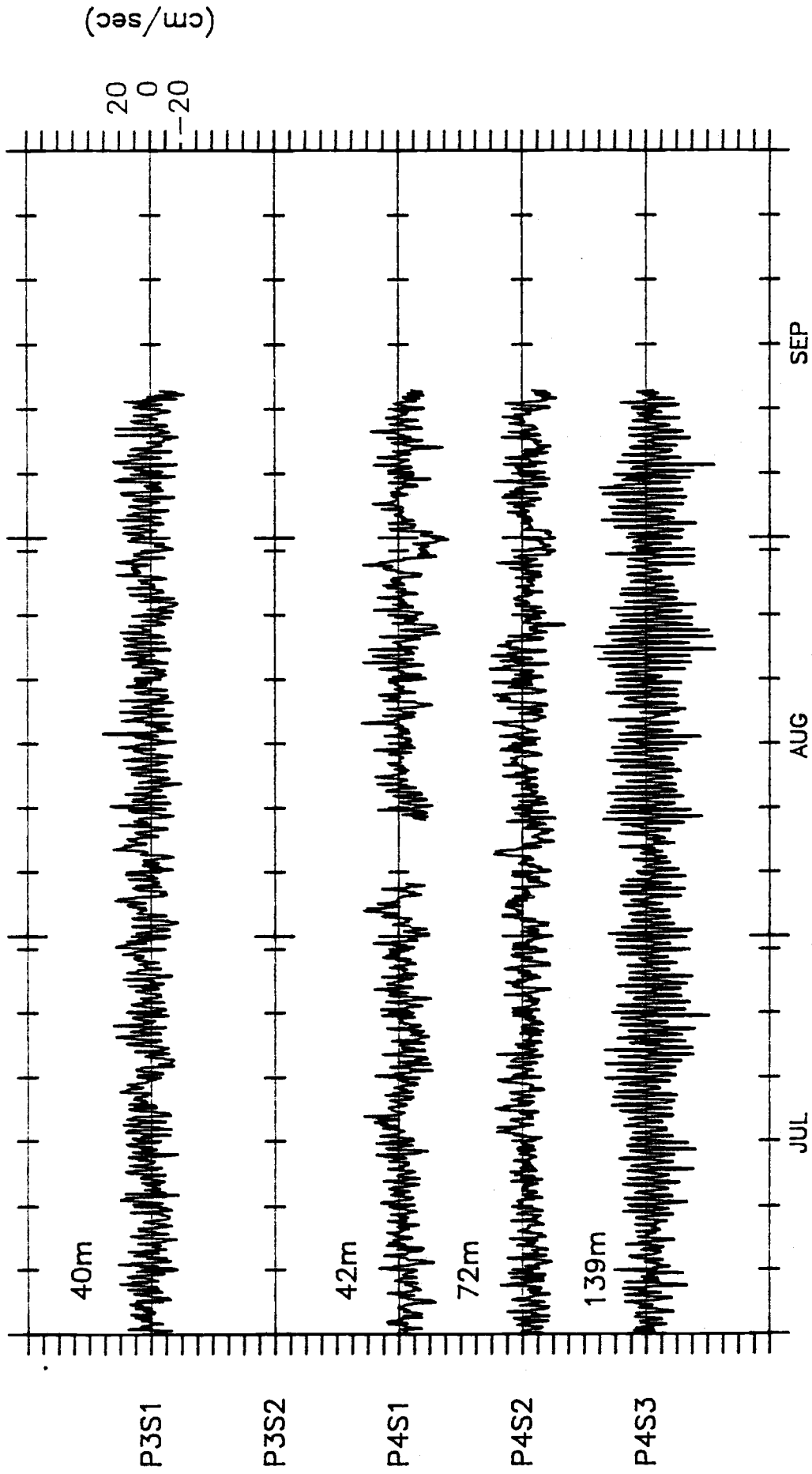
MAY

APR

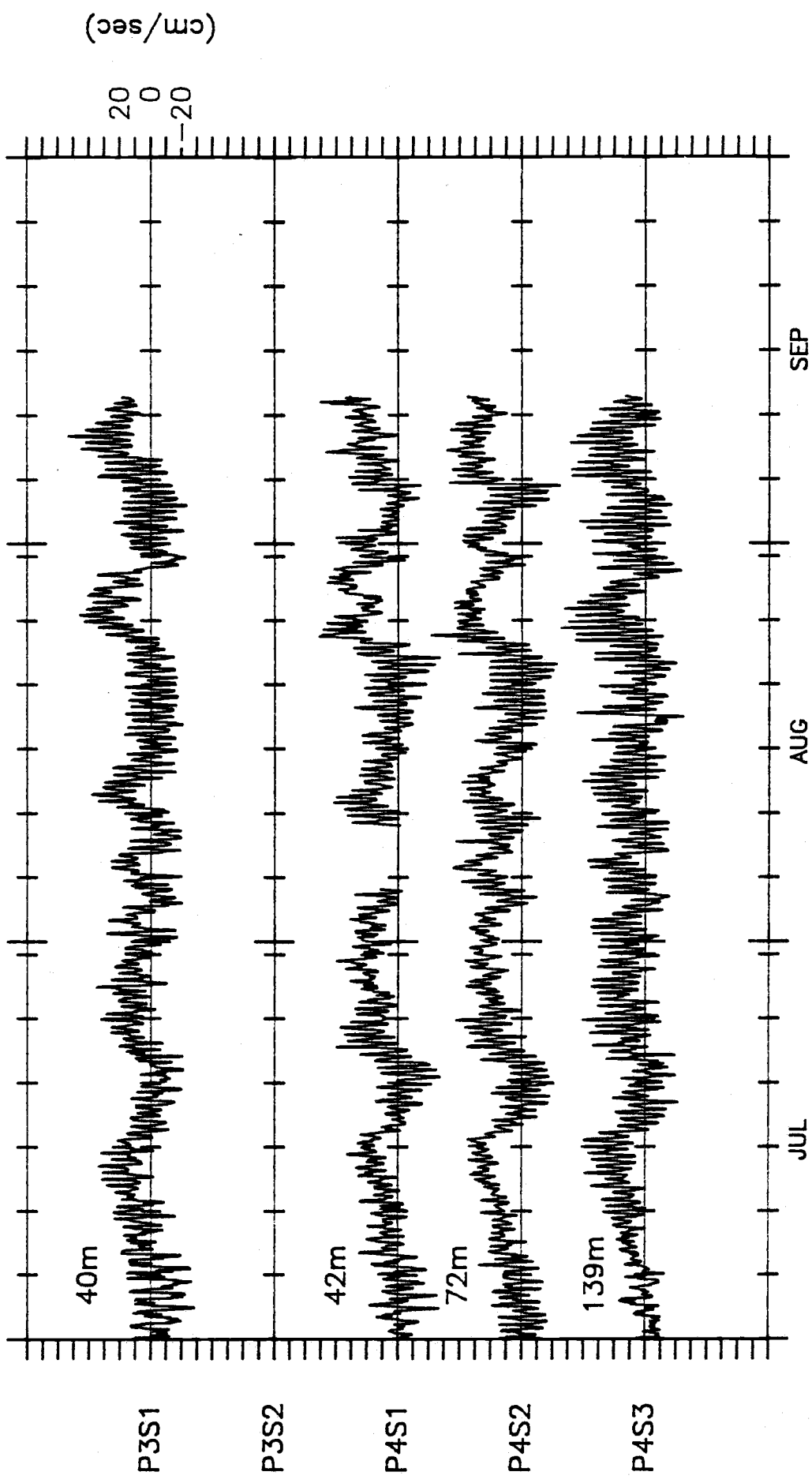


PURISIMA POINT V velocity

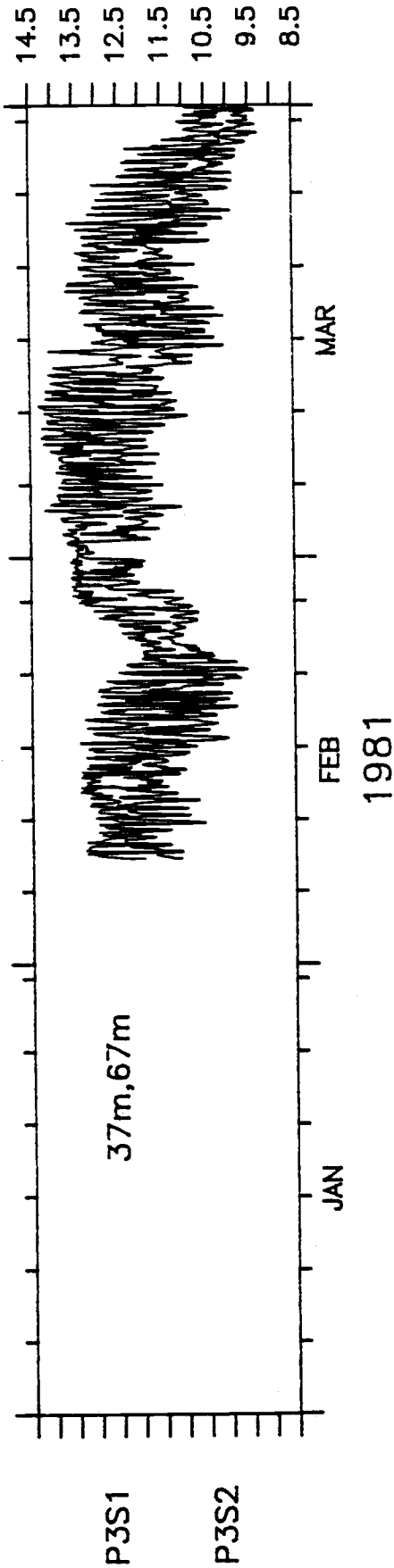




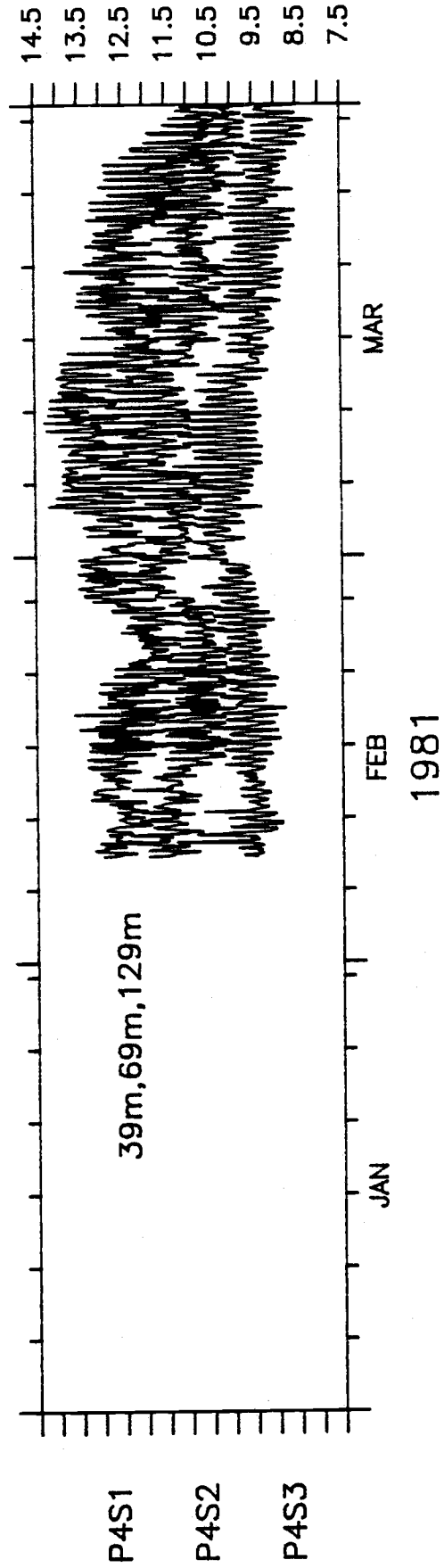
PURISIMA POINT U velocity



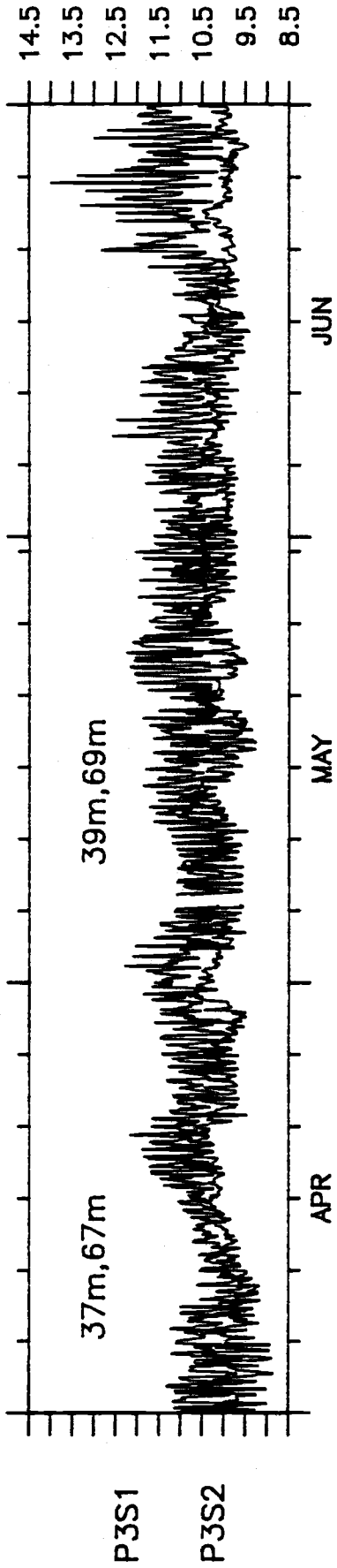
PURISIMA POINT V velocity



PURISIMA POINT SHALLOW Temperature

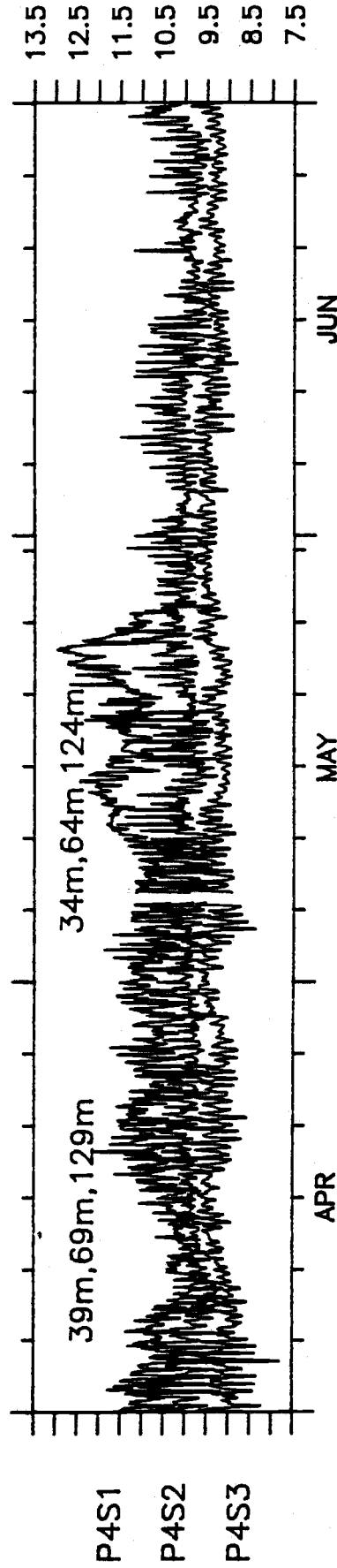


PURISIMA POINT DEEP Temperature



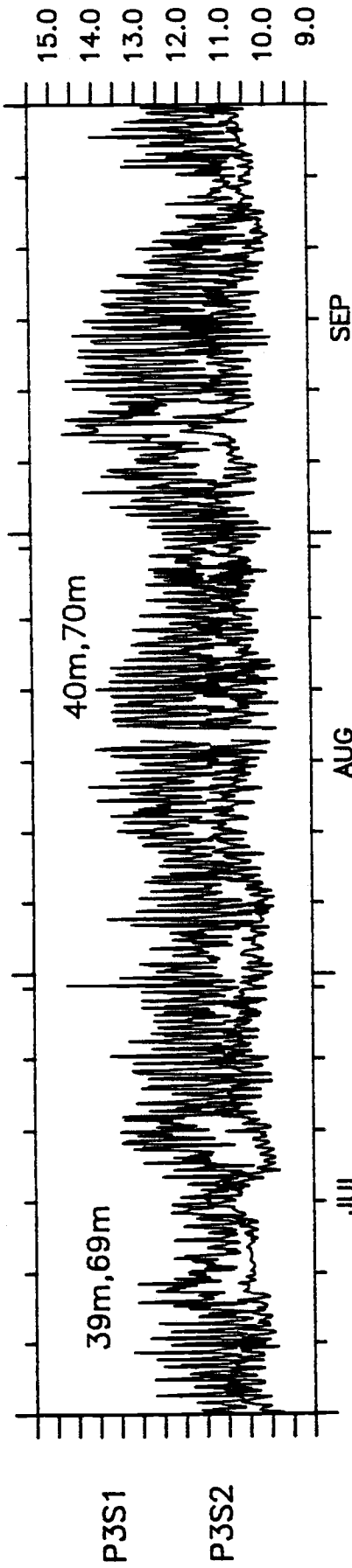
P3S1  
P3S2

PURISIMA POINT SHALLOW Temperature

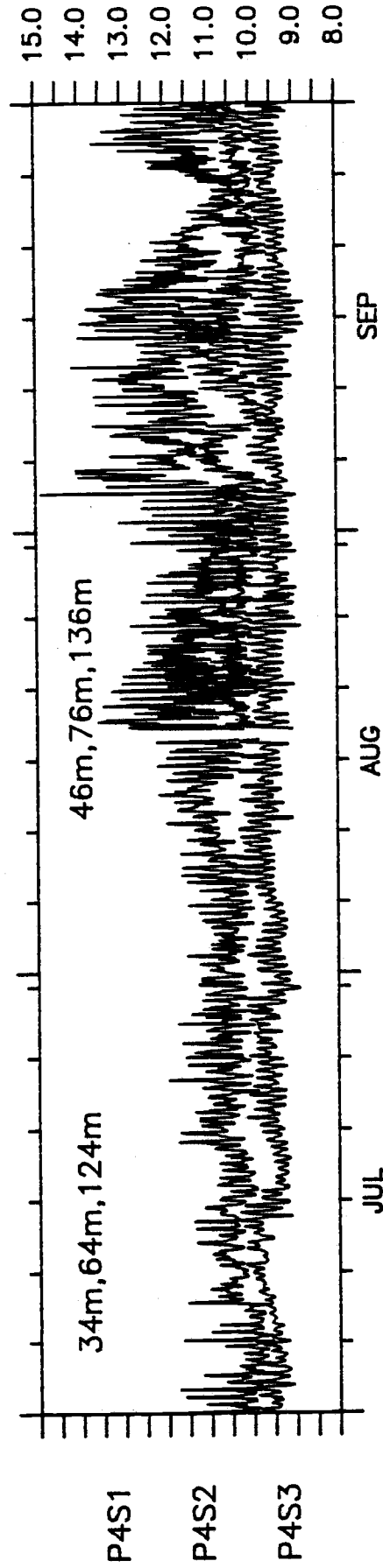


P4S1  
P4S2  
P4S3

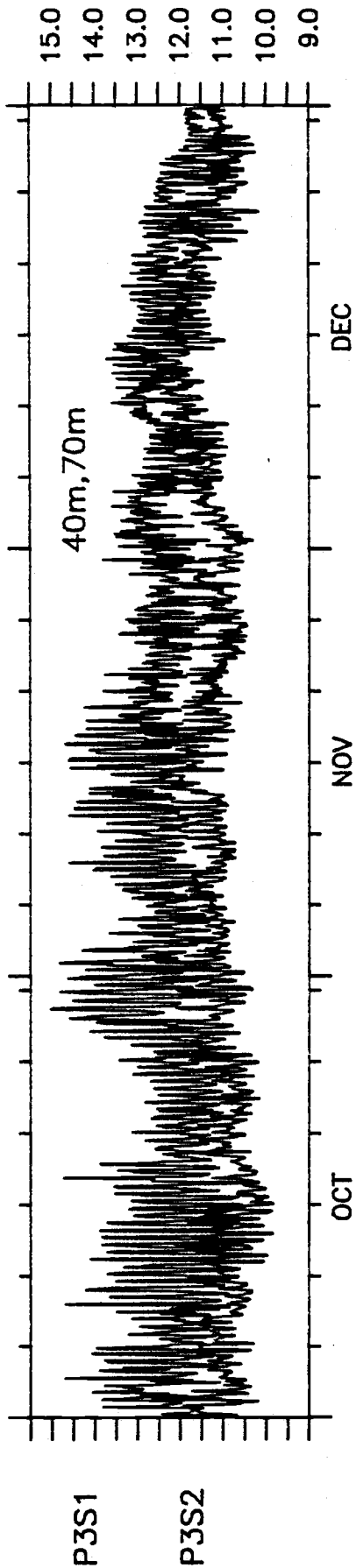
PURISIMA POINT DEEP Temperature



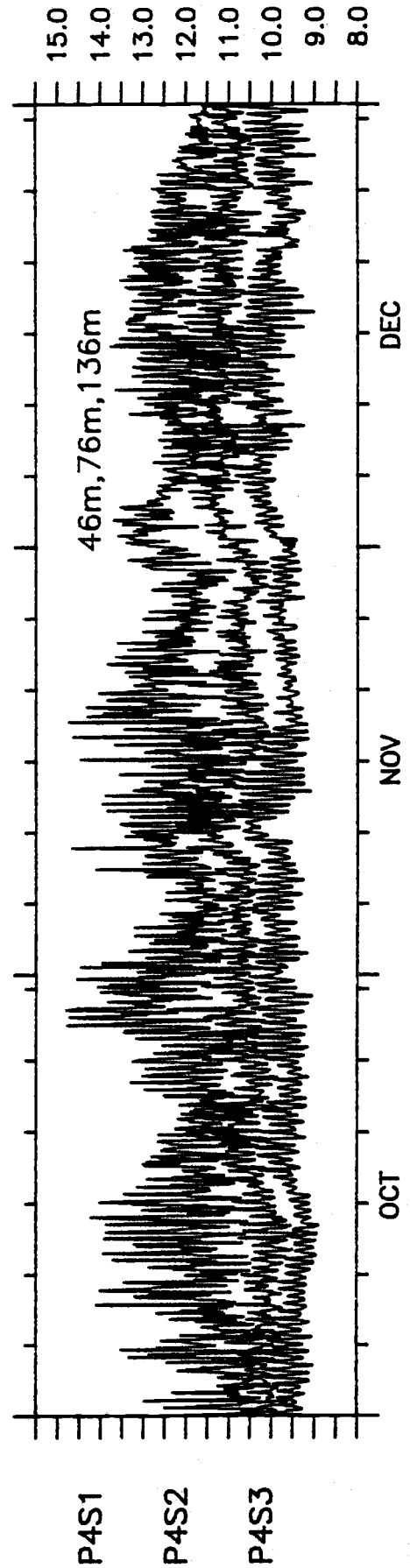
PURISIMA POINT SHALLOW Temperature



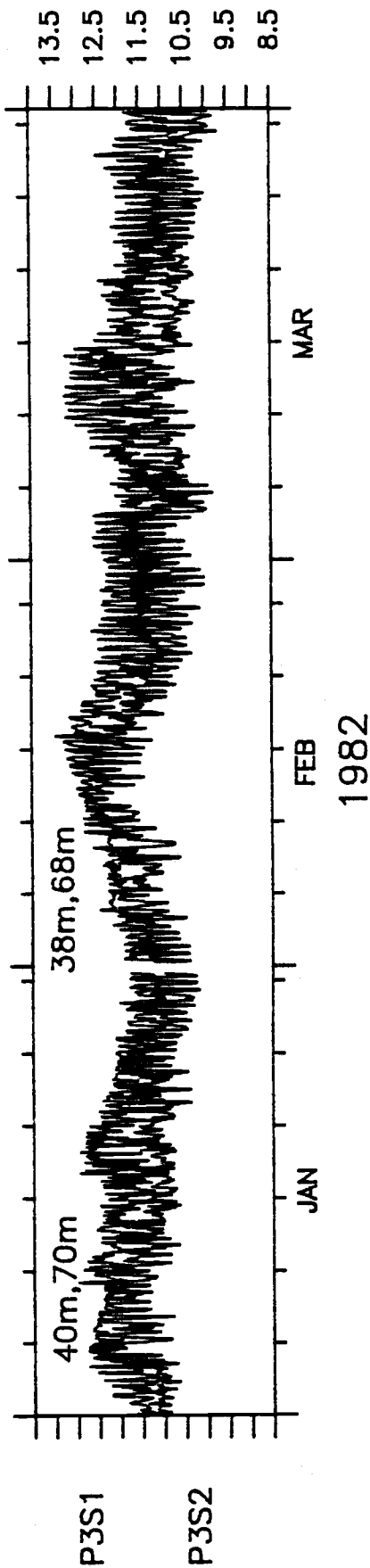
PURISIMA POINT DEEP Temperature



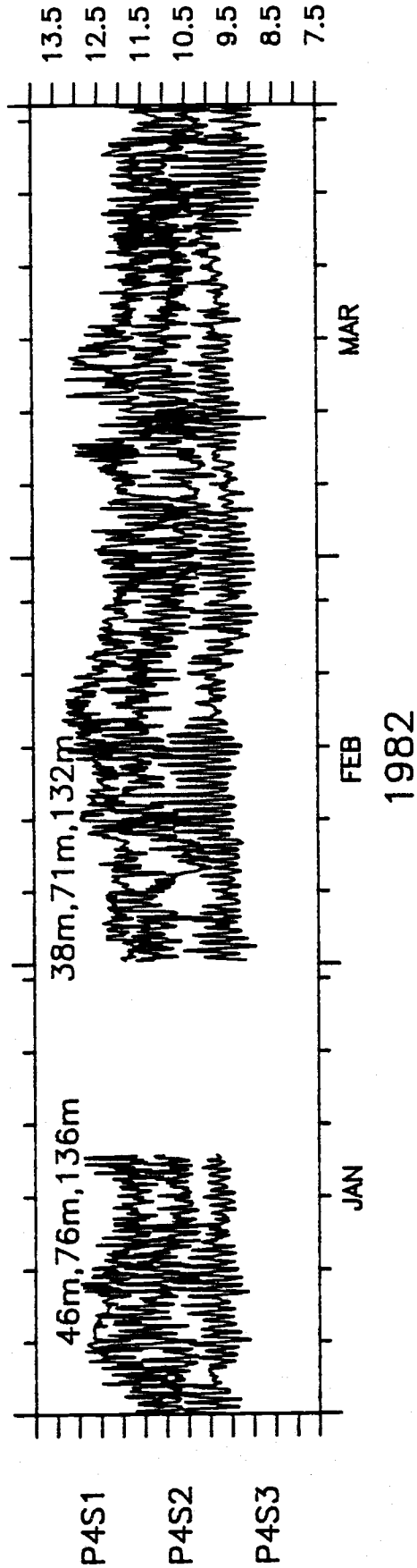
PURISIMA POINT SHALLOW Temperature



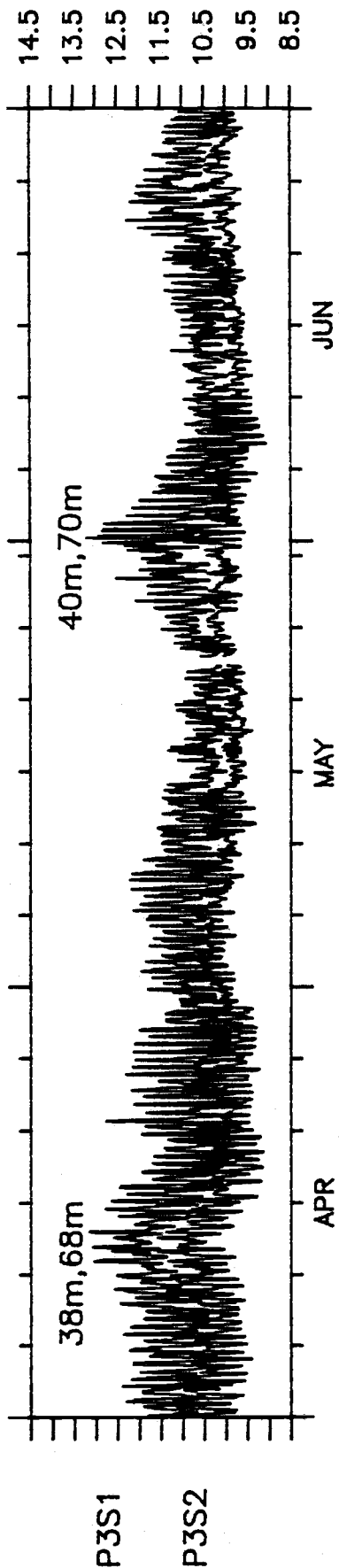
PURISIMA POINT DEEP Temperature



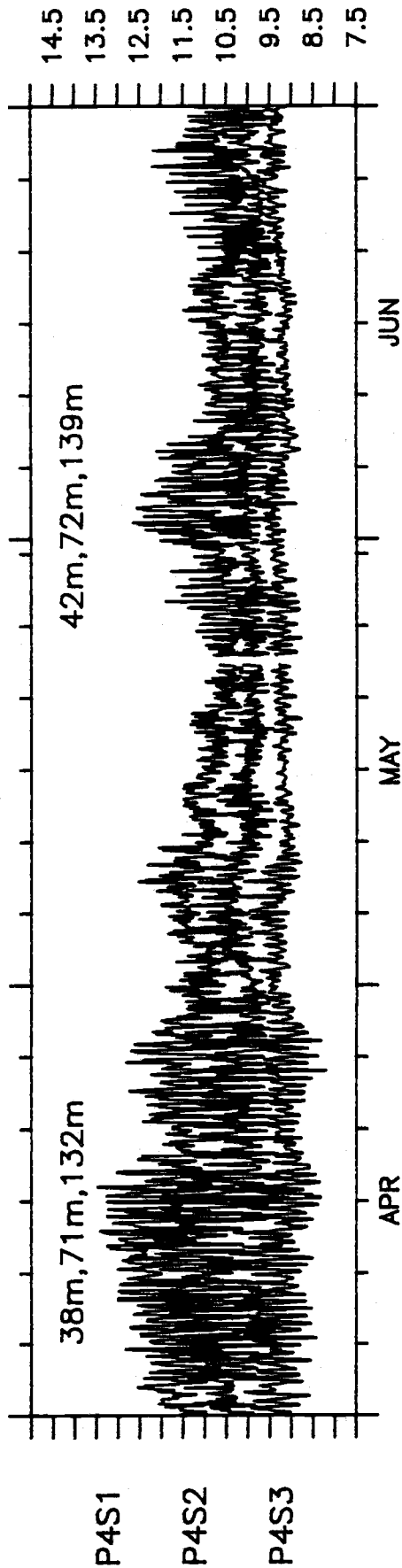
PURISIMA POINT SHALLOW Temperature



PURISIMA POINT DEEP Temperature

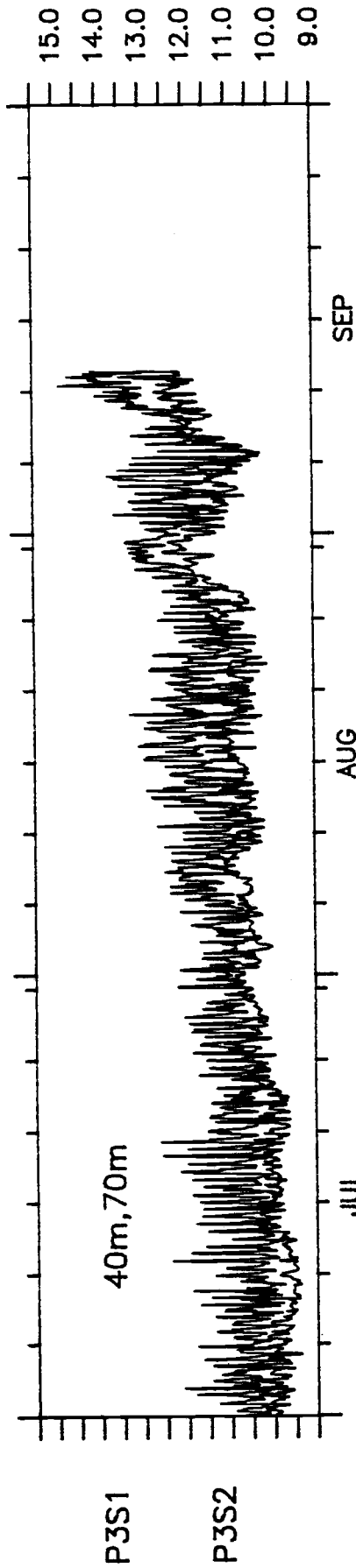


PURISIMA POINT SHALLOW Temperature

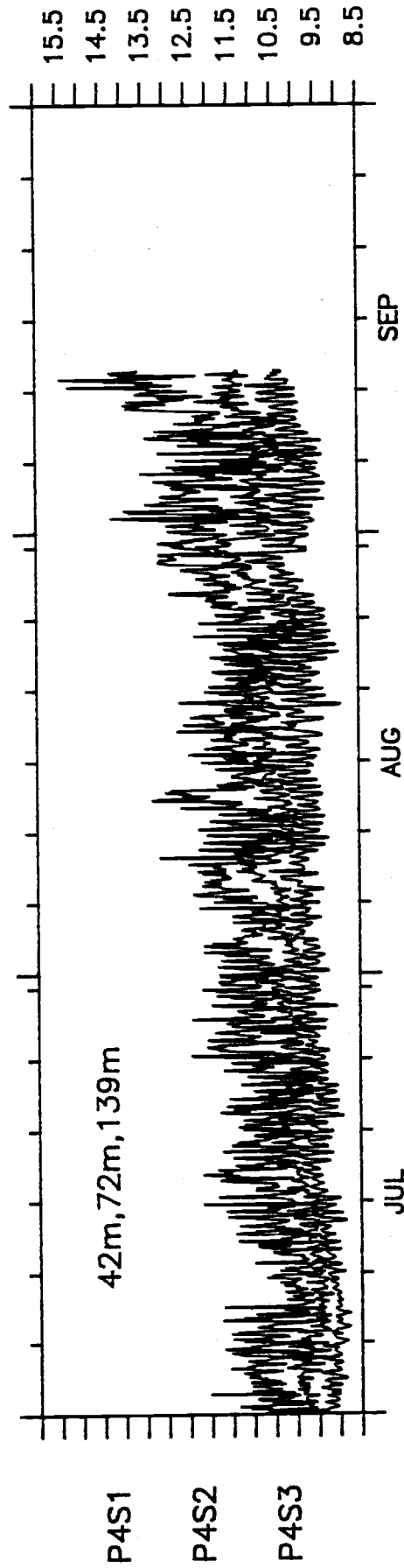


PURISIMA POINT DEEP Temperature





PURISIMA POINT SHALLOW Temperature



PURISIMA POINT DEEP Temperature

## SAMPLING INTERVAL = 360 MINUTES

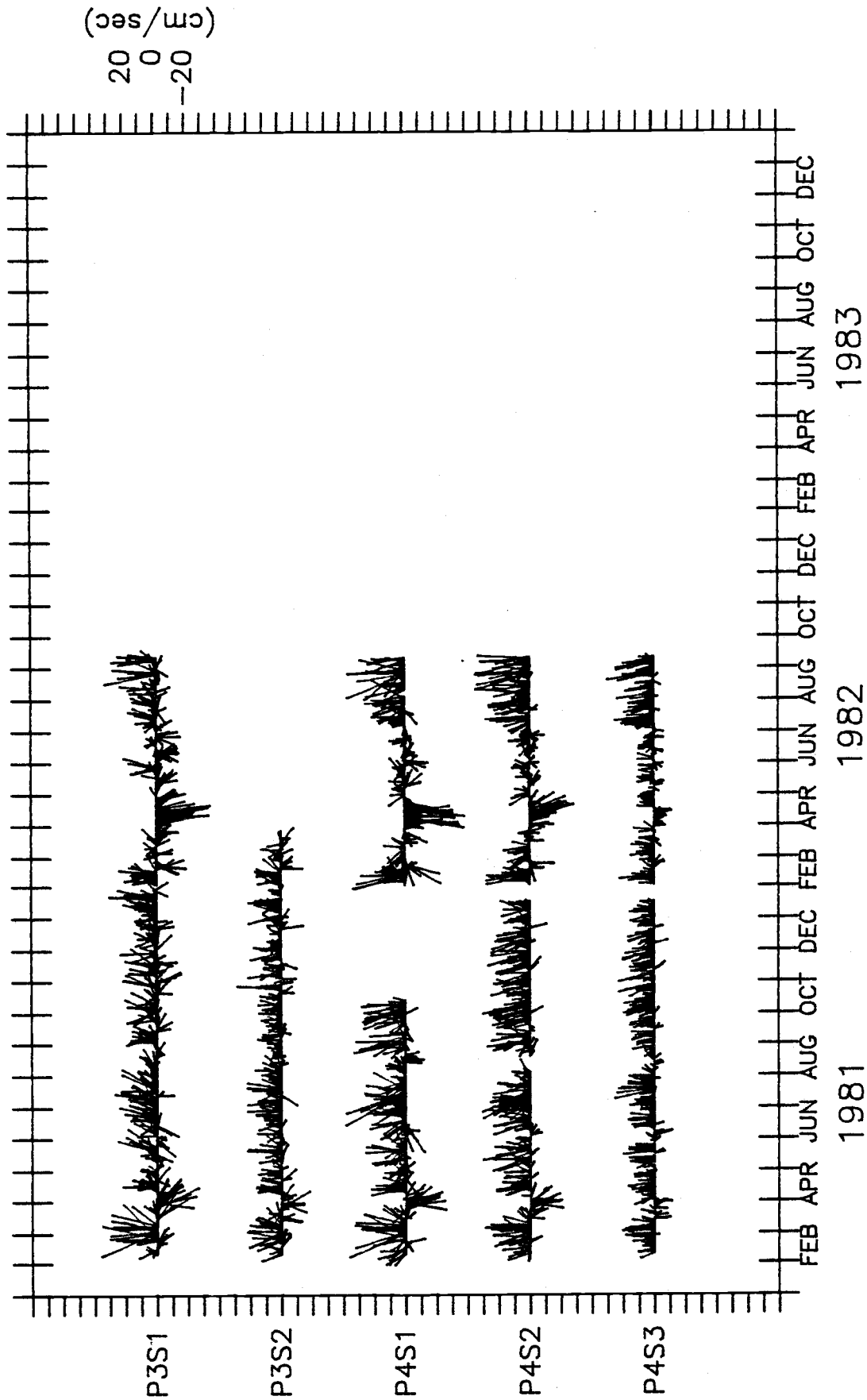
STATION	START TIME (GMT)	MIN	MAX	MEAN	STD	STOP TIME		
P3S1	FEB 9,1981 0600	U	-15.0	20.6	5.0	6.3	MAY 5,1981 1200	
		V	-30.9	35.6	3.5	14.1	MAY 5,1981 1200	
		PRINCIPAL AXIS =	-12.0					
		T	9.8	13.7	11.8	1.2	MAY 5,1981 1200	
P3S1	MAY 8,1981 0600	U	-18.2	20.0	4.1	5.7	AUG 16,1981 1200	
		V	-16.6	29.8	7.8	8.8	AUG 16,1981 1200	
		PRINCIPAL AXIS =	21.4					
		T	10.4	12.6	11.4	0.5	AUG 16,1981 1200	
P3S1	AUG 19,1981 0600	U	-11.4	14.4	3.5	5.0	JAN 30,1982 1800	
		V	-20.8	30.7	5.6	9.3	JAN 30,1982 1800	
		PRINCIPAL AXIS =	-4.8					
		T	11.0	13.8	12.3	0.5	JAN 30,1982 1800	
P3S1	FEB 2,1982 1200	U	-8.1	14.1	4.1	4.4	MAY 22,1982 1200	
		V	-35.5	23.8	-5.3	12.2	MAY 22,1982 1200	
		PRINCIPAL AXIS =	-1.9					
		T	10.3	12.9	11.5	0.6	MAY 22,1982 1200	
P3S1	MAY 25,1982 0600	U	-8.4	13.0	2.0	4.3	SEP 11,1982 1200	
		V	-17.7	33.1	3.4	10.7	SEP 11,1982 1200	
		PRINCIPAL AXIS =	-1.2					
		T	10.3	13.6	11.2	0.7	SEP 11,1982 1200	
P3S2	FEB 9,1981 0600	U	-11.1	15.0	1.8	4.4	MAY 5,1981 1200	
		V	-24.5	22.9	4.5	10.0	MAY 5,1981 1200	
		PRINCIPAL AXIS =	-6.0					
		T	9.4	13.3	10.9	1.0	MAY 5,1981 1200	
P3S2	MAY 8,1981 0600	U	-6.3	14.2	0.7	3.4	AUG 15,1981 0000	
		V	-11.0	23.9	7.3	6.6	AUG 15,1981 0000	
		PRINCIPAL AXIS =	2.2					
		T	9.6	11.2	10.3	0.3	AUG 15,1981 0000	
P3S2	AUG 19,1981 0600	U	-11.7	13.3	0.4	3.6	JAN 30,1982 1200	
		V	-14.4	28.1	5.8	6.7	JAN 30,1982 1200	
		PRINCIPAL AXIS =	-7.2					
		T	10.1	12.4	11.1	0.4	JAN 30,1982 1200	
P3S2	FEB 2,1982 1200	U	-7.7	10.0	1.9	4.2	MAR 20,1982 1800	
		V	-14.8	16.8	3.8	8.3	MAR 20,1982 1800	
		PRINCIPAL AXIS =	2.5					
		T	9.6	12.6	10.7	0.7	MAY 22,1982 1200	
P3S2	MAY 25,1982 0600	U	0.0	0.0	0.0	0.0	JUL 10,1982 1200	
		V	0.0	0.0	0.0	0.0	JUL 10,1982 1200	
		PRINCIPAL AXIS =	0.0					
		T	9.5	12.3	10.4	0.6	SEP 11,1982 1200	
P4S1	FEB 9,1981 0600	U	-19.1	15.1	0.0	6.3	MAY 5,1981 1200	
		V	-27.9	37.3	5.9	14.3	MAY 5,1981 1200	
		PRINCIPAL AXIS =	-8.8					
		T	9.7	13.7	11.8	1.1	MAY 5,1981 1200	
P4S1	MAY 8,1981 0600	U	-21.3	11.4	-1.9	6.9	AUG 16,1981 1200	
		V	-12.5	39.4	10.3	9.9	AUG 16,1981 1200	
		PRINCIPAL AXIS =	-6.7					
		T	10.6	12.6	11.5	0.5	MAY 25,1981 1800	

## SAMPLING INTERVAL = 360 MINUTES

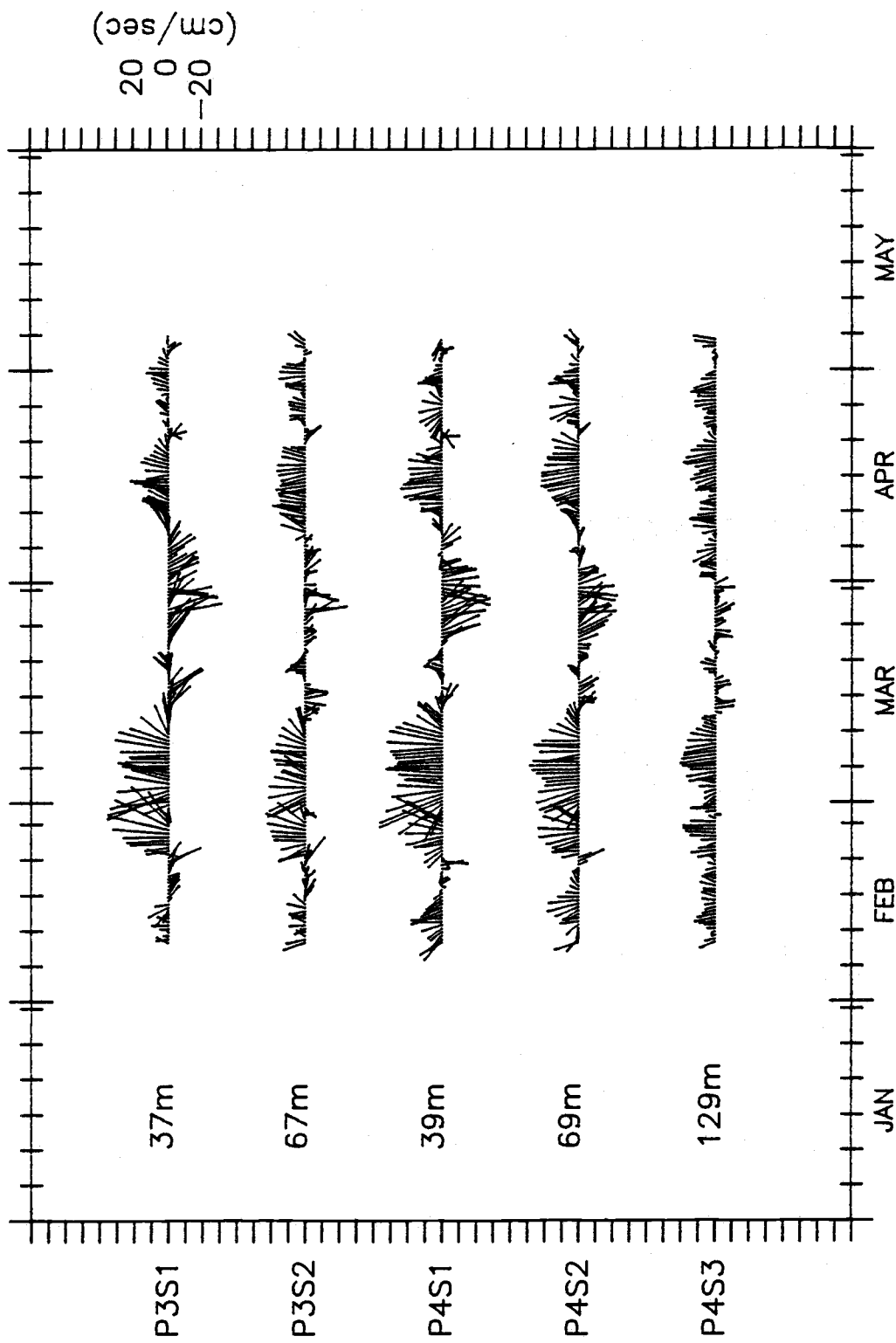
STATION	START TIME	(GMT)		MIN	MAX	MEAN	STD	STOP TIME	
P4S1	AUG 19,1981	0600	U	-13.6	24.0	-2.6	5.5	OCT 13,1981	1800
			V	-9.2	32.9	11.7	12.4	OCT 13,1981	1800
			PRINCIPAL AXIS =	-9.0	T	10.5	13.6	12.0	0.6
P4S1	FEB 2,1982	1200	U	-16.9	16.4	-0.8	6.0	MAY 22,1982	1200
			V	-38.5	34.8	-3.8	15.4	MAY 22,1982	1200
			PRINCIPAL AXIS =	2.4	T	10.5	13.0	11.8	0.5
P4S1	MAY 25,1982	0000	U	-21.8	12.1	-2.1	4.6	SEP 11,1982	1200
			V	-16.0	37.2	6.6	11.0	SEP 11,1982	1200
			PRINCIPAL AXIS =	-4.1	T	9.9	13.6	11.1	0.7
P4S2	FEB 9,1981	0600	U	-12.6	12.3	1.3	4.9	MAY 5,1981	1200
			V	-22.4	28.7	5.5	12.1	MAY 5,1981	1200
			PRINCIPAL AXIS =	-12.3	T	9.3	12.2	10.7	0.7
P4S2	MAY 8,1981	0600	U	-19.2	10.4	-1.0	5.2	AUG 5,1981	0600
			V	-7.7	31.8	11.9	8.9	AUG 5,1981	0600
			PRINCIPAL AXIS =	-20.3	T	9.7	11.5	10.4	0.4
P4S2	AUG 19,1981	0600	U	-14.2	14.4	-0.8	4.6	JAN 18,1982	0000
			V	-10.9	30.1	11.4	8.7	JAN 18,1982	0000
			PRINCIPAL AXIS =	-17.7	T	9.8	11.8	10.7	0.4
P4S2	FEB 2,1982	1200	U	-12.6	13.6	1.4	4.7	MAY 22,1982	1200
			V	-28.6	32.0	0.0	12.0	MAY 22,1982	1200
			PRINCIPAL AXIS =	-10.8	T	9.8	12.2	10.7	0.5
P4S2	MAY 25,1982	0000	U	-13.9	11.1	-1.5	4.4	SEP 11,1982	1200
			V	-9.8	36.2	11.1	11.7	SEP 11,1982	1200
			PRINCIPAL AXIS =	-8.8	T	9.4	11.9	10.2	0.5
P4S3	FEB 9,1981	0600	U	-6.1	4.8	-0.2	2.2	MAY 5,1981	1200
			V	-11.7	20.3	6.0	7.1	MAY 5,1981	1200
			PRINCIPAL AXIS =	-8.4	T	8.7	10.5	9.5	0.4
P4S3	MAY 8,1981	0600	U	-5.9	5.8	0.7	2.3	AUG 16,1981	1200
			V	-14.3	25.6	6.7	7.7	AUG 16,1981	1200
			PRINCIPAL AXIS =	-9.3	T	9.1	10.0	9.5	0.2
P4S3	AUG 19,1981	0600	U	-8.6	5.5	-1.4	2.6	JAN 18,1982	0000
			V	-13.4	22.7	8.4	5.9	JAN 18,1982	0000
			PRINCIPAL AXIS =	-18.3	T	9.2	10.5	9.8	0.3
P4S3	FEB 2,1982	1200	U	-4.4	5.6	0.6	2.0	MAY 22,1982	1200
			V	-12.0	22.4	3.1	6.9	MAY 22,1982	1200
			PRINCIPAL AXIS =	-5.9	T	8.9	10.2	9.5	0.3

SAMPLING INTERVAL = 360 MINUTES

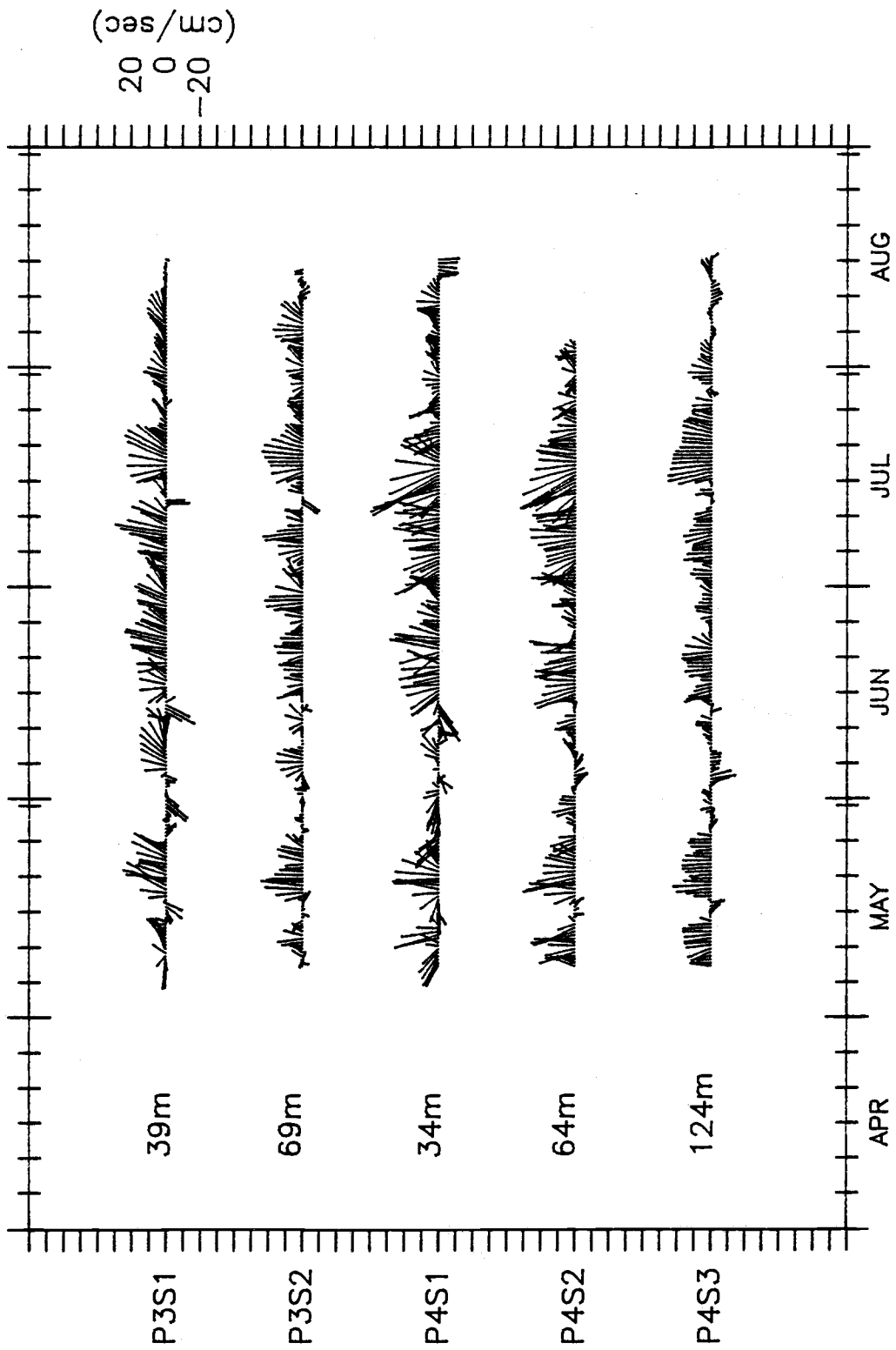
STATION	START TIME (GMT)		MIN	MAX	MEAN	STD	STOP TIME
P4S3	MAY 25, 1982	0000	U -7.7	5.2	-1.7	2.3	SEP 11, 1982 1200
			V -7.7	29.7	7.6	7.9	SEP 11, 1982 1200
	PRINCIPAL AXIS =	-8.8	T 9.0	10.7	9.6	0.4	SEP 11, 1982 1200



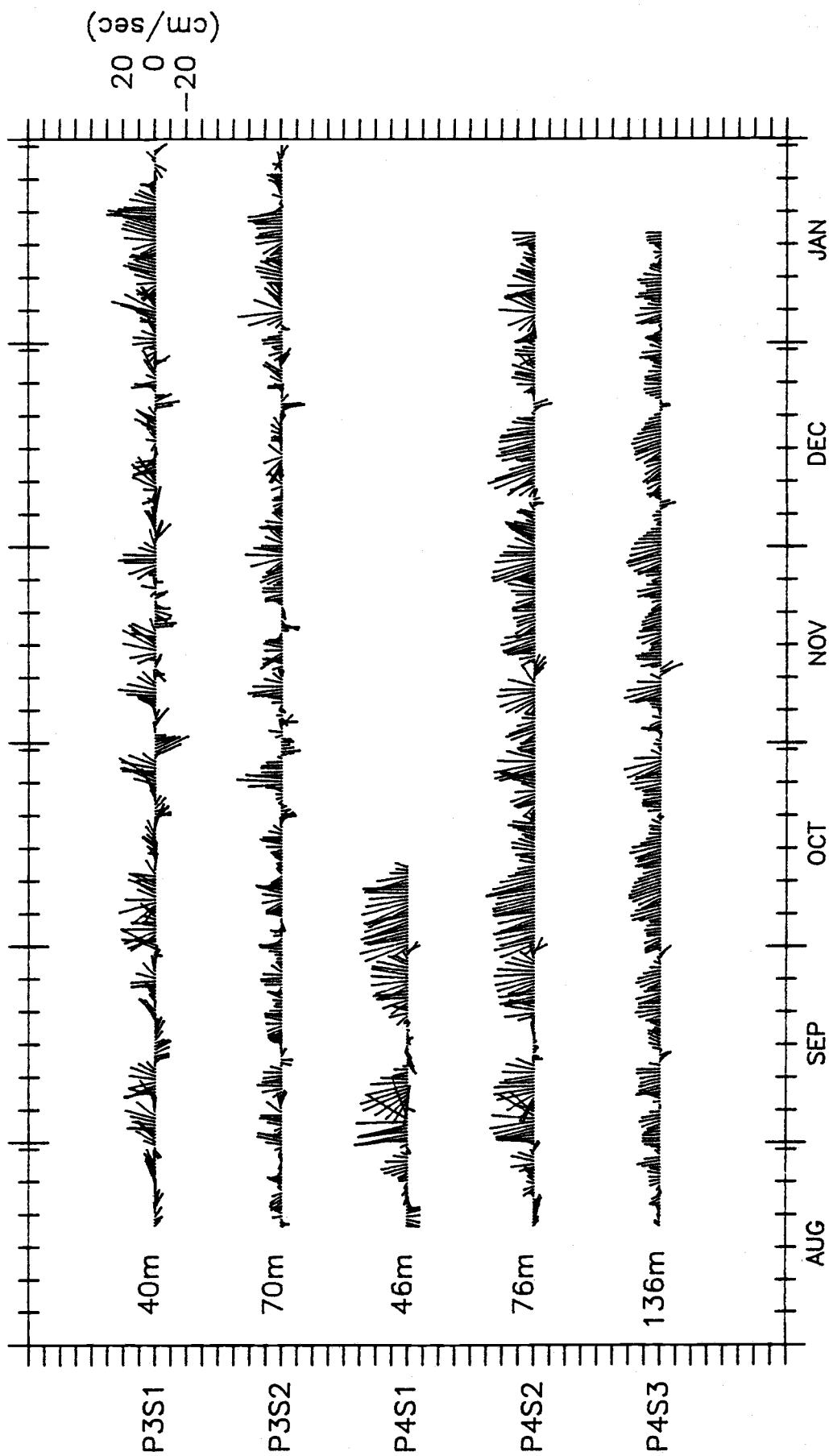
PURISIMA POINT velocity



PURISIMA POINT velocity



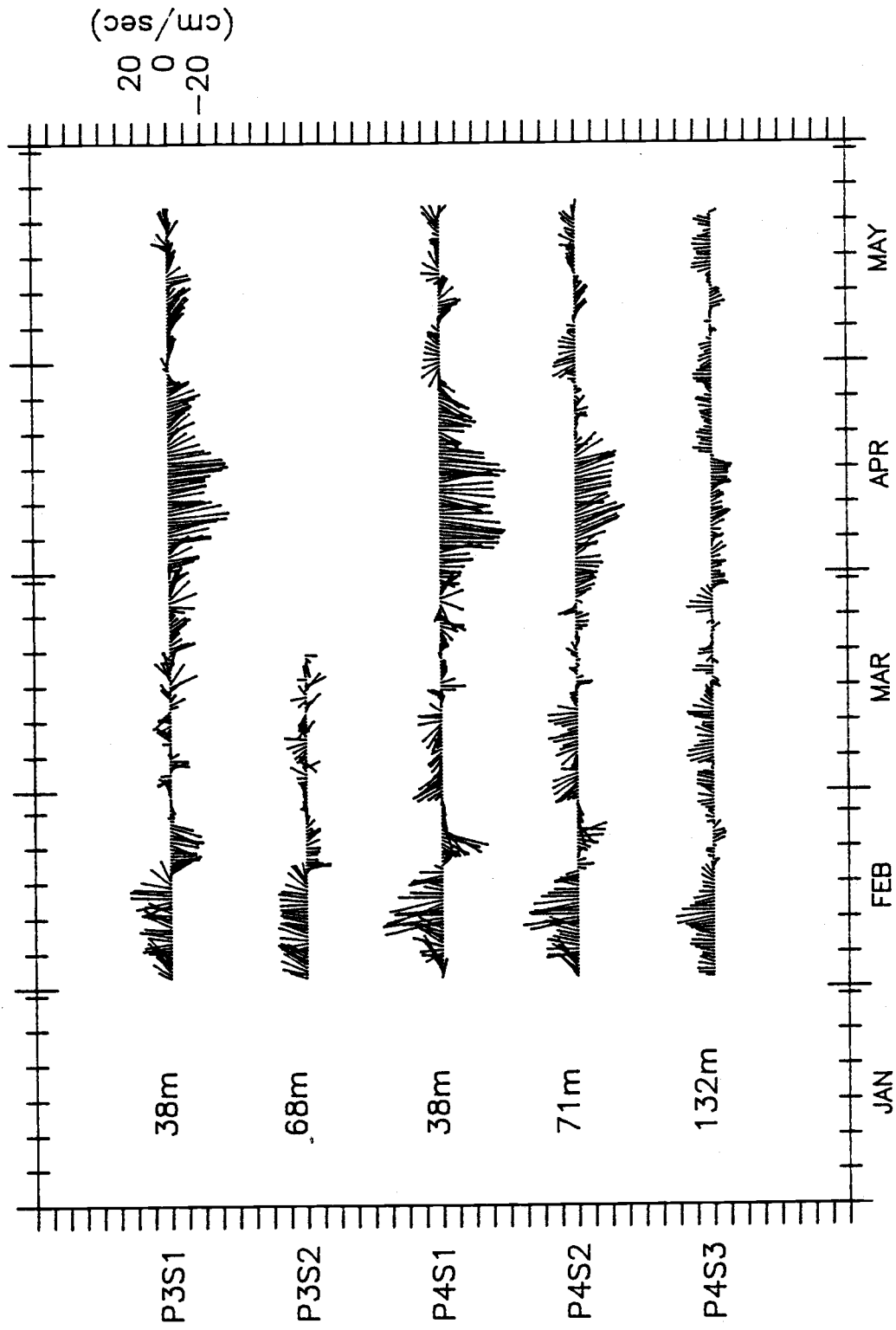
PURISIMA POINT velocity



PURISIMA POINT velocity

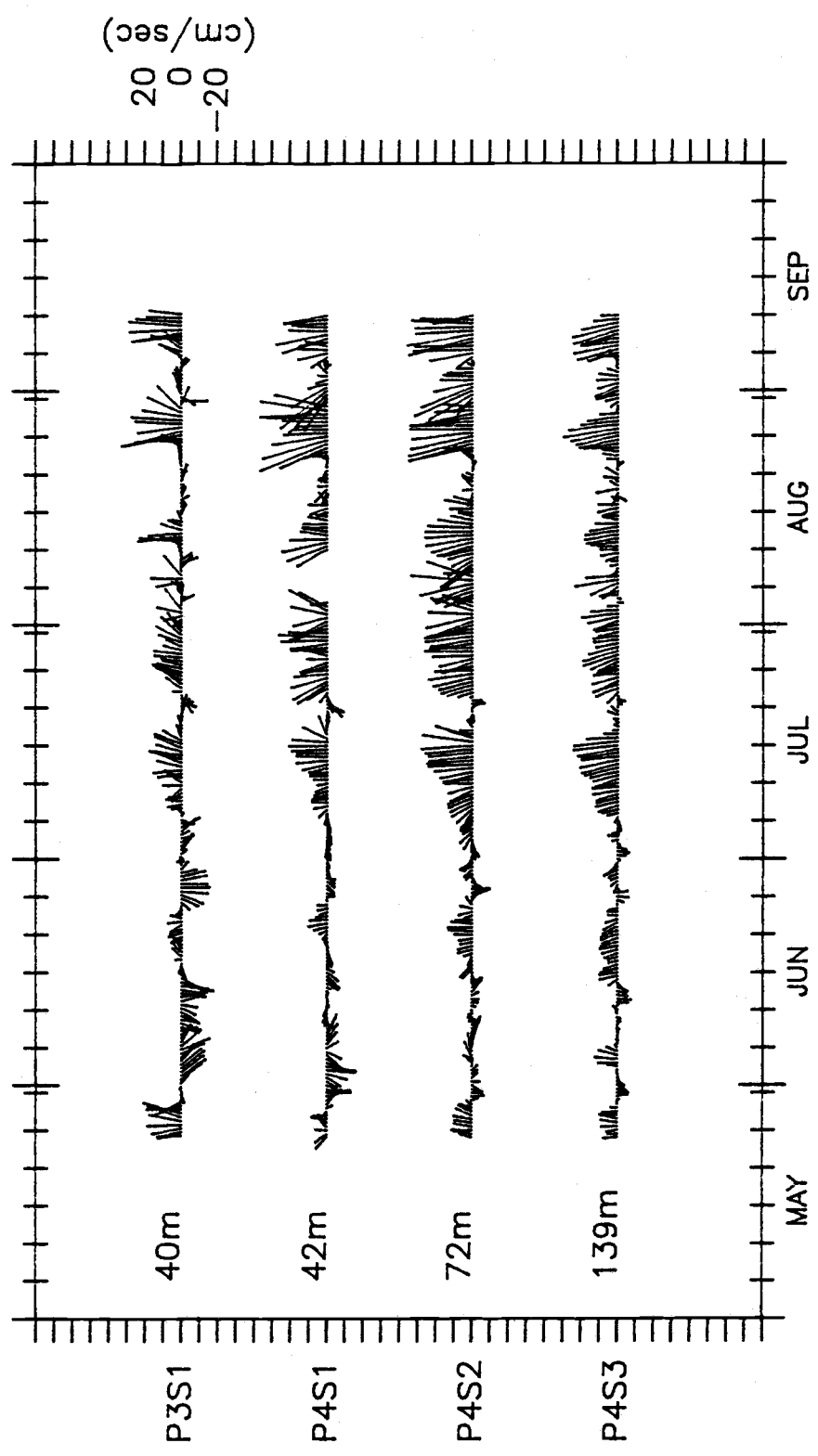
1981



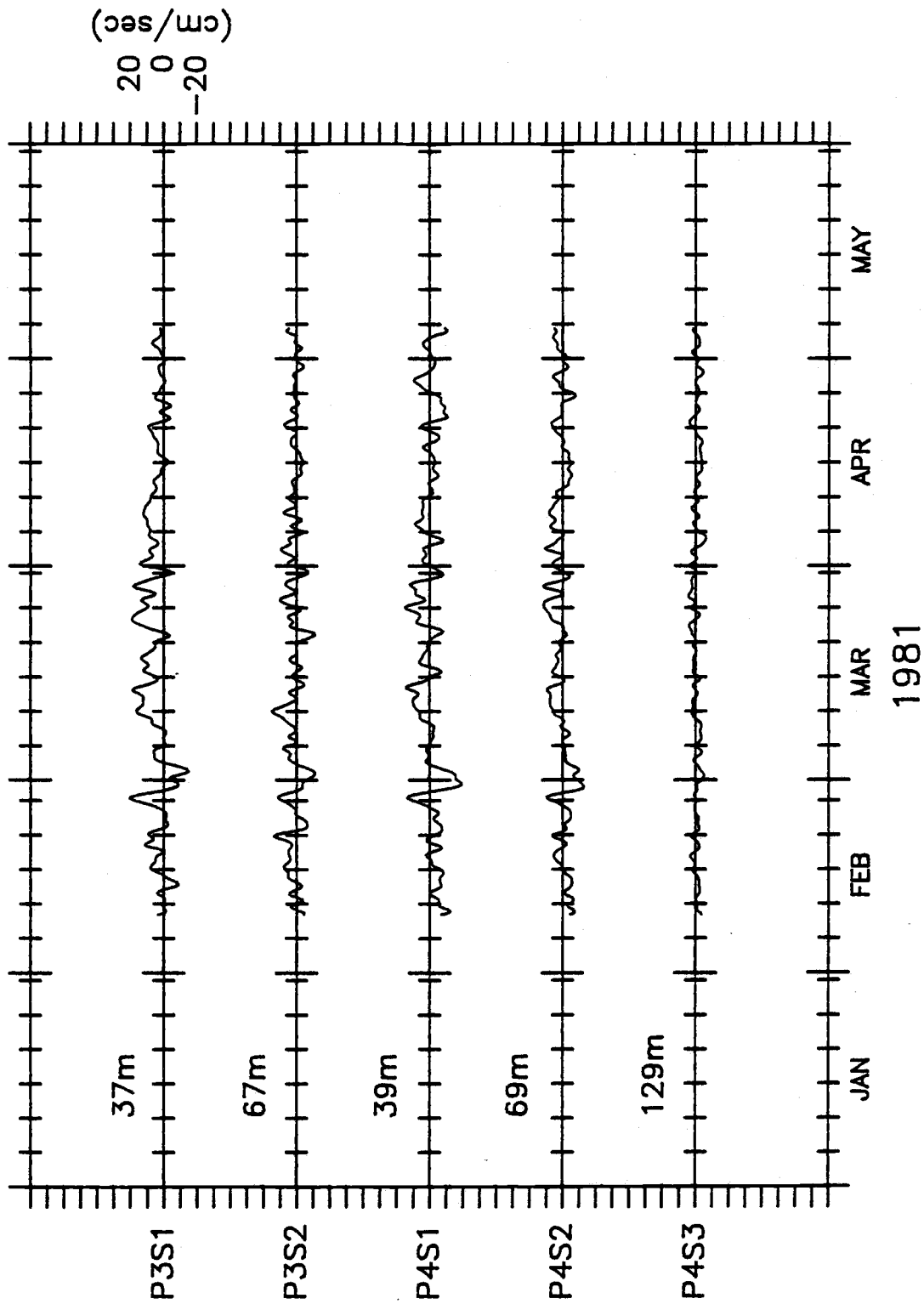


1982

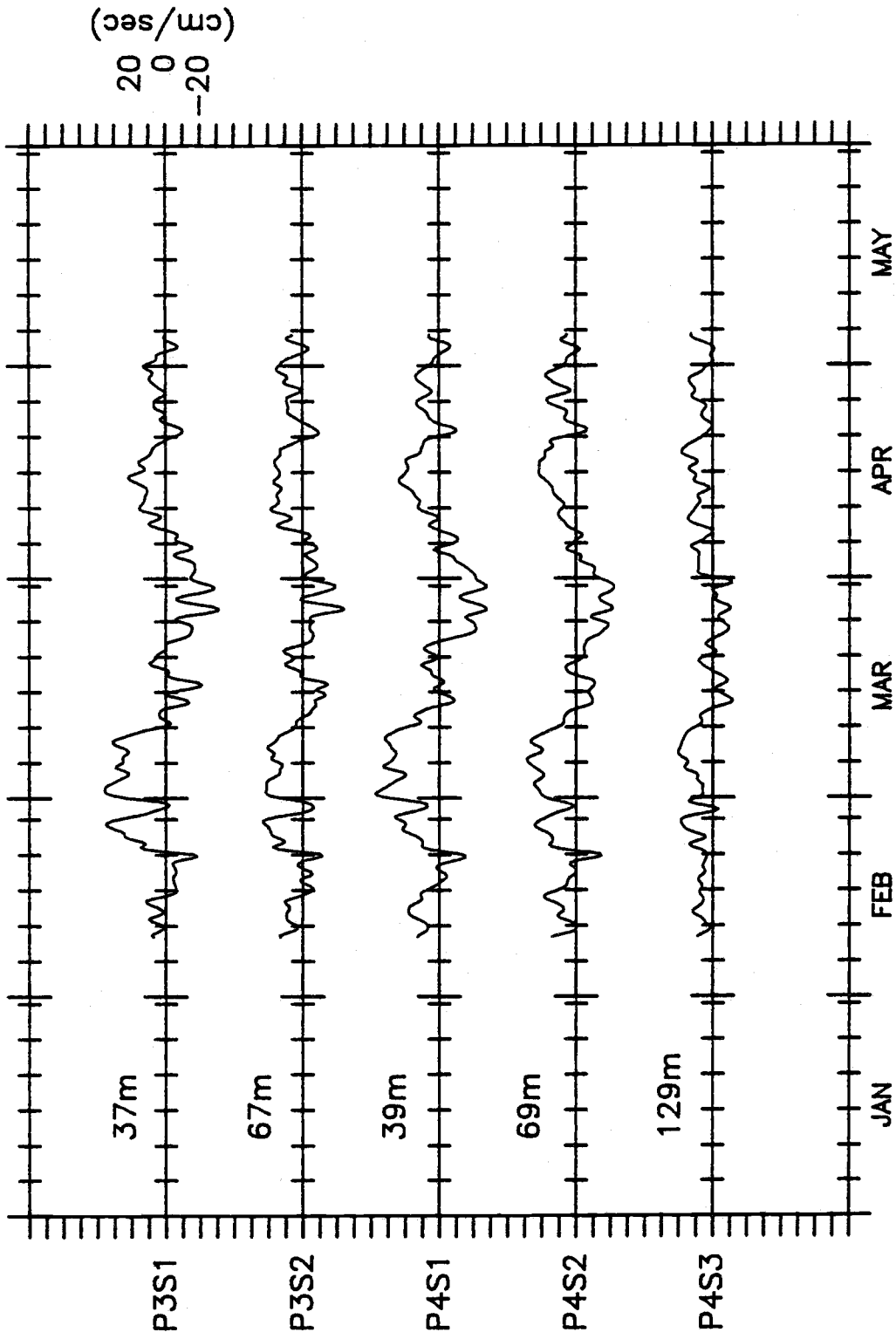
PURISIMA POINT velocity



PURISIMA POINT velocity

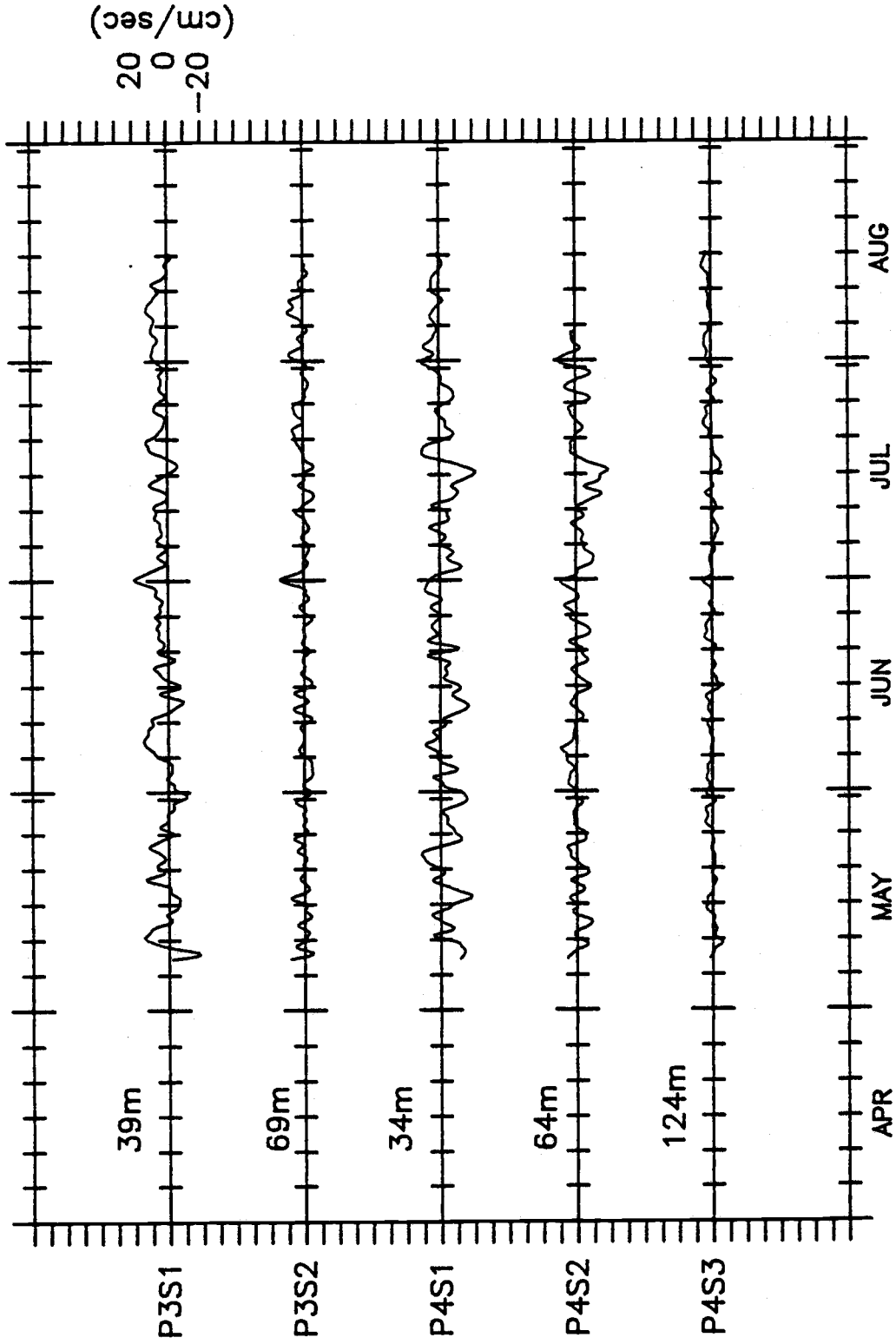


PURISIMA POINT U velocity



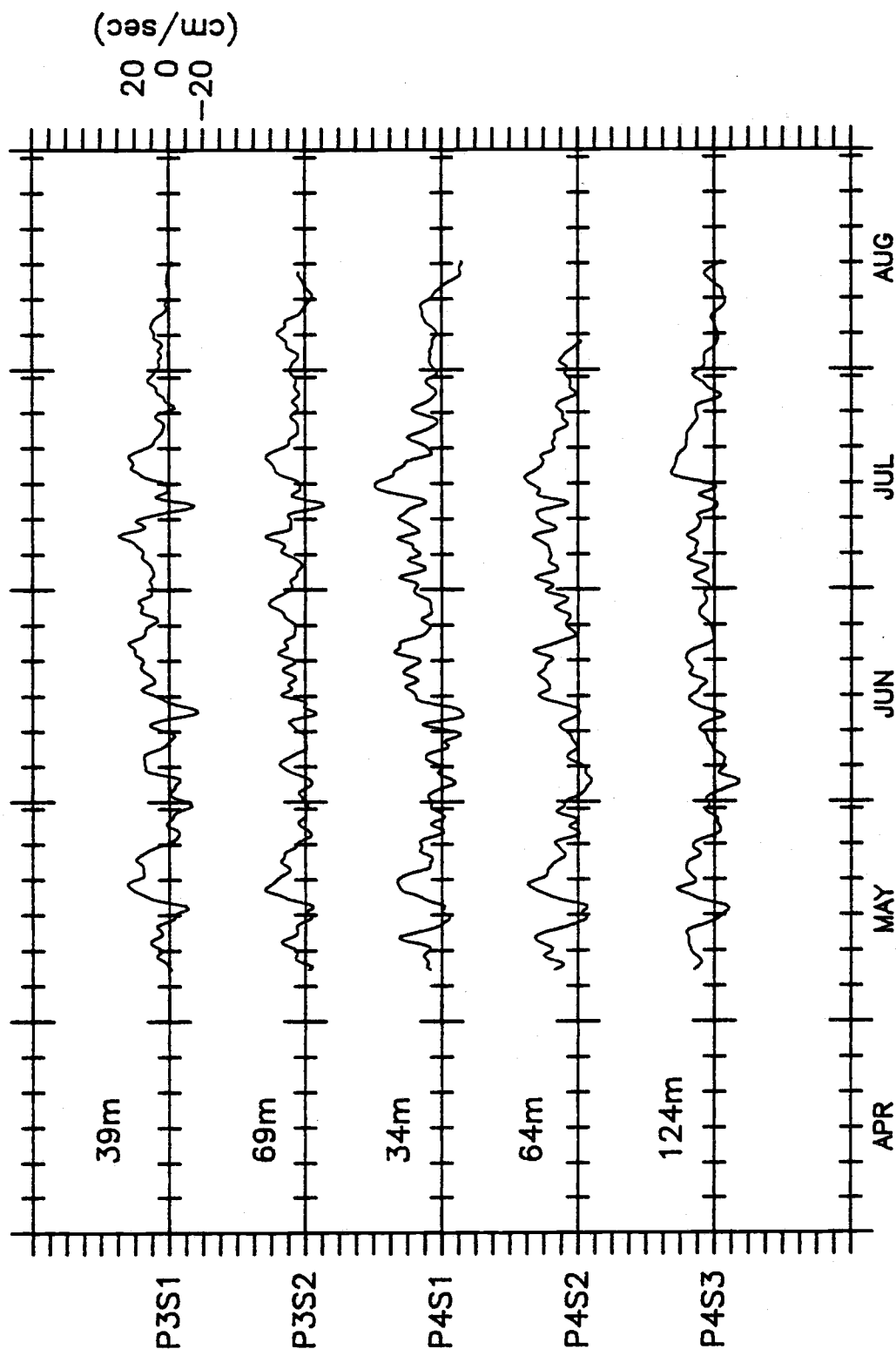
PURISIMA POINT V velocity

1981



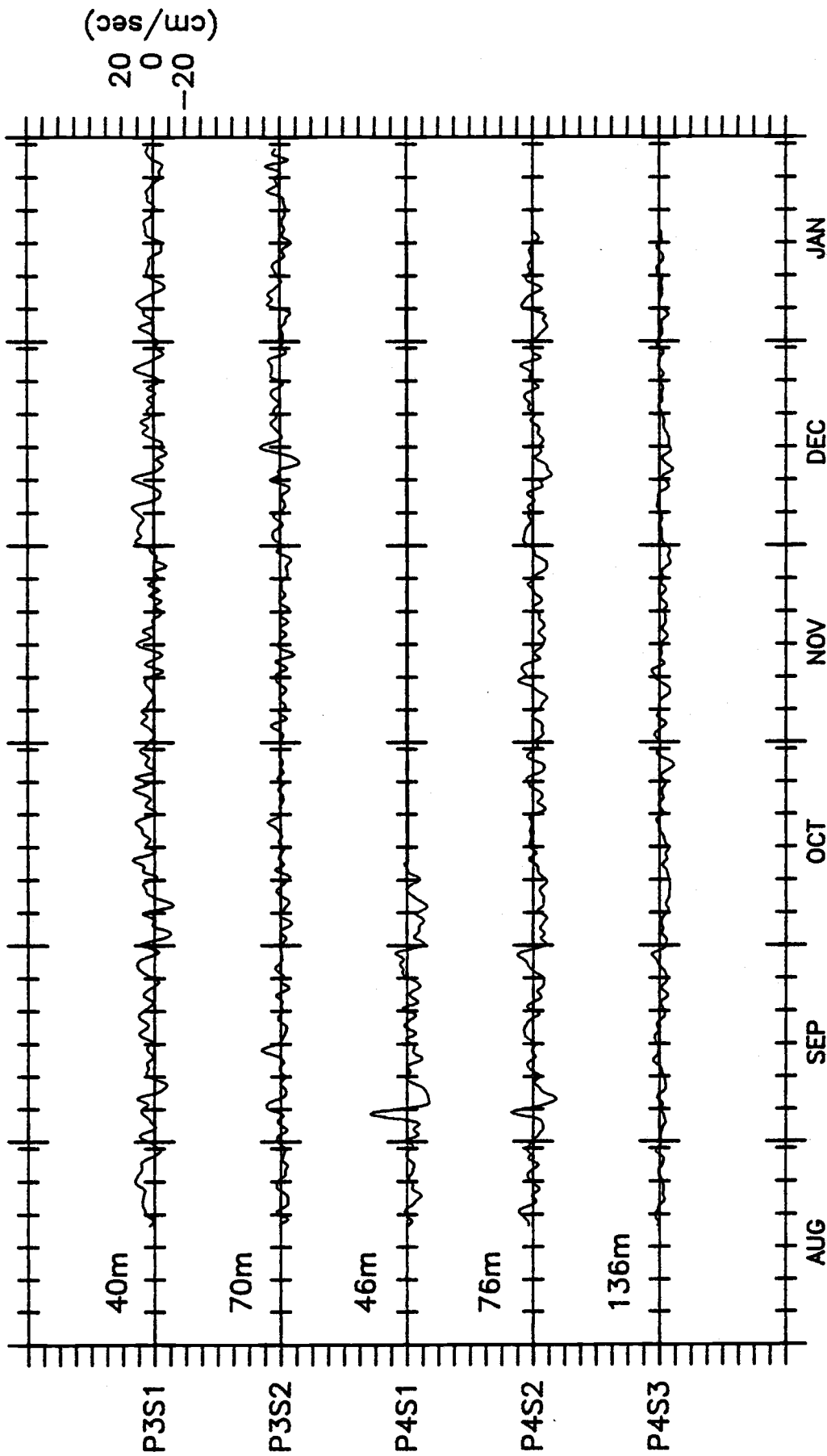
1981

PURISIMA POINT U velocity



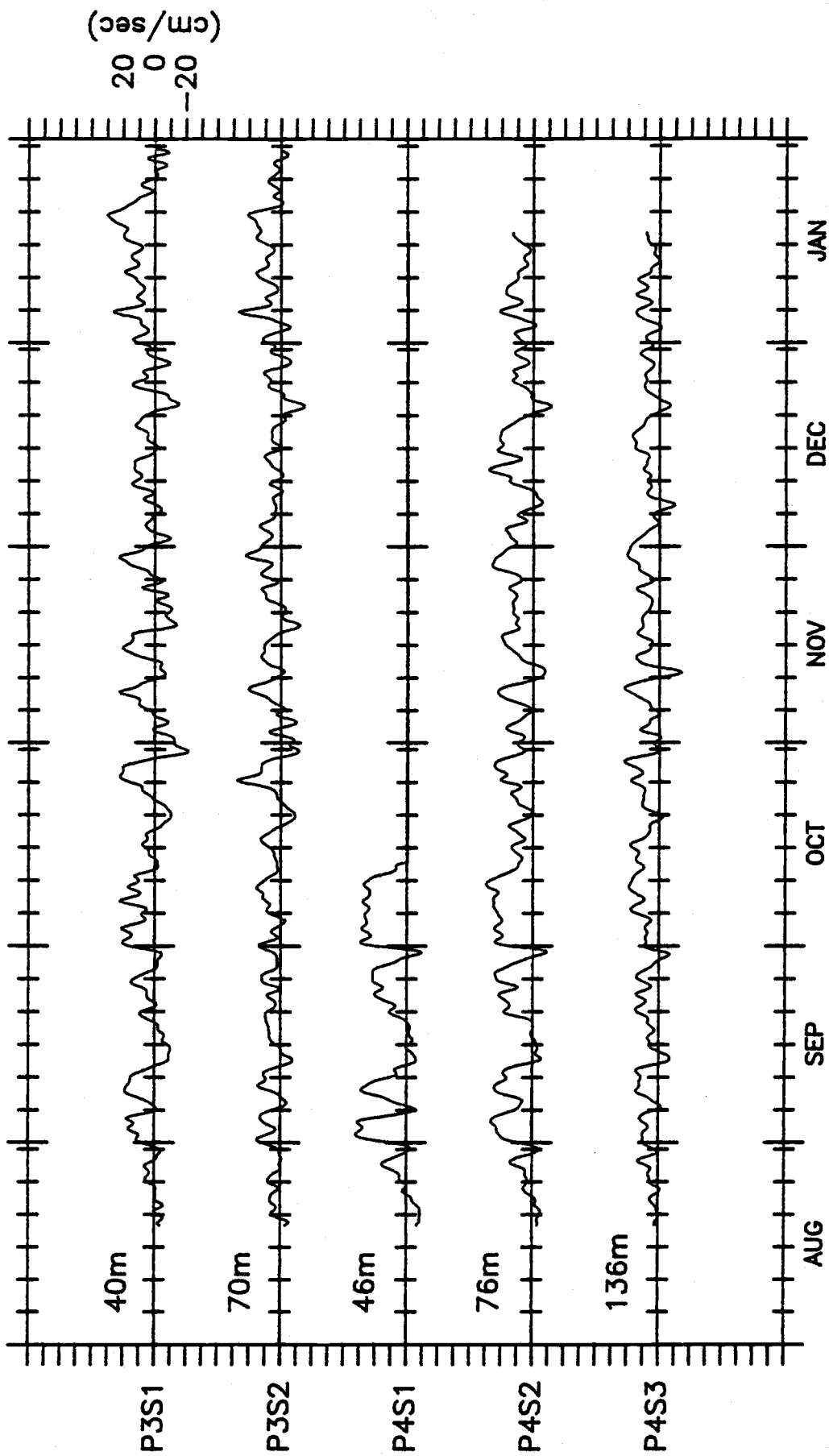
1981

PURISIMA POINT V velocity



1981

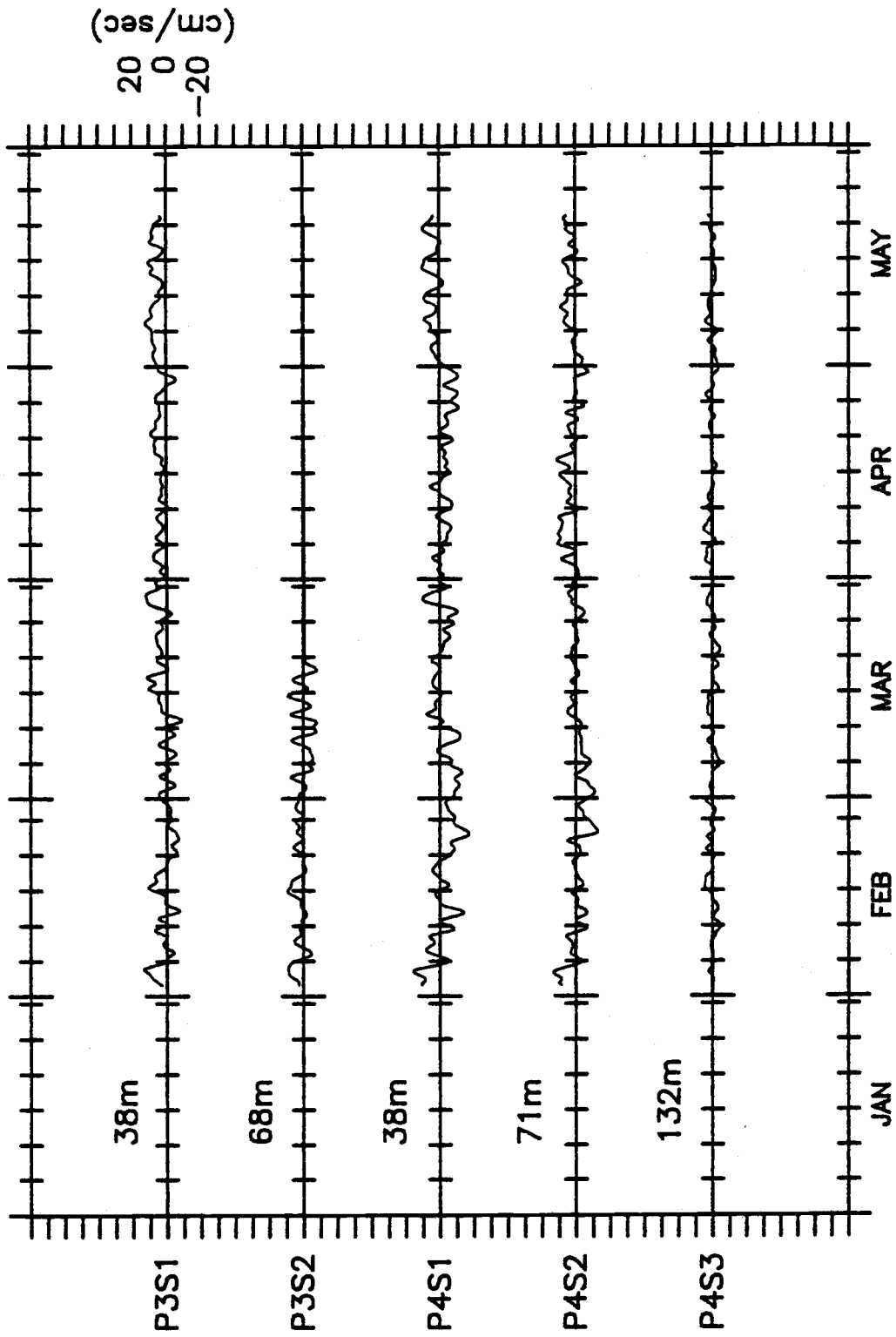
PURISIMA POINT U velocity



1981

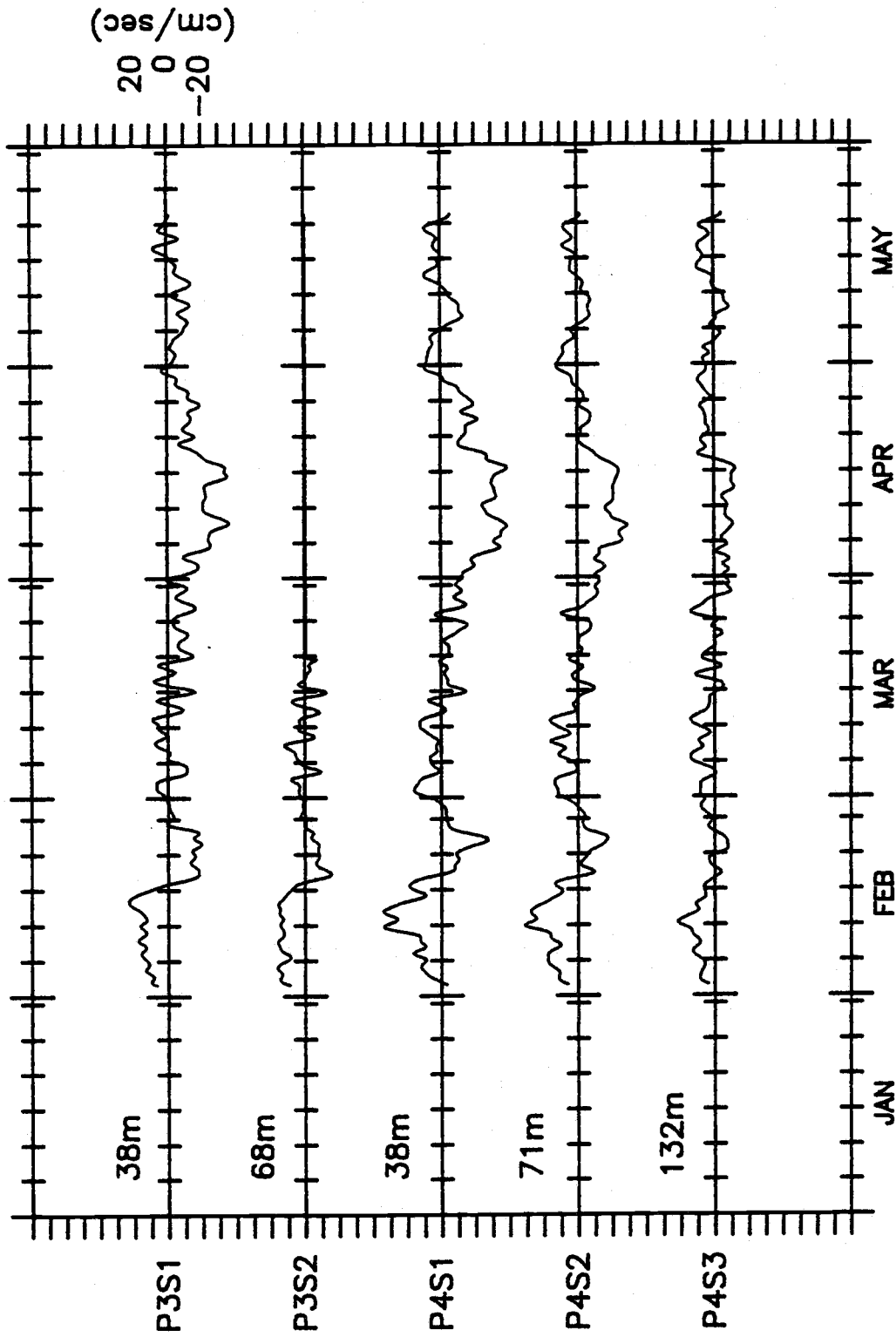
PURISIMA POINT V velocity





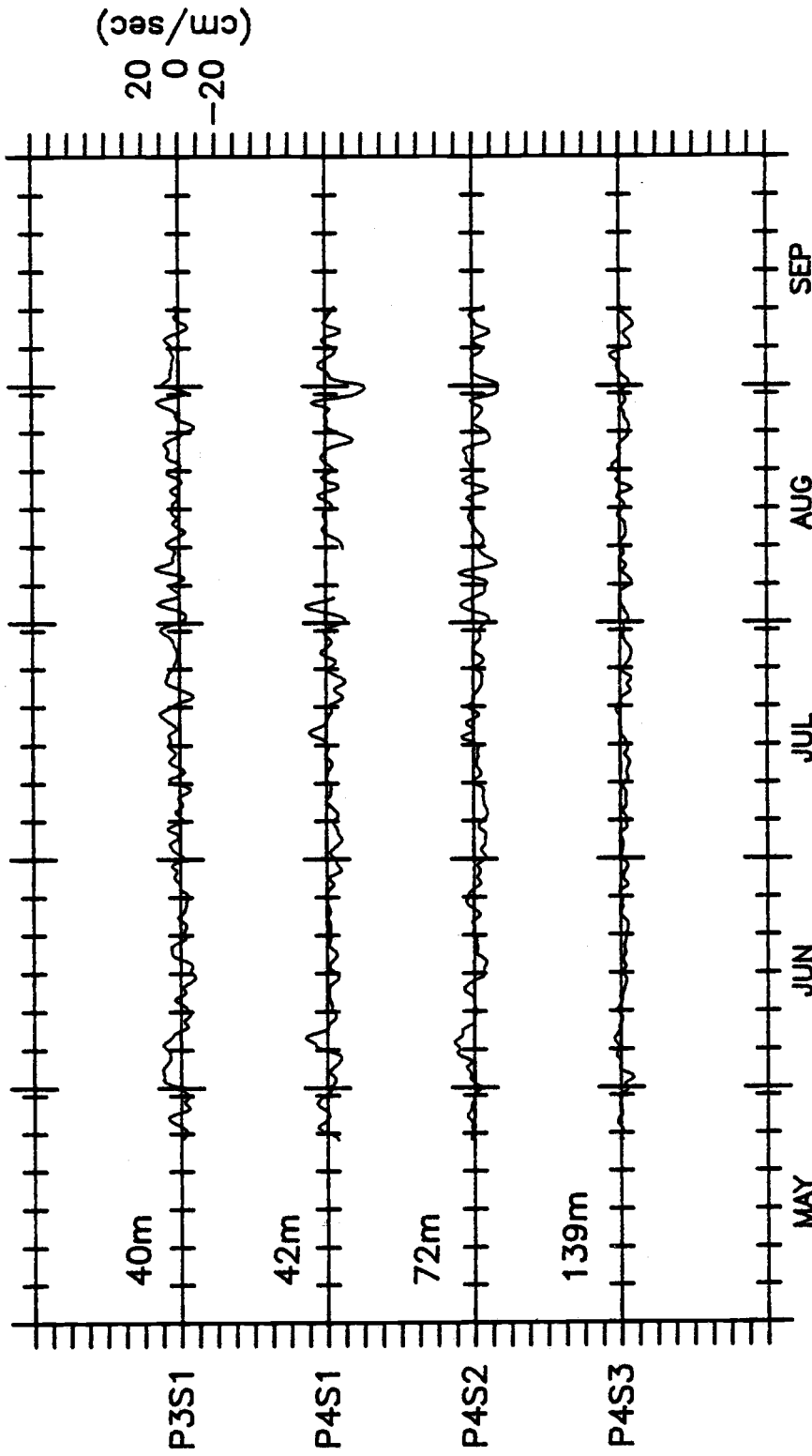
1982

PURISISMA POINT U velocity

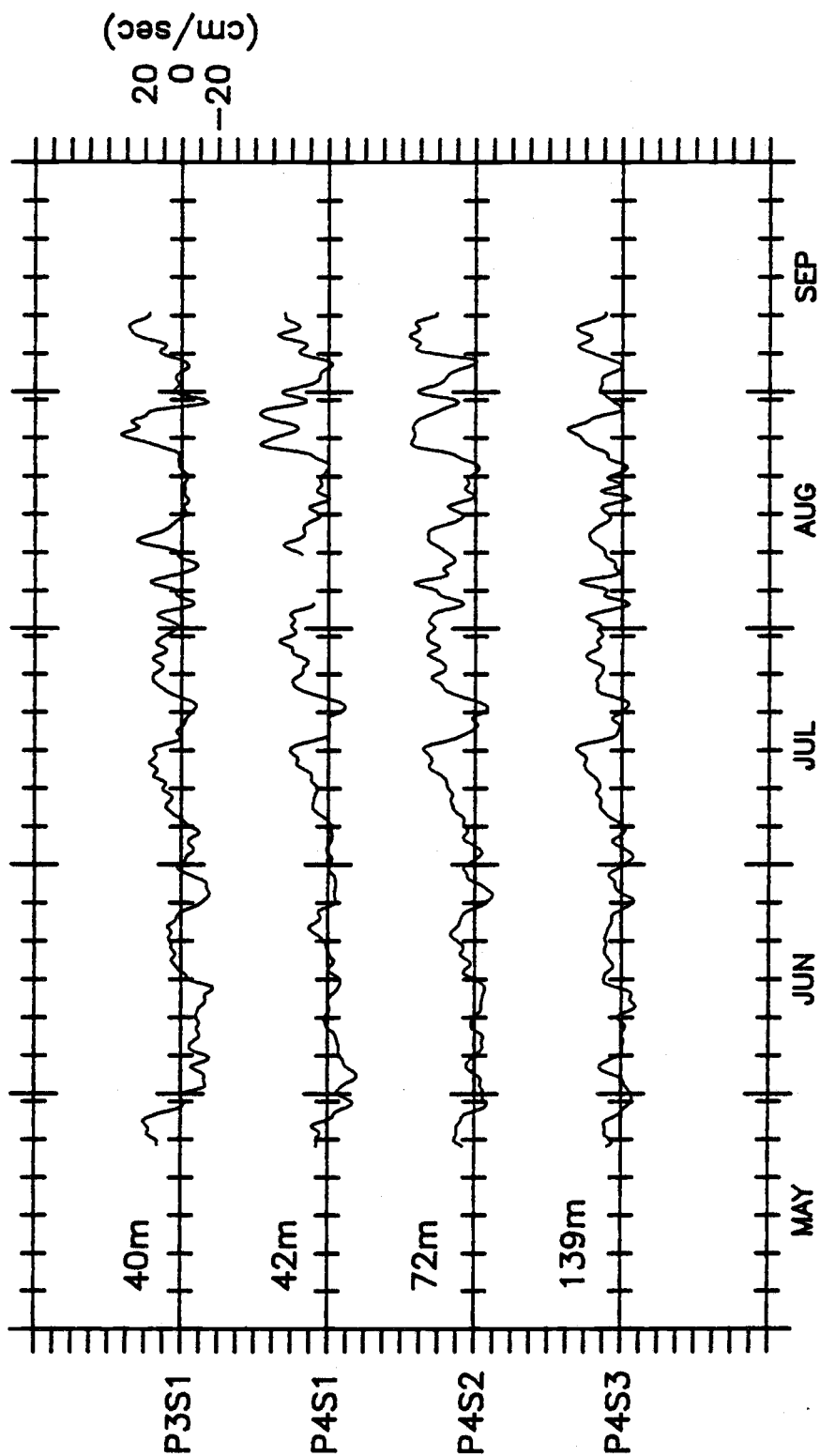


PURISISMA POINT V velocity

1982

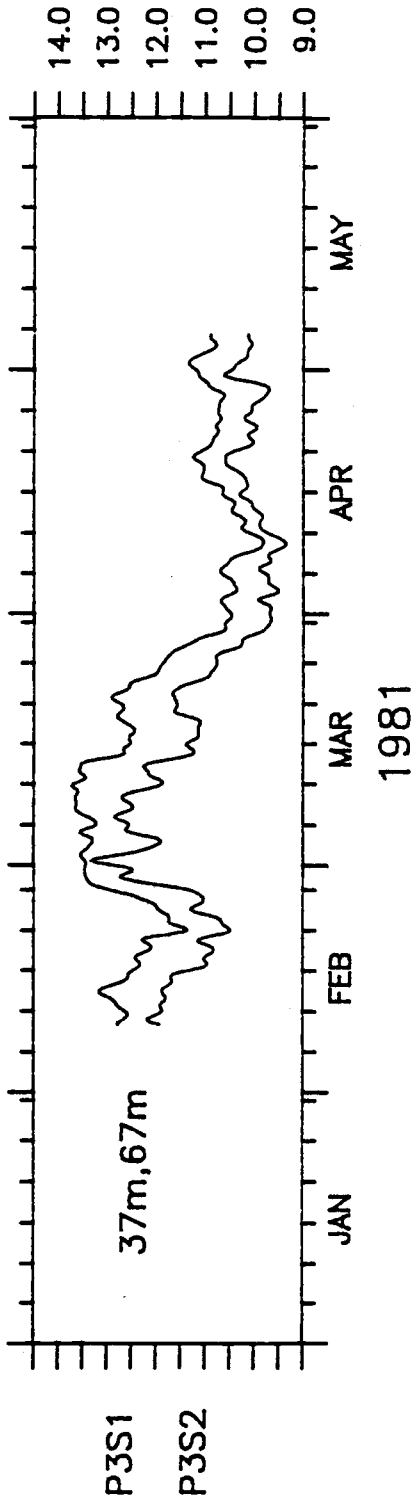


PURISISMA POINT U velocity  
1982

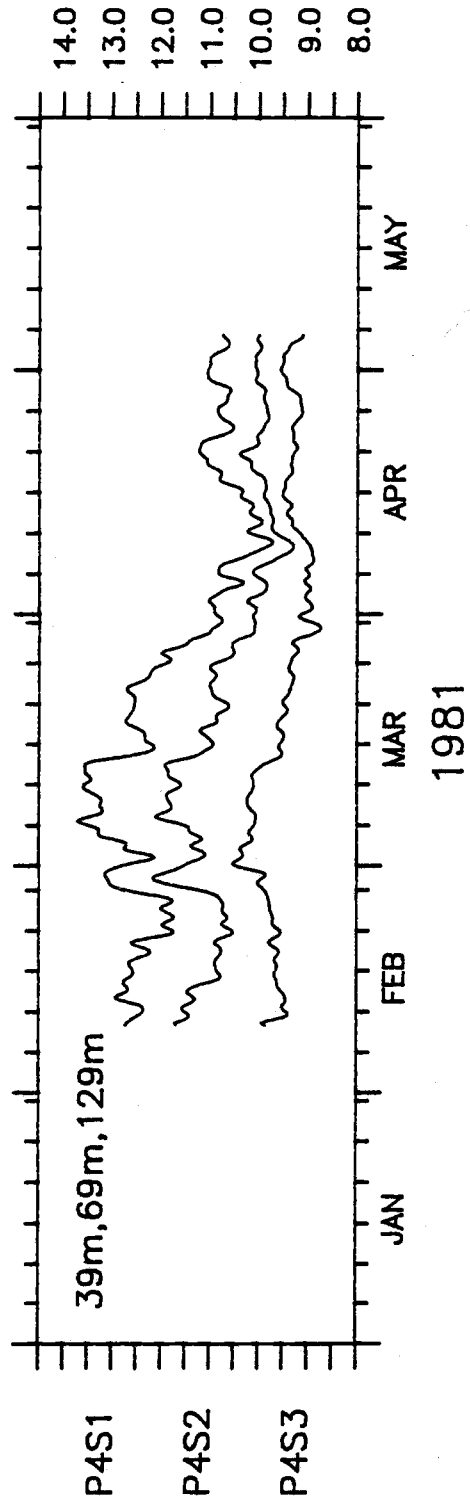


1982

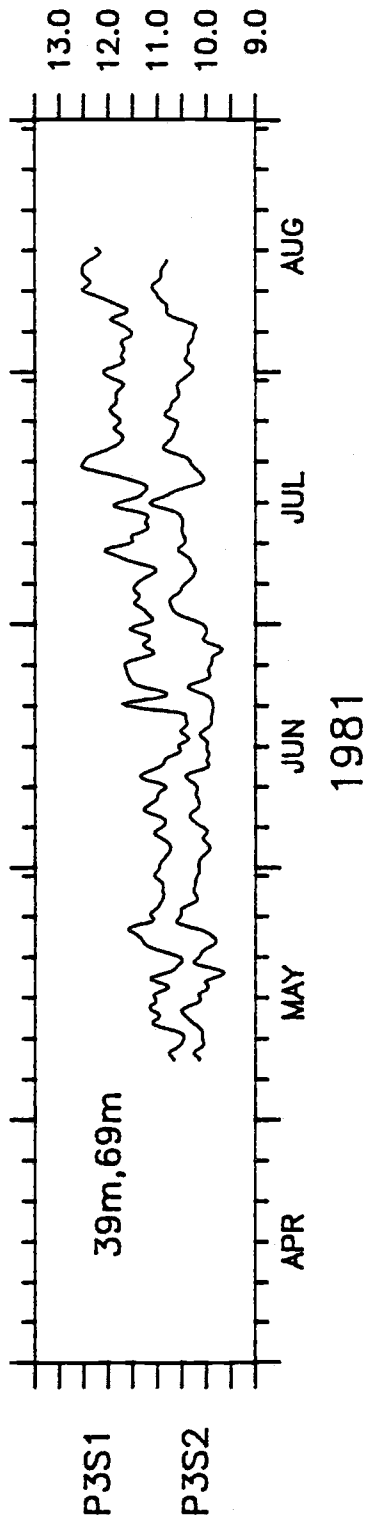
PURISISMA POINT V velocity



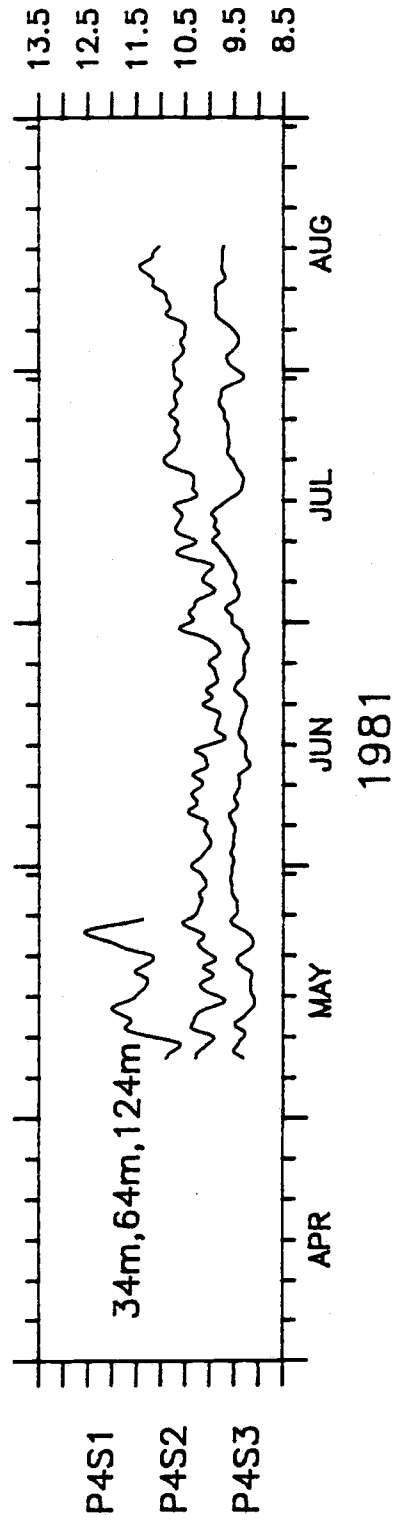
PURISIMA POINT SHALLOW Temperature



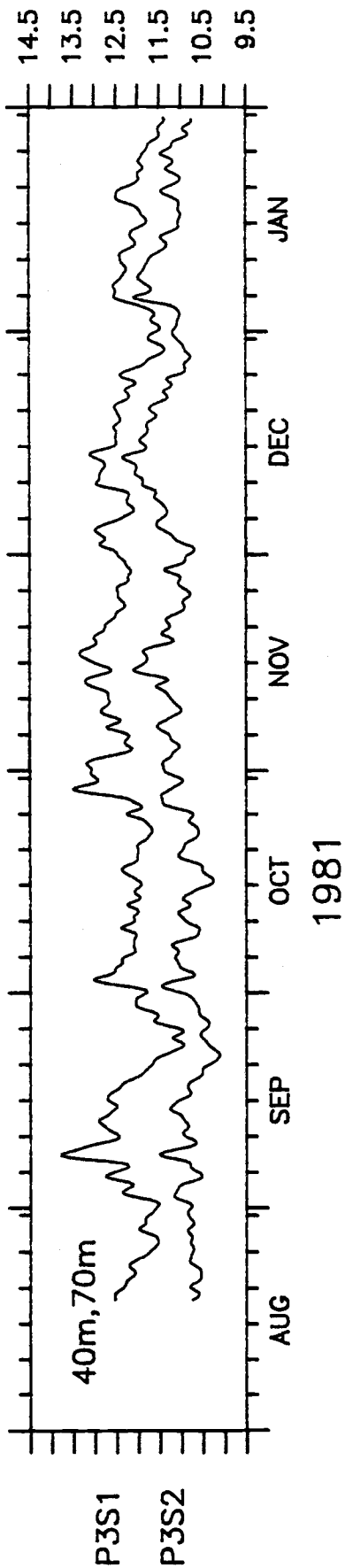
PURISIMA POINT DEEP Temperature



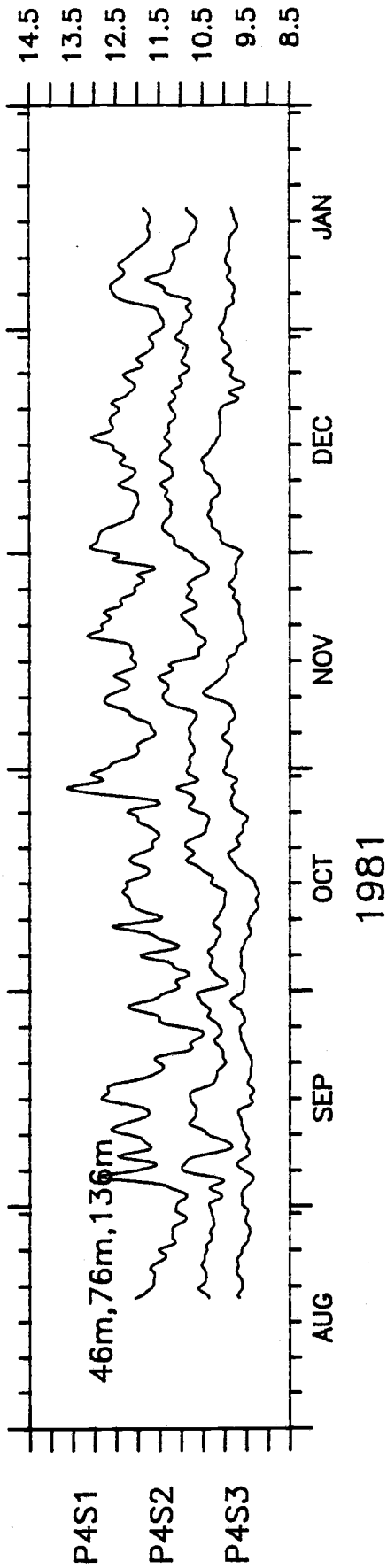
PURISIMA POINT SHALLOW Temperature



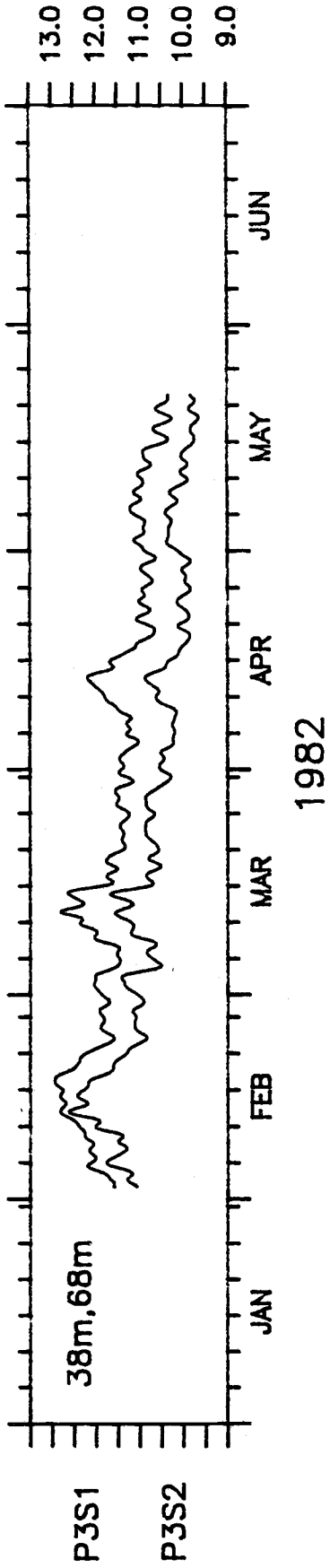
PURISIMA POINT DEEP Temperature



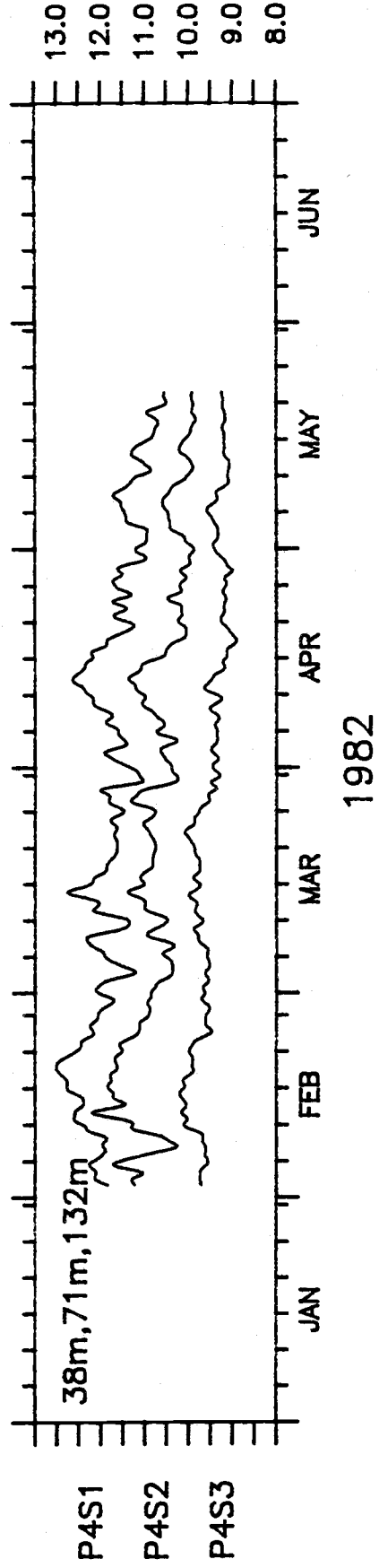
PURISIMA POINT SHALLOW Temperature



PURISIMA POINT DEEP Temperature

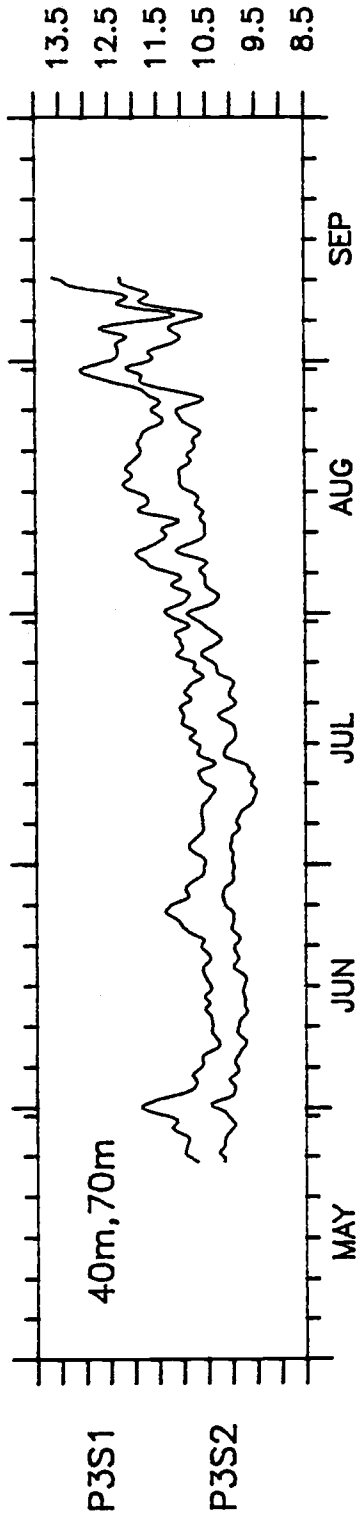


PURISIMA POINT SHALLOW Temperature

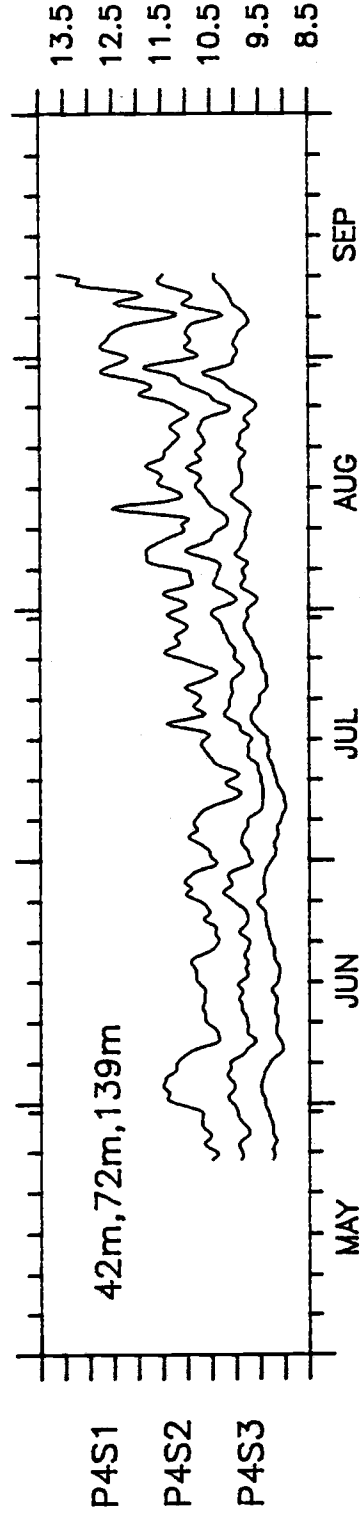


PURISIMA POINT DEEP Temperature





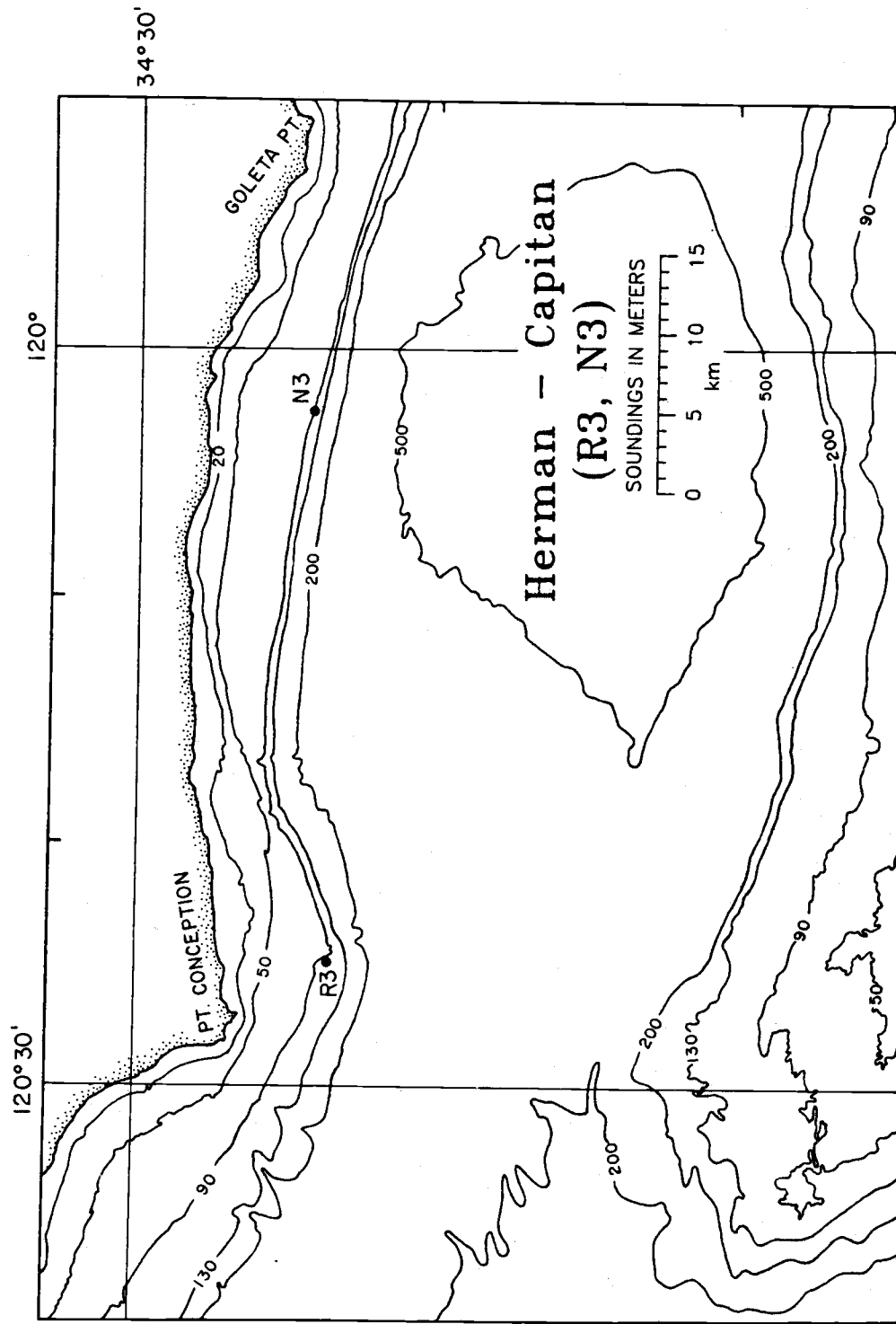
PURISIMA POINT SHALLOW Temperature



PURISIMA POINT DEEP Temperature

CAPITAN AND HERMAN

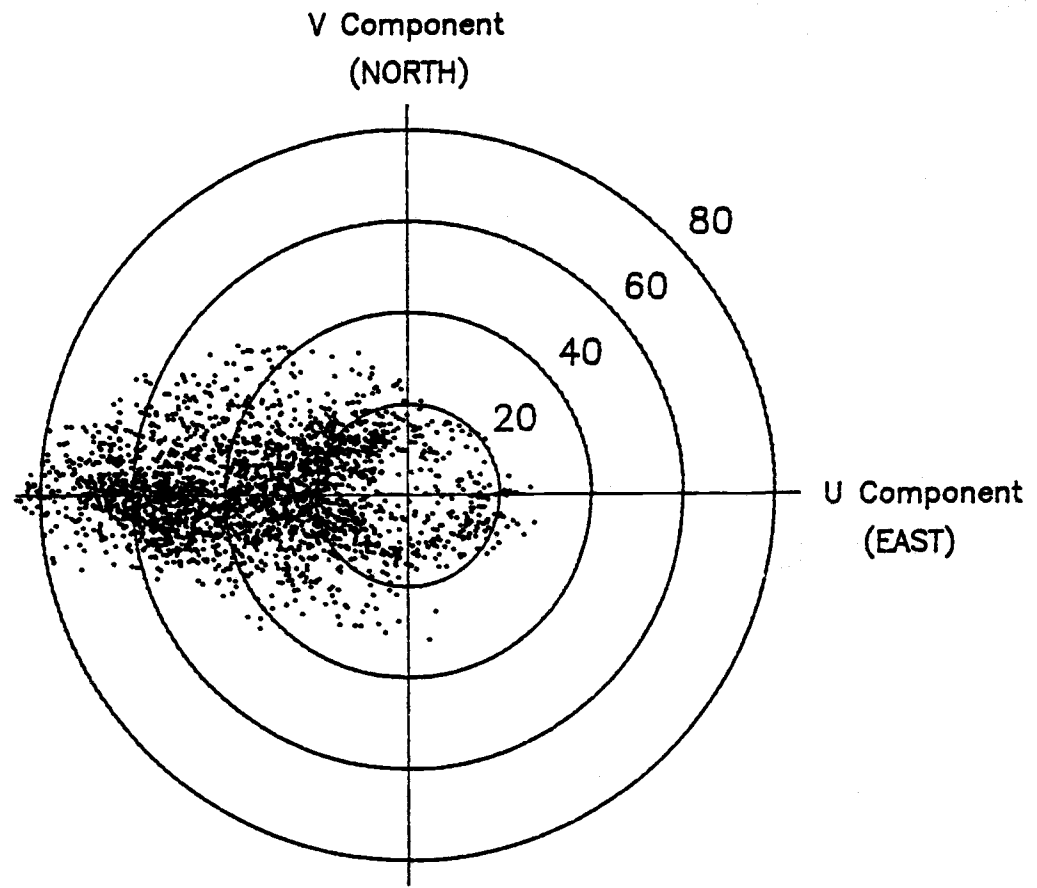
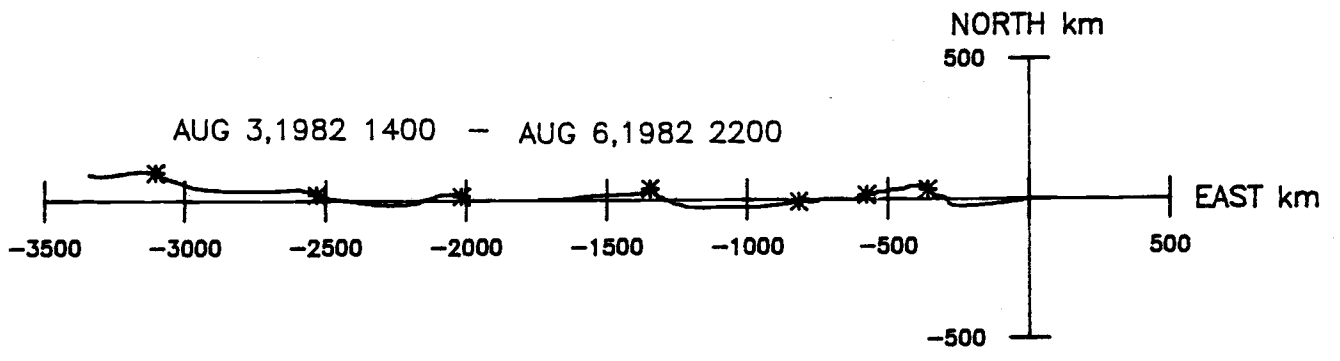


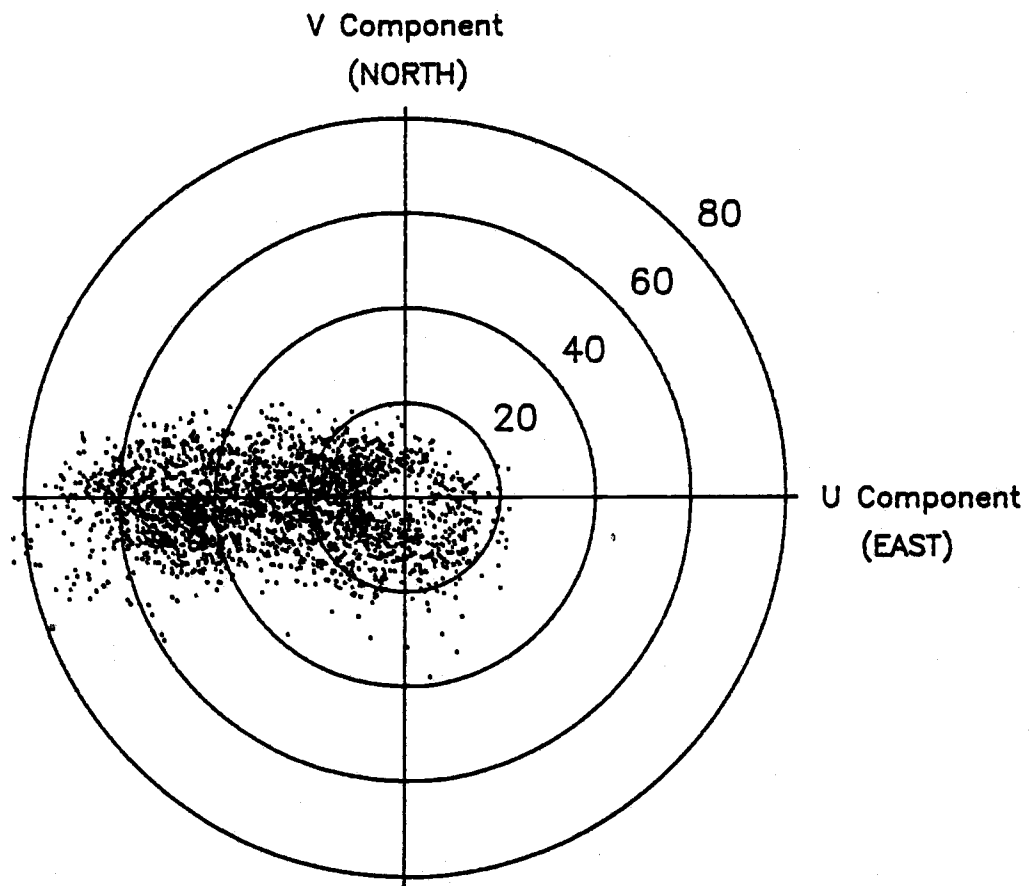
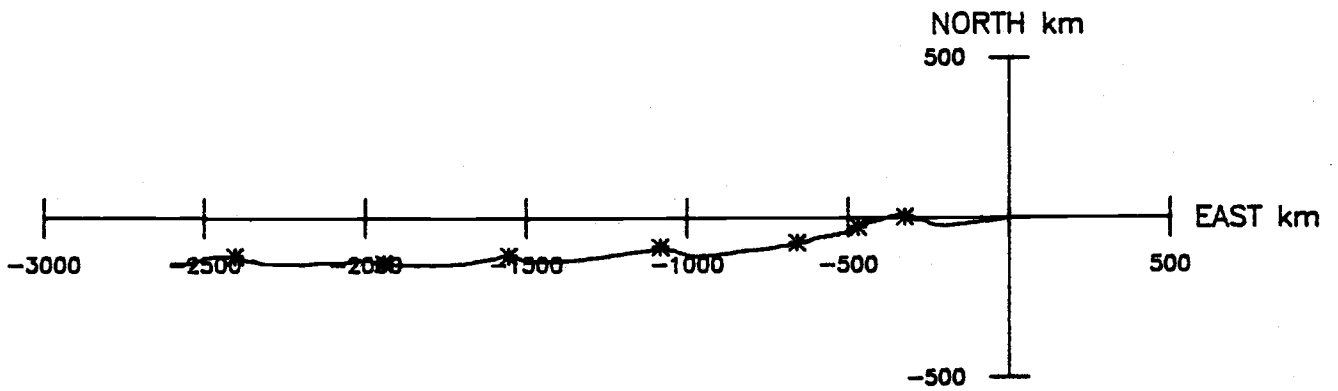




## SAMPLING INTERVAL = 60 MINUTES

STATION	START TIME	(GMT)		MIN	MAX	MEAN	STD	STOP TIME	
R3S1	MAY 24,1982	2300	U	-85.2	27.4	-33.3	22.4	SEP 12,1982	1400
			V	-31.6	32.8	1.0	10.2	SEP 12,1982	1400
			T	9.4	15.8	10.9	0.9	SEP 12,1982	1400
R3S2	MAY 24,1982	2300	U	-82.2	21.8	-27.2	21.3	SEP 12,1982	1400
			V	-37.9	20.8	-1.5	8.3	SEP 12,1982	1400
			T	9.2	12.4	10.2	0.6	SEP 12,1982	1400
N3S1	MAY 25,1982	0300	U	-58.2	13.1	-19.4	12.4	SEP 12,1982	1700
			V	-18.3	25.3	5.8	6.0	SEP 12,1982	1700
			T	9.9	16.5	11.6	1.1	SEP 12,1982	1700
N3S2	MAY 25,1982	0400	U	-48.9	15.9	-14.4	11.4	SEP 12,1982	1800
			V	-15.2	16.9	3.6	4.7	SEP 12,1982	1800
			T	9.3	13.5	10.6	0.8	SEP 12,1982	1800





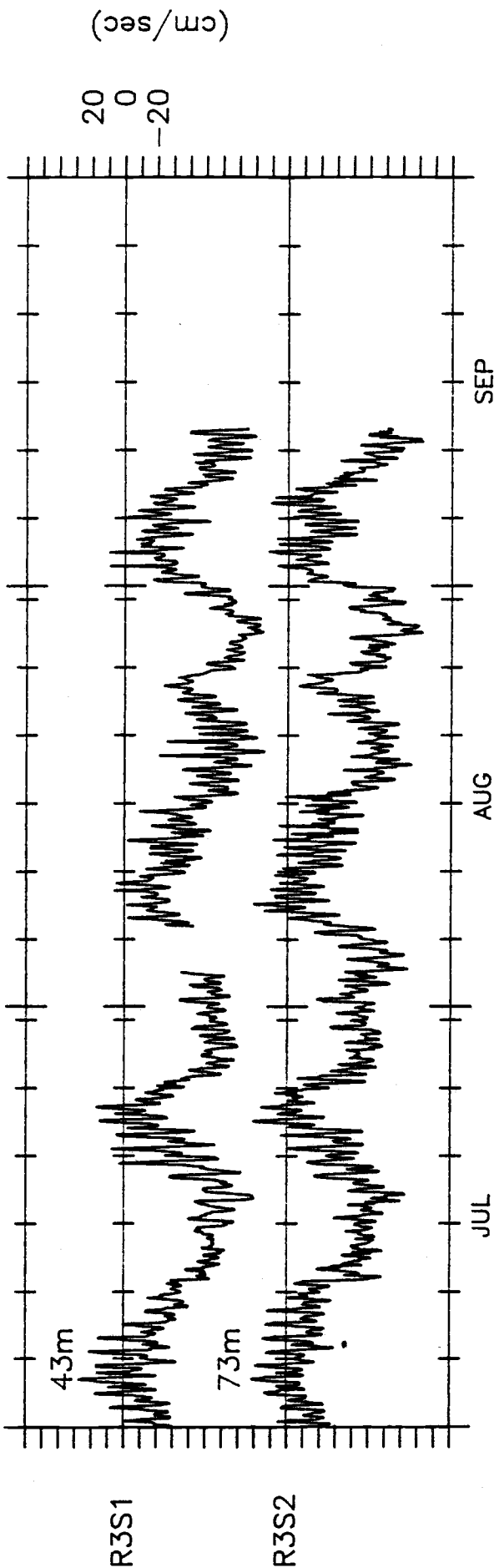
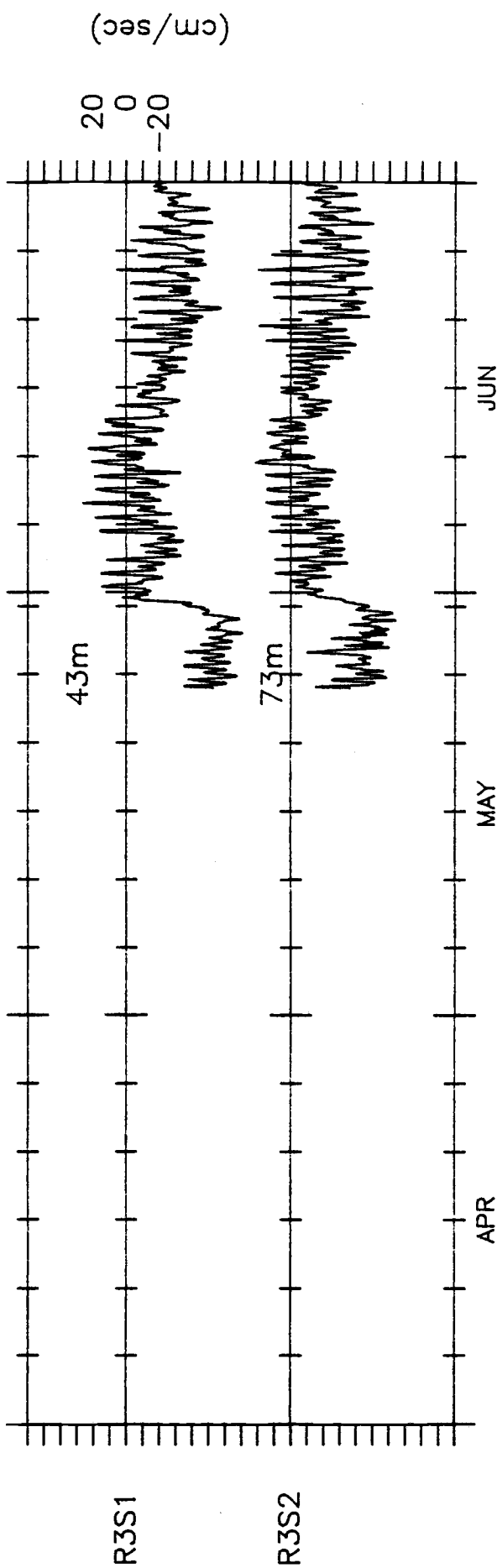
R3S2

MAY 24, 1982 2300

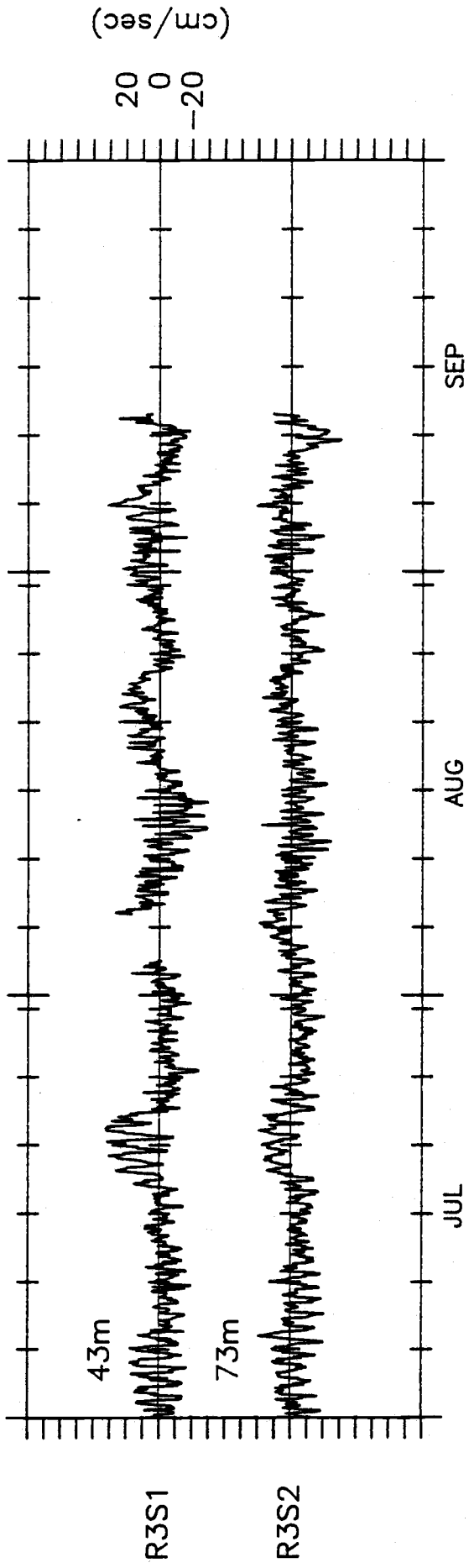
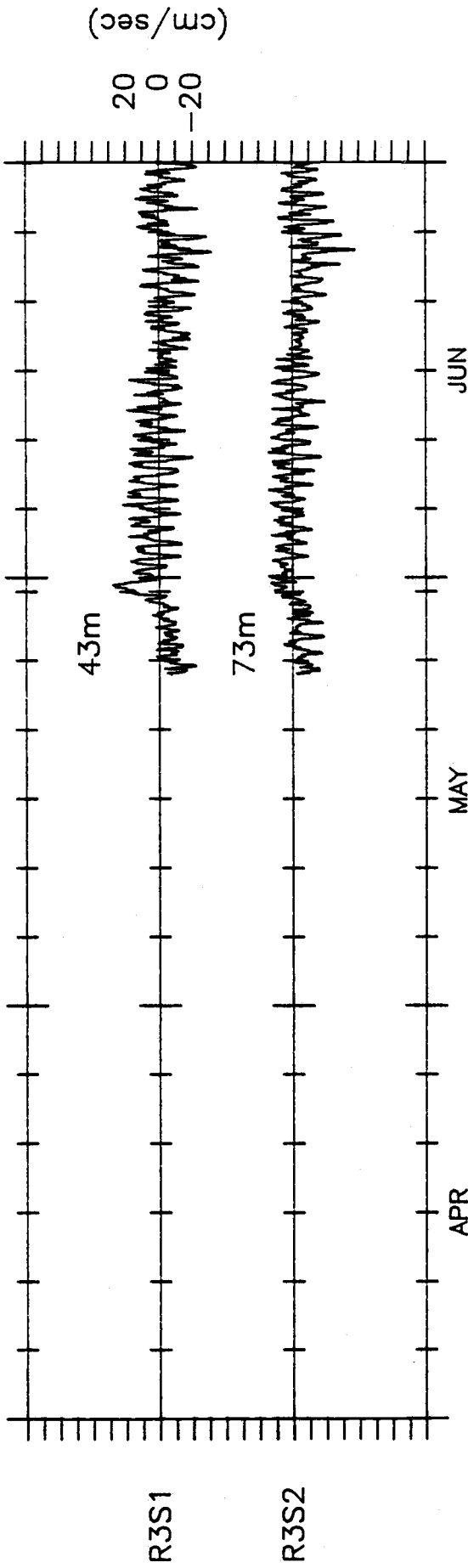
-

SEP 12, 1982 1400

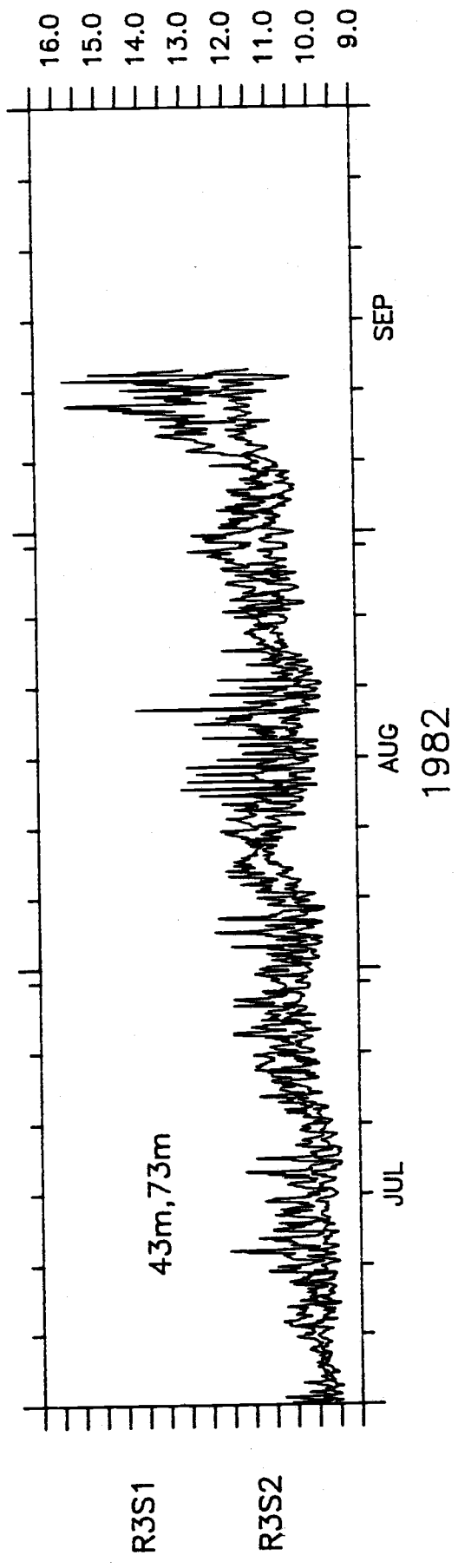
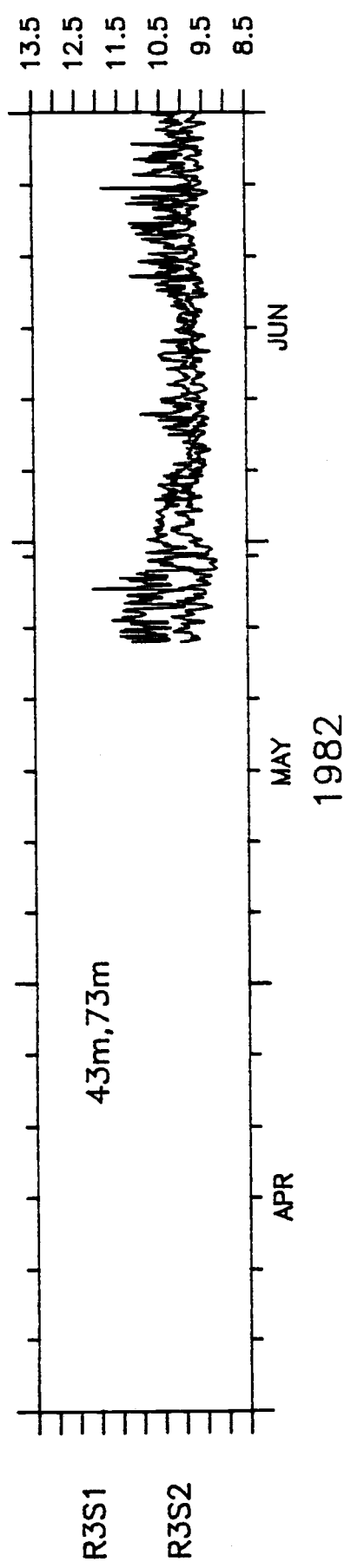




HERMAN U velocity

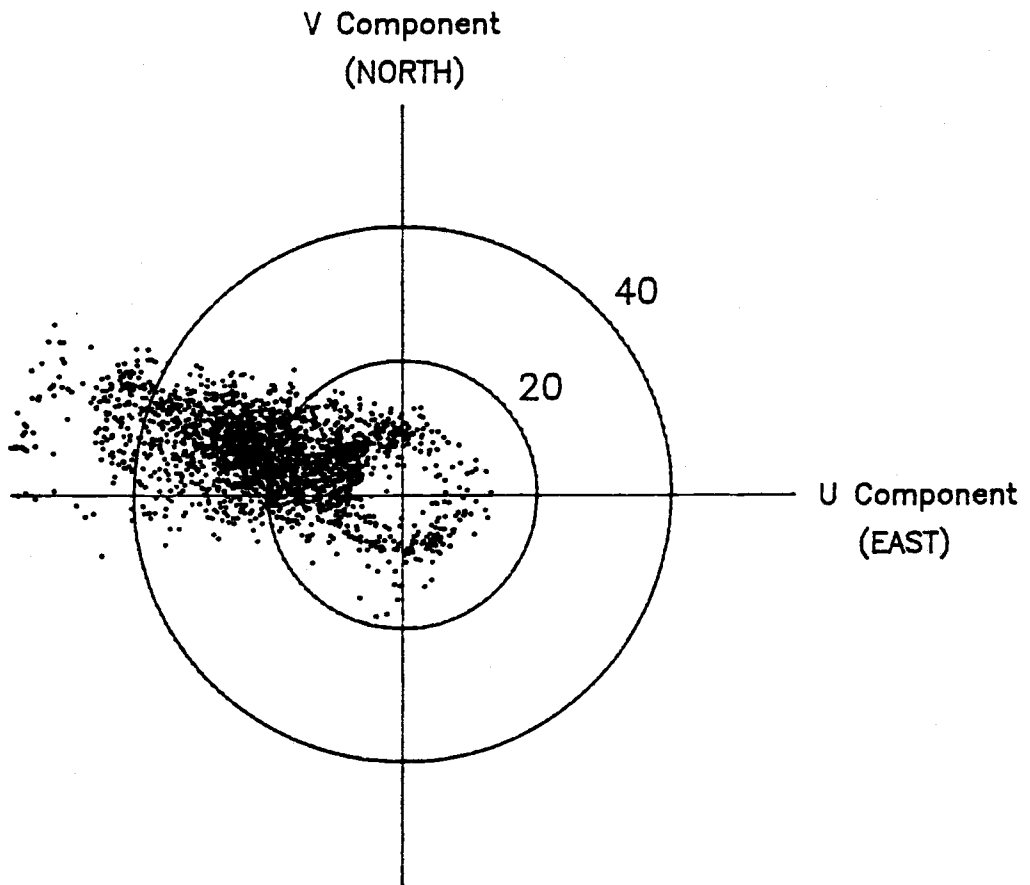
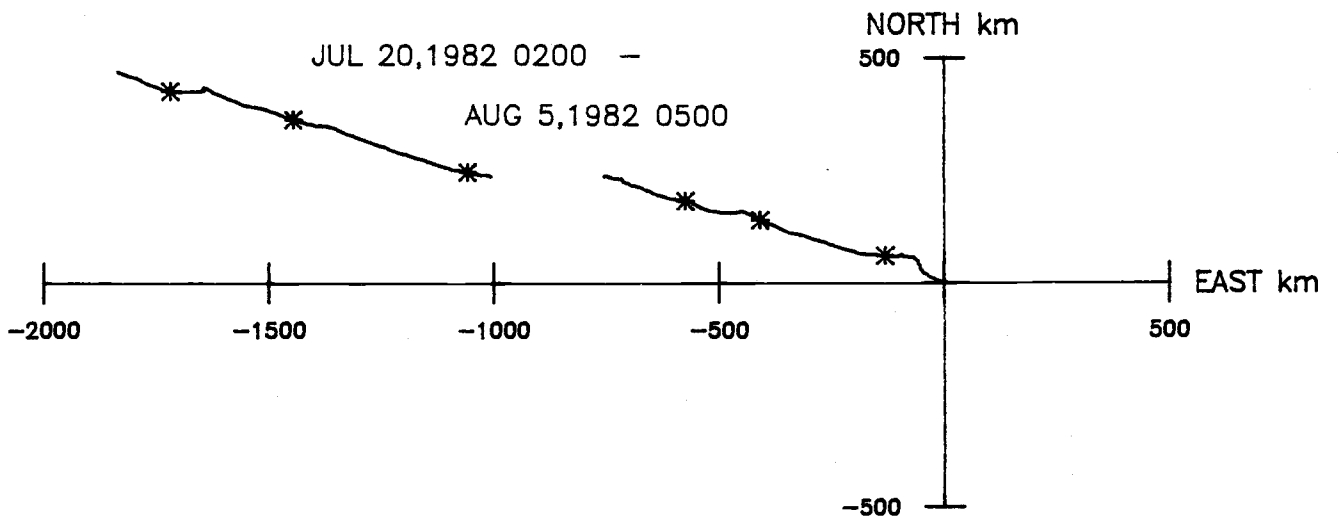


HERMAN V velocity

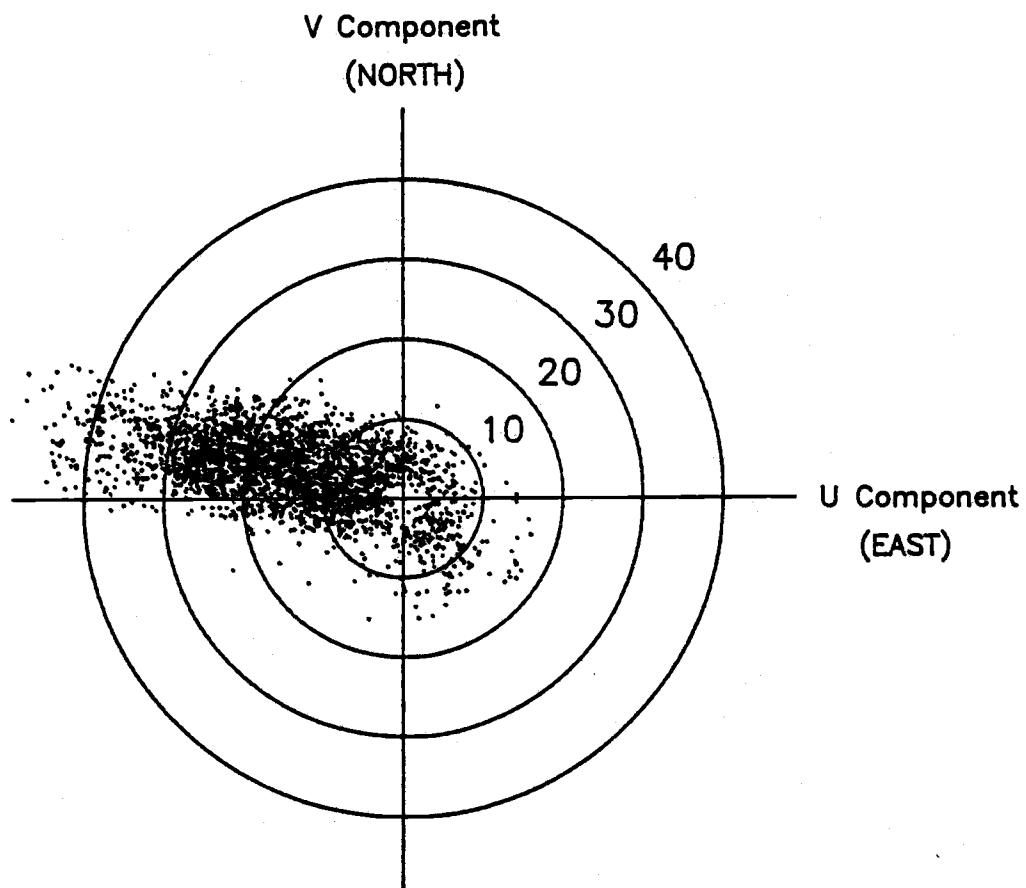
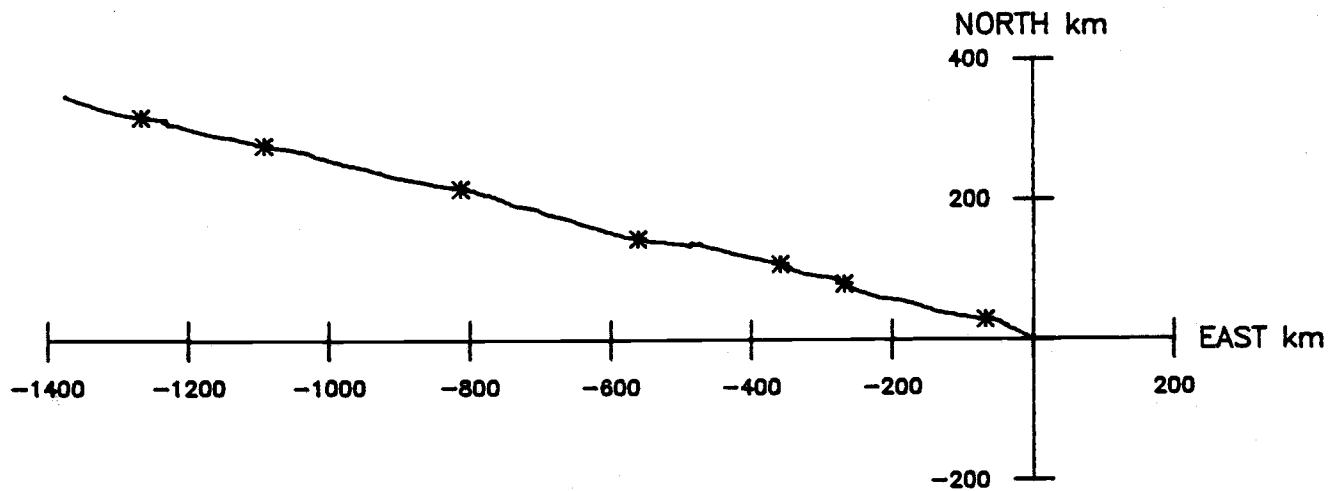


HERMAN SHALLOW Temperature

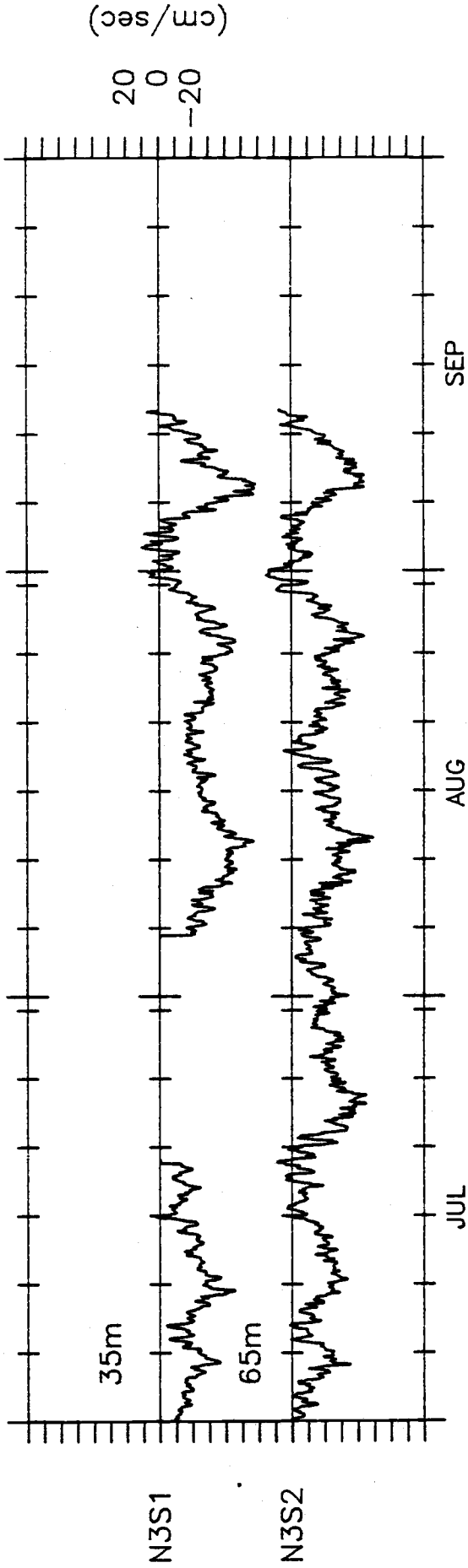
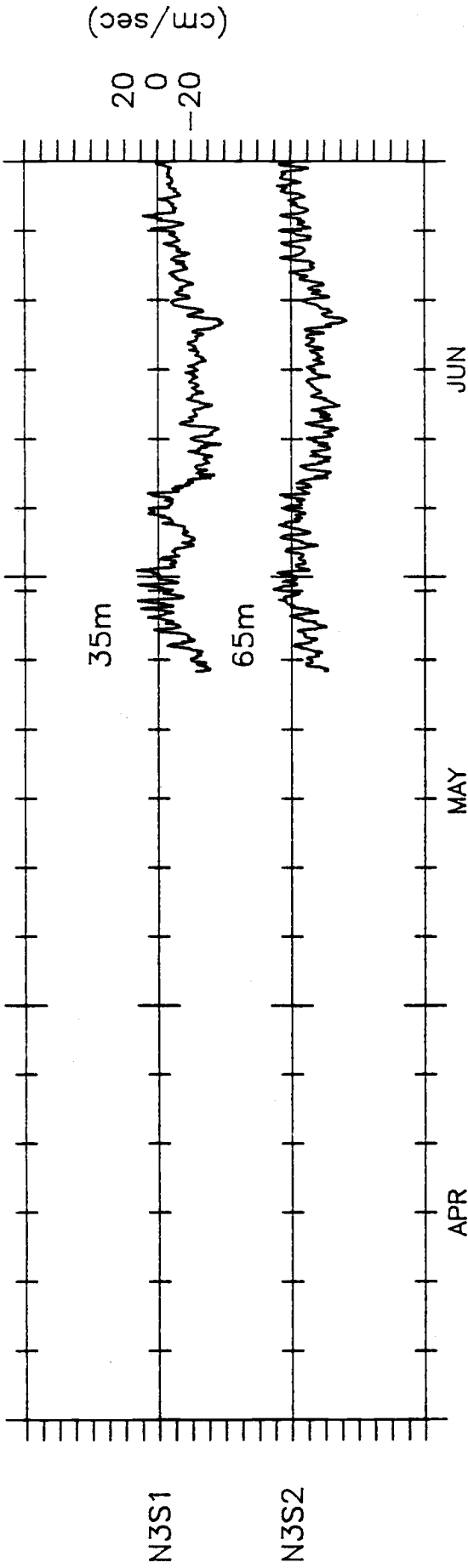




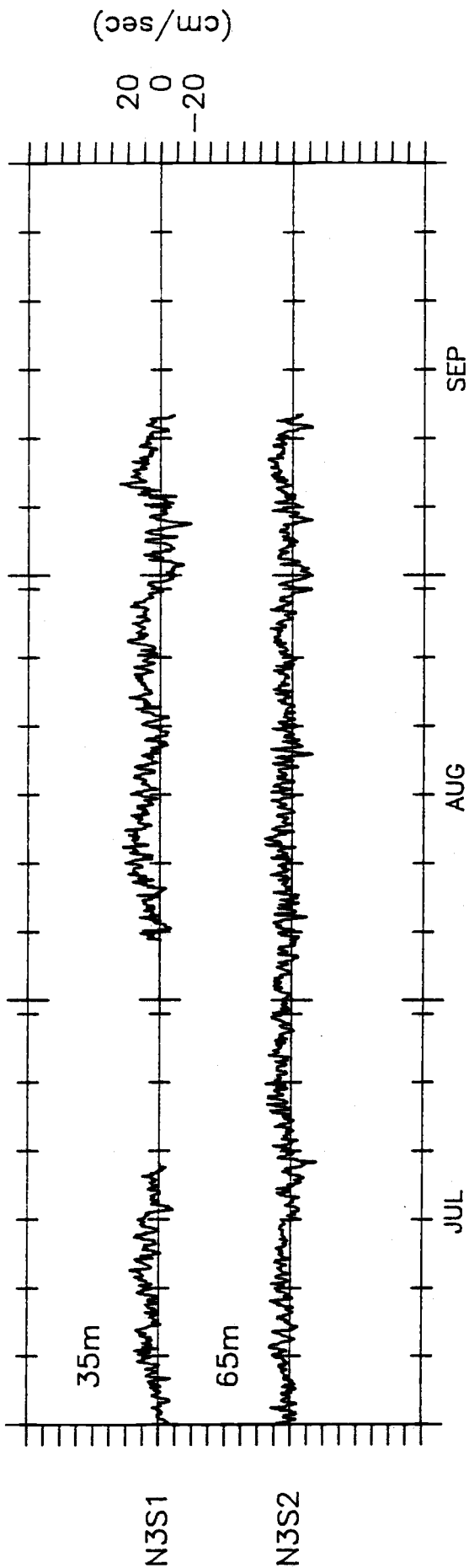
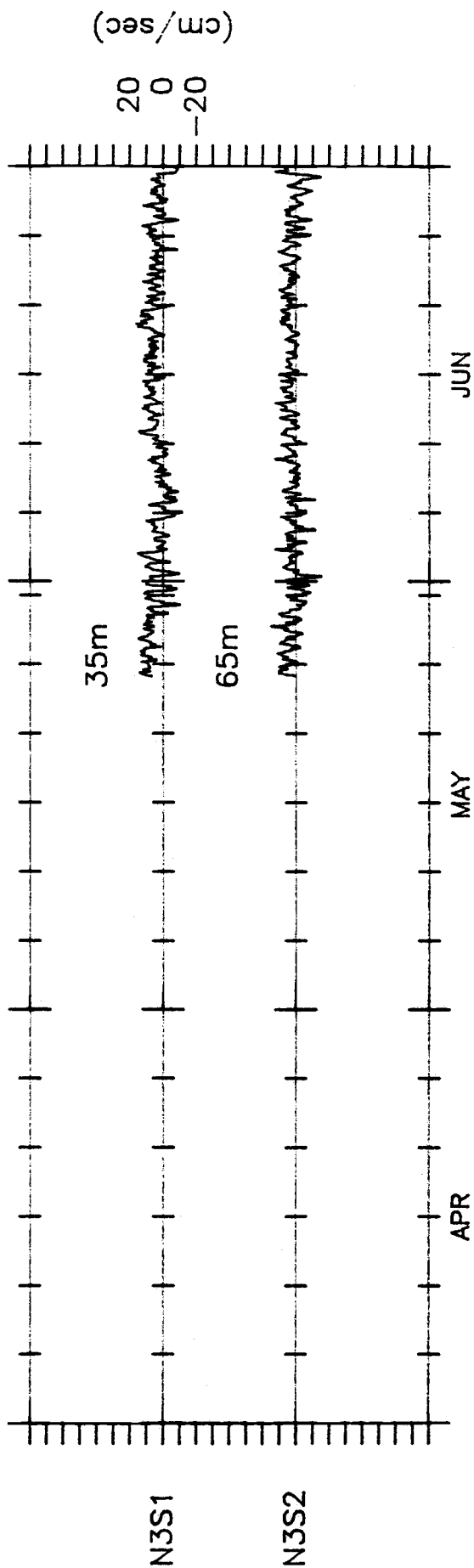
N3S1      MAY 25, 1982 0300      -      SEP 12, 1982 1700



N3S2      MAY 25, 1982 0400      -      SEP 12, 1982 1800

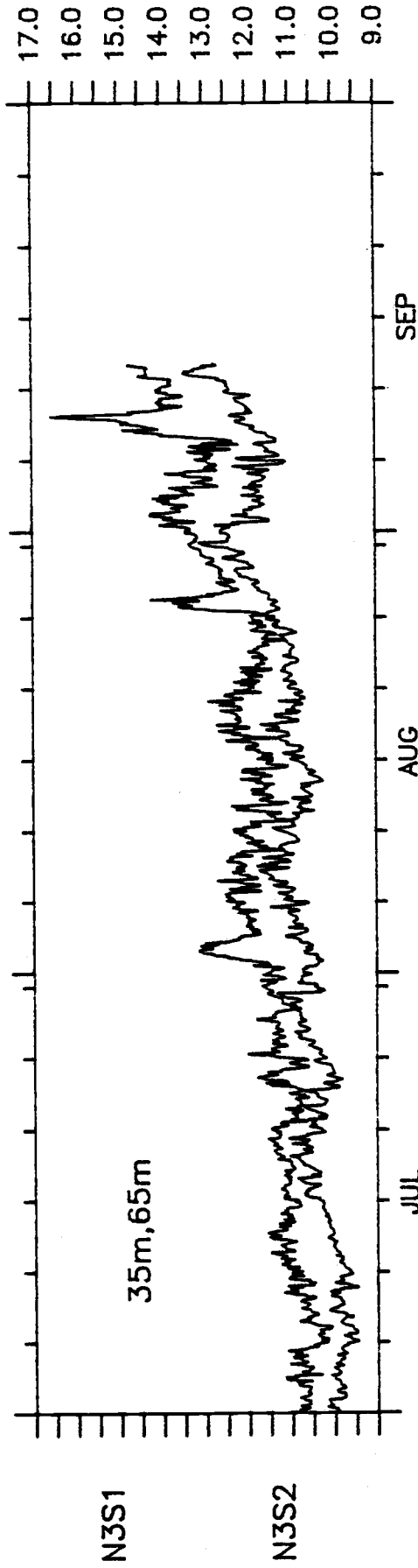
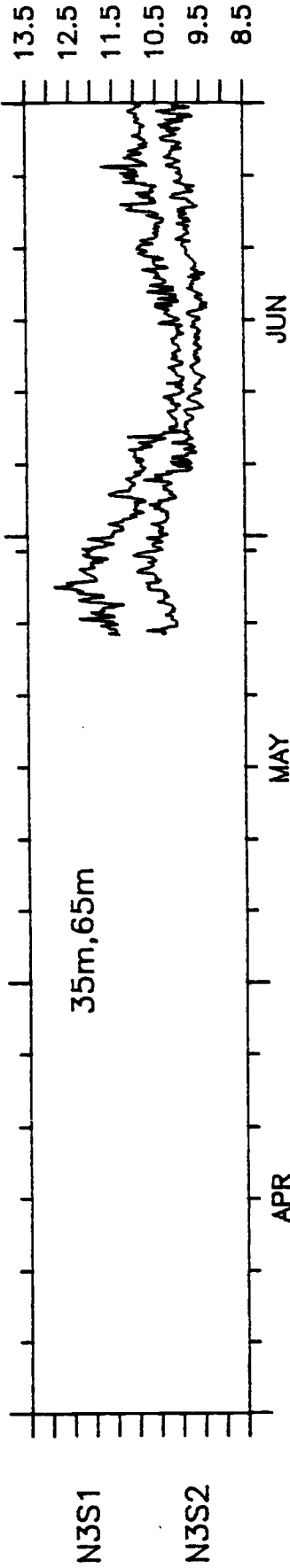


CAPITAN U velocity



CAPITAN V velocity

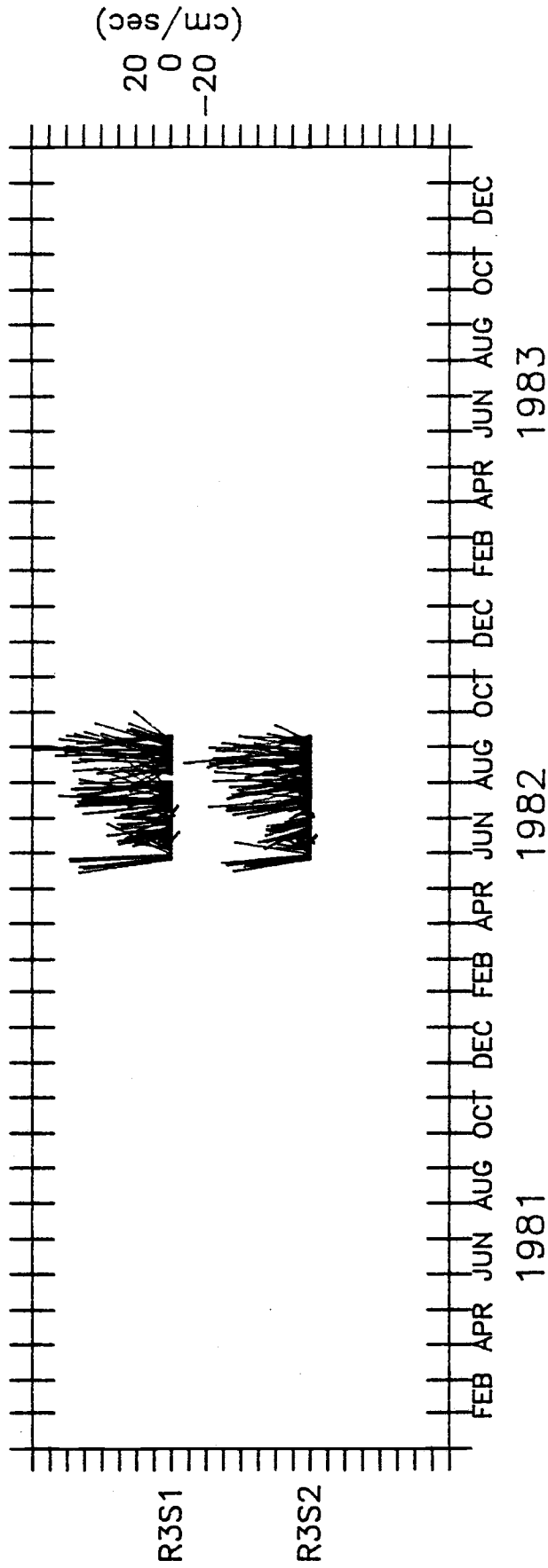




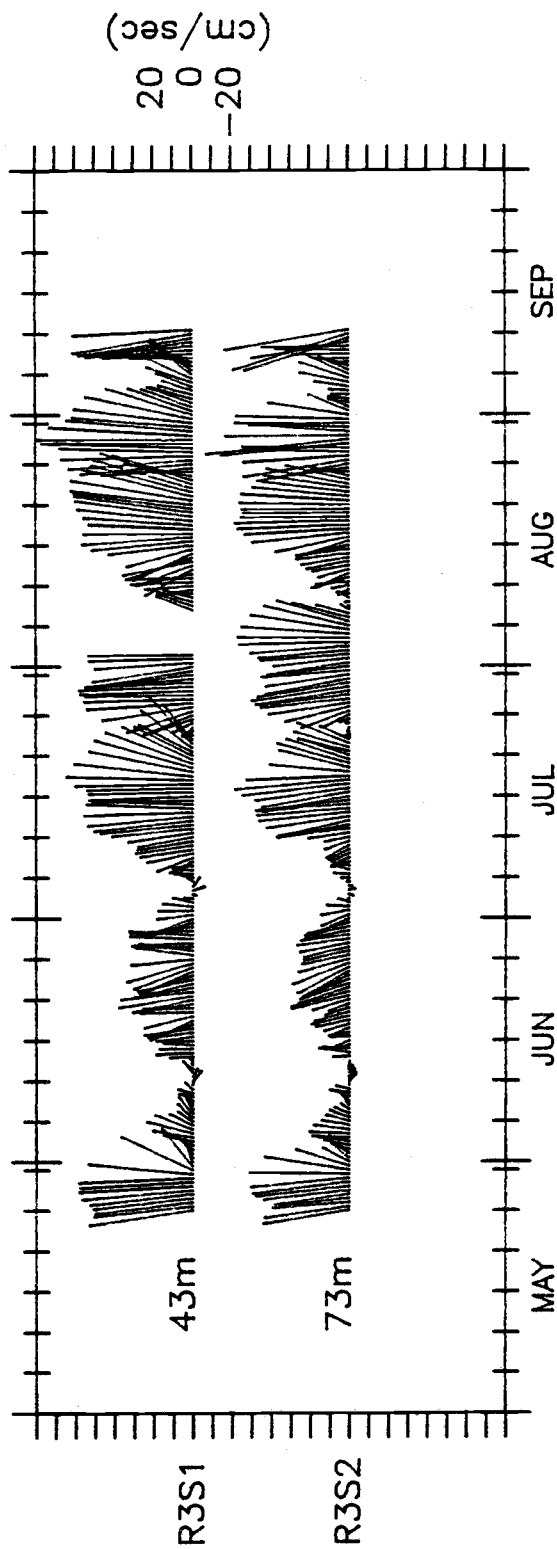
CAPITAN SHALLOW Temperature

## SAMPLING INTERVAL = 360 MINUTES

STATION	START TIME (GMT)		MIN	MAX	MEAN	STD	STOP TIME		
R3S1	MAY 26,1982	0000	U	-79.2	6.1	-32.9	20.0	SEP 11,1982	1800
			V	-13.8	24.0	0.9	7.2	SEP 11,1982	1800
			PRINCIPAL AXIS =	86.9	T	9.8	14.1	10.8	0.8
R3S2	MAY 26,1982	0000	U	-72.7	3.6	-26.9	18.5	SEP 11,1982	1800
			V	-19.2	11.1	-1.5	5.3	SEP 11,1982	1800
			PRINCIPAL AXIS =	86.2	T	9.4	11.8	10.2	0.5
N3S1	MAY 26,1982	0600	U	-54.8	1.8	-19.7	12.0	SEP 11,1982	1800
			V	-8.8	16.2	5.9	4.7	SEP 11,1982	1800
			PRINCIPAL AXIS =	-75.6	T	10.0	15.3	11.5	1.0
N3S2	MAY 26,1982	0600	U	-40.6	11.1	-14.5	10.5	SEP 11,1982	1800
			V	-7.2	11.0	3.7	2.9	SEP 11,1982	1800
			PRINCIPAL AXIS =	-77.6	T	9.5	12.6	10.6	0.8

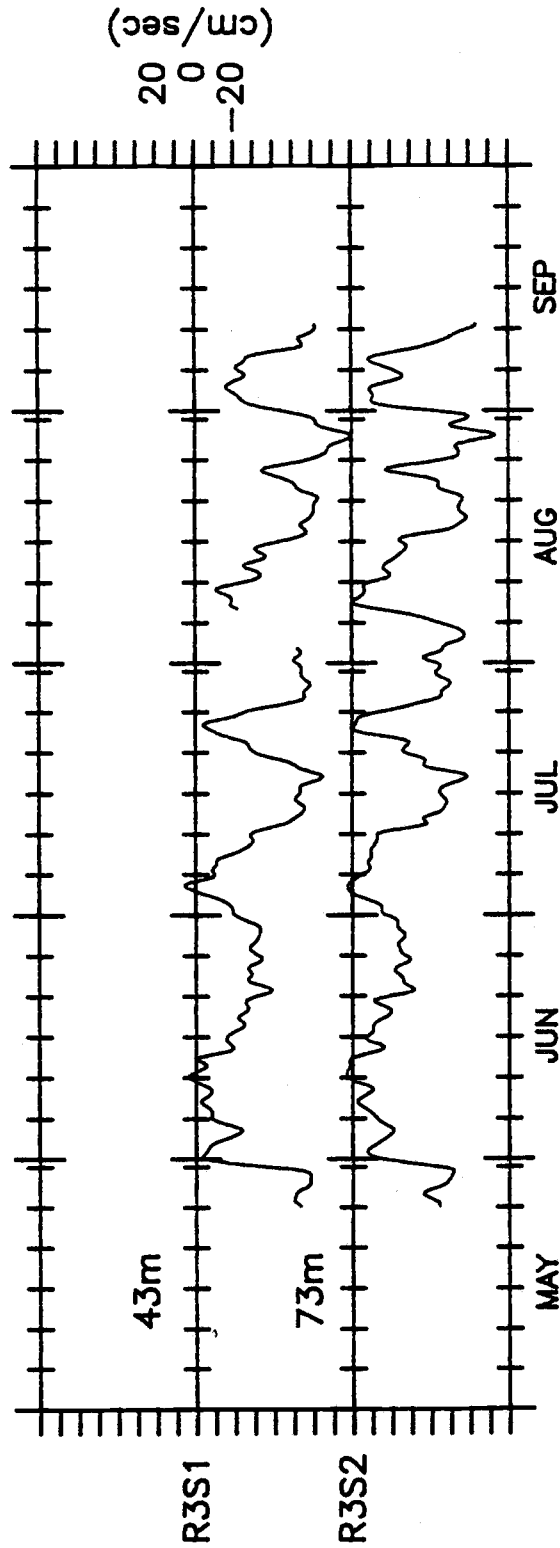


HERMAN velocity



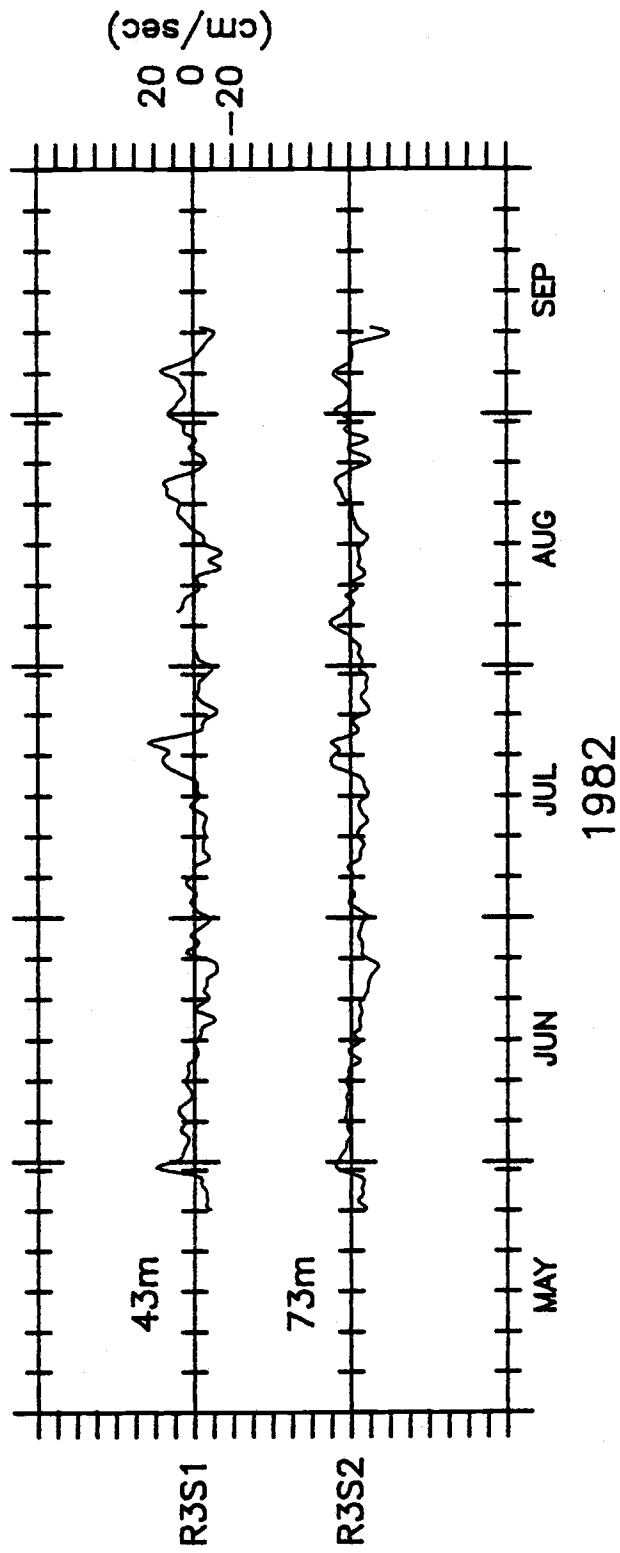
1982

HERMAN velocity

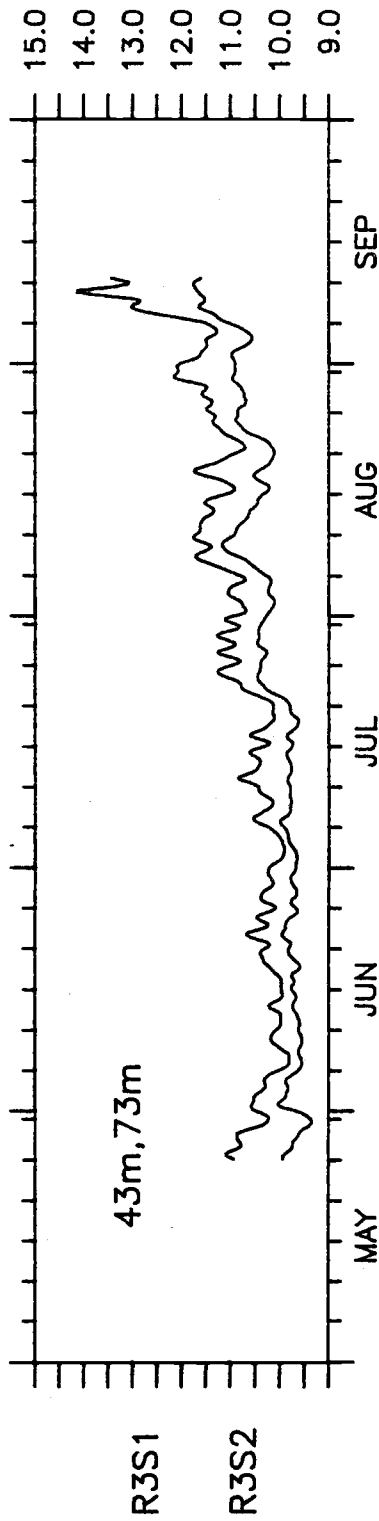


HERMAN U velocity

1982



HERMAN V velocity

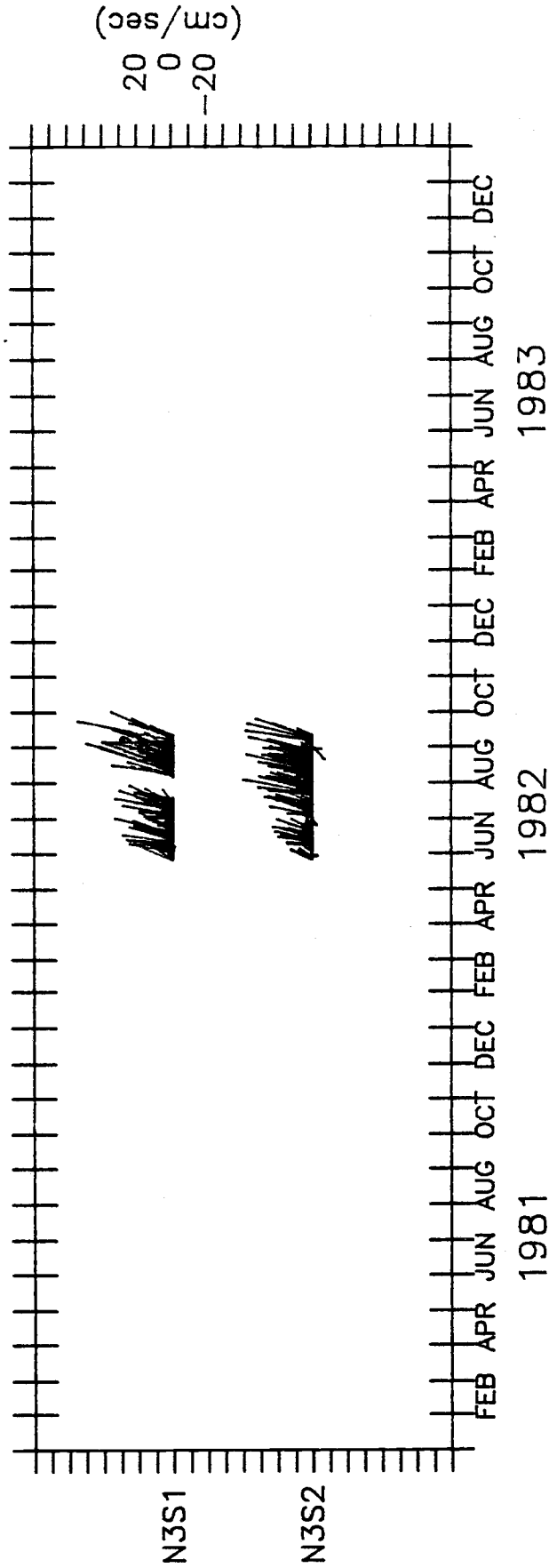


1982

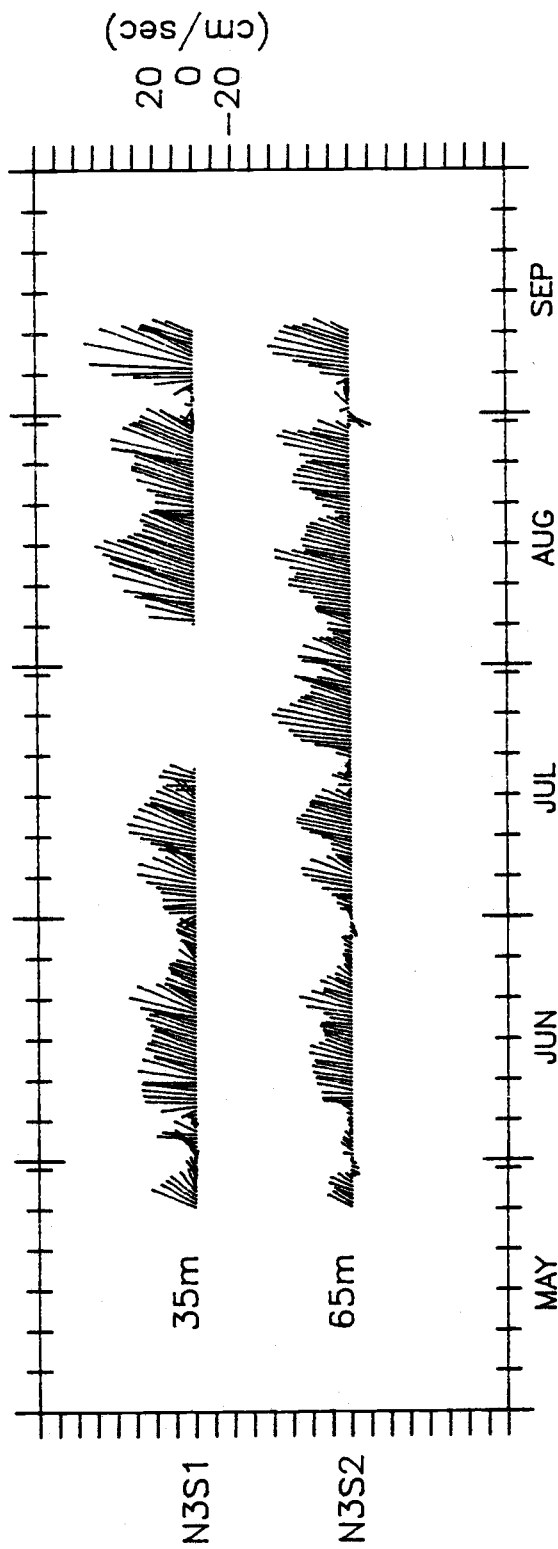
HERMAN SHALLOW Temperature



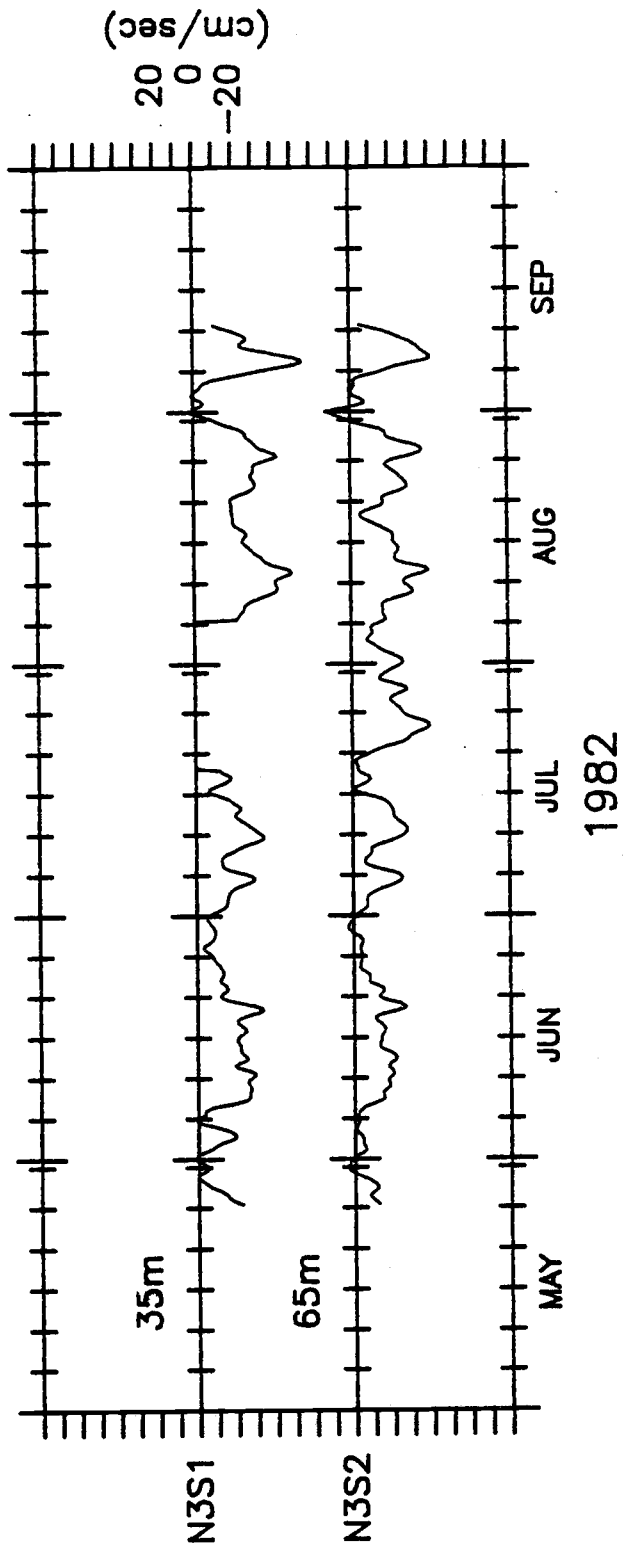




CAPITAN velocity

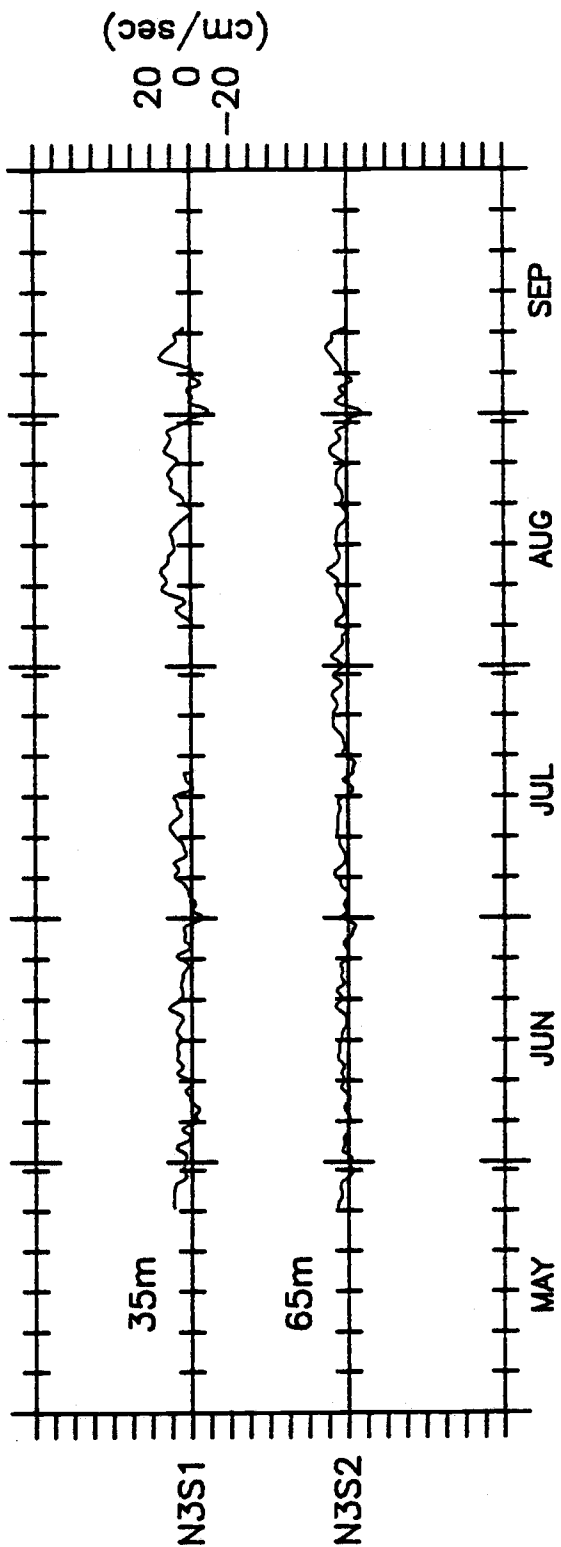


CAPITAN velocity



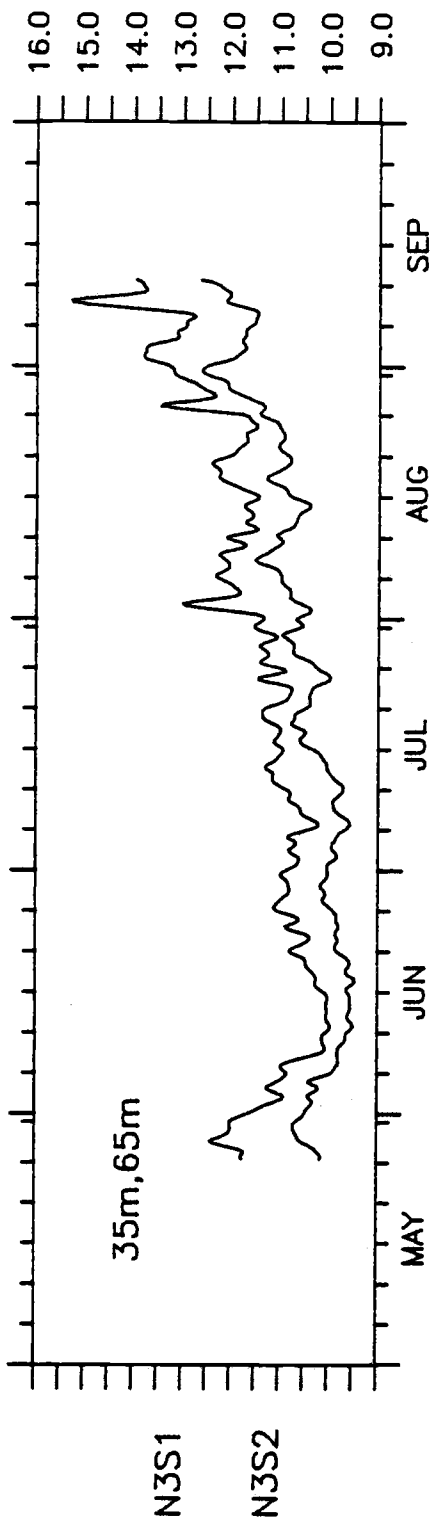
CAPITAN U velocity

1982



CAPITAN V velocity

1982



1982

CAPITAN SHALLOW Temperature

APPENDIX



APPENDIX  
SAMPLING AND PROCESSING INFORMATION

A description of the instruments and the procedures used in processing the data can be found in Pillsbury, et al. (1974) and (1980). The general calibration techniques for Aanderaa current meters are discussed in Pillsbury et al. (1974). The calibration of the pressure transducers and improvements in compass calibration are described in Pillsbury et al. (1980). The temperature calibration procedure used for the instruments in SuperCODE is described in a section below.

The Aanderaa current meters sampled speed, direction, temperature and, in some cases, pressure at 30 minute intervals during the main period of SuperCODE (February 1981 - September 1982). The current meters installed in September 1982 and July 1983 off Coos Bay and Eureka used an hourly sampling interval. The speed record from Aanderaa current meters is based on the rotor count during the sampling interval and, hence, is the average speed over the interval. The nominal threshold of the speed sensor is  $1.5 \text{ cm s}^{-1}$ . In processing, a zero in the speed sensor record is set equal to  $0.8 \text{ cm s}^{-1}$ , i.e., half the threshold. The direction, temperature and pressure are



'instantaneous' measurements at the end of the sampling interval. The data are processed into engineering units and the time assigned to each data record is the time (UT) at the end of the sampling interval rounded to the minute.

The data taken at 30 minute intervals were converted to low-passed (LP) data (hourly values, half-power at 2.9 hours) using the program LP30 (all processing programs are included at the end of this section). These data were interpolated using the program LPNTRP to give the data points on the hour (UT). These LP data records were then used to form low-low-passed (LLP) files (at 6 hourly intervals) with the program LLP which low-pass filters (half-power at 46.6 hours) the hourly data to remove the diurnal and shorter period tidal energy and any inertial frequency energy.

The data taken at hourly intervals were not filtered or interpolated in forming the hourly series used in this data report. However, in forming the LLP files, the program LPNTRP was used to interpolate the data to fall on the hour before applying the program LLP.

#### CALIBRATION OF THE TEMPERATURE SENSORS

Laboratory calibrations of the current meter temperature sensors are conducted by immersing several current meters simultaneously in a bath of water, which is vigorously stirred,

and whose temperature is measured precisely. A Sea Bird thermistor (Model SBE3-0115) is used in the calibration. This instrument has a guaranteed accuracy of  $\pm 0.01^{\circ}\text{C}$  over a six-month period, and is typically stable to better than  $\pm 0.003^{\circ}\text{C}$ . The Sea Bird thermistor is itself calibrated at least once per year using a Leeds-Northrup 8163Q3 platinum thermometer and a Mueller resistance bridge.

In general, the Aanderaa current meters used in the SuperCODE experiment were calibrated in the 0 to  $20^{\circ}\text{C}$  temperature range with a calibration point made at every degree. The data between 5 and  $15^{\circ}\text{C}$  were used for the final SuperCODE calibrations. A file of bit number versus temperature is created and from it the calibration coefficients,  $a$ ,  $b$ , and  $c$ , are calculated by least squares fit, assuming the form  $T = a + bN + cN^2$  where  $N$  is the bit number recorded by the Aanderaa current meters.

In general, each current meter is calibrated once between each recovery and redeployment. Differences between  $T(N)$  at different times are a measure of the accuracy of the temperature measurement. For the current meters used during SuperCODE, these were  $< 0.05^{\circ}\text{C}$ .

## PROGRAM LP30

C\*\*READS A 30-MINUTE AANDERAA RCM P FILE AND LOW-PASS FILTERS IT.  
 C\*\*THE OUTPUT POINTS ARE 1 HOUR APART. THE FILTER IS A COSINE-LANCZOS  
 C\*\*FILTER WITH 12+1+12 POINTS. WAVES WITH PERIODS LONGER THAN 3.6 HOURS  
 C\*\*ARE PASSED UNATTENUATED AND WAVES WITH PERIODS SHORTER THAN 2 HOURS  
 C\*\*ARE REMOVED ENTIRELY. HALF AMPLITUDE AT 0.38 CYCLES/HR AND HALF  
 C\*\*POWER AT 0.35 CYCLES/HR.

```

    DIMENSION W(13), X(5,25), SUM(5), IBUF(11), BUF(9), FCTR(12,5),
X   ADDEND(12,5), IPRMA(12), IPRMB(12)
    DATA IPRMA /6*1, 2*3, 4, 3*3/ IPRMB /2, 3, 4, 5, 3*4, 3, 2*4,
X   5, 4/ FCTR / 6*.1, 6*0., 6*.1, 7*0., 7*.01, 0., 3*.01, 2*0.,
X   2*.1, .01, .001, .01, 0., .01, 2*.1, .001, 3*0., .001,
X   6*0., .001, 0./ ADDEND /60*0./
X   W / .380297, .291885, .102790, -.0395268, -.0623169,
X   -.0133348, .0229200, .0175362, -.00161050, -.00740411,
X   -.00235450, .000888719, .000378864/
    ADDEND(4,5) = 20.0
    ADDEND(6,4) = 20.0
    ADDEND(11,5) = 20.0
    ADDEND(12,4) = 20.0
    SUMU = 0.0
    SUMV = 0.0
    CALL INFIL (1, 'U')
    CALL OUTFIL (2, 'U')
    NSKIP = TTYIN ('NUMBER OF LINES TO SKIP INITIALLY', 33)
    NPTS = TTYIN ('NUMBER OF LINES TO READ', 23)
10   IOP = TTYIN ('OPTION', 6)
    IF (IOP .LE. 0 .OR. IOP .GE. 13) GO TO 10
    IPRMST = IPRMA(IOP)
    IPRMND = IPRMB(IOP)
    MND = IPRMND + 6
    IF (NSKIP .LE. 0) GO TO 18
    DO 16 I=1,NSKIP
16   READ (1)
C**READ THE FIRST 25 CYCLES.
18   DO 30 J=1,25
    READ (1) (IBUF(M), M=1,MND)
    ASSIGN 20 TO LIMBO
    GO TO 200
20   DO 30 IPRM=IPRMST,IPRMND
    M = IPRM + 6
30   X(IPRM,J) = ADDEND(IOP,IPRM) + FLOAT(IBUF(M))*FCTR(IOP,IPRM)
    NOUT = 0
    NCNTR = 13
C**GET THE DOT PRODUCT OF THE FILTER AND THE CURRENT CONTENTS OF X.
50   DO 100 IPRM=IPRMST,IPRMND
    SUM(IPRM) = X(IPRM,13)*W(1)
    JLO = 13
    JHI = JLO
    DO 100 I=2,13
    JLO = JLO -1

```

```

      JHI = JHI + 1
100  SUM(IPRM) = SUM(IPRM) + W(I)*(X(IPRM,JLO) + X(IPRM,JHI))
      NOUT = NOUT + 1
C**ASSEMBLE THE OUTPUT LINE AND WRITE IT TO LUN 2.
      J = 0
      DO 130 IPRM=IPRMST,IPRMND
      J = J + 1
      BUF(J) = SUM(IPRM)
      IF (IPRM .EQ. 1) GO TO 115
      IF (IPRM .EQ. 2) GO TO 120
      GO TO 130
115  SUMU = SUMU + BUF(J)
      BUF(J+2) = SUMU
      GO TO 130
120  SUMV = SUMV + BUF(J)
      J = J + 2
      BUF(J) = SUMV
130  CONTINUE
      WRITE (2) (BUF(M), M=1,J), NOUT
      NCNTR = NCNTR + 2
      IF (NCNTR+12 .GT. NPTS) GO TO 150
C**MAKE ROOM FOR 2 NEW POINTS IN THE X ARRAY, THEN GET THEM FROM LUN 1.
      DO 135 J=1,23
      DO 135 IPRM=IPRMST,IPRMND
135  X(IPRM,J) = X(IPRM,J+2)
      DO 140 J=24,25
      READ (1) (IBUF(M), M=1,MND)
      ASSIGN 138 TO LIMBO
      GO TO 200
138  DO 140 IPRM=IPRMST,IPRMND
      M = IPRM + 6
140  X(IPRM,J) = ADDEND(IOP,IPRM) + FLOAT(IBUF(M))*FCTR(IOP,IPRM)
      GO TO 50
150  WRITE (5, 160) NOUT
160  FORMAT ('OTHE OUTPUT FILE HAS ', I4, ' LINES. '//)
      CALL EXIT
C**IF PRESSURE IS PRESENT AND SUFFICIENTLY GREAT, ADJUST FCTR.
200  IF (IOP.NE.3 .AND. IOP.NE.4 .AND. IOP.NE.10 .AND. IOP.NE.11)
      X GO TO LIMBO
      FCTR(IOP,4) = 0.1
      IF (IBUF(10) .LT. 0) FCTR(IOP,4) = - 1.0
      GO TO LIMBO
      END

```

```

PROGRAM LPNTRP
C***READS AN UNDATED LP OR LLP FILE AND INTERPOLATES TO PRODUCE AN
C***UNDATED FILE WHOSE POINTS LIE AT INTERMEDIATE POSITIONS SPECIFIED
C***THROUGH AN INPUT "FRACTION", WHICH DETERMINES THE FRACTIONAL
C***DISTANCE, MEASURED FROM POINT 1 TO POINT 2 OF THE INPUT SERIES, AT
C***WHICH THE FIRST POINT OF THE OUTPUT FILE IS TO LIE.
  DIMENSION X(4,7), Y(7), Z(7)
  IFLAG = 1
  Y(3) = 0.0
  Y(4) = 0.0
  CALL INFIL (1, 'U')
  CALL OUTFIL (2, 'U')
500  IOP = TTYIN ('FILTERING OPTION USED', 21)
     IF (IOP .LT. 1 .OR. IOP .GT. 12) GO TO 500
     GO TO (1, 2, 3, 4, 3, 3, 7, 8, 8, 7, 11, 8) IOP
1    NVAR = 4
     GO TO 50
2    NVAR = 5
     GO TO 50
3    NVAR = 6
     GO TO 50
4    NVAR = 7
     GO TO 50
7    NVAR = 2
     GO TO 50
8    NVAR = 1
     GO TO 50
11   NVAR = 3
50   FRAC = TTYIN ('FRACTION', 8)
55   A = FRAC + FLOAT(IFLAG - 1)
     AM1 = A - 1.0
     AM2 = A - 2.0
     AM3 = A - 3.0
     C1 = - AM1*AM2*AM3/6.0
     C2 = A*AM2*AM3/2.0
     C3 = - A*AM1*AM3/2.0
     C4 = A*AM1*AM2/6.0
     GO TO (57, 110, 110, 110) IFLAG
C***READ THE FIRST 4 LINES.
57   DO 60 I=1,4
60   READ (1) (X(I,J), J=1,NVAR)
C***CALCULATE AN OUTPUT LINE BY LAGRANGIAN INTERPOLATION (SEE P. 329
C***OF 'MATHEMATICAL METHODS OF PHYSICS' BY MATHEWS_WALKER).
110  IF (NVAR .LT. 4) GO TO 170
     DO 120 J=1,2
120  Y(J) = C1*X(1,J) + C2*X(2,J) + C3*X(3,J) + C4*X(4,J)
     Y(3) = Y(3) + Y(1)
     Y(4) = Y(4) + Y(2)
     IF (NVAR .EQ. 4) GO TO 200
     J1 = 5
     GO TO 180
170  J1 = 1
180  DO 190 J=J1,NVAR

```

```
190  Y(J) = C1*X(1,J) + C2*X(2,J) + C3*X(3,J) + C4*X(4,J)
200  WRITE (2) (Y(J), J=1,NVAR)
      GO TO (300, 350, 400, 205) IFLAG
C***GET A NEW INPUT LINE.
205  READ (1, END=370) (Z(J), J=1,NVAR)
      DO 210 J=1,NVAR
      DO 208 I=1,3
208  X(I,J) = X(I+1,J)
210  X(4,J) = Z(J)
      GO TO 110
C***CHANGE IFLAG, WHICH CONTROLS THE LOCATION OF THE INTERPOLATION
C***POINT.
300  IFLAG = 2
      GO TO 55
350  IFLAG = 4
      GO TO 205
370  IFLAG = 3
      GO TO 55
400  CALL EXIT
      END
```

## PROGRAM LLP

C\*\*LOW-LOW-PASS FILTERS AANDERAA LOW-PASS (HOURLY) DATA FILES. THE  
 C\*\*FILTER IS A 60+1+60 POINT COSINE-LANCZOS FILTER WITH HALF AMPLITUDE  
 C\*\*AT 0.025 CYCLES/HR AND HALF POWER AT 0.02146 CYCLES/HR. THE FIRST 6  
 C\*\*AND LAST 6 POINTS OF THE OUTPUT SERIES ARE PRODUCED WITH A VARIABLE-  
 C\*\*LENGTH TRUNCATED VERSION OF THE FILTER, SO THAT ONLY 24 HRS ARE LOST  
 C\*\*AT EITHER END OF THE INPUT SERIES. OUTPUT POINTS ARE 6 HRS APART.  
 C\*\*IOP HAS THE SAME MEANING HERE AS WITH THE LP PROGRAMS.

DIMENSION W(61), X(5,121), SUM(5), ABUF(9), BBUF(9), IPRMA(12),

X IPRMB(12)

DATA IPRMA /12\*1/ IPRMB /2, 3, 4, 5, 2\*4, 2, 2\*1, 2, 3, 4/

DATA W /.50184E-1, .499447E-1, .492317E-1, .480592E-1, .464503E-1,

X .444366E-1, .420574E-1, .393586E-1, .363914E-1, .332112E-1,

X .29876E-1, .264454E-1, .229786E-1, .195334E-1, .161646E-1,

X .12923E-1, .985452E-2, .699864E-2, .438837E-2, .204941E-2,

X .0, -.17492E-2, -.319491E-2, -.434092E-2, -.519754E-2,

X -.57809E-2, -.611216E-2, -.621655E-2, -.612246E-2, -.586035E-2,

X -.546179E-2, -.495844E-2, -.438118E-2, -.375924E-2, -.311952E-2,

X -.248599E-2, -.18792E-2, -.131607E-2, -.80964E-3, -.369122E-3,

X .0, .295727E-3, .519196E-3, .67425E-3, .766951E-3, .80505E-3,

X .797444E-3, .753646E-3, .683272E-3, .595586E-3, .499108E-3,

X .401287E-3, .308265E-3, .224728E-3, .153843E-3, .972726E-4,

X .552832E-4, .269017E-4, .101382E-4, .224482E-5, .0/

NOUTND = 6

KFLAG = 0

SUMU = 0.0

SUMV = 0.0

CALL INFIL (1, 'U')

CALL OUTFIL (2, 'U')

NSKIP = TTYIN ('NUMBER OF LINES TO SKIP INITIALLY', 33)

NPTS = TTYIN ('NUMBER OF LINES TO READ', 23)

10 IOP = TTYIN ('OPTION', 6)

IF (IOP .LE. 0 .OR. IOP .GE. 13) GO TO 10

IPRMST = IPRMA(IOP)

IPRMND = IPRMB(IOP)

MND = IPRMND + 2

IF (IOP .GT. 1 .AND. IOP .LT. 7) MND = IPRMND + 4

IF (NSKIP .LE. 0) GO TO 16

DO 14 I=1,NSKIP

14 READ (1)

C\*\*READ THE FIRST 121 CYCLES.

16 DO 20 J=1,121

READ (1) (ABUF(M), M=1,MND)

DO 20 IPRM=IPRMST,IPRMND

M = IPRM + 2

IF (IPRM .GT. 2 .AND. IOP .GT. 1 .AND. IOP .LT. 7)

X M = IPRM + 4

20 X(IPRM,J) = ABUF(M)

NOUT = 0

NCNTR = 25

GO TO 200

C\*\*GET THE DOT PRODUCT OF THE FILTER AND THE CURRENT CONTENTS OF X.

50 DO 100 IPRM=IPRMST,IPRMND

```

SUM(IPRM) = X(IPRM,61)*W(1)
JLO = 61
JHI = JLO
DO 100 I=2,61
JLO = JLO -1
JHI = JHI + 1
100 SUM(IPRM) = SUM(IPRM) + W(I)*(X(IPRM,JLO) + X(IPRM,JHI))
105 NOUT = NOUT + 1
C**ASSEMBLE THE OUTPUT LINE AND WRITE IT TO LUN 2.
J = 0
DO 130 IPRM=IPRMST,IPRMND
J = J + 1
BBUF(J) = SUM(IPRM)
IF (IPRM .EQ. 1 .AND. IOP .LT. 7) GO TO 115
IF (IPRM .EQ. 2 .AND. IOP .LT. 7) GO TO 120
GO TO 130
115 SUMU = SUMU + BBUF(J)
BBUF(J+2) = SUMU
GO TO 130
120 SUMV = SUMV + BBUF(J)
J = J + 2
BBUF(J) = SUMV
130 CONTINUE
WRITE (2) (BBUF(M), M=1,J), NOUT
NCNTR = NCNTR + 6
IF (NOUT + KFLAG .LE. NOUTND) GO TO 200
IF (KFLAG .GT. 0) GO TO 155
IF (NCNTR + 60 .GT. NPTS) GO TO 150
C**MAKE ROOM FOR 6 NEW POINTS IN THE X ARRAY, THEN GET THEM FROM LUN 1.
DO 135 J=1,115
DO 135 IPRM=IPRMST,IPRMND
135 X(IPRM,J) = X(IPRM,J+6)
DO 140 J=116,121
READ (1) (ABUF(M), M=1,MND)
DO 140 IPRM=IPRMST,IPRMND
M = IPRM + 2
IF (IPRM .GT. 2 .AND. IOP .GT. 1 .AND. IOP .LT. 7)
X M = IPRM + 4
140 X(IPRM,J) = ABUF(M)
GO TO 50
150 NOUTND = NOUT + 6
NCNTR = 67
KFLAG = 1
GO TO 300
155 WRITE (5, 160) NOUT
160 FORMAT ('OTHE OUTPUT FILE HAS ', I4, ' LINES. '//)
CALL EXIT
C**THIS SECTION CALCULATES THE FIRST 6 POINTS OF THE OUTPUT SERIES. THE
C**FILTER USED IS A TRUNCATED VERSION OF THE 60+1+60 POINT FILTER, AND
C**ITS LENGTH INCREASES WITH EACH SUCCEEDING POINT.
200 IF (KFLAG .GT. 0) GO TO 300
DO 220 IPRM=IPRMST,IPRMND
SUM(IPRM) = X(IPRM,NCNTR)*W(1)

```



```
JLO = NCNTR
JHI = NCNTR
DO 220 I=2,NCNTR
JLO = JLO - 1
JHI = JHI + 1
220 SUM(IPRM) = SUM(IPRM) + (X(IPRM,JLO) + X(IPRM,JHI))*W(I)
IEND = NCNTR
225 SUMWTS = W(1)
DO 230 I=2,IEND
230 SUMWTS = SUMWTS + W(I)*2.0
DO 240 IPRM=IPRMST,IPRMND
240 SUM(IPRM) = SUM(IPRM)/SUMWTS
GO TO 105
C**THIS SECTION PROVIDES THE LAST 6 POINTS OF THE OUTPUT SERIES BY
C**A PROCESS INVERSE TO THE CALCULATION OF THE FIRST 6.
300 DO 330 IPRM=IPRMST,IPRMND
SUM(IPRM) = X(IPRM,NCNTR)*W(1)
JLO = NCNTR
JHI = NCNTR
IEND = 121 - NCNTR + 1
DO 330 I=2,IEND
JLO = JLO - 1
JHI = JHI + 1
330 SUM(IPRM) = SUM(IPRM) + (X(IPRM,JLO) + X(IPRM,JHI))*W(I)
GO TO 225
END
```

