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IOS INTERNAL DOCUMENT

No. 168

LONG-TERM CURRENT MEASUREMENTS IN THE
N. ROCKALL TROUGH

Summer 1978 to Autumn 1980

W.J. Gould, A.N. Cutler, D.L.E. Weddell

IOS Internal Document

No. 168

Type in 1½ spacing strictly
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and on one side of paper,
only

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Department of Energy Contract No. OT/F 497

1982.

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Introduction

The north Rockall Trough, being a possible site for future petroleum exploration has been the location of a Department of Energy-funded project to obtain records of ocean currents over periods of years at depths between 200 and 1500 m. These measurements which have been made by the Wormley laboratory of the Institute of Oceanographic Sciences will provide an extensive data base on which analysis techniques for the prediction of extreme values and the assessment of the importance of long period fluctuations may be carried out. ^{type in 1 1/2 spacing strictly} The data reported here run from the start of the project ^{and on one side of paper,} (July 1978) to October 1980. The measurements are planned to end in the spring of 1982.

Location of the measurements

The sites at which measurements have been made are shown in Fig. 1 in relation to the general bathymetry of the Rockall Trough. The exact mooring locations are listed in Table 1 together with deployment and recovery dates. Inevitably there are slight changes in position, and water depth and also in instrument depths due to variations in the lengths of precut mooring wires. Some deliberate changes in mooring positions were made for operational reasons as outlined in the narrative section of this report.

Three of the sites I1, I2 and I3A lie close to the banks surrounding the Rockall trough and in consequence the currents might be expected to be influenced by the local topography. Site I4 lies well away from major topographic features. In general there are four principal levels at which measurements have been obtained 200, 600, 1000 and 1500m. On I1 only the upper 3 levels are occupied and at I2 and I3A there have been slight changes to the level of the deepest current meters.

Narrative of the mooring operations

The first mooring deployments took place at the start of the JASIN (Joint Air Sea Interaction) Experiment, (Pollard, 1982) on RRS Shackleton Cr. 78/5A. Five sites I1-5 were occupied until the end of the experiment when the moorings were recovered successfully on Shackleton Cr. 78/5C in late August and early September 1978. I1, 2 and 4 were relaid in nominally the same locations. I5 was not relaid and I3 was moved away to the west to lie on the Feni drift and was redesignated I3A.

The processing of data from the JASIN deployments showed unexpectedly high currents at the deepest level on site I2 due to water overflowing from the Norwegian Sea. The choice of instrument sensitivity for the redeployed instrument was therefore thought to be inappropriate and an opportunity was taken of a cruise on the DAFS vessel Scotia in December 1978 to deploy a single near bottom current meter capable of recording high currents near to I2.

The next scheduled recovery and deployment cruise was on Challenger Cr. 79/7 (10-23 May). On this cruise the single current meter mooring at I2 was not located and the main I2 mooring was found to be lying on the sea bed. I1 mooring was also missing. Moorings I3A and I4 were recovered and all four sites were redeployed.

Inspection of the mooring hardware on moorings I3A and I4 showed extensive corrosion of the wire and of the stainless steel acoustic release components. This latter problem was eventually traced to the inadequate heat treatment of a batch of release components which had led to rapid intercrystalline corrosion. In view of the high level of corrosion an additional cruise was scheduled for August 1979 on which all moorings were successfully recovered and redeployed. In addition the lowest current meter on mooring 260 (I2) which had been located but not recovered on the

cruise in May was recovered by dragging. The components recovered gave no clue as to the mode of failure of the mooring which had occurred in early spring 1979.

The next scheduled cruise Challenger 79/16 in October/November was dogged by extreme bad weather and gave no opportunity to recover or relay any of the moorings. An additional cruise was scheduled for December of that year and on this I3A and I4 were successfully recovered. I4 was relaid but during the setting of I3A deteriorating weather caused the deployment wire to break before the buoyancy had been attached. No time was available for an attempt to recover the mooring by dragging. ^{type in 1/2 spacing strictly} ^{and on one side of paper.} ~~is indicated,~~

The three sites ^{only} were recovered and relaid during April/May 1980, Challenger Cr. 80/7. Site I3A was moved 5 miles from its original site in order not to compromise any possible future attempts to recover the lost mooring. Recovery of these moorings was attempted on Challenger Cr. 80/15 in September/October 1980. I4 could not be located and was assumed to have broken adrift from its anchor at some stage. An extensive acoustic search showed no evidence of the acoustic release being on the sea bed. I1, I2 and I3A were recovered and I1, I2 and I4 redeployed. I3A could not be deployed due to severe weather and lack of time.

A bar chart showing the periods for which data are available between July 1978 and October 1980 is shown in fig. 2.

Mooring techniques

The moorings used are of a design which has been under development since the mid-60's. The moorings differ from one another only in the lengths of individual sections of mooring line which are changed to suit the water and instrument depth at a particular site. A diagram of a typical mooring is given in fig. 3.

The buoyancy is provided by a 4 ft. dia. steel sphere giving a net upward lift of the order of 640 kg. A buoyant length of 5 ton BL polypropylene rope connects the pickup floats to the top of the sphere. Below the sphere a short length of large link chain connects to the uppermost wire length. The wires are of galvanised non-rotating 8 x 13 construction and of 8 mm diameter. This wire has a weight in water of 22.25 kg/100m and a rated breaking load of 3675 kg. The ends of the wire lengths are terminated by swaged steel eyes and joints between wires and current meters are made up by 10 mm shackles and egg links. All shackle pins are seized with galvanised ^{type in the spacing strictly} ~~steels wire~~ ^{and on one side of paper,} ~~read,~~

Acoustic release ^{only} units are of IOS manufacture (Phillips 1982), the upper end of each mooring was typically marked by a 10 kHz acoustic command beacon and later in the experiment by a 10 kHz acoustic transponder.

Anchors were made up of scrap ship's anchor chain in typically 100 kg lengths threaded on hand spliced 12 mm galvanised wire. Most anchor weights were of the order of 550 kg. All junctions between galvanised and stainless steel mooring components were insulated.

The moorings were laid anchor first from a double barrelled capstan in which the mooring wires, which had been connected together previously, were stored under low tension on a drum and deployed around the two angled barrels. Wire lengths were measured on deployment and recovery via a meter wheel.

Current meters and data processing

The current meters are slightly modified Aanderaa RCM5 units. The pressure case end caps are of IOS design but otherwise the units are standard. On most moorings the uppermost current meter has recorded pressure on a range 0-1000 psi (resolution of ca 0.6m) in order to monitor

mooring dynamics. The current meters record water temperature, direction (spot values once/sample interval, usually 1 hr) and integrated water speed over the sample period.

All current meters are calibrated before and after deployment for temperature, pressure (where applicable), direction and speed and individual calibrations are applied to each instrument. The direction calibration is applied in the form of a lookup table in order to remove non-linearities which might contaminate the derived mean flows with aliased tidal oscillations (Gould 1973) and corrected for the magnetic variation. ^{Type in 1½ spacing strictly} the limits indicated,

The times of first ^{and on one side of paper,} and last data recording are noted on the log sheet to the nearest second together with the times at which the rotor on the meter was freed (on deployment) and taped (on recovery). These times are then used to check for timing errors. In these data there have been no cases where time errors have been sufficiently great to warrant the use of a sample interval different for the nominal value.

The process of data reduction proceeds as follows.

- (1) Decoding of data onto computer compatible tape.
- (2) Correction of sequence errors due to missing data
- (3) Checking of times
- (4) Apply linear calibration equations to pressure temperature and speed and lookup table to direction.
- (5) shift temperature and pressure by half a sample interval (average adjacent values) and combine speed and direction values as follows:-

Original values at time t_1 are S_1 and D_1
 at time t_2 are S_2 and D_2

New data series at time $\frac{t_1 + t_2}{2}$

$$E = \frac{S}{2} (\sin D_1 + \sin D_2)$$

$$N = \frac{S}{2} (\cos D_1 + \cos D_2)$$

This eliminates the time mismatch between direction and the other "spot value" ^{type in 1 1/2 spacing strictly} variables ^{and on one side of paper,} in addition, speed which is an integrated value of speed ^{only} since the last recording.

- (6) Generate the time base.
- (7) Eliminate noise spikes from the data series.
- (8) Generate low pass filtered versions of the data to eliminate periods 2 days (hourly sampled).
- (9) Combine all records from one site and depth into a combined file containing filtered and unfiltered data, time base and position and depth information at hourly intervals.

All times referred to in this document are elapsed days since 0000 Z 1 January 1978. Table 2 lists corresponding day numbers and dates.

Navigation and depth measurements

All navigation has been carried out using LORAN C (particularly good at sites I1 and I2) and a combination of satellite navigation fixes and dead reckoning derived from a ships 2 component electromagnetic log. Positional accuracies in the area have been discussed by Pollard &

Saunders (1978) who found discrepancies between satellite navigation and Loran C of the order of 400 m. Depths are given in corrected metres - corrections being made by use of Carter's tables (Carter, 1980).

Contents of this report

The data from each mooring deployed in the area will be prefaced with a title page giving mooring details, as outlined in the following example.

Type in 1½ spacing strictly
with Mooring 248¹ (12)
and on one side of paper,
only

<u>Set</u>	28-VIII-78	0903Z ²	<u>Posn.</u>	59° 30' .0N 08° 15' .0W
<u>Recovered</u>	3- IX-78	0505Z ³	<u>Water Depth</u>	1304m

<u>Record</u>	<u>Inst.</u>	<u>Depth</u>	<u>Variables</u>	<u>Sample interval</u>	<u>Comments</u>
24801 ⁴	Aa 468	218m ⁵	Sp,D,T,P	3600 sec	No pressure data. Sensor offscale
24802	Aa 1261	620m	Sp,D,T	3600 sec	
24803	Aa 1345	1000m	Sp,D,T	3600 sec	
24804	Aa 2690	1205m	Sp,D,T	3600 sec	Rotor missing on recovery

Comments

Footnotes

- (1) IOS sequential mooring number
- (2) Time (GMT) at which anchor reached sea bed
- (3) Time (GMT) at which acoustic release fired
- (4) Records numbered sequentially from uppermost instrument on mooring
- (5) Depth derived from pressure record and measured wire lengths.

The individual data plots which follow the title pages show both filtered and unfiltered records of east and north components (relative to true north), unfiltered current speed and in the bottom panel a "stick plot" showing both magnitude and direction of the filtered current vector at 12 hourly intervals.

The individual data plots are followed by combined plots for each site and level, giving histograms and basic statistical values for filtered and unfiltered east, north and speed. (The values for the filtered speed record are derived from east and north). Finally two dimensional distributions of the frequency of occurrence of speed as a function of direction for filtered and unfiltered data are given. Units are of 0.1% (i.e. 27 $\equiv$ 2.7%). A dot indicates less than 0.1%.

All of these analyses and plots are made from the 1 hour sampled time series.

ACKNOWLEDGEMENTS

These mooring operations have been carried out in often extreme weather conditions. All mooring and current meter preparation calibration and deployment work was carried out by John Cherriman and Ian Waddington. Their hard work is central to the success of the operations. The cooperation of the officers and crew of RRS Challenger is also gratefully acknowledged.

Site	IOS Mooring No.	Lat. N	Long. W	Water Depth m	Date Set	Date Recovered
I1	250	59° 59'.2	12° 09'.1	1117	15- VII-78	4- IX-78
	259	59° 59'.3	12° 09'.3	1123	4- IX-78	Lost
	269	59° 58'.6	12° 12'.3	1116	16- V-78	21-VIII-79
	278	59° 58'.1	12° 11'.7	1171	21-VIII-79	24- IV-80
	284	59° 56'.5	12° 10'.7	1252	24- IV-80	5- X-80
I2	248	60° 11'.7	09° 15'.4	1394	14- VII-78	6- IX-78
	260	60° 12'.4	09 15'.7	1400	6- IX-78	Bottom current meter meter recovered August 1979
	261	60° 11'.5	09 15'.5	1366	11- XII-78	Lost (single near bottom current meter)
	270	60° 11'.2	09° 18'.1	1366	16- V-79	22-VIII-79
	279	60° 12'.7	09° 16'.0	1471	24-VIII-79	25- IV-80
	285	60° 11'.8	09° 19'.6	1431	25- IV-80	4- X-80
I3	255	58° 30'.0	12° 40'.2	1591	18- VII-78	1- IX-78
I3A	258	58° 55'.8	13° 15'.1	1616	1- IX-78	15- V-79
	268	58° 55'.3	13° 16'.3	1610	15- V-79	20-VIII-79
	277	58° 55'.6	13° 16'.5	1616	21-VIII-79	10- XII-79
	282	58° 55'.4	13° 16'.9	1605	10- XII-79	Lost on deployment in bad weather
	287	58° 52'.1	13° 15'.4	1634	26- IV-80	8- X-80
4	253	58° 49'.8	11° 39'.8	1821	17- VII-78	27-VIII-78
	257	58° 49'.5	11° 38'.6	1824	27-VIII-78	18- V-79
	271	58° 51'.7	11° 37'.7	1855	18- V-79	20-VIII-79
	276	58° 51'.8	11° 37'.9	1861	20-VIII-79	12- XII-79
	283	58° 49'.9	11° 41'.1	1861	11- XII-79	26- IV-80
	286	58° 51'.4	11° 40'.3	1842	26- IV-80	Lost

ELAPSED TIME (DAYS) SINCE 0000Z 1 JANUARY 1978

TO

0000Z ON 1ST DAY OF DATE SHOWN

	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
1978	000	31	59	90	120	151	181	212	243	273	304	334
1979	365	396	424	455	485	516	546	577	608	638	669	699
1980	730	761	790	821	851	882	912	943	974	1004	1035	1065
1981	1096	1127	1155	1186	1216	1247	1277	1308	1339	1369	1400	1430
1982	1461	1492	1520	1551	1581	1612	1642	1673	1704	1734	1765	1795

Type in 1½ spacing strictly
with the line and on one side of paper
only

REFERENCES

- CARTER, D.J.T. (1980) Echo-sounding correction tables. (Formerly Matthew's tables) Hydrographic Department, Ministry of Defence, Taunton. Third Edn. 1980.
- GOULD, W.J. (1973) Effects of non-linearities of current meter compasses. Deep-sea research 20, 423-427.
- PHILLIPS, G.R.J. (1981) The IOS Acoustic Command & Monitoring System Part 3. Releases, beacons and transponders. Institute of Oceanographic Sciences, Report 96/3 30 pp. Unpublished Manuscript.
- POLLARD, R.T. T. GUYMER^{Type in 1 1/2 spacing strictly} & R.K.M. TAYLOR^{and on one side of paper,} (1983) Results of the JASIN 1978 field^{only} experiment. Phil. Trans. R. Soc. Lond. In Press.
- POLLARD, R.T. & M. SAUNDERS (1978) Navigation in the JASIN area during Discovery Cruise 94, JASIN NEWS 10 October 1978. Unpublished Manuscript.

FIGURE CAPTIONS

1. Bathymetry of the N. Rockall Trough showing positions of mooring sites 11, 2, 3, 3A and 4. Contour interval 100 m.
Key to topographic features:
Ro Rockall Bank
AD Anton Dohrn Seamount
G George Blight Bank
L Lousy Bank
B Bailey Bank
F Faeroe Bank
R Rosemary Bank
WT Wyville-Thomson Ridge.
- 2 Bar chart showing availability of data. Individual mooring numbers are shown. Upper bar in each panel represents uppermost level, lowest represents deepest etc.
3. Schematic diagram of typical mooring. Drawing is not to scale.

Key to Plots

Individual record plots.

- E East component at original sampling rate
- N North component at original sampling rate
- S Speed record at original sampling rate
- EF East component filtered hourly values
- NF North component filtered hourly values
- V Stick plot 12 hourly filtered data

Combined plots.

- (1) Filtered east component hourly values

- (2) Filtered north component hourly values
- (3) Filtered stick plot 12 hourly values

2-D histograms

Speed/direction histograms - distributions explained in text.

1-D histograms

Filtered and unfiltered east north and speed hourly values.

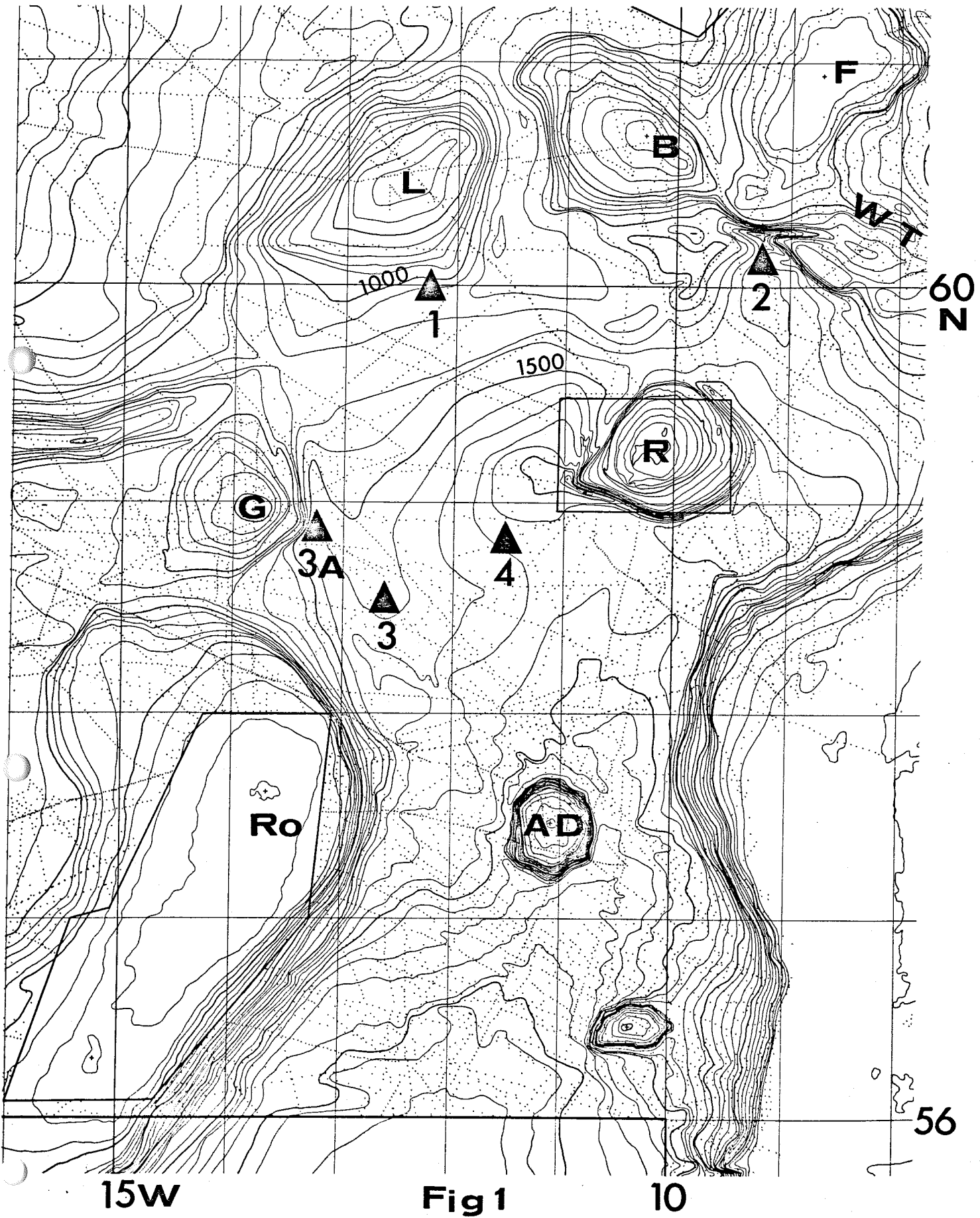
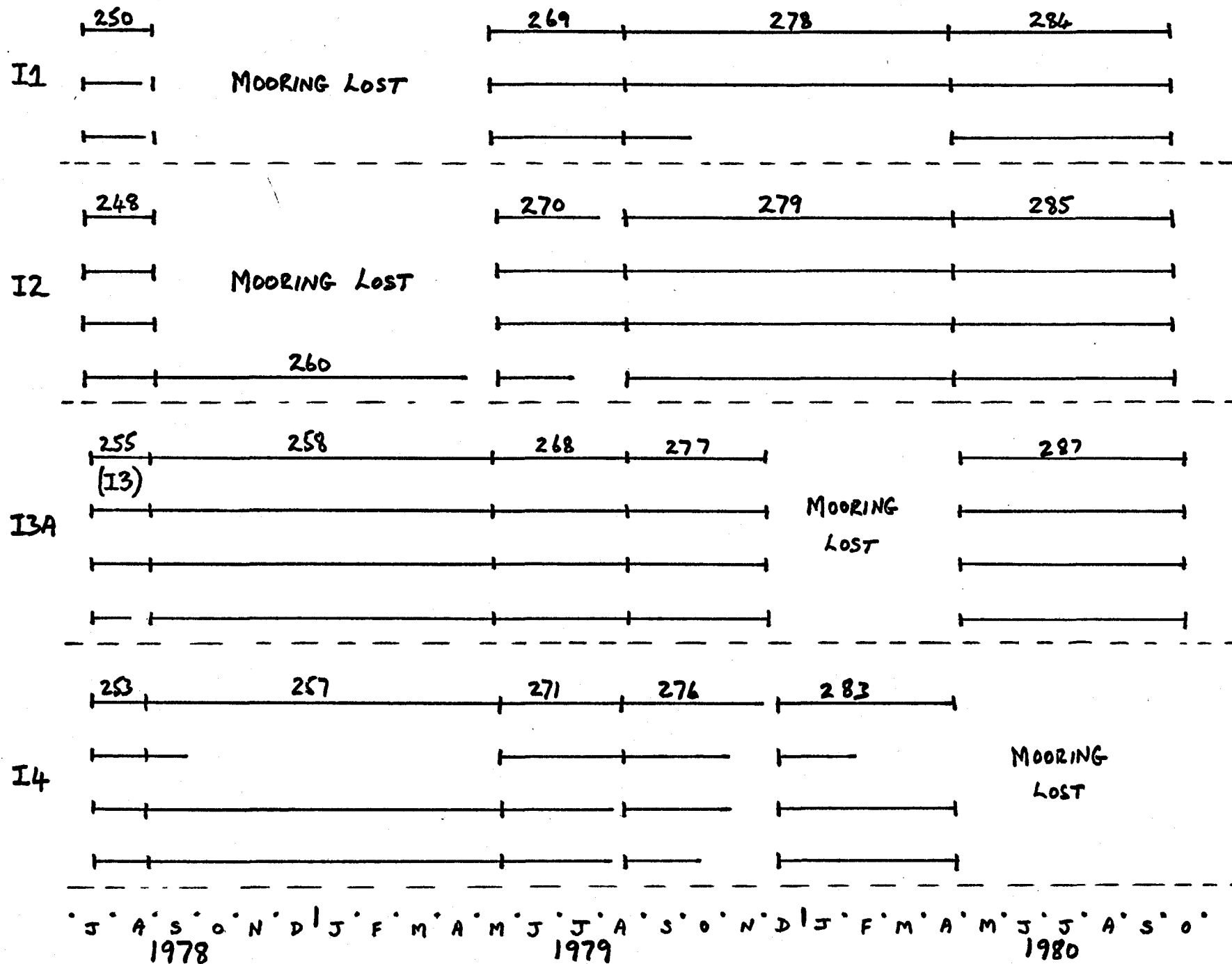


Fig 2



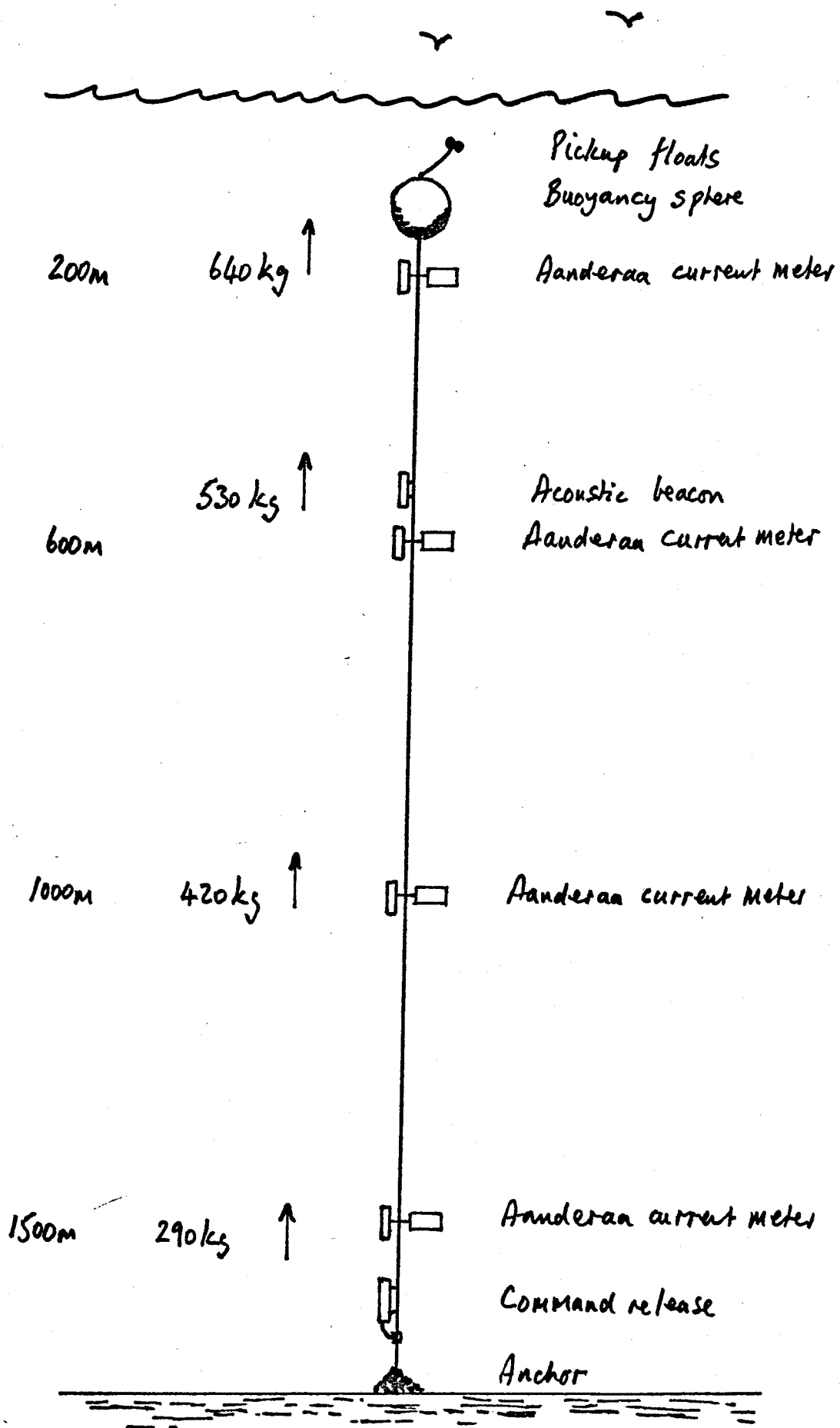


Fig 3

MOORING 250 (11)

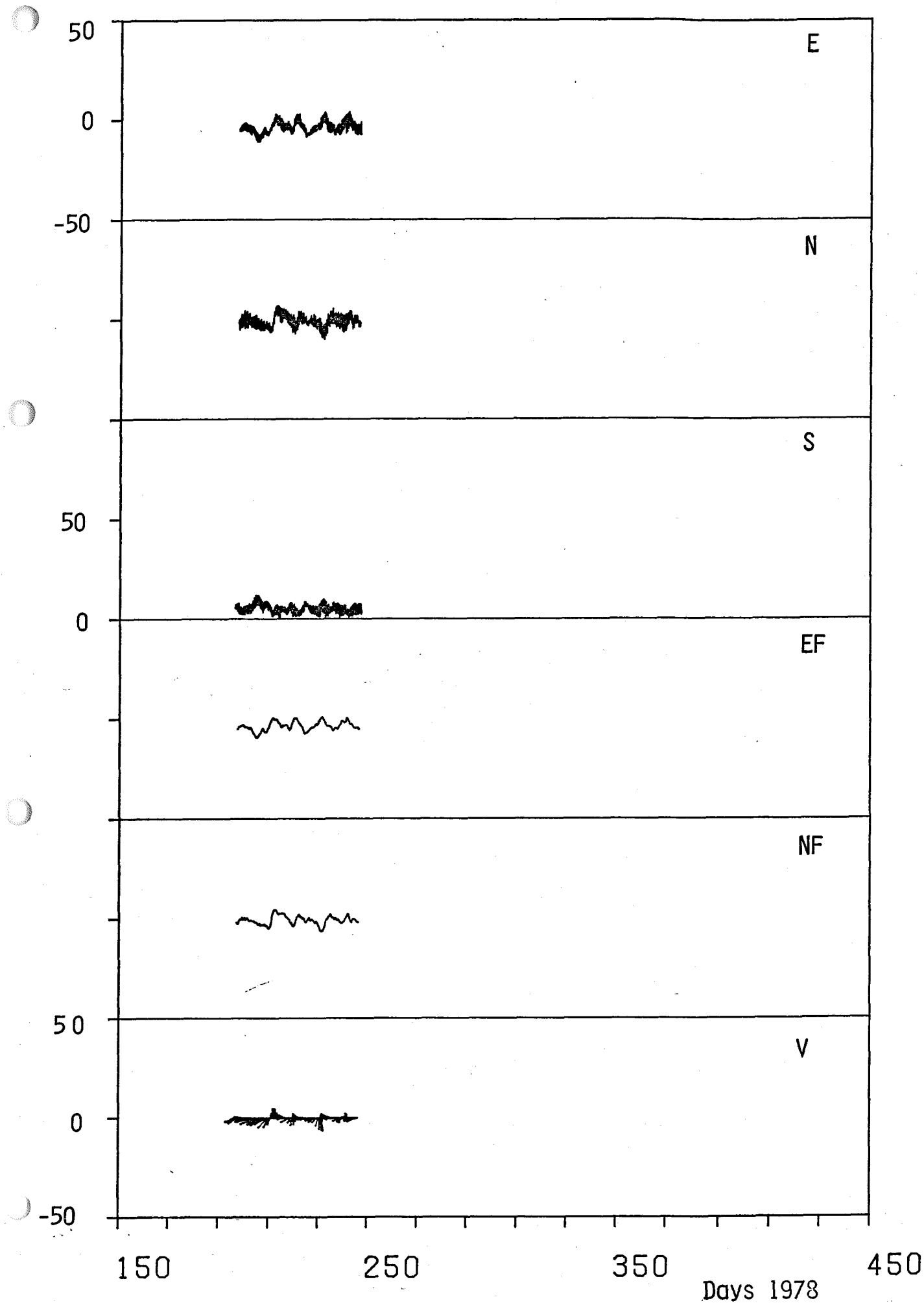
Set 15-VII-78 Position: 59° 59'.2N 12° 09.1W
Recovered 4- IX-78 Water Depth 1117 m

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
25001	Aa 1623	254 m	Sp, D, T	600 sec	No pressure record
25002	Aa 3253	660 m	Sp, D, T	600 sec	Short record
25003	Aa 3255	1066m	Sp, D, t	600 sec	Short record.

Comments

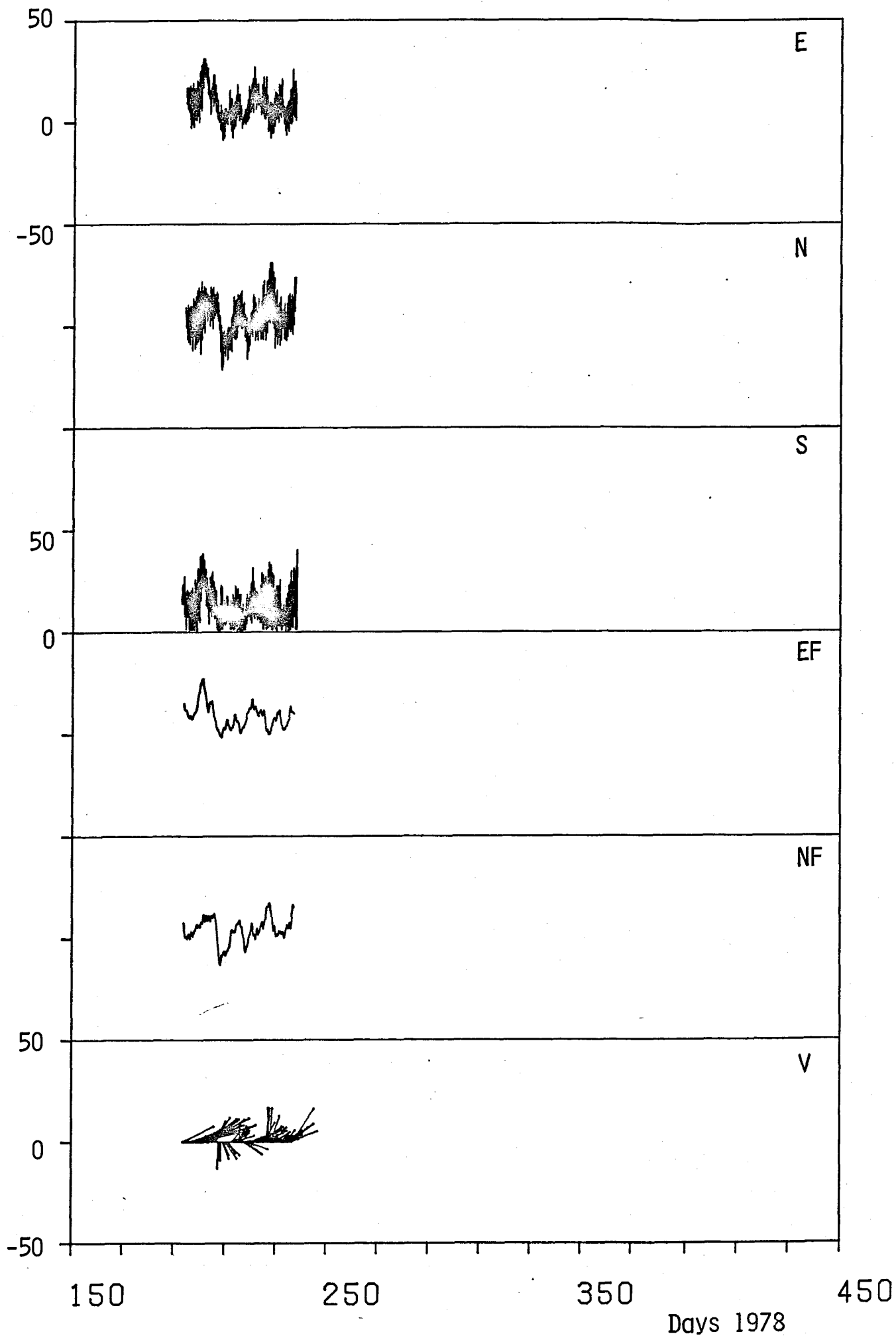
CM/S

(11) 25001



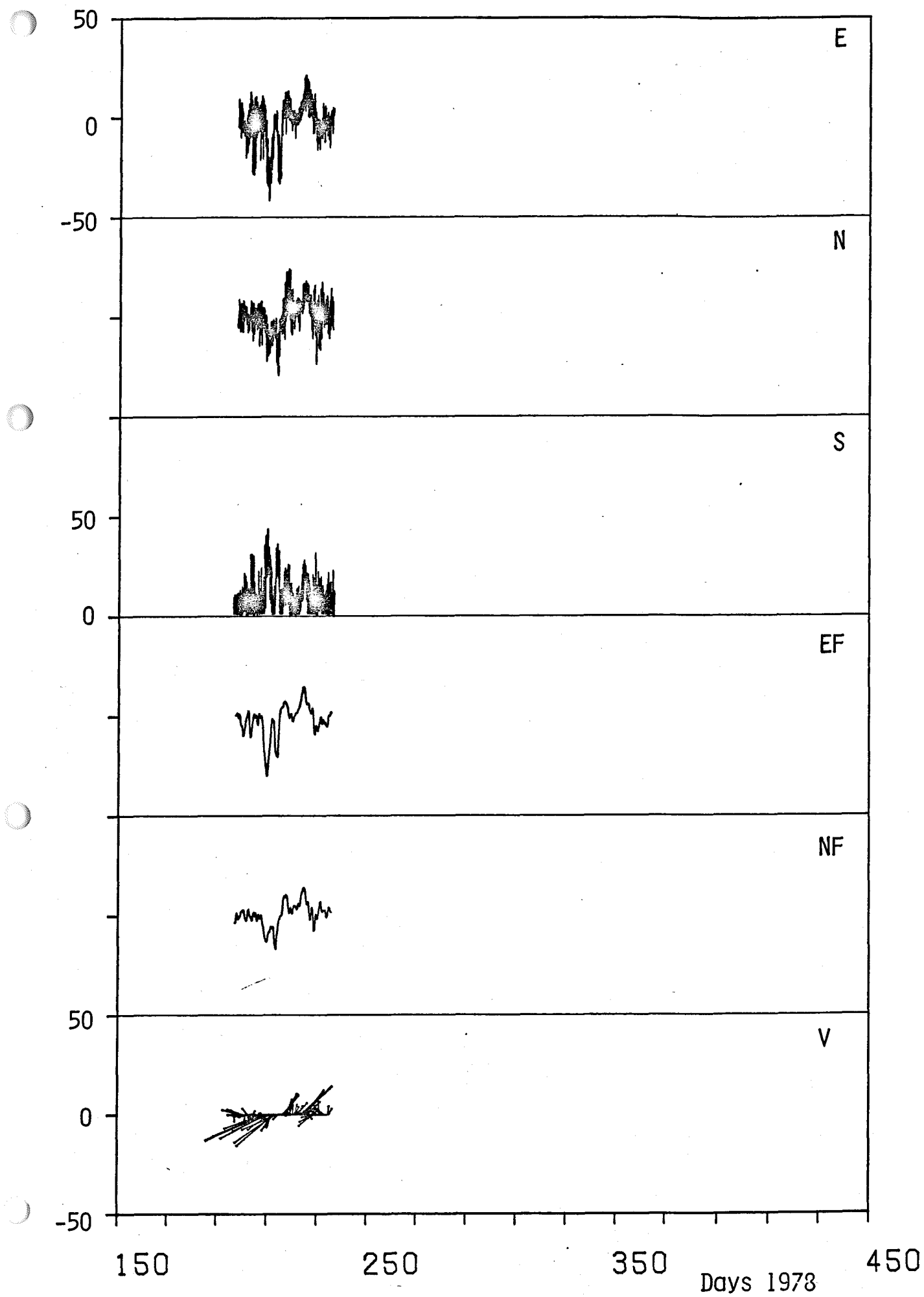
CM/S

(11) 25002



CM/S

(11) 25003



Page No.

MOORING 269 (I1)

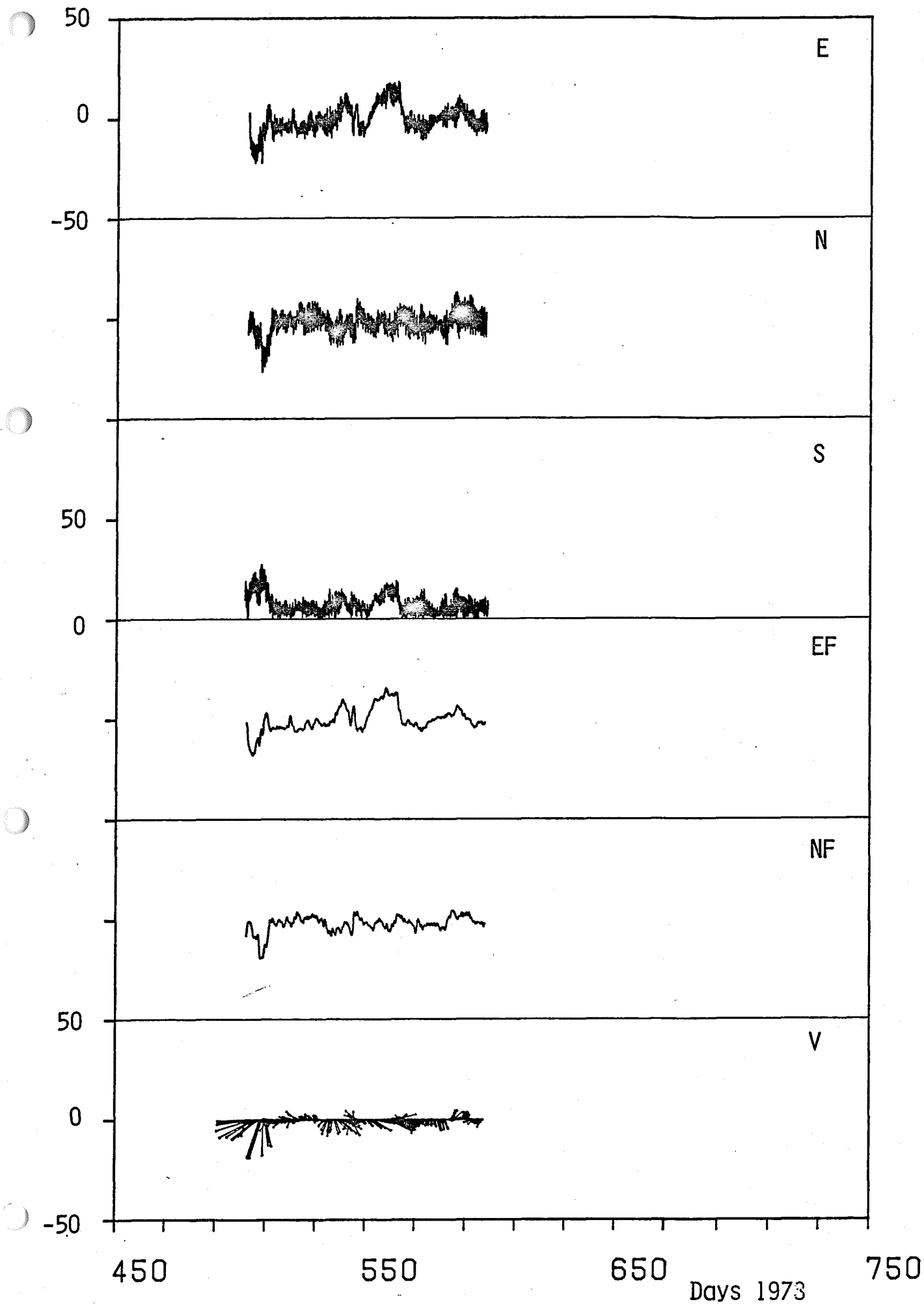
Set 16-V -79Position: 59° 58'.6N 12° 12'.3WRecovered 21-VIII-79Water Depth: 1116 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
26901	Aa 3338	279 m	Sp, D, T, P	3600	
26902	Aa 1260	685 m	Sp, D, T	3600	Type in 1% spacing strictly within the limits indicated,
26903	Aa 2453	1092 m	and Sp, D, T	3600	Tide of page only

Comments

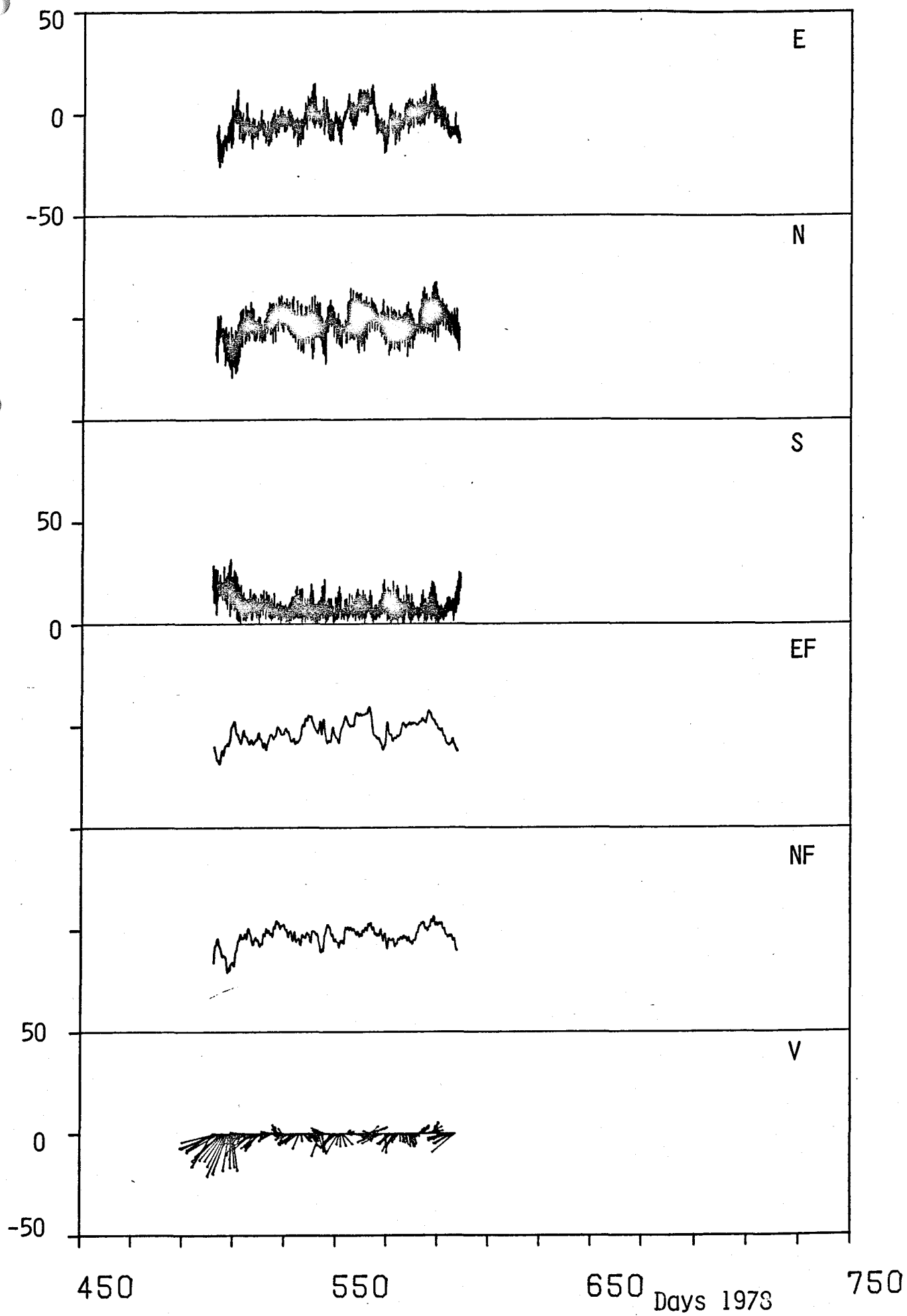
CM/S

(11) 26901



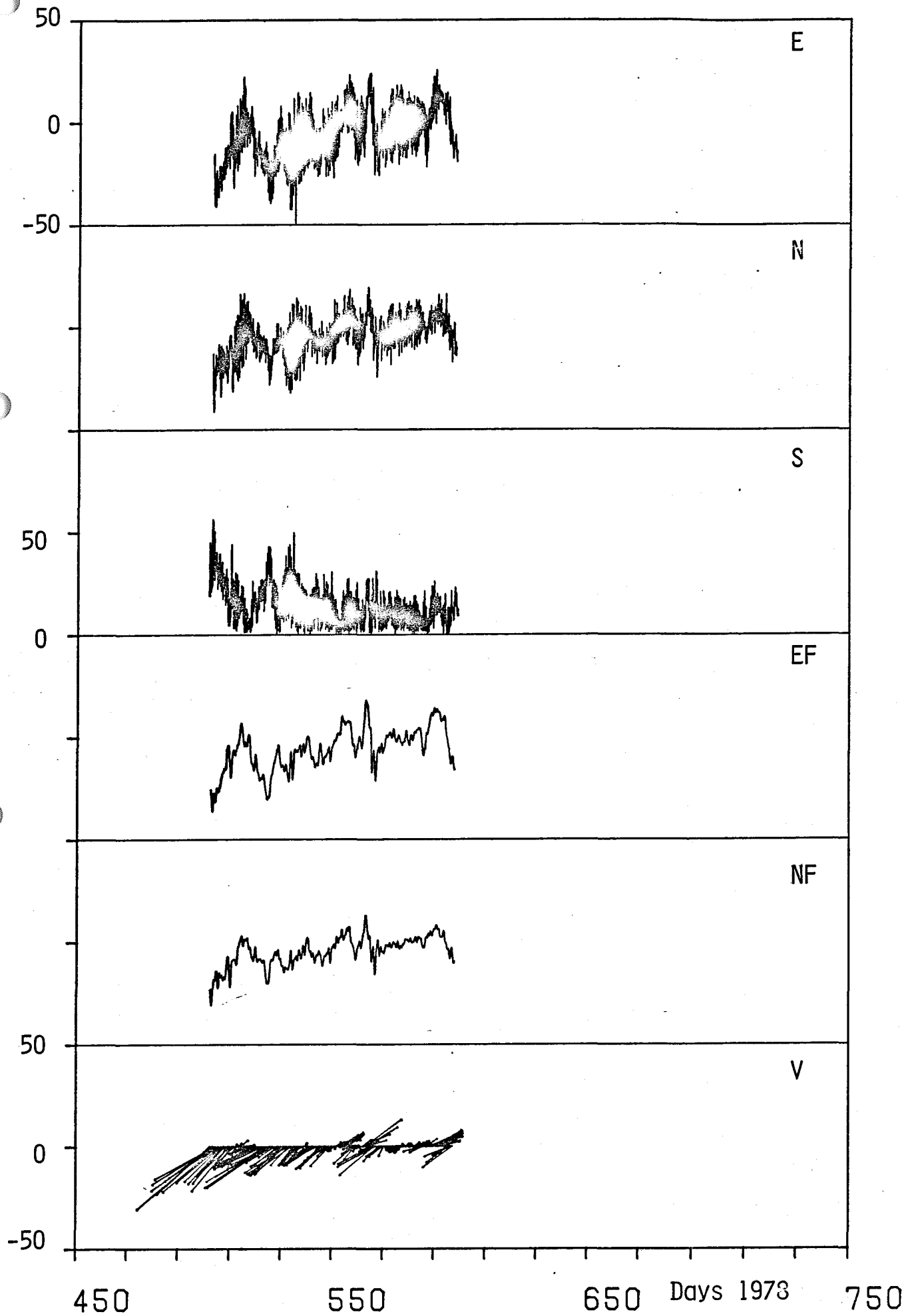
CM/S

(11) 26902



CM/S

(I1) 26903



MOORING 278 (11)

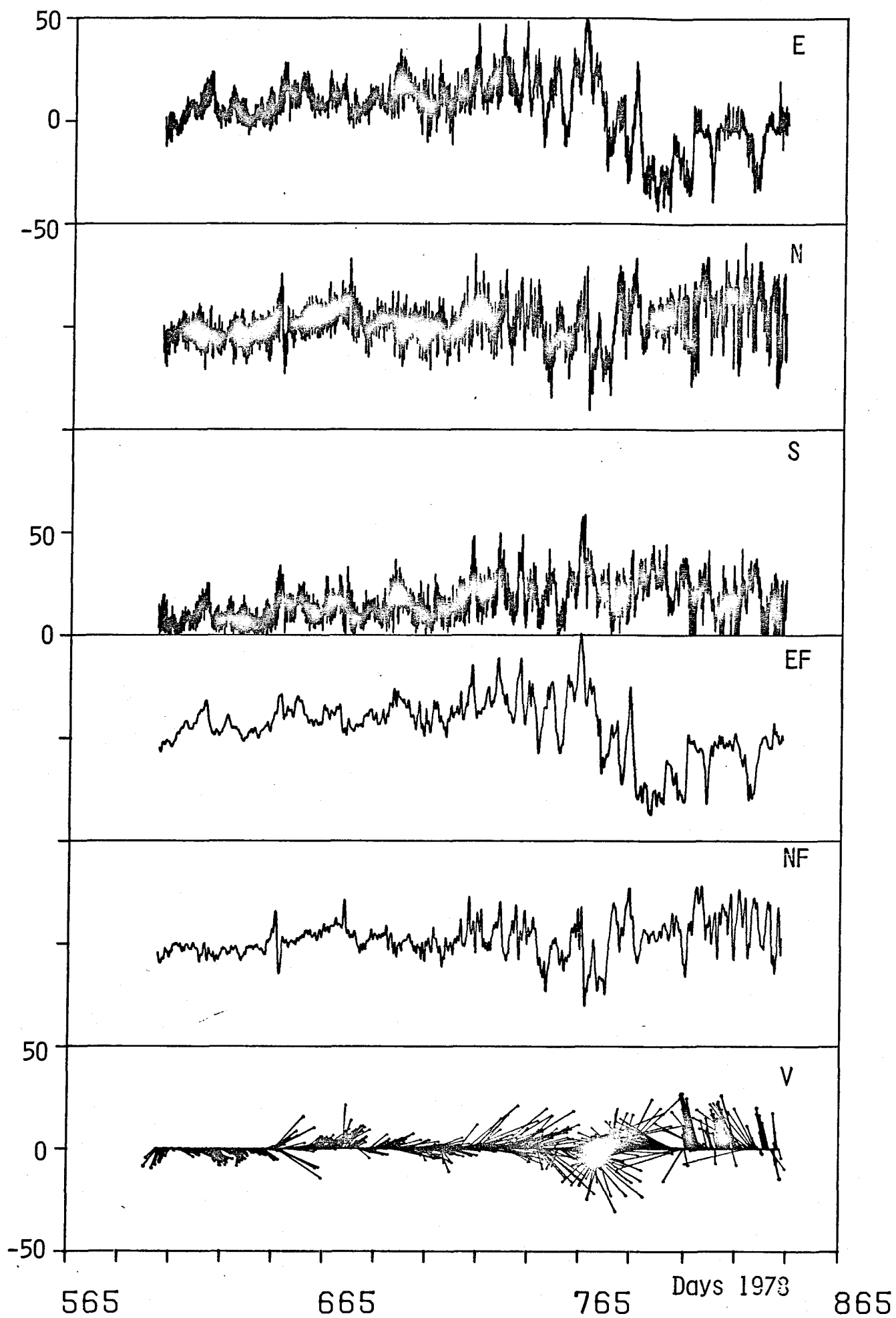
Set 21-VIII-79 Position: 59° 58'.1N 12° 11'.7W
Recovered 24-IV -80 Water Depth: 1171 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
27801	Aa 1259	279	Sp,D,T,P	3600	
27802	Aa 421	696	Sp,D,T	3600	
27803	Aa 3254	1106	Sp,D,T	3600	Short record.

Comments

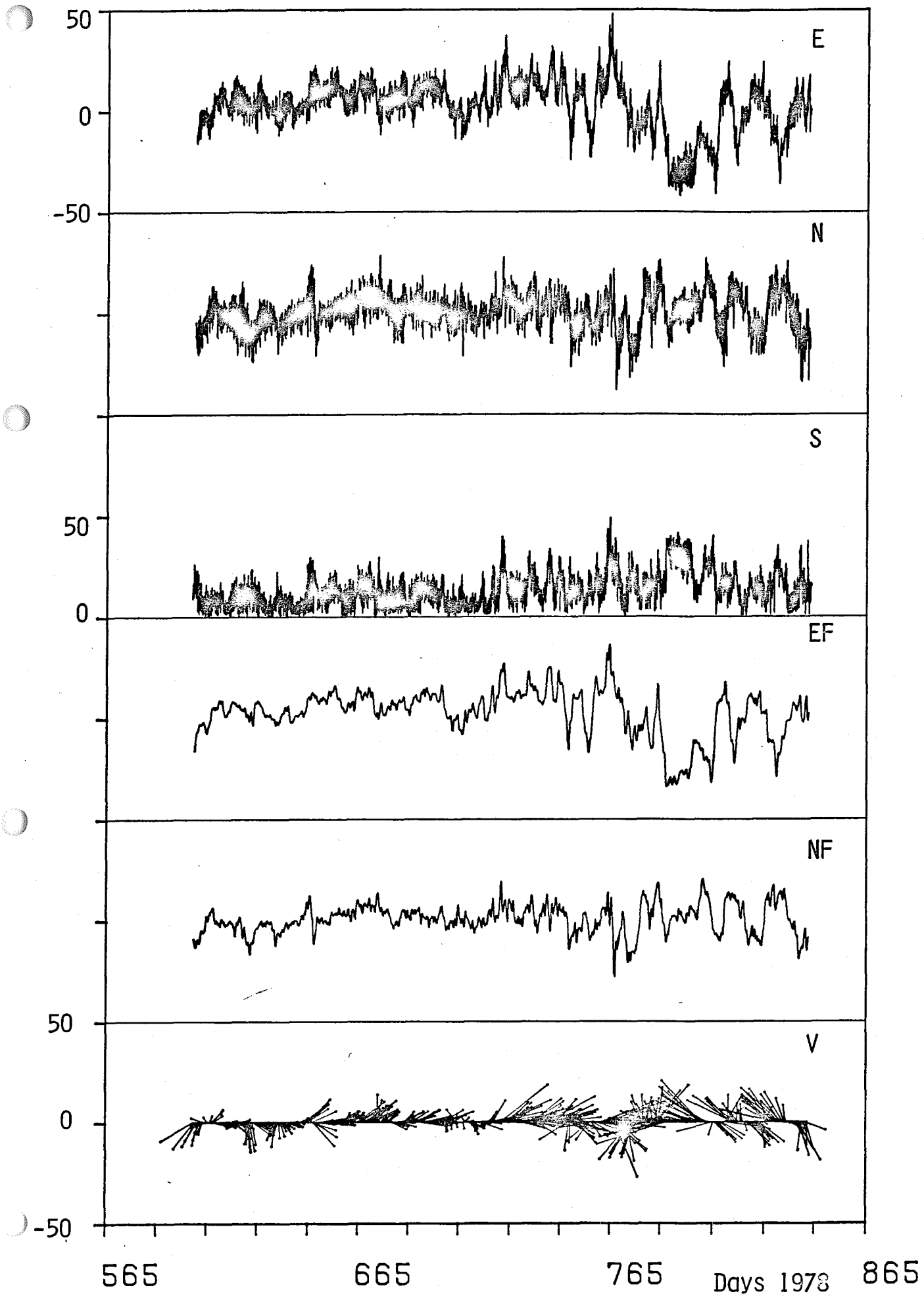
CM/S

(11) 27301



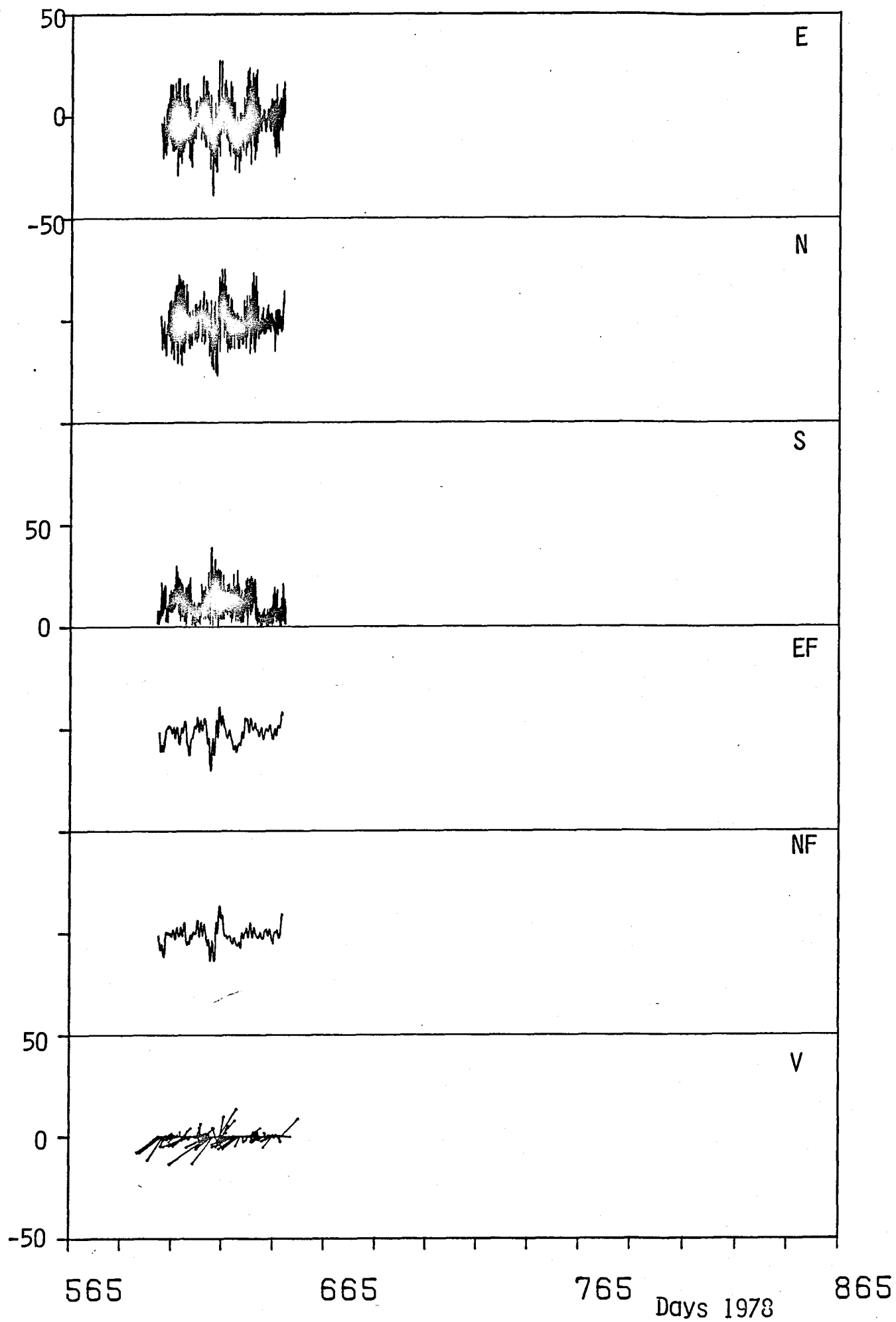
CM/S

(11) 27802



CM/S

(I1) 27803



MOORING 284 (11)

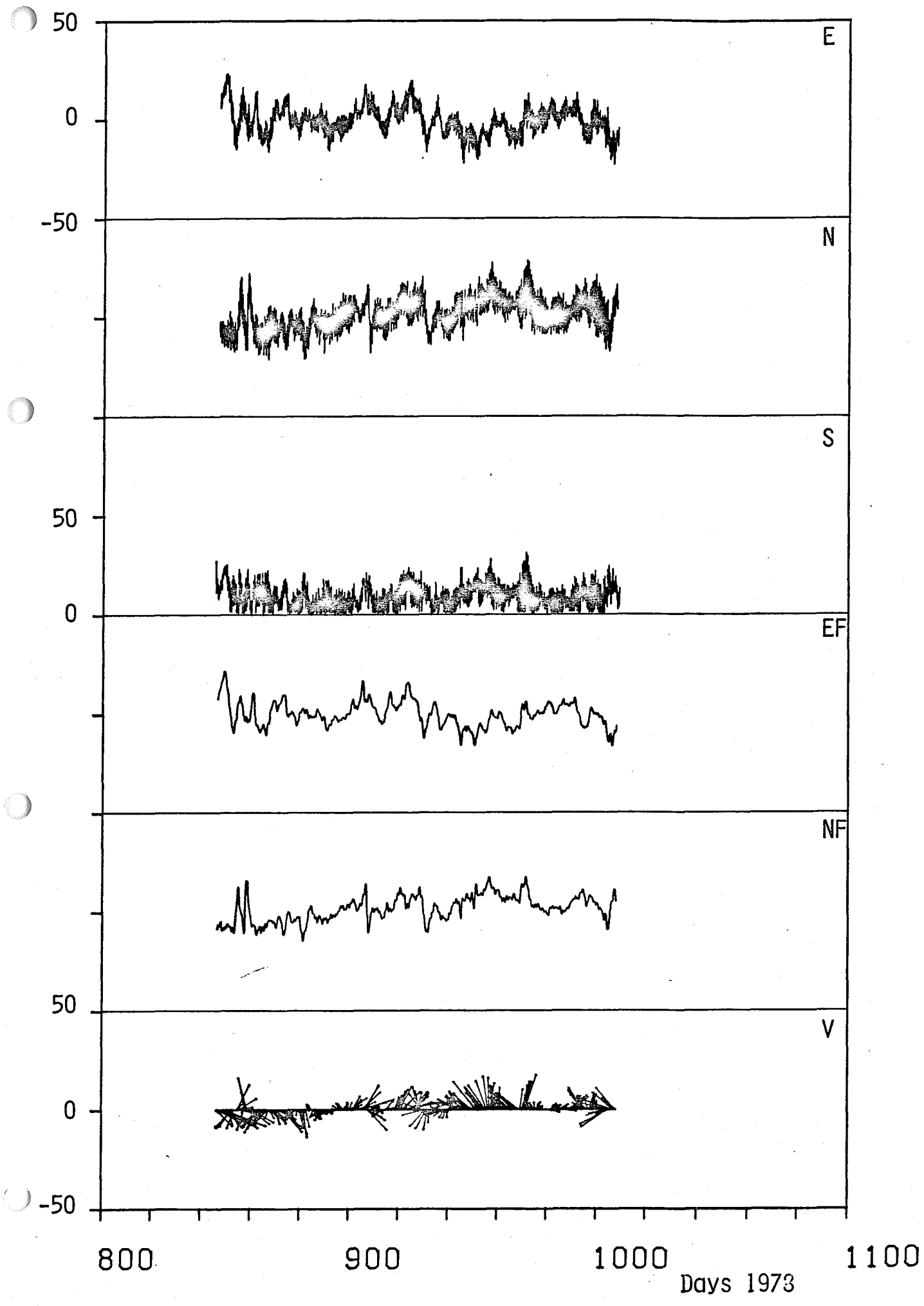
Set 24-IV-80 Position: 59° 56'.5N 12° 10'.7W
Recovered 5- X-80 Water Depth: 1252 m

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.sec.</u>	<u>Comments</u>
28401	Aa 3719	386	Sp,D,T,P	3600	
28402	Aa 155	788	Sp,D,T	3600	
28403	Aa 1078	1189	Sp,D,T	3600	

Comments

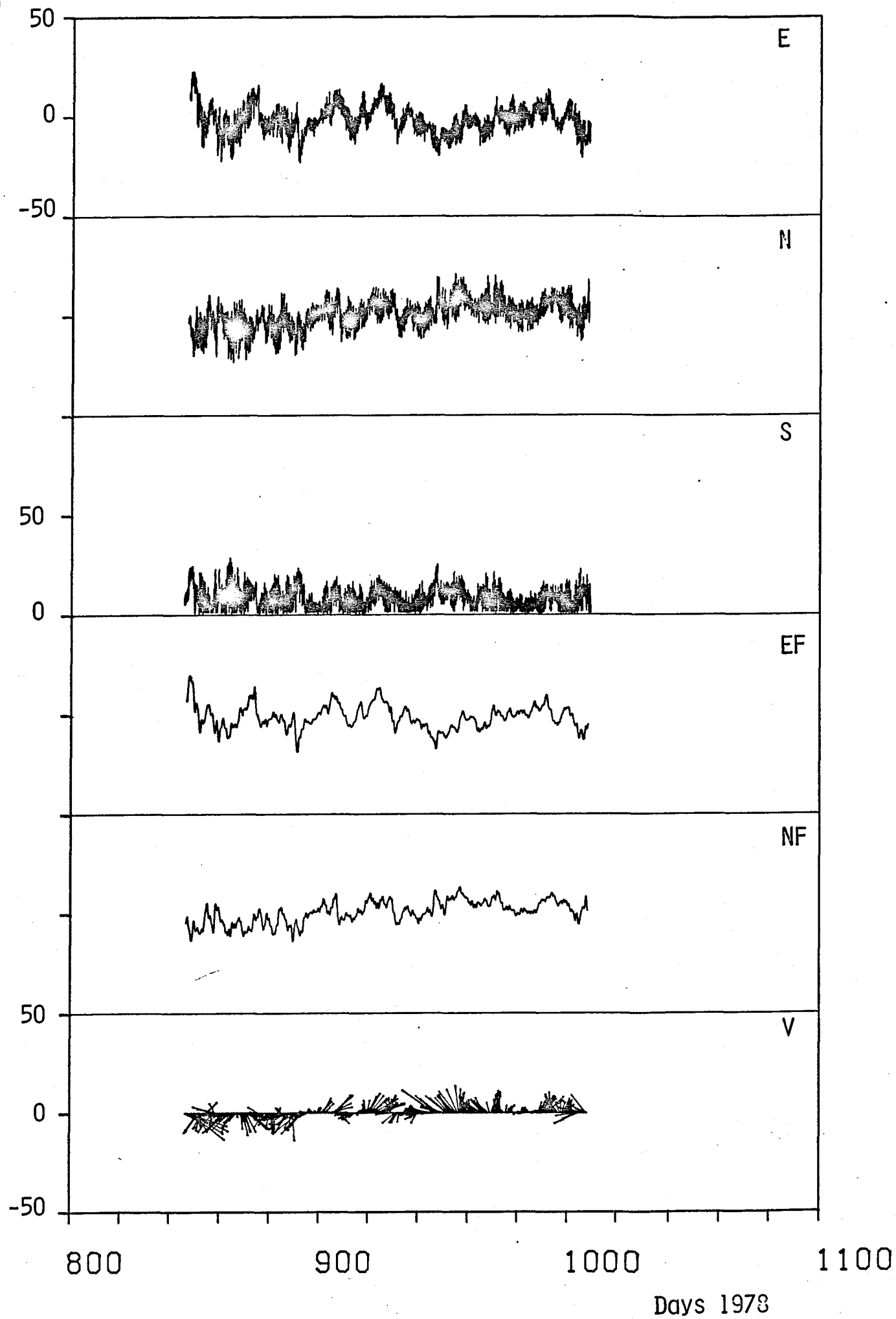
CM/S

(11) 28401



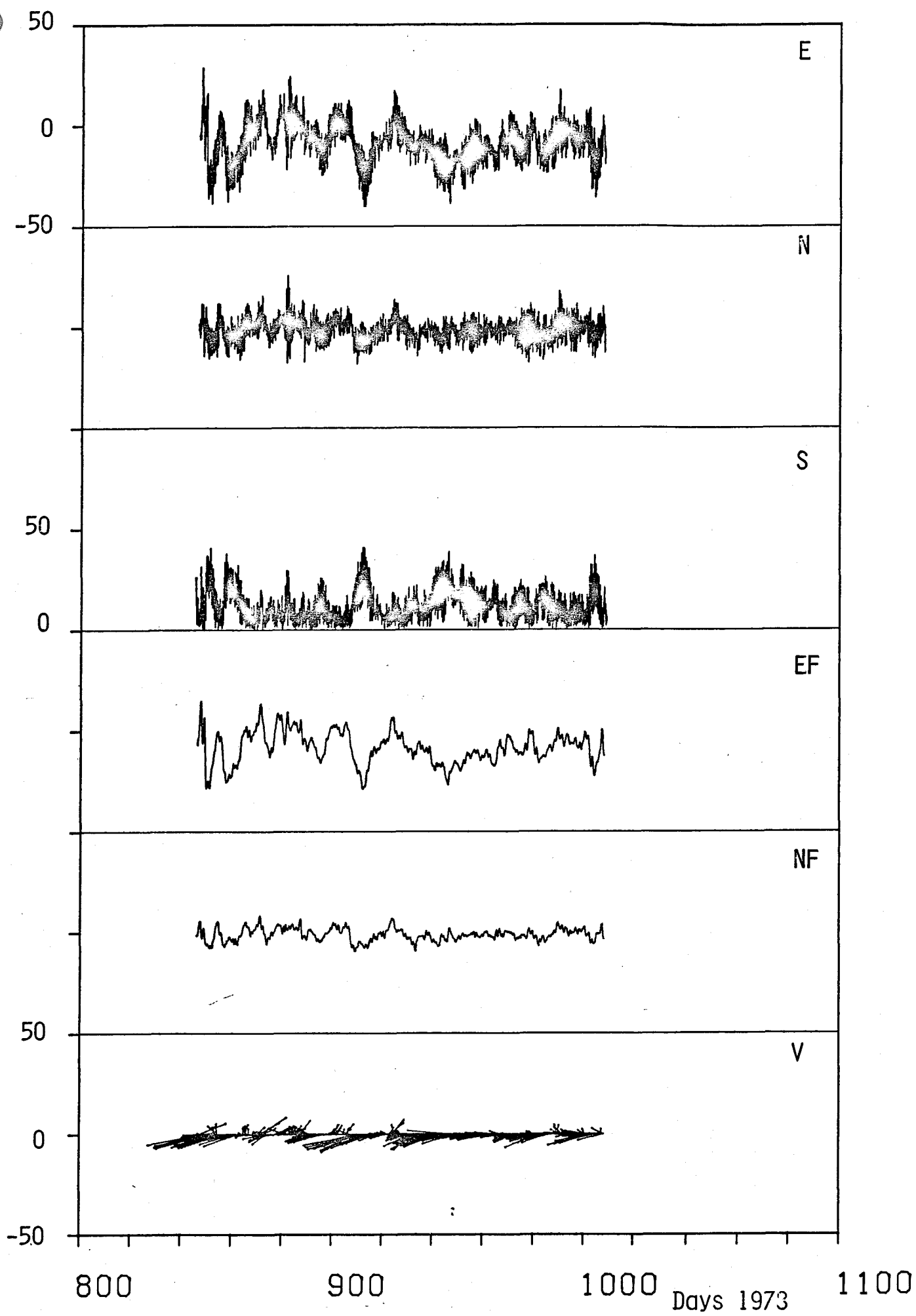
(11) 28402

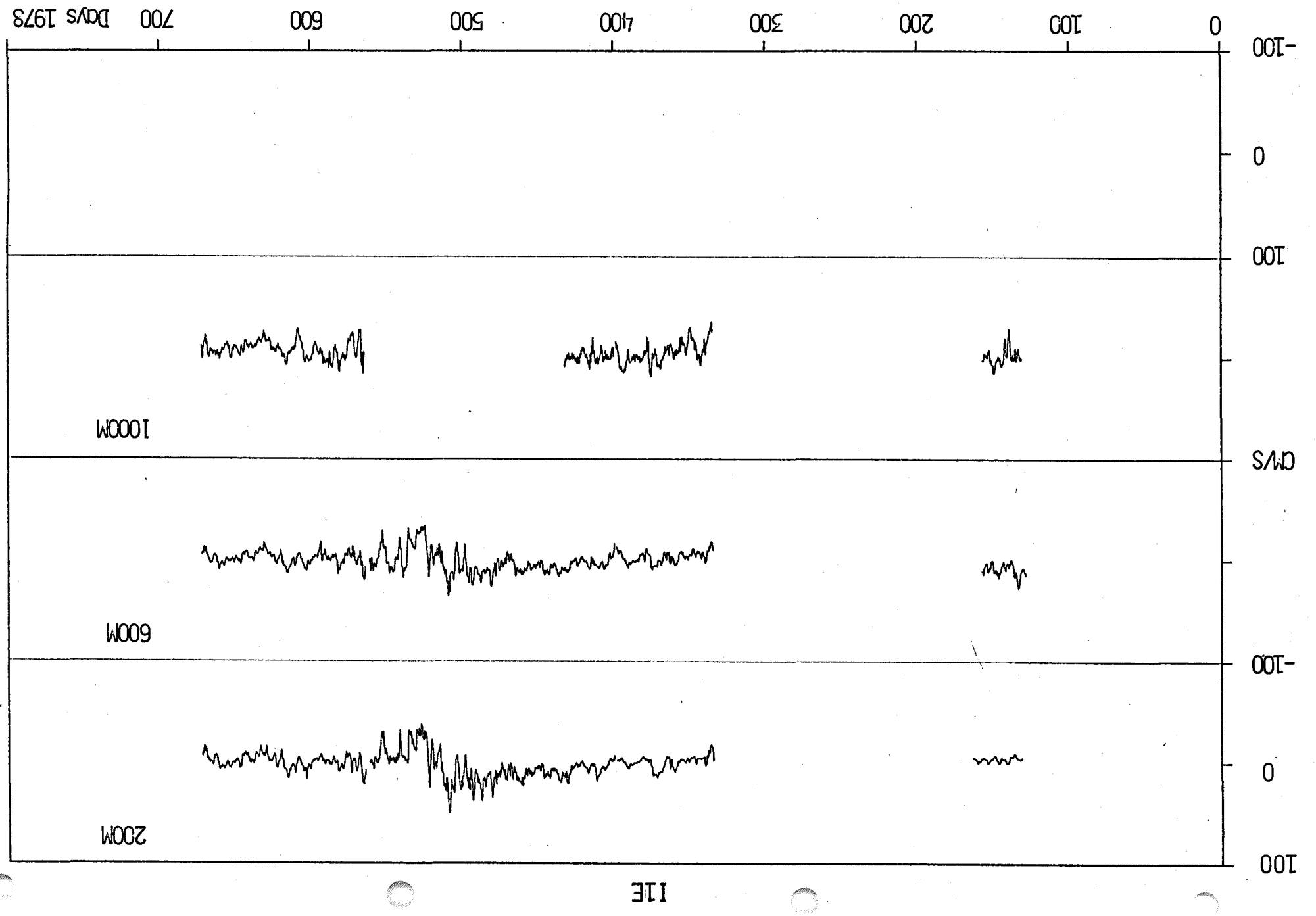
CM/S



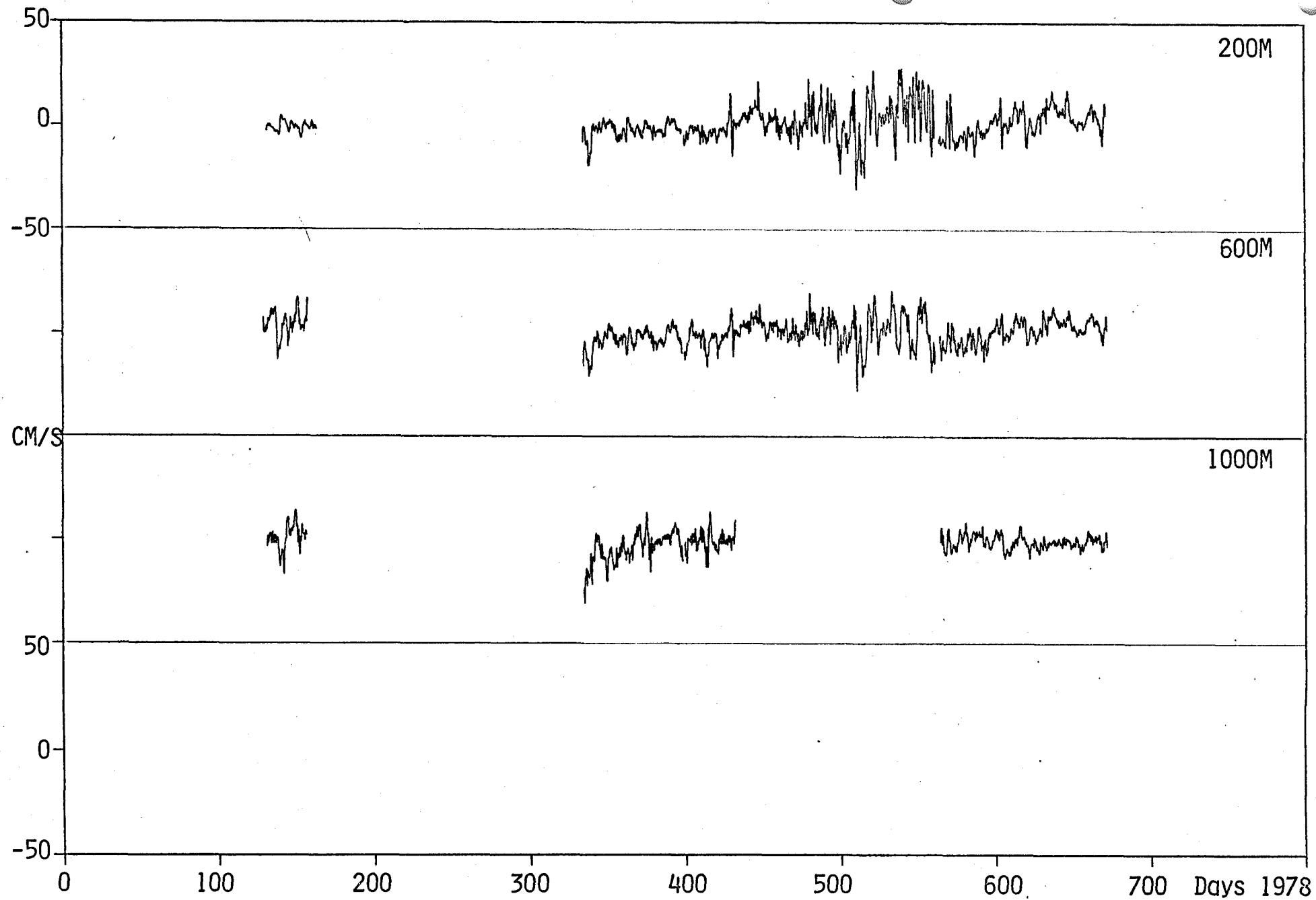
CM/S

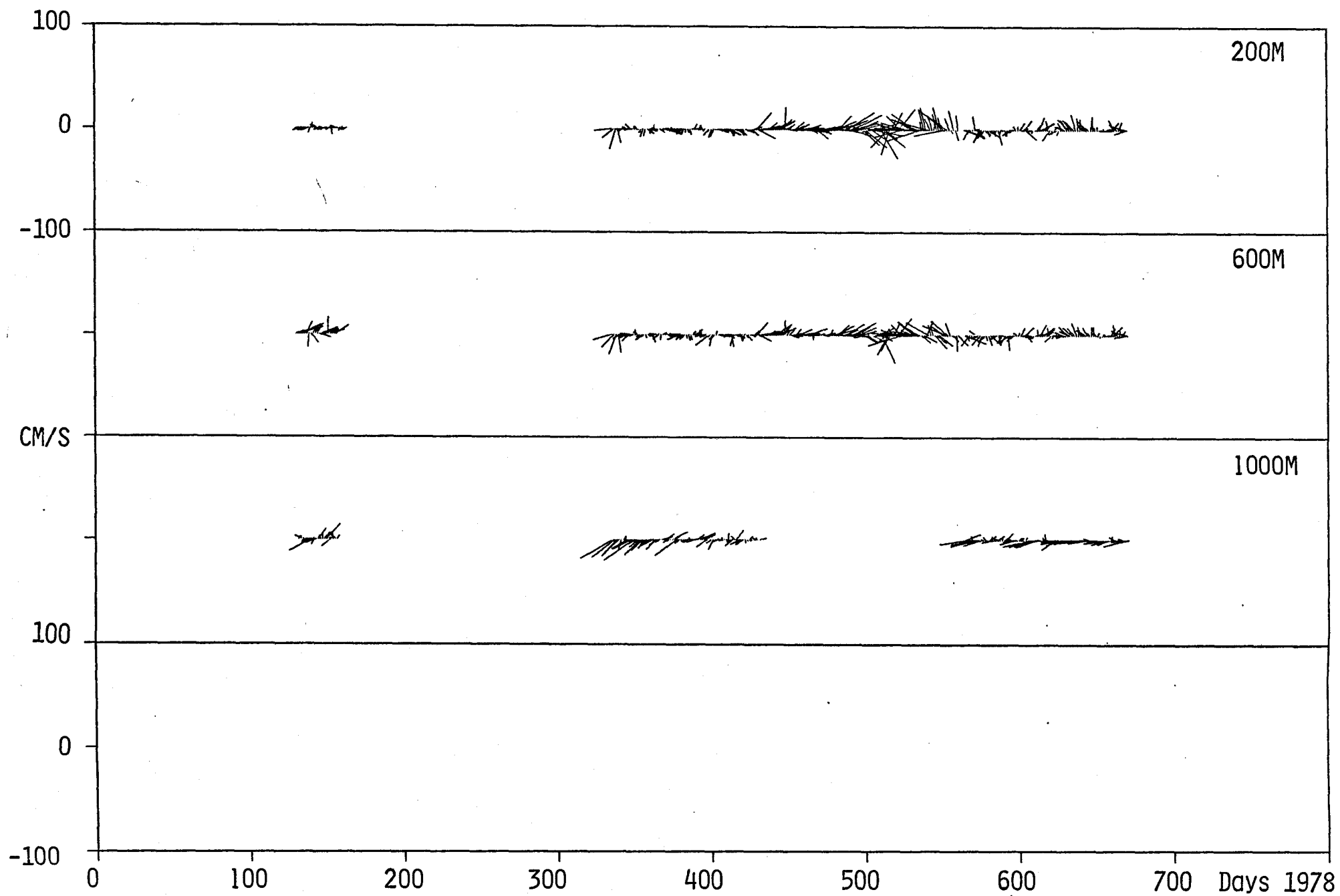
(11) 28403





IIN

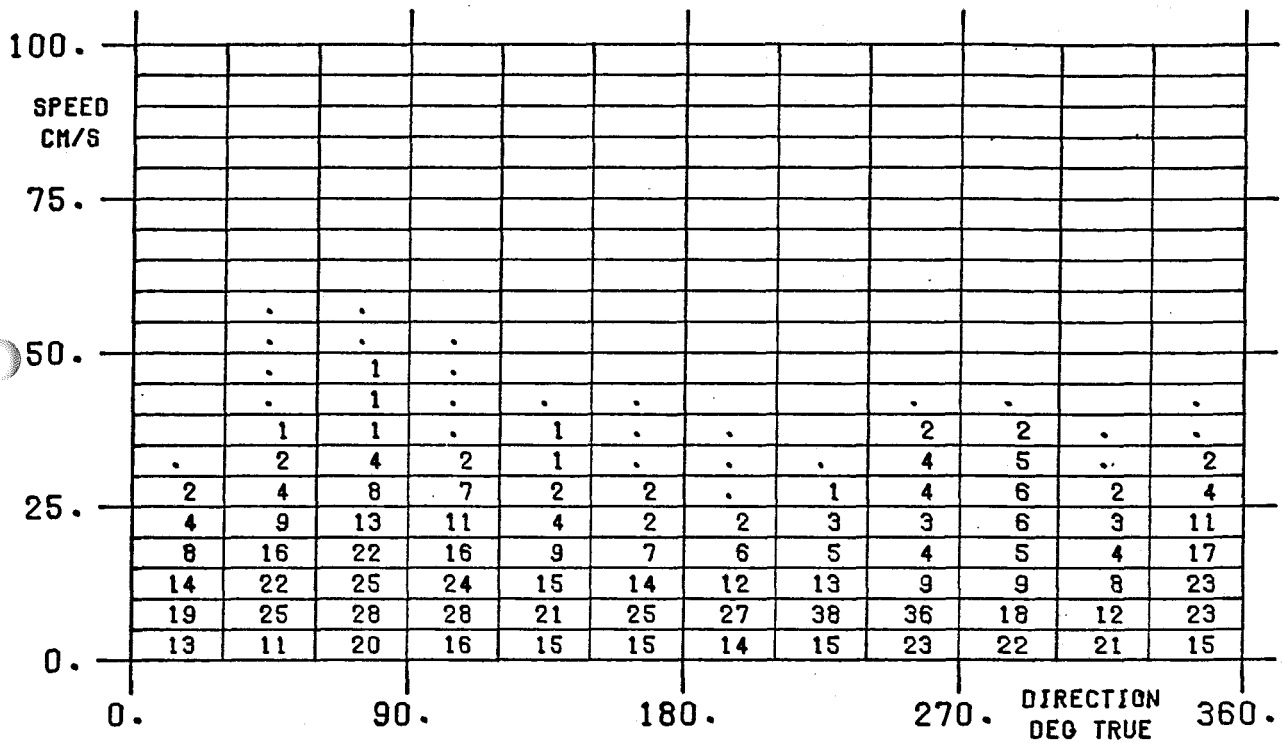




11 200M

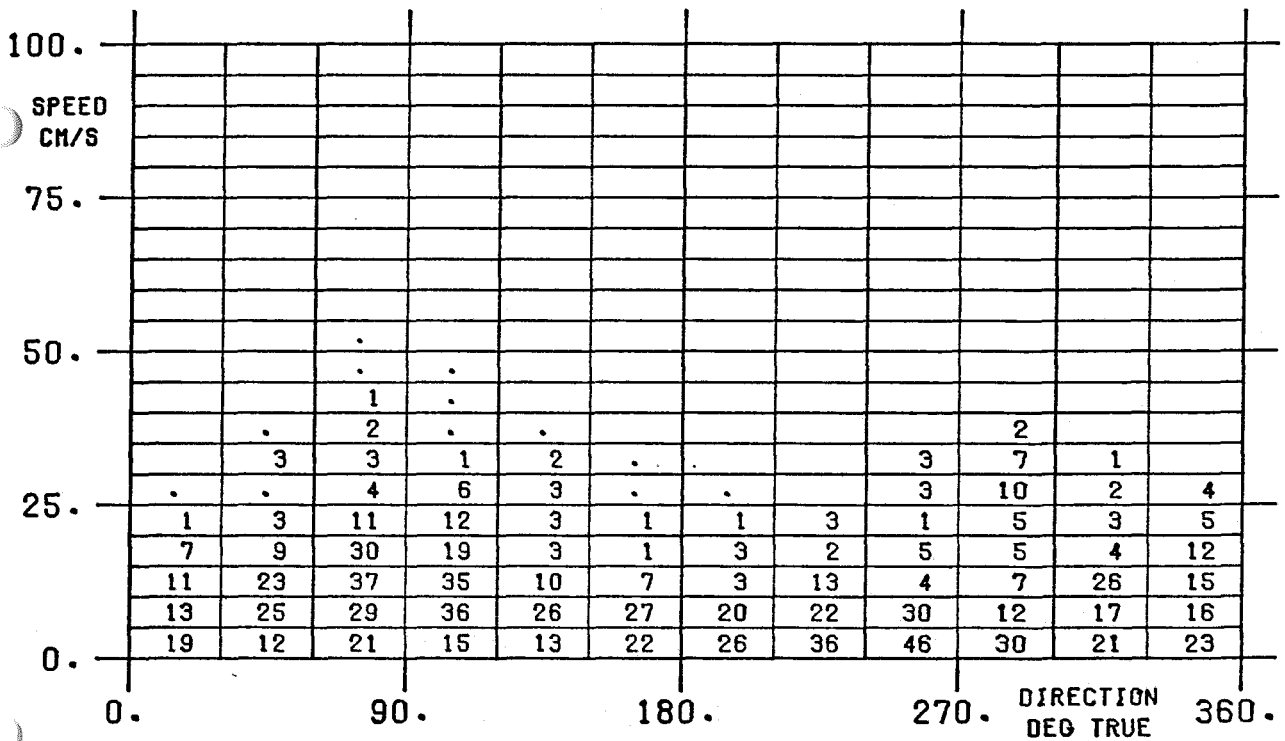
UNFILTERED 548.7 DAYS

12/ 7/78- 4/10/80



FILTERED 548.7 DAYS

12/ 7/78- 4/10/80



I1 500M

UNFILTERED 543.0 DAYS 12/ 7/78- 4/10/80

50.			.									
SPEED		.	.	.				.				
CM/S		.	.	.		.		4	.	.		
	.	1	2	.		.	.	2	3	.	.	
	1	5	5	1	.	.	.	1	1	4	3	.
25.	3	11	12	4	2	4	4	5	3	6	7	1
	9	22	25	12	7	8	12	13	7	5	7	4
	18	34	31	25	16	16	19	26	18	15	12	9
	26	34	28	29	25	24	25	32	26	22	21	21
0.	15	15	17	18	16	13	12	13	15	16	16	14
	0.		90.			180.			270.			360.
										DIRECTION		
										DEG TRUE		

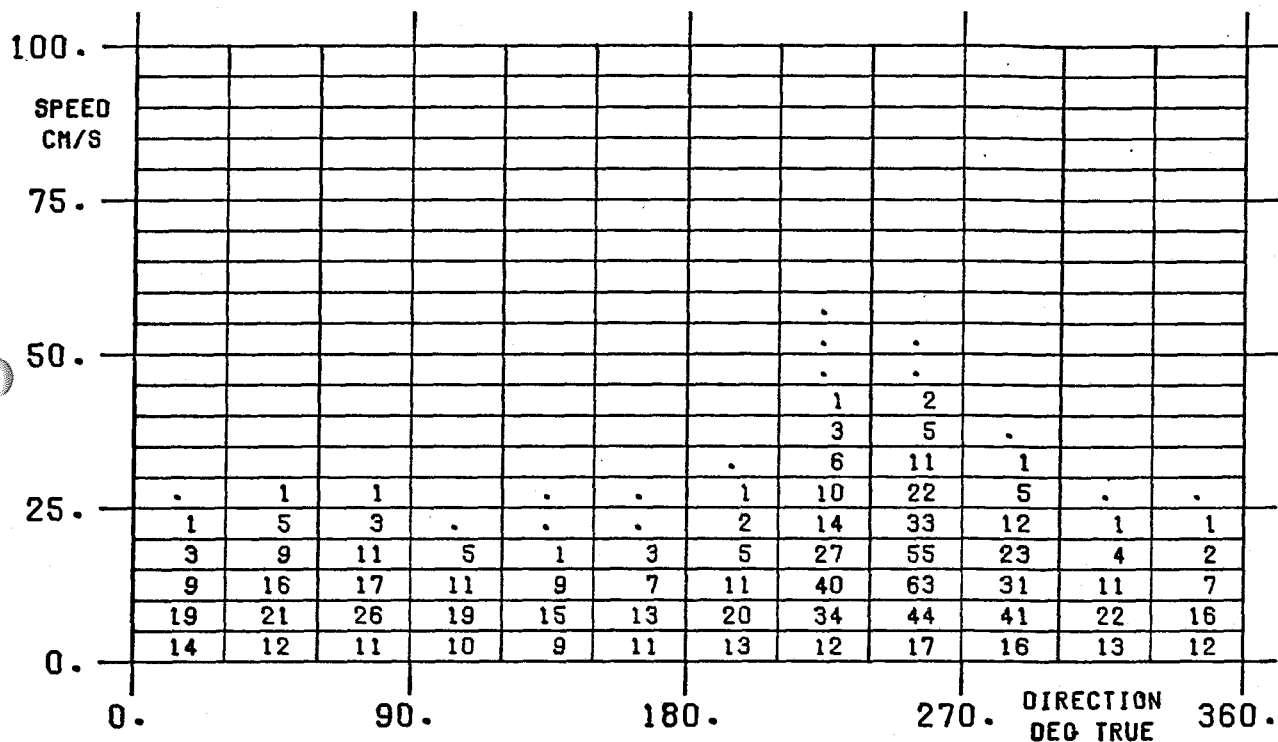
FILTERED 543.0 DAYS 12/ 7/78- 4/10/80

50.												
SPEED												
CM/S			.					.				
		.	1	.		.		2	4			
		.	6	1	.	.		2	9	2		
25.	.	1	9	2	2	.	2	1	.	3	7	
	3	12	20	3	5	4	4	10	9	2	8	.
	11	33	57	28	23	9	15	17	10	14	14	7
	25	43	43	46	19	24	23	43	41	21	19	21
0.	15	25	22	16	21	19	16	19	14	22	16	16
	0.		90.			180.			270.			360.
										DIRECTION		
										DEG TRUE		

I1 1000M

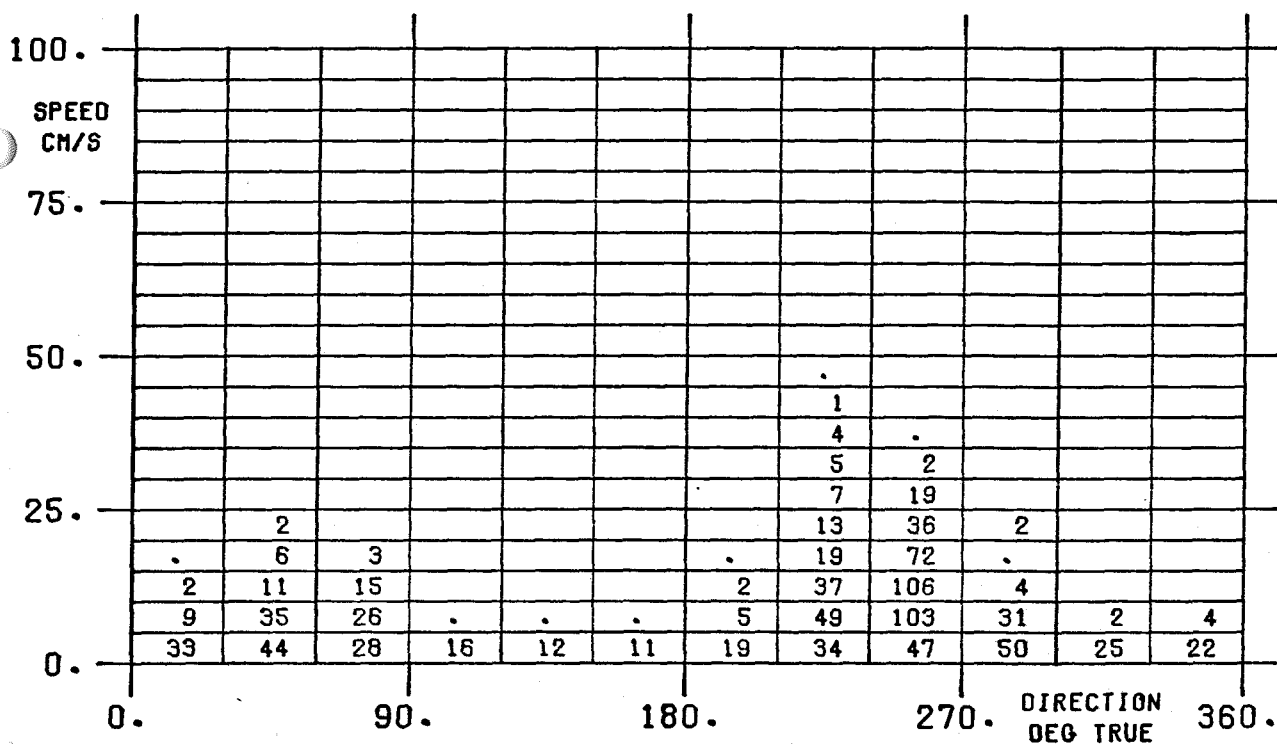
UNFILTERED 344.2 DAYS

12/ 7/78- 4/10/80



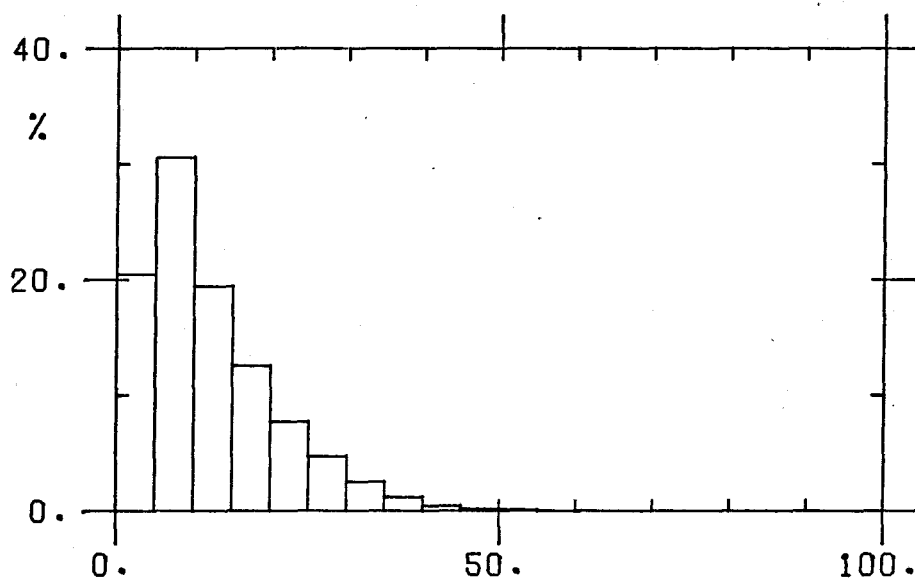
FILTERED 344.2 DAYS

12/ 7/78- 4/10/80



I 1 200M UNFILTERED

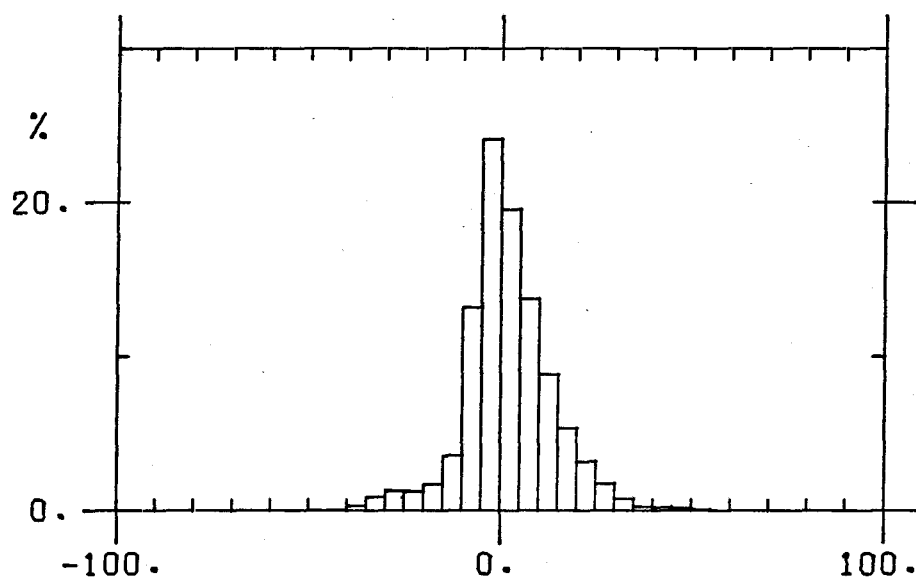
12/ 7/78- 4/10/80



SPEED

548.7 DAYS
MAX= 58.64
MIN= 0.01
MEAN= 12.07

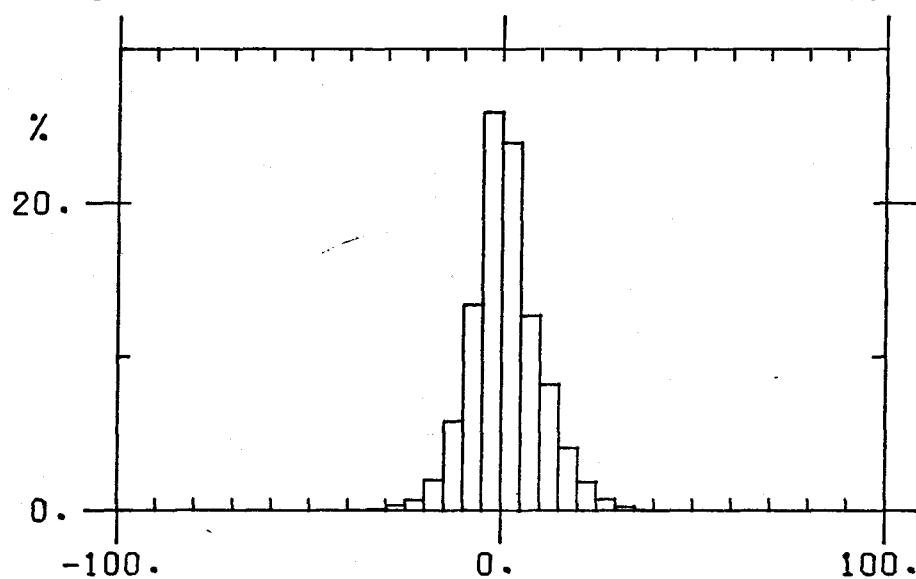
CM/S



EAST

548.7 DAYS
MAX= 57.17
MIN= -43.78
MEAN= 1.89
VAR= 134.24

CM/S



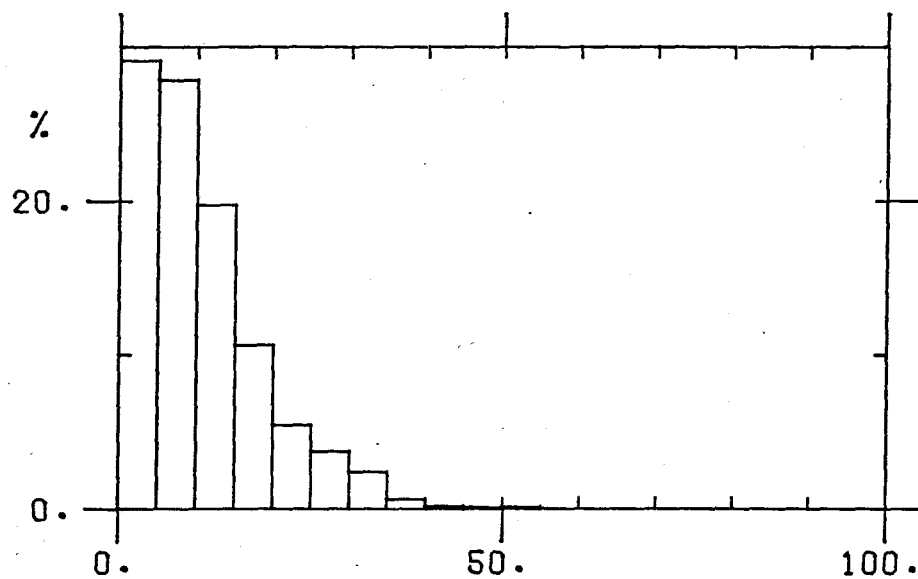
NORTH

548.7 DAYS
MAX= 41.01
MIN= -40.90
MEAN= 0.99
VAR= 80.87

CM/S

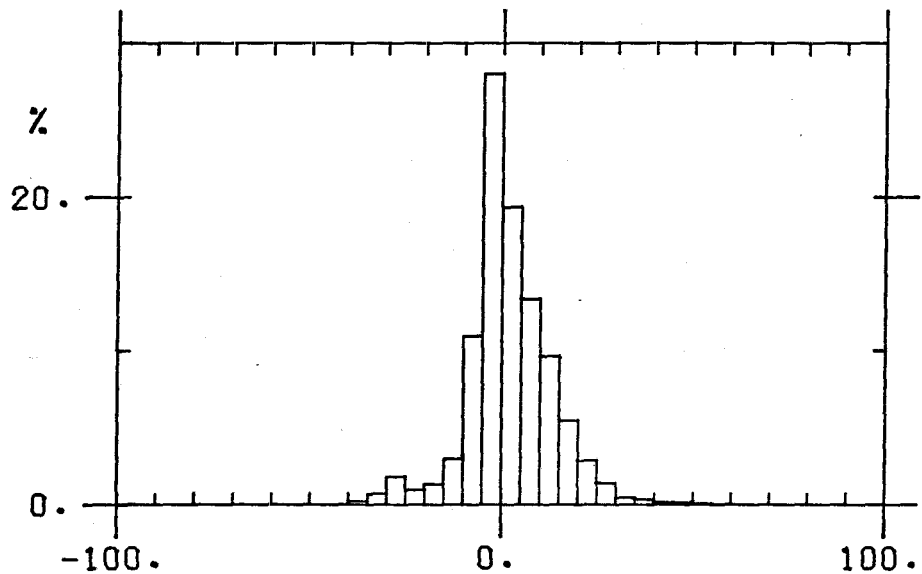
I1 200M FILTERED

12/ 7/78- 4/10/80



SPEED

548.7 DAYS
MAX= 52.75
MIN= 0.09
MEAN= 10.68

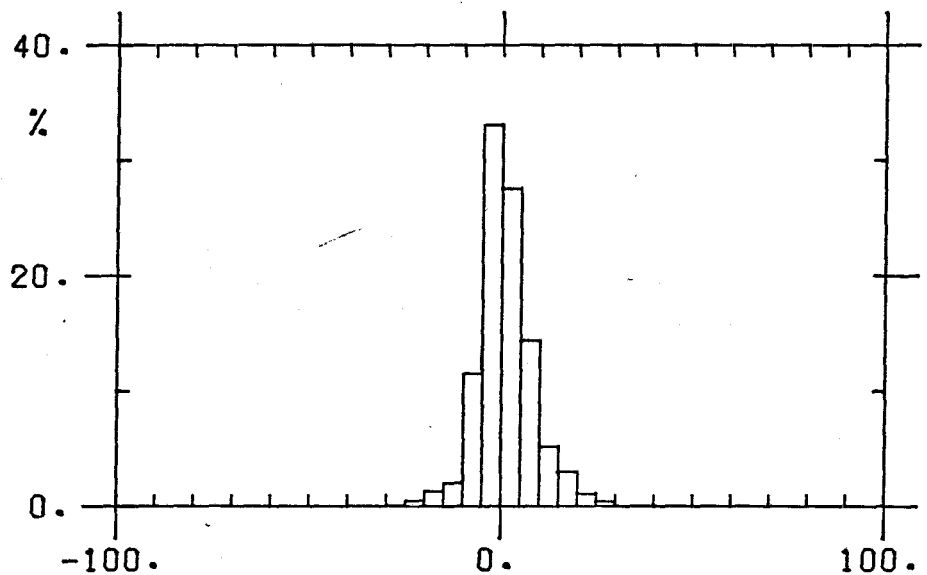


CM/S

EAST

548.7 DAYS
MAX= 50.83
MIN= -37.47
MEAN= 1.89
VAR= 121.83

CM/S



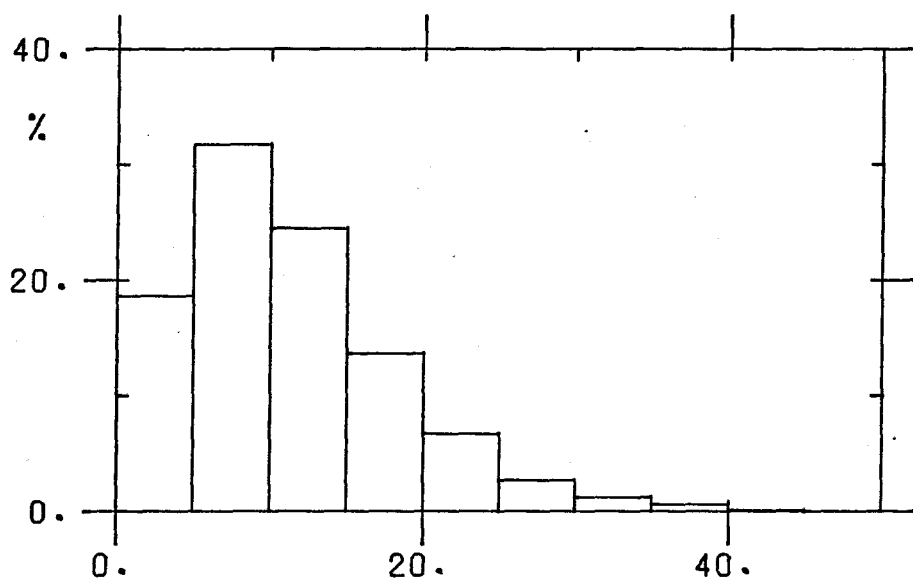
NORTH

548.7 DAYS
MAX= 28.03
MIN= -30.56
MEAN= 1.00
VAR= 52.28

CM/S

I1 500M UNFILTERED

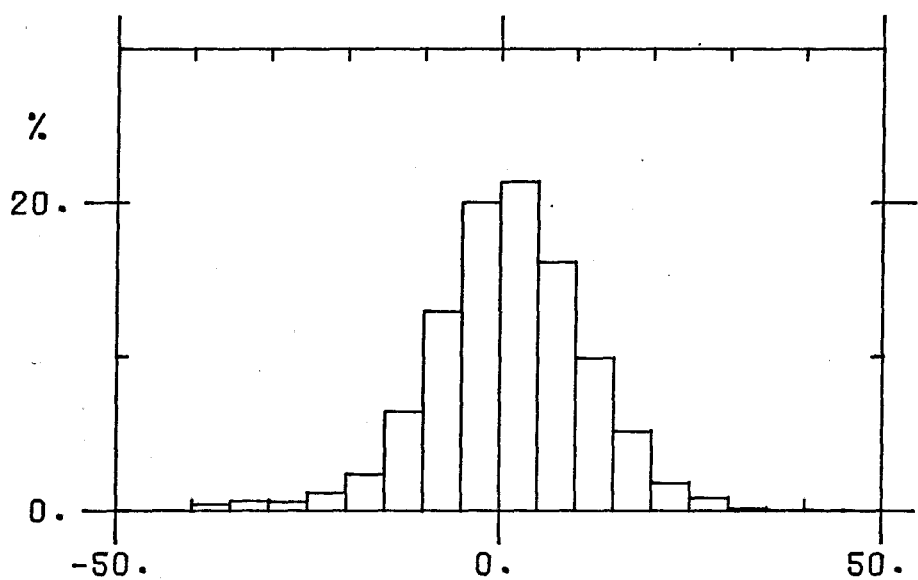
12/ 7/78- 4/10/80



SPEED

543.0 DAYS
MAX= 49.25
MIN= 0.00
MEAN= 11.25

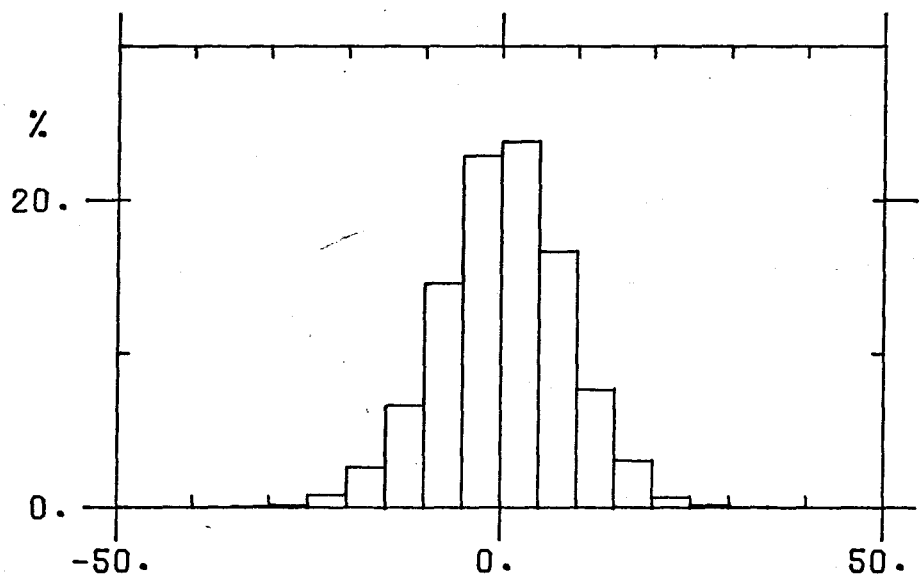
CM/S



EAST

543.0 DAYS
MAX= 48.40
MIN= -41.81
MEAN= 1.11
VAR= 105.39

CM/S



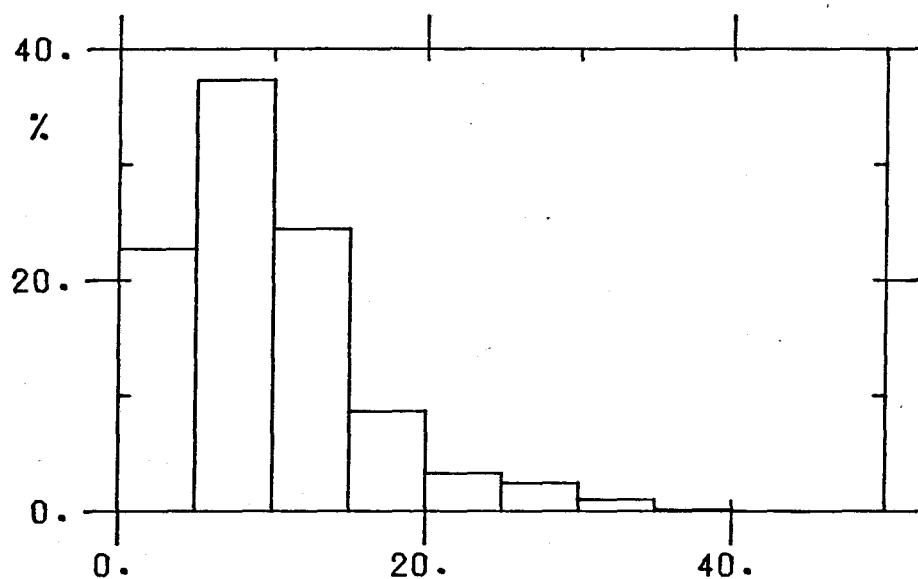
NORTH

543.0 DAYS
MAX= 31.54
MIN= -37.80
MEAN= 0.33
VAR= 69.59

CM/S

I1 500M FILTERED

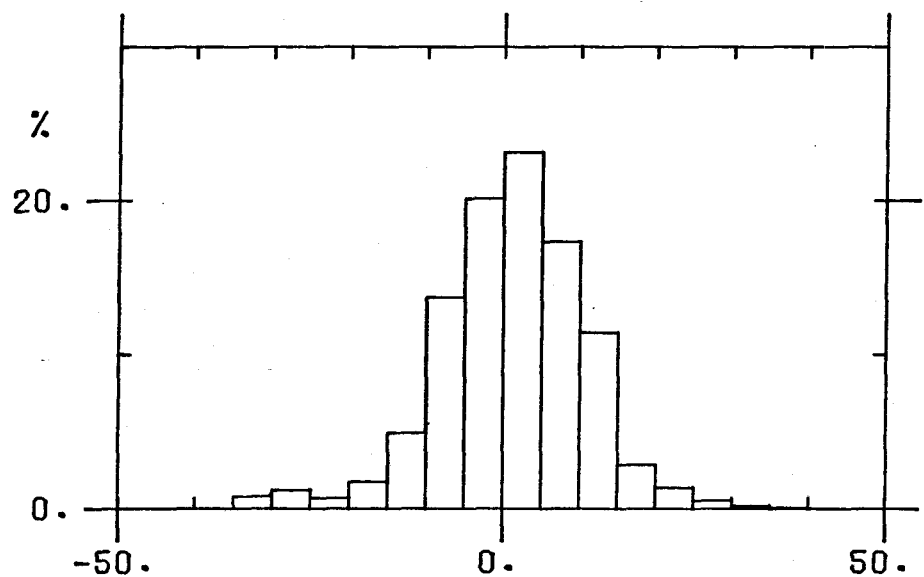
12/ 7/78- 4/10/80



SPEED

543.0 DAYS
 MAX= 36.90
 MIN= 0.07
 MEAN= 9.72

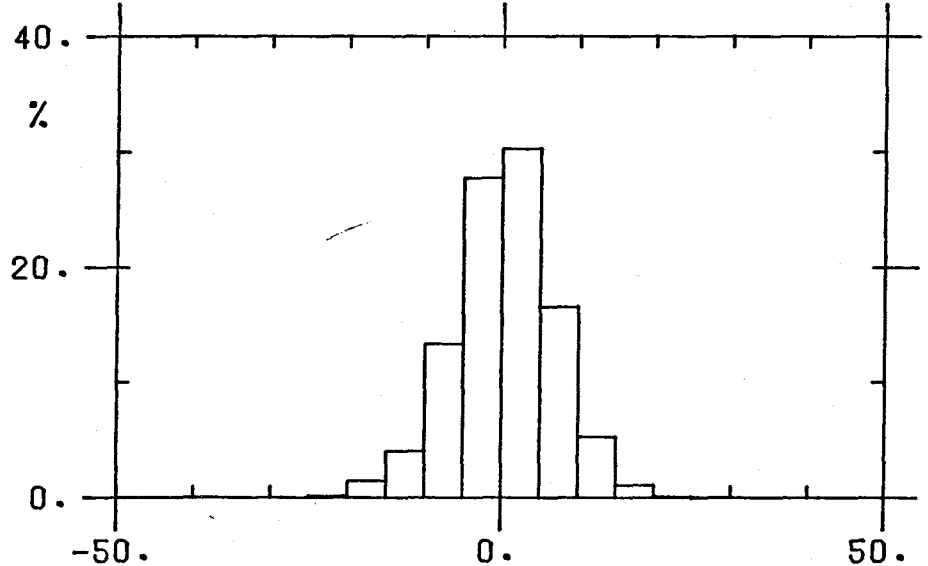
CM/S



EAST

543.0 DAYS
 MAX= 36.21
 MIN= -34.03
 MEAN= 1.11
 VAR= 90.13

CM/S



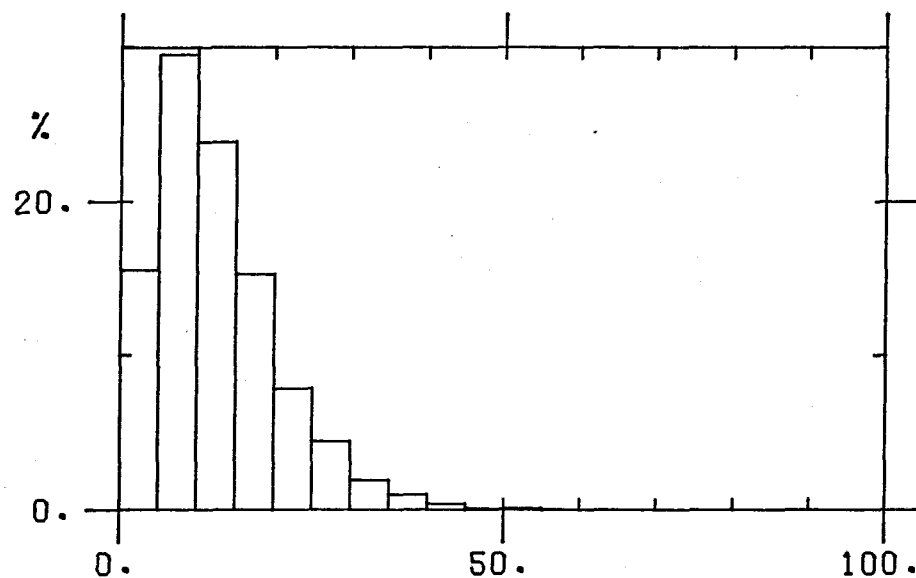
NORTH

543.0 DAYS
 MAX= 20.66
 MIN= -27.85
 MEAN= 0.34
 VAR= 41.60

CM/S

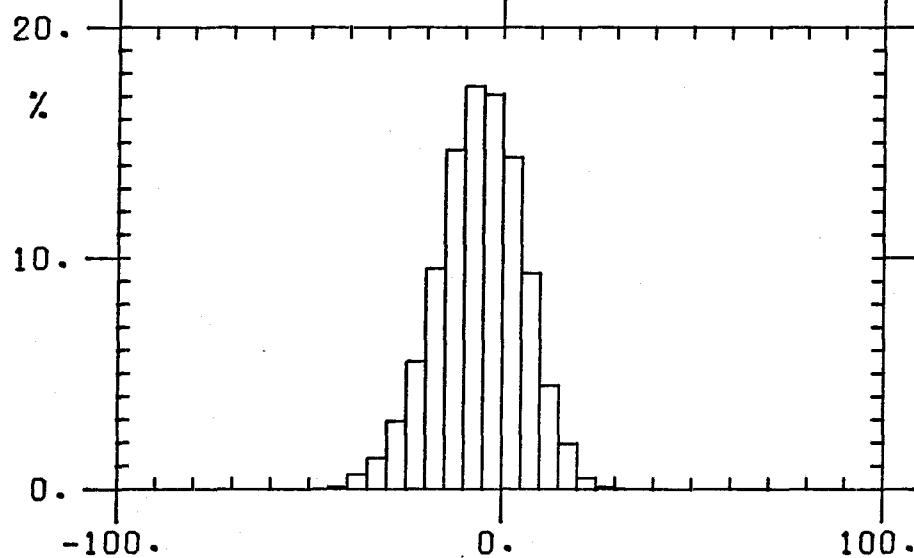
I1 1000M UNFILTERED

12/ 7/78- 4/10/80



SPEED

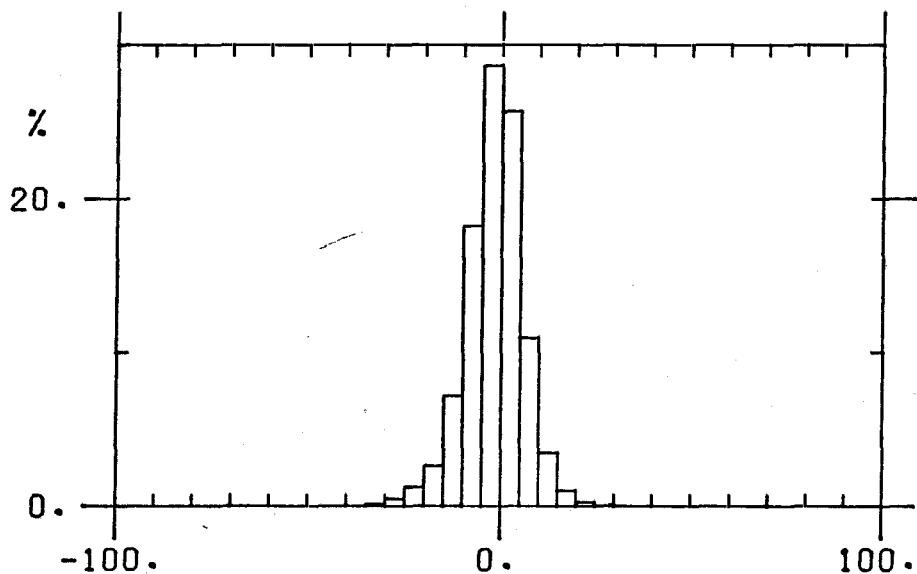
344.2 DAYS
MAX= 56.62
MIN= 0.01
MEAN= 12.50



CM/S

EAST

344.2 DAYS
MAX= 29.27
MIN= -48.87
MEAN= -5.92
VAR= 124.57



CM/S

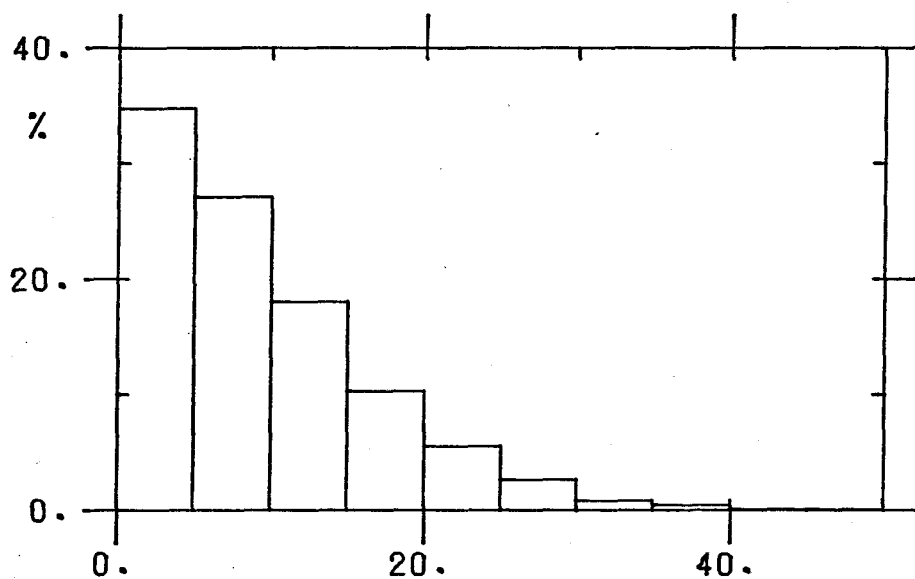
NORTH

344.2 DAYS
MAX= 26.01
MIN= -41.10
MEAN= -1.76
VAR= 55.95

CM/S

I1 1000M FILTERED

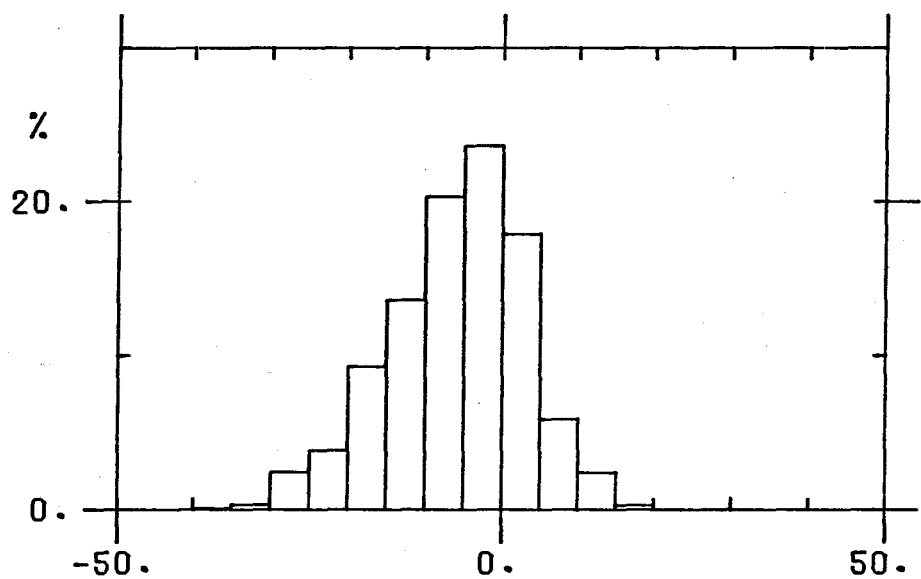
12/ 7/78- 4/10/80



SPEED

344.2 DAYS
MAX= 47.12
MIN= 0.06
MEAN= 9.47

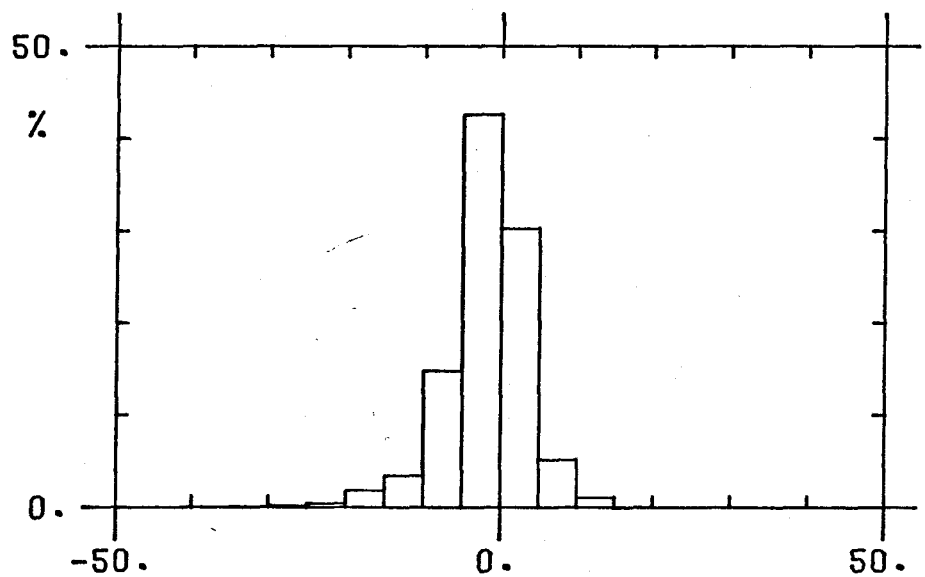
CM/S



EAST

344.2 DAYS
MAX= 18.21
MIN= -36.25
MEAN= -5.92
VAR= 77.75

CM/S



NORTH

344.2 DAYS
MAX= 14.12
MIN= -30.81
MEAN= -1.76
VAR= 27.50

CM/S

MOORING 248 (I2)

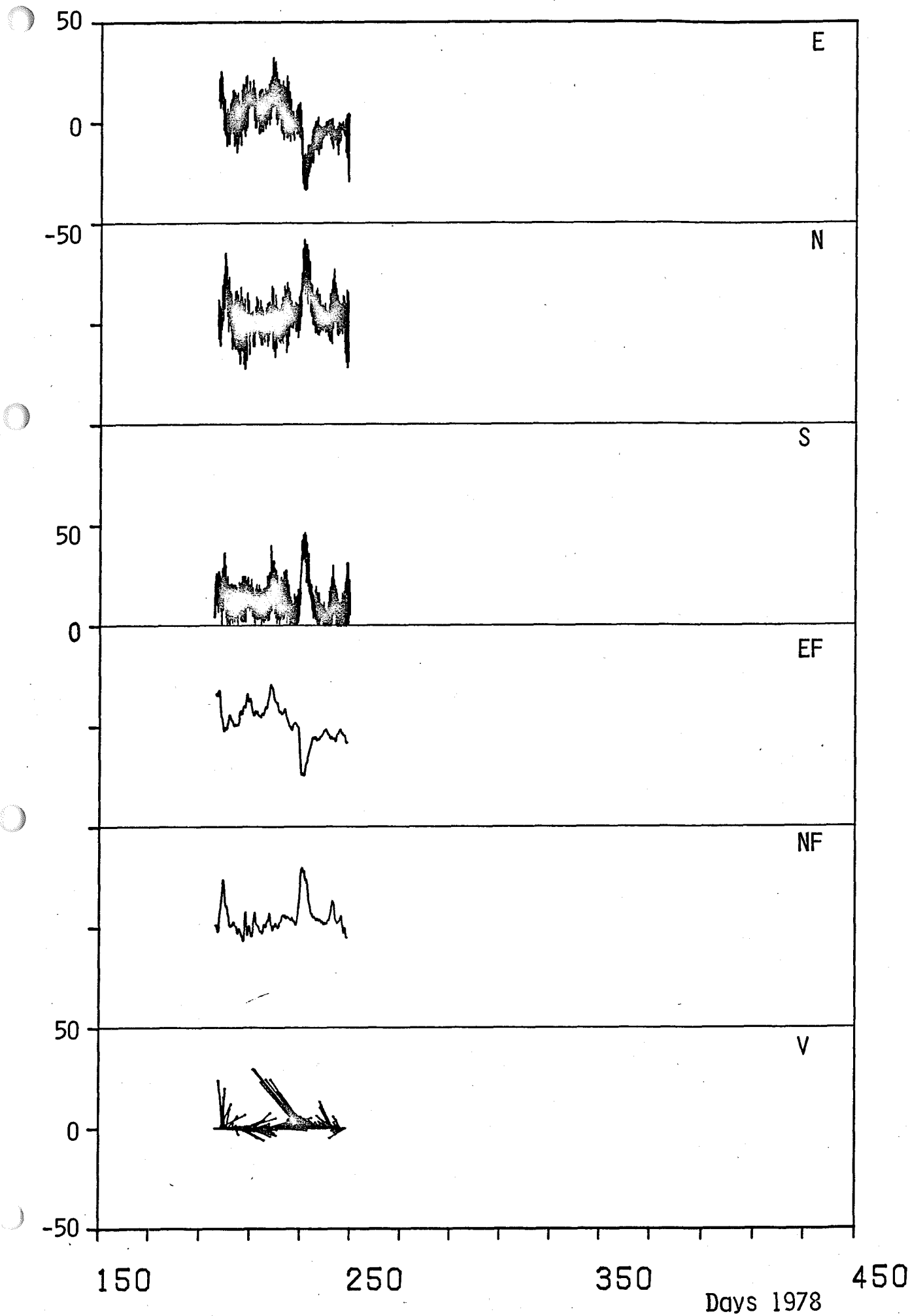
Set 14-VII-78 Position: 60° 11'.7N 09° 15'.4W
Recovered 6- IX-78 Water Depth: 1394 m

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
24801	Aa 3339	161	Sp,D,T	600	No pressure record
24802	Aa 794	565	Sp,D,T	600	
24803	Aa 3256	972	Sp,D,T	600	
24804	Aa 3252	1346	Sp,D,T	600	Rotor damaged - no speeds.

Comments

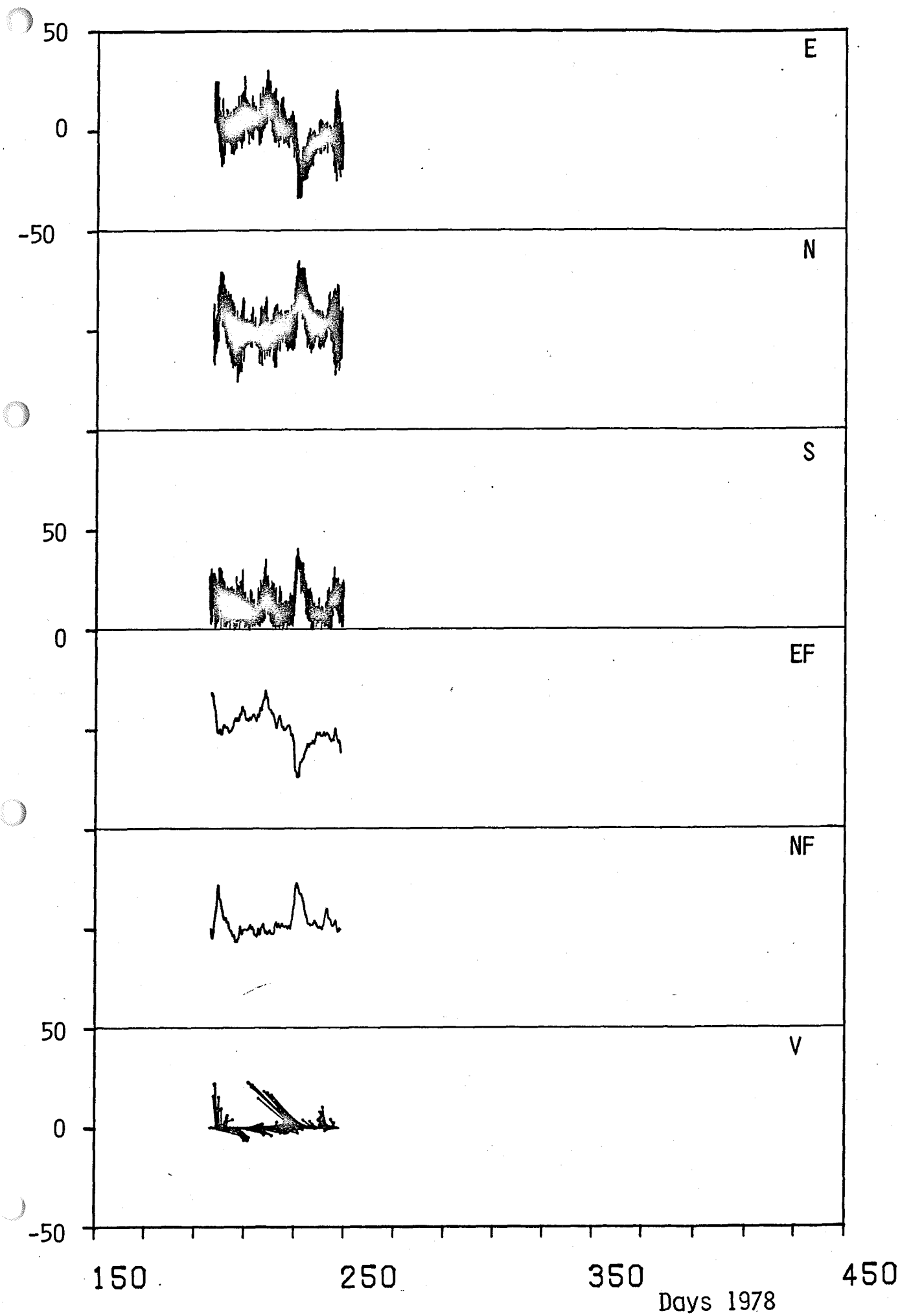
CM/S

(I2) 24801



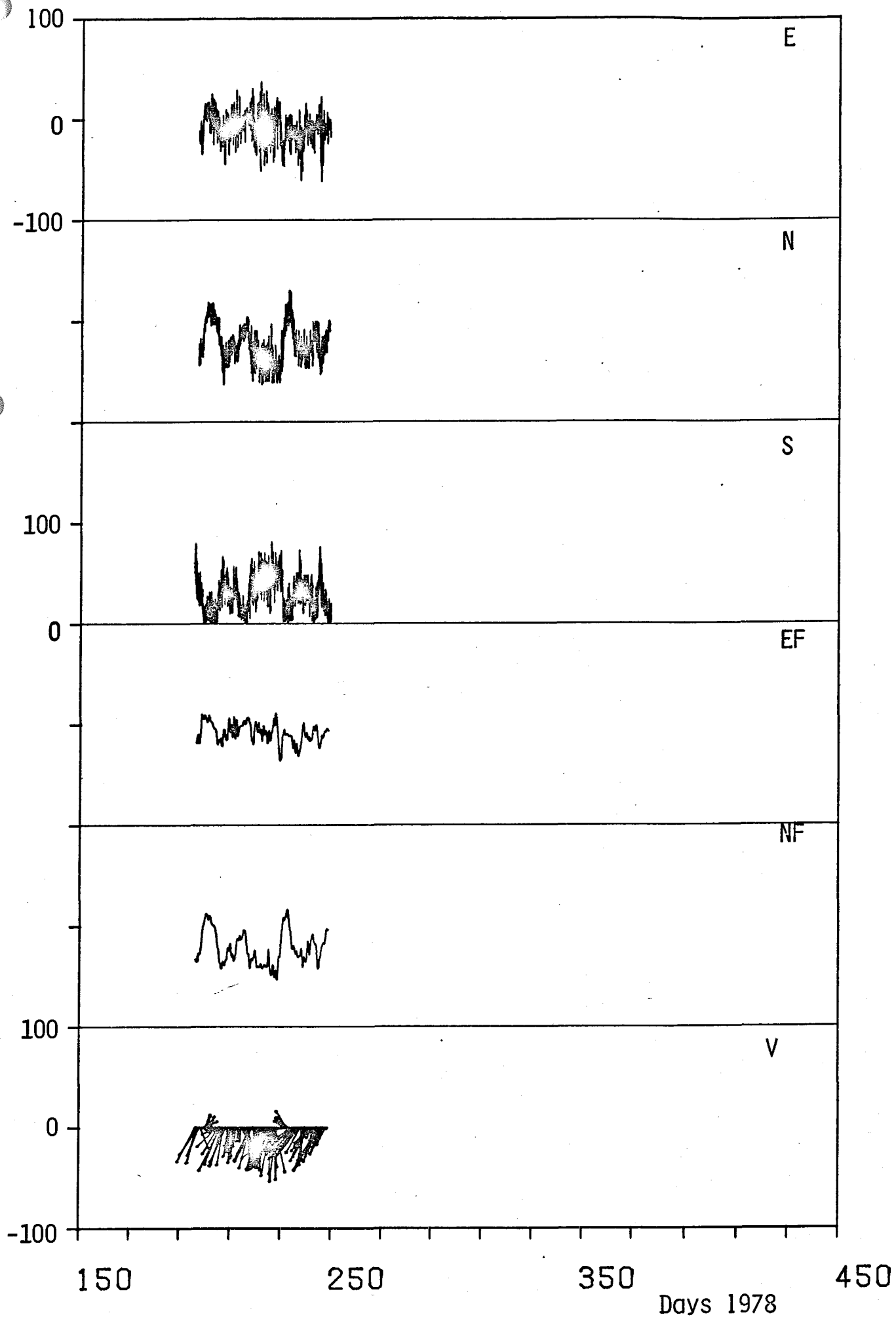
(I2) 24802

CM/S



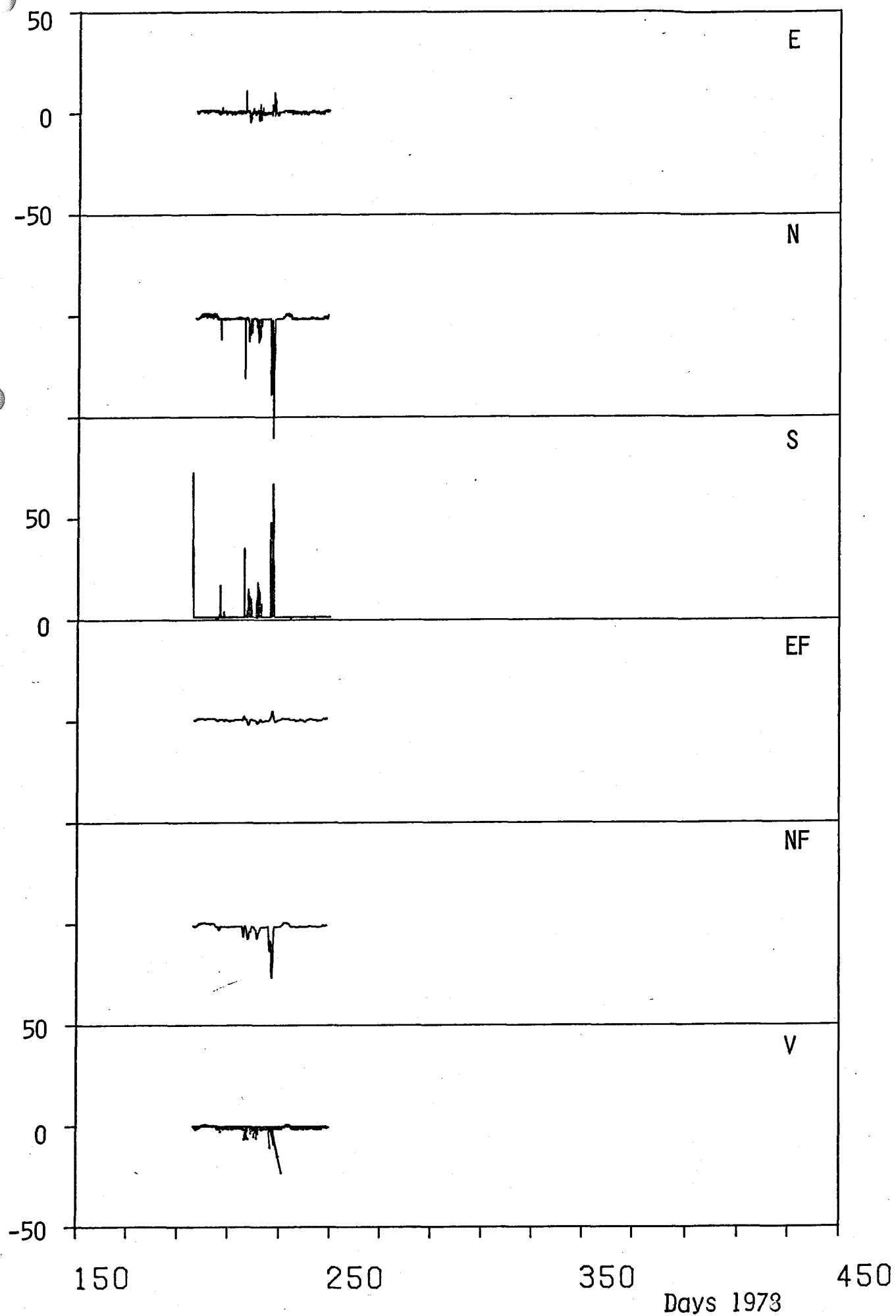
CM/S

(12) 24803



CM/S

(12) 24804



MOORING 260 (I2)

Set 6-IX-78Position: 60° 12' .35N 09° 15.7WRecovered LostWater Depth: 1400 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
26001	Aa 3633				Meter lost
26002	Aa 3627				Meter lost
26003	Aa 3721				Meter lost
26004	Aa 3629	1370 m	Sp,D,T	3600	Recovered by dragging.

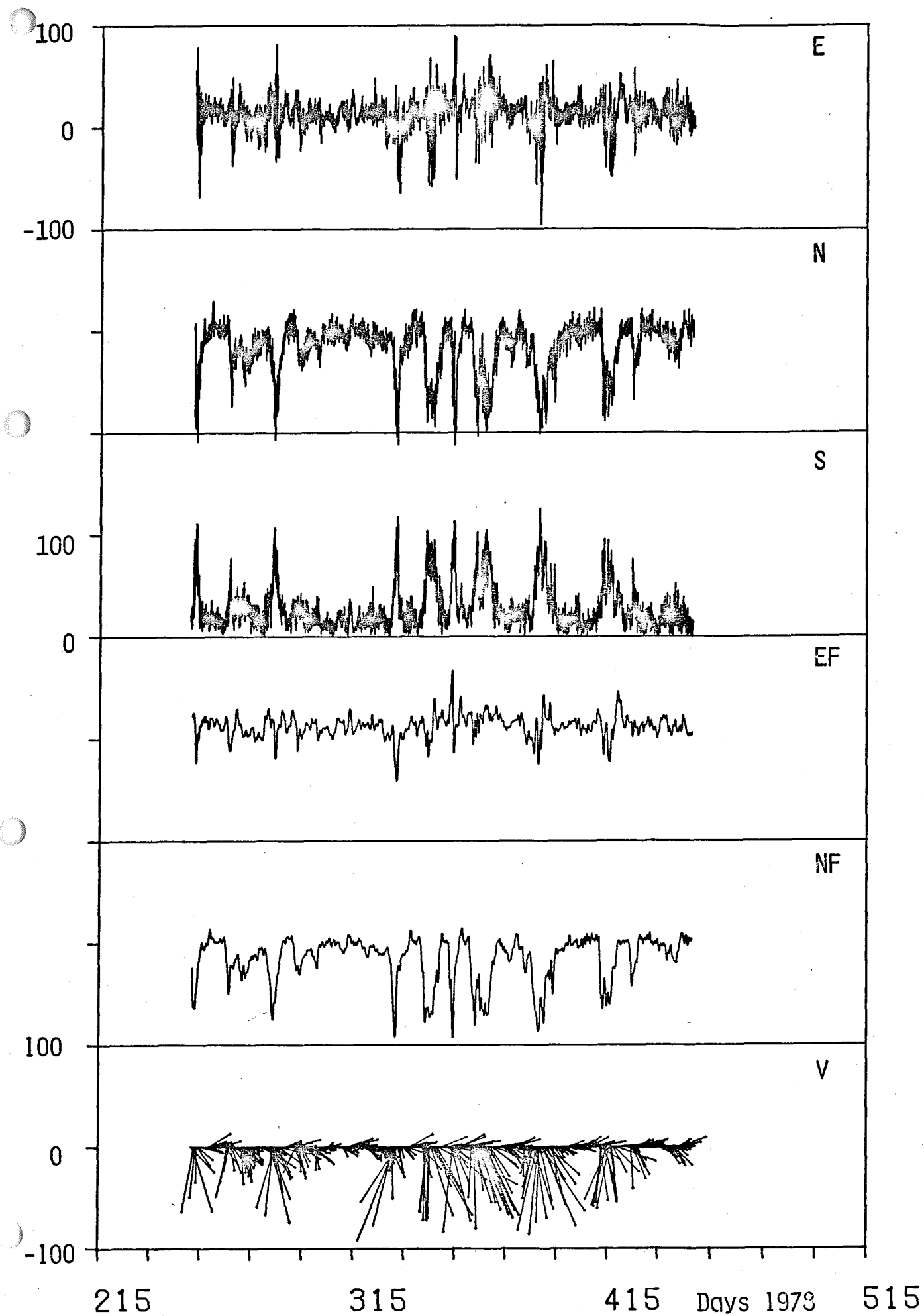
Comments

Mooring did not release when recovery attempted in May 1979. Deepest current meter recovered by dragging in August 1979. Buoy worked ashore on Barra.

Mooring had failed in early spring 1979.

(I2) 26004

CM/S



Type in 1½ spacing strictly
within the limits indicated,
and on one side of paper,
only

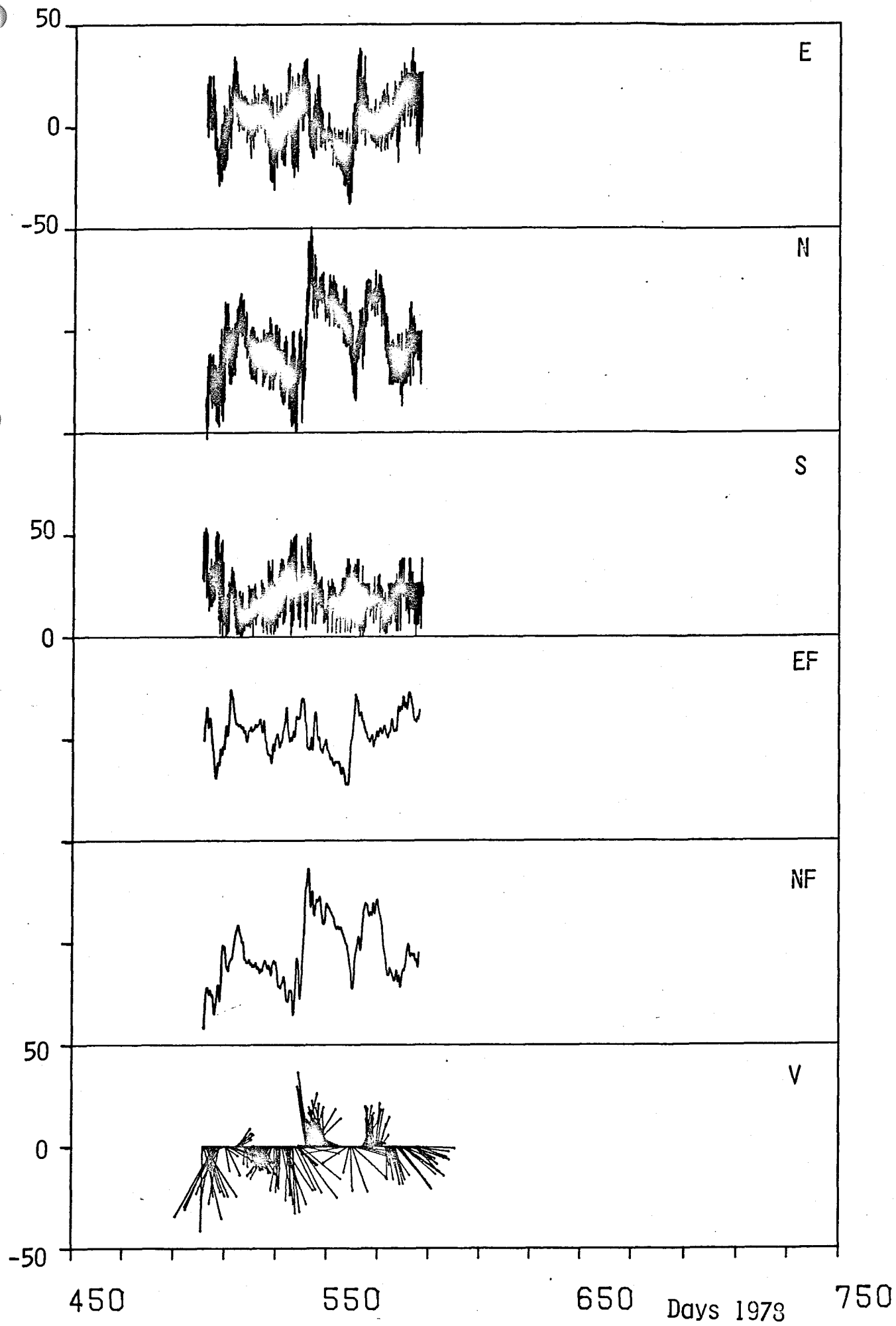
Record	Inst	Depth	Variables	Samp	Int.	Comments
27001	Aa 3255	122	Sp, D, T, P	3600		Short record.
27002	Aa 794	527	Sp, D, T	3600		
27003	Aa 2108	932	Sp, D, T	3600		
27004	Aa 2109	1309	Sp, D, T	3600		Poor data for last 40 days.

Set 16-V -79 Position: 60° 11'. 2N 09° 18'. 1W
Recovered 22-VIII-79 Water Depth: 1366

MOORING 270 (12)

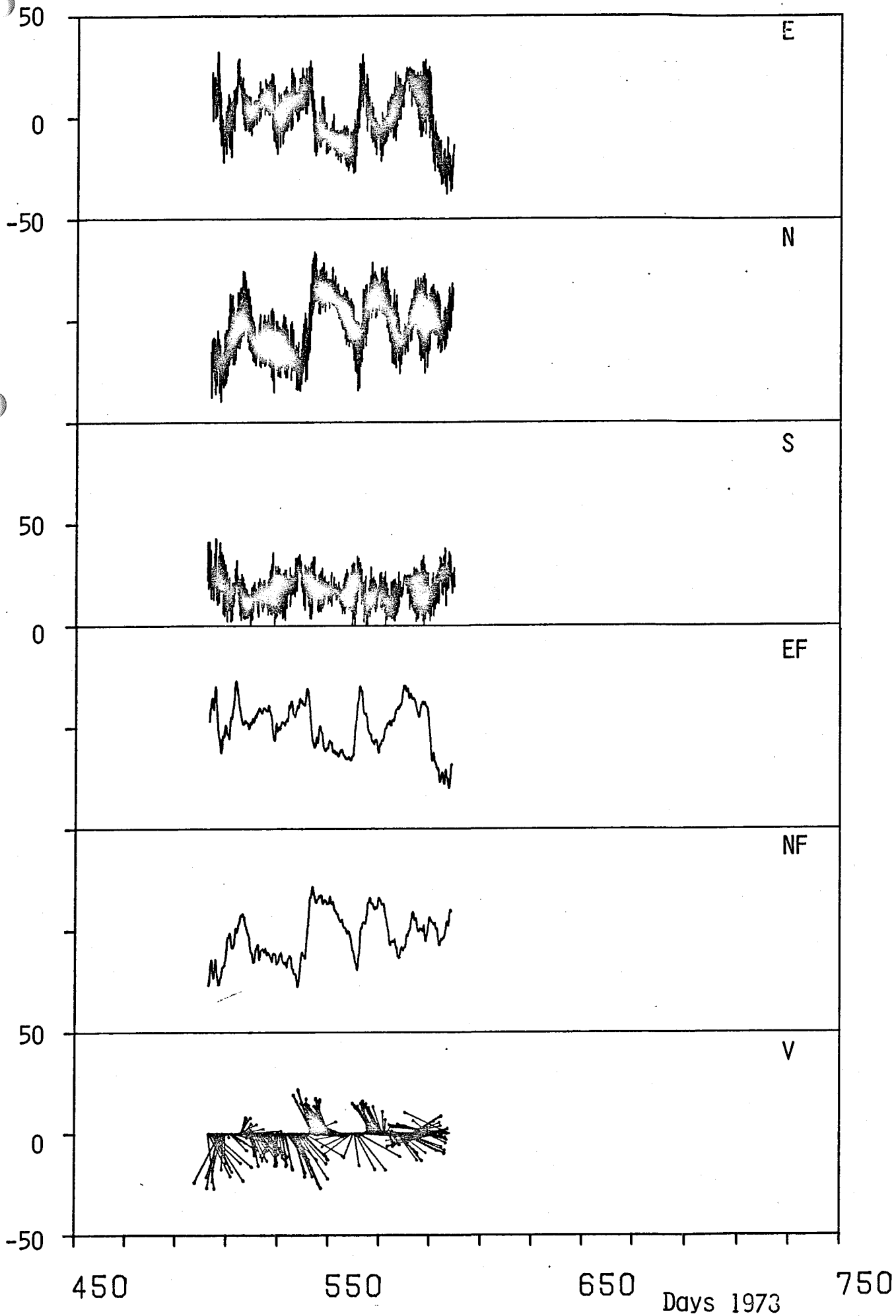
CM/S

(I2) 27001



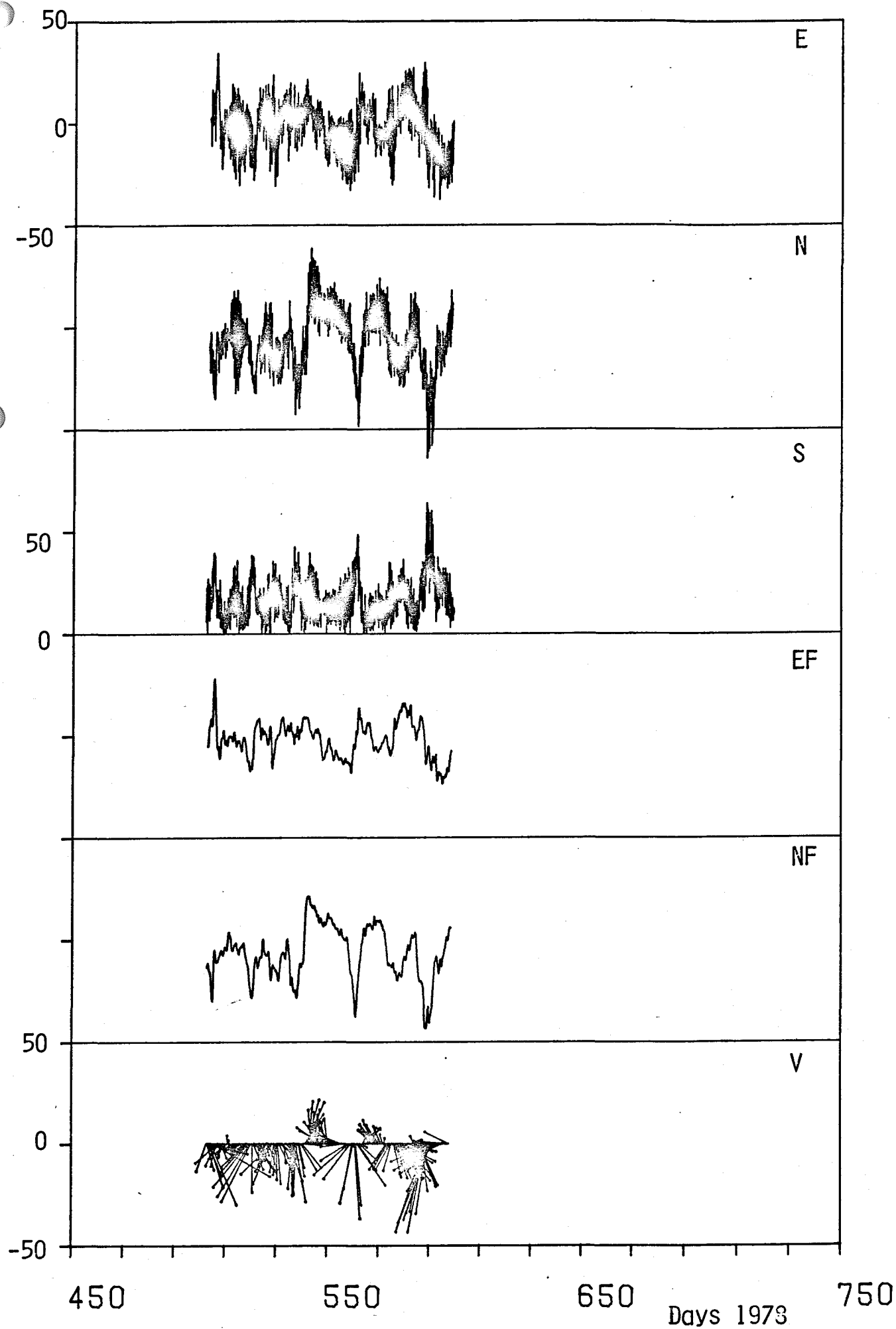
CM/S

(I2) 27002



CM/S

(12) 27003



CM/S

(12) 27004

50

E

0

-50

N

50

S

0

EF

NF

50

V

0

-50

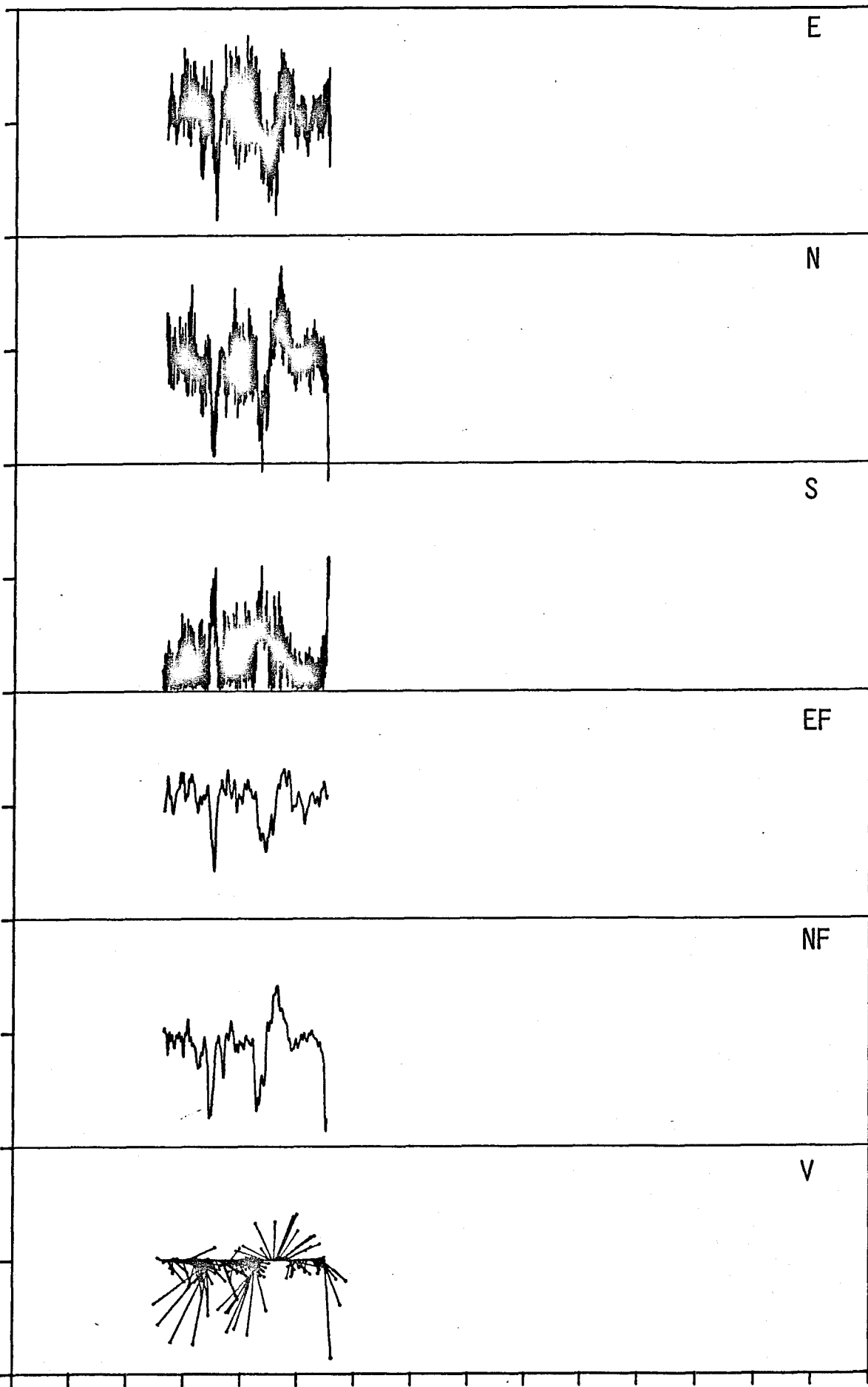
450

550

650

Days 1973

750



MOORING 279 (I2)

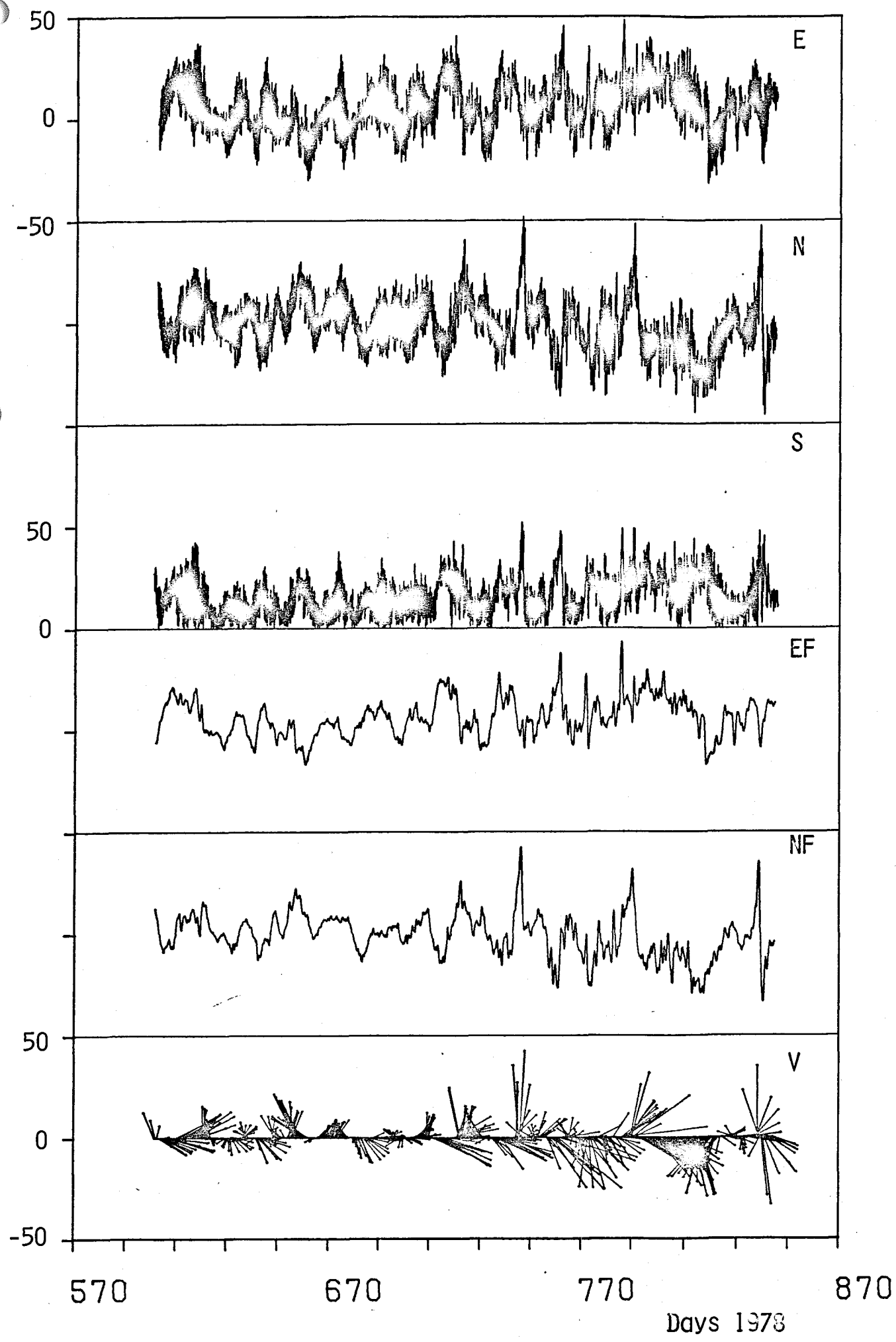
Set 24-VIII-79 Position: 60°12'.7N 09°16'.0W
Recovered 25-IV -80 Water Depth: 1471 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
27901	Aa 1261	212	Sp,D,T,P		
27902	Aa 3727	634	Sp,D,T		
27903	Aa 3728	1046	Sp,D,T		
27904	Aa 21079	1427	Sp,D,T		

Comments

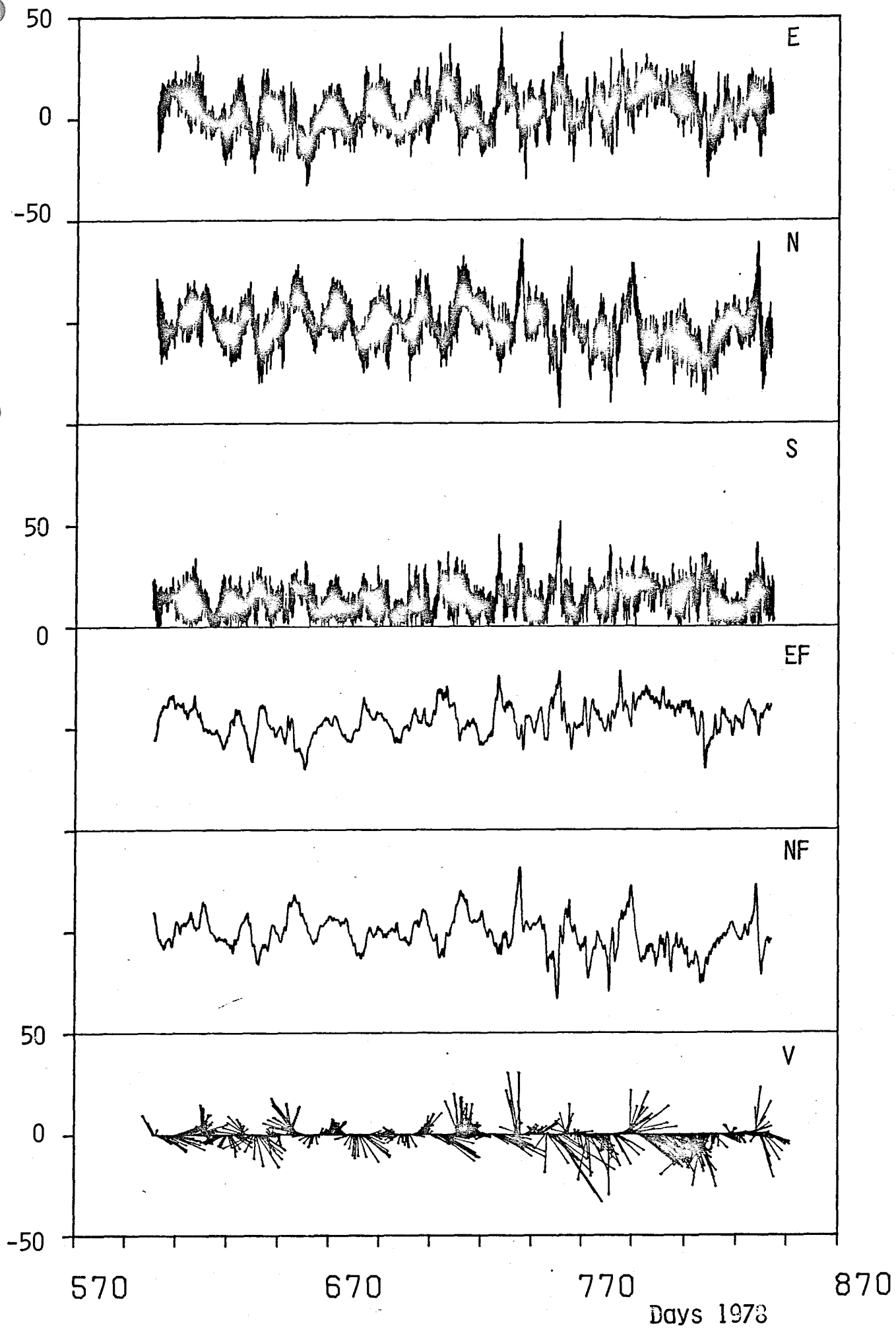
CM/S

(I2) 27901



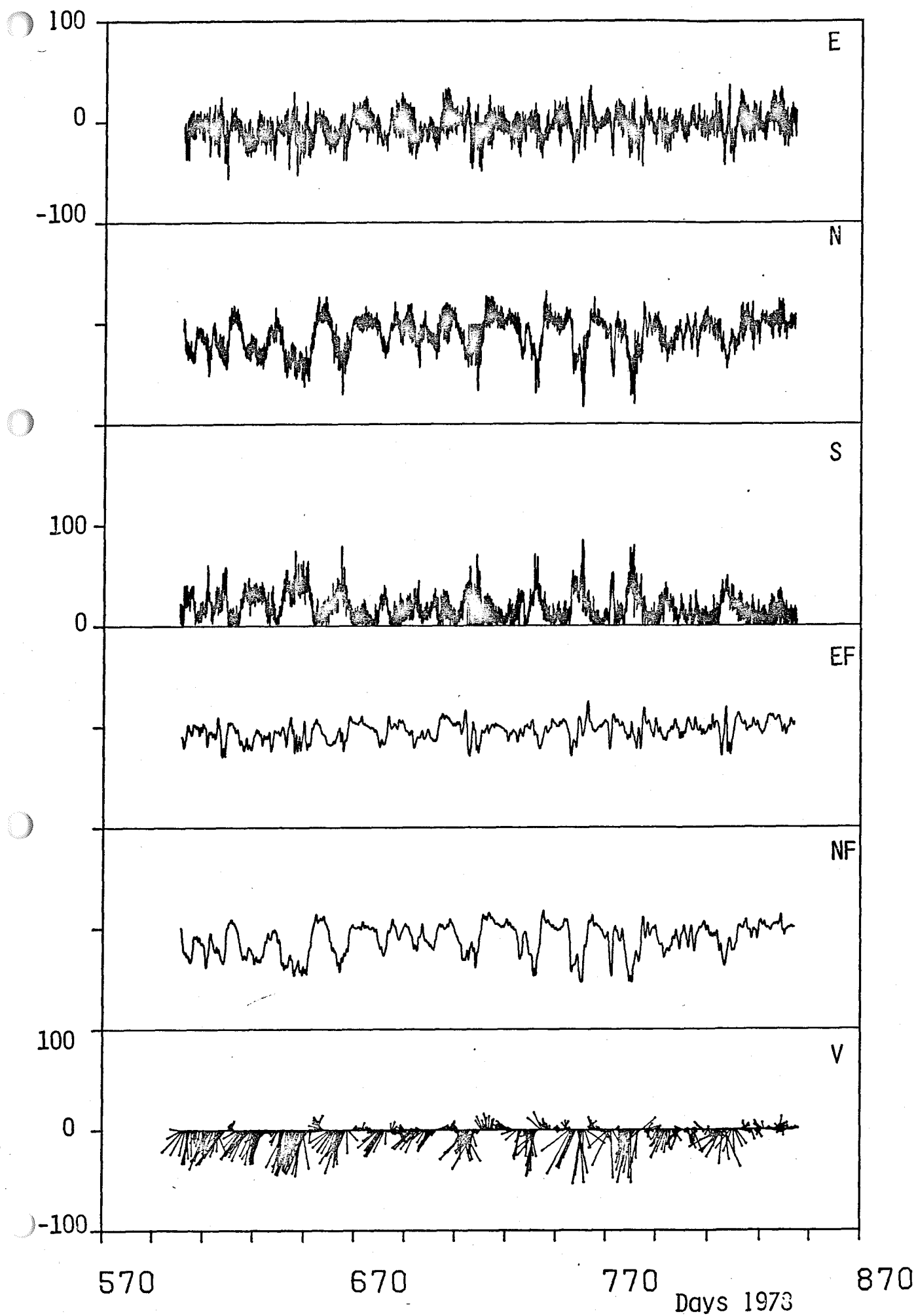
CM/S

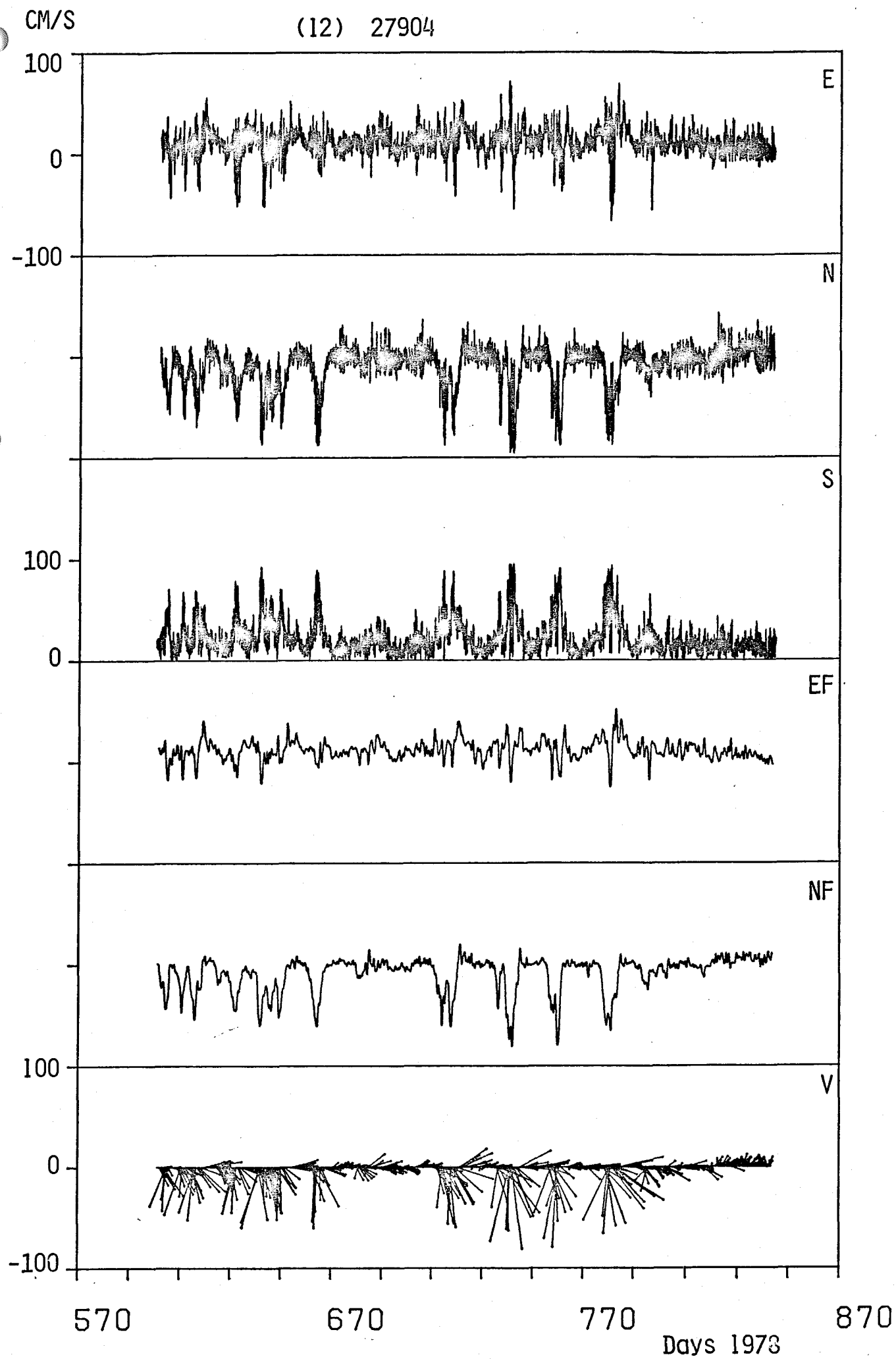
(I2) 27902



CM/S

(I2) 27903





MOORING 285 (I2)

Set 25-IV-80 Position: 60° 11'.8N 09° 19'.6W
Recovered 4- X-80 Water Depth: 1430 m

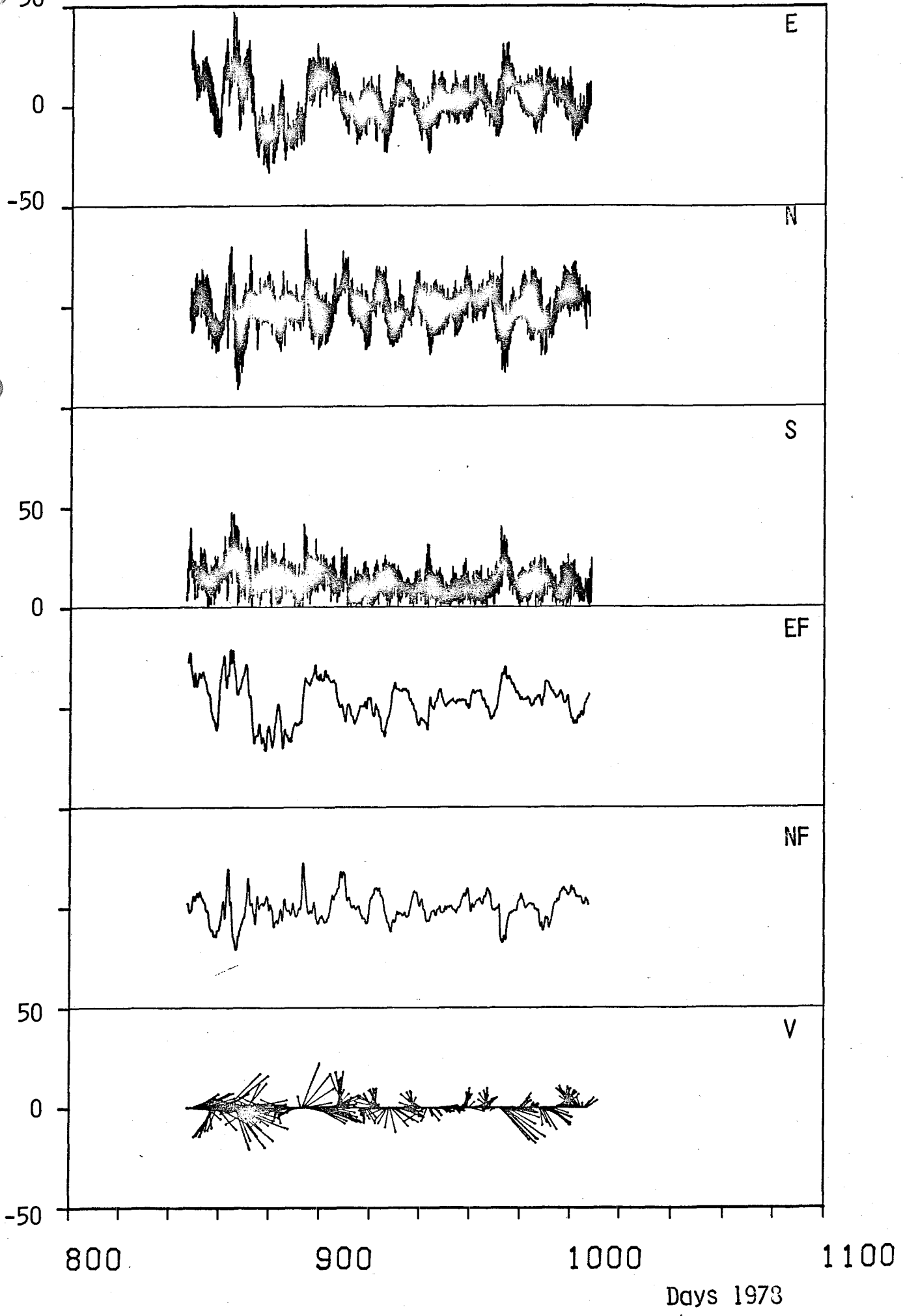
<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
28501	Aa 3622	181	Sp,D,T,P	3600	
28502	Aa 794	590	Sp,D,T	3600	
28503	Aa 3726	1008	Sp,D,T	3600	
28504	Aa 1622	1397	Sp,D,T	3600	rotor missing on recovery.

Comments

CM/S

(12) 28501

50



(12) 28502

CM/S

50

0

-50

E

N

S

50

0

EF

NF

50

0

V

-50

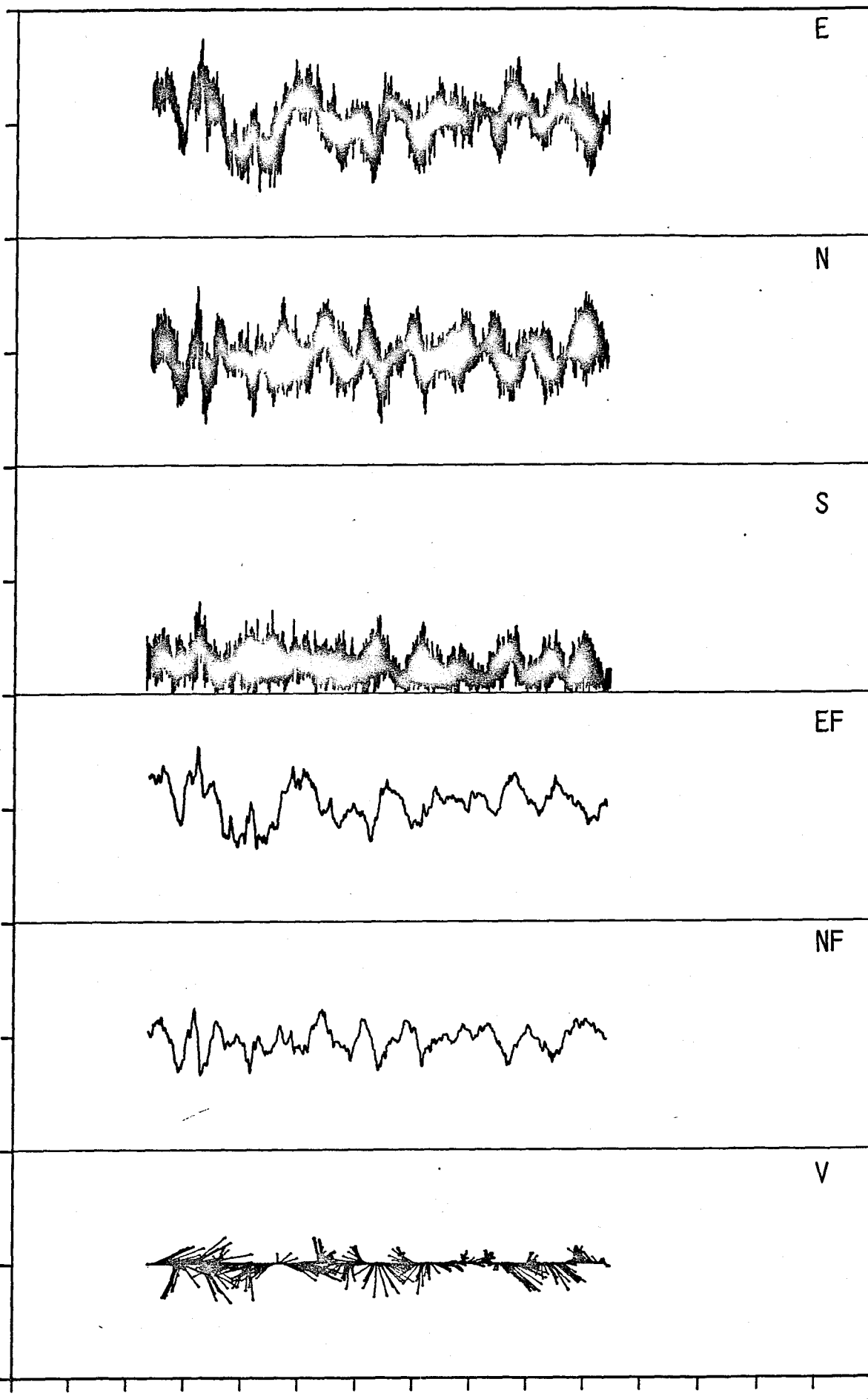
800

900

1000

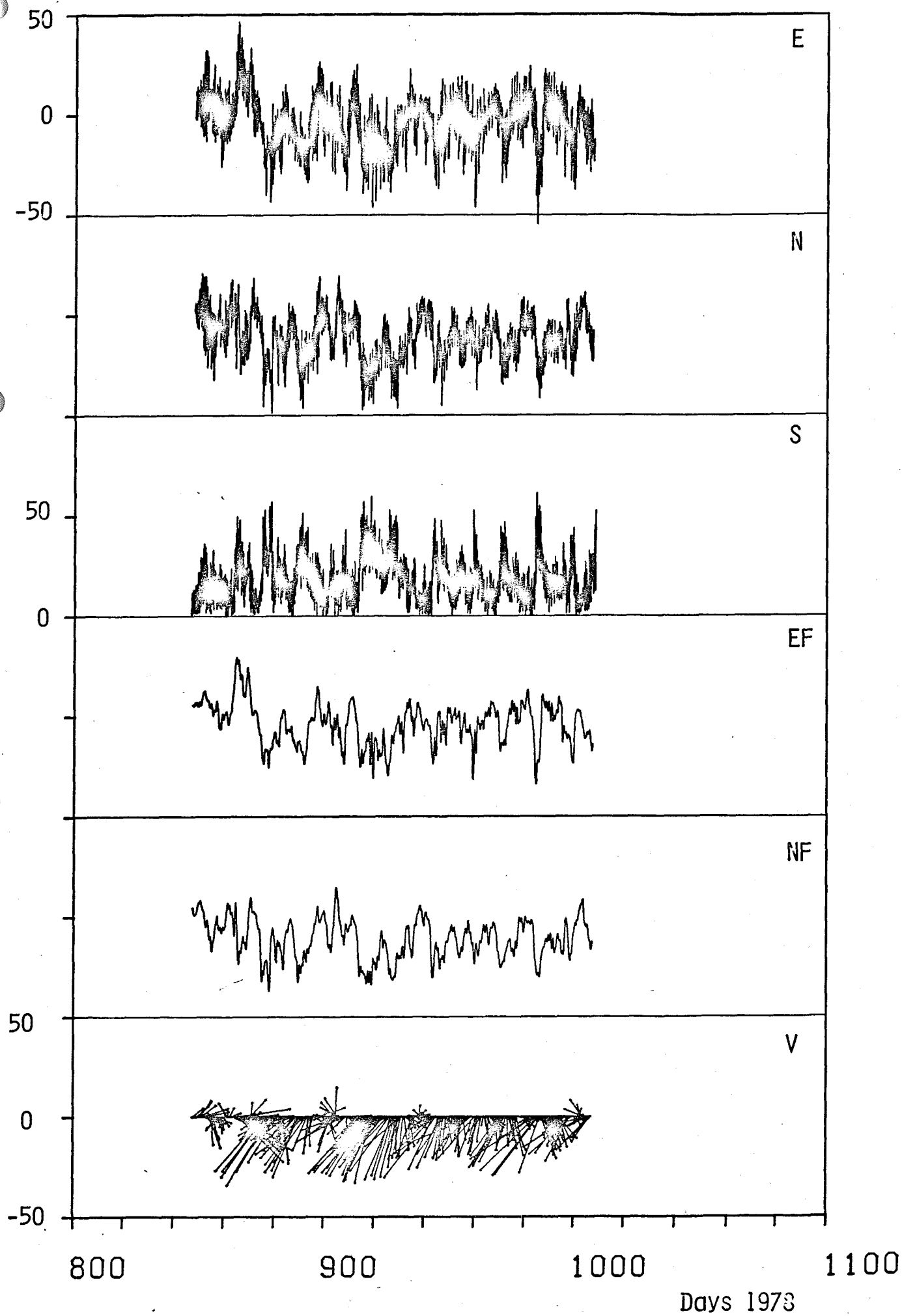
1100

Days 1978



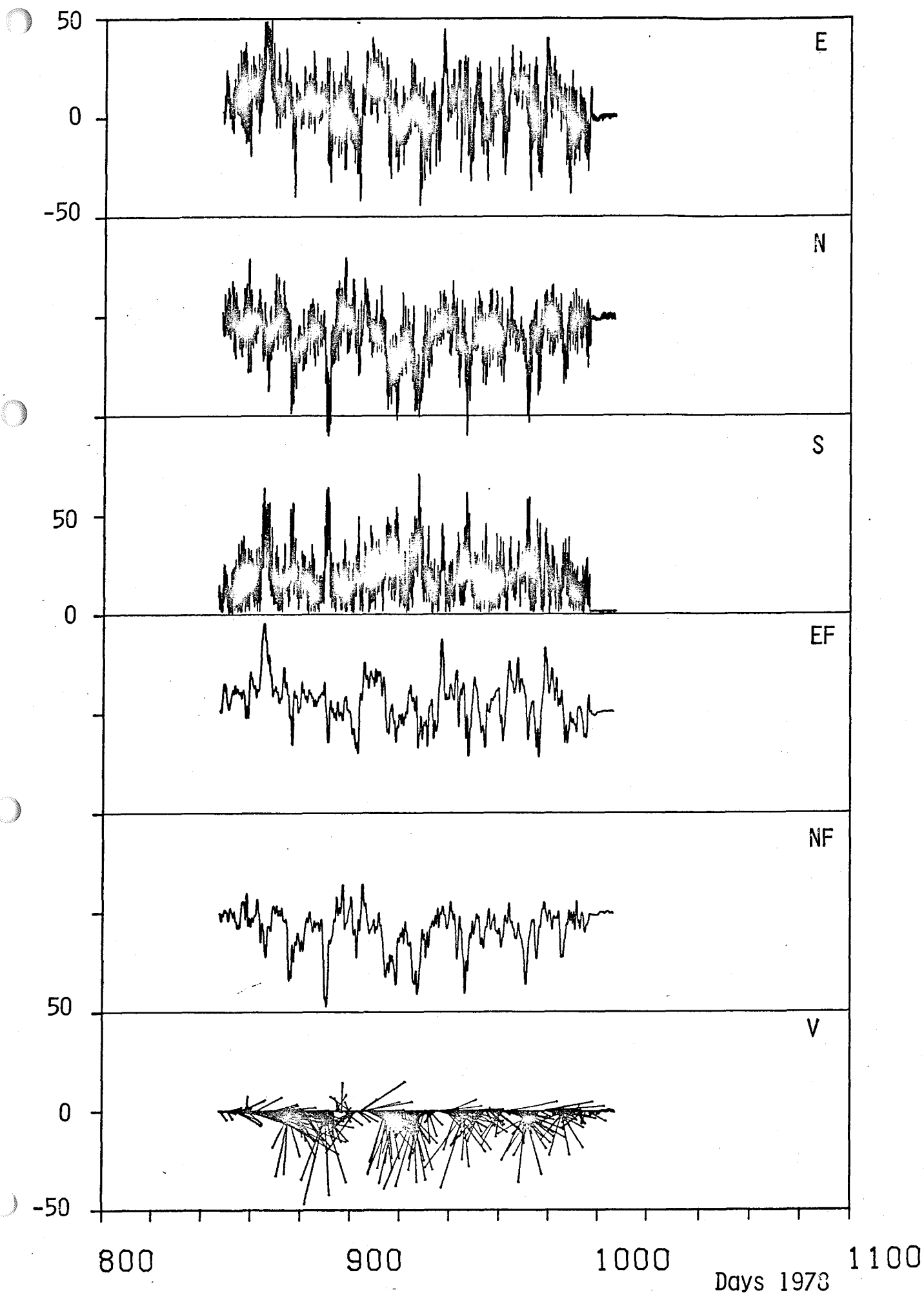
CM/S

(I2) 28503

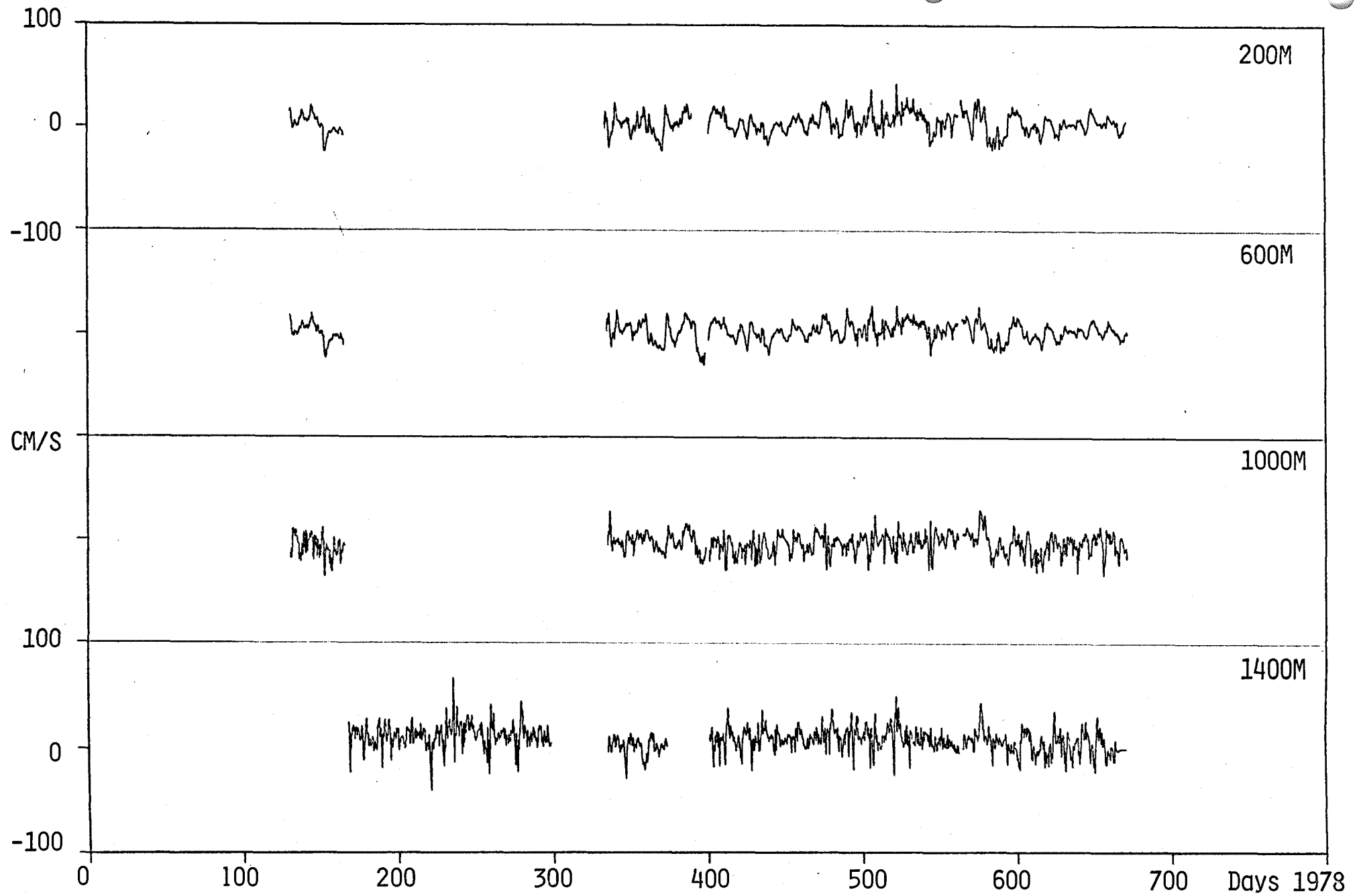


CM/S

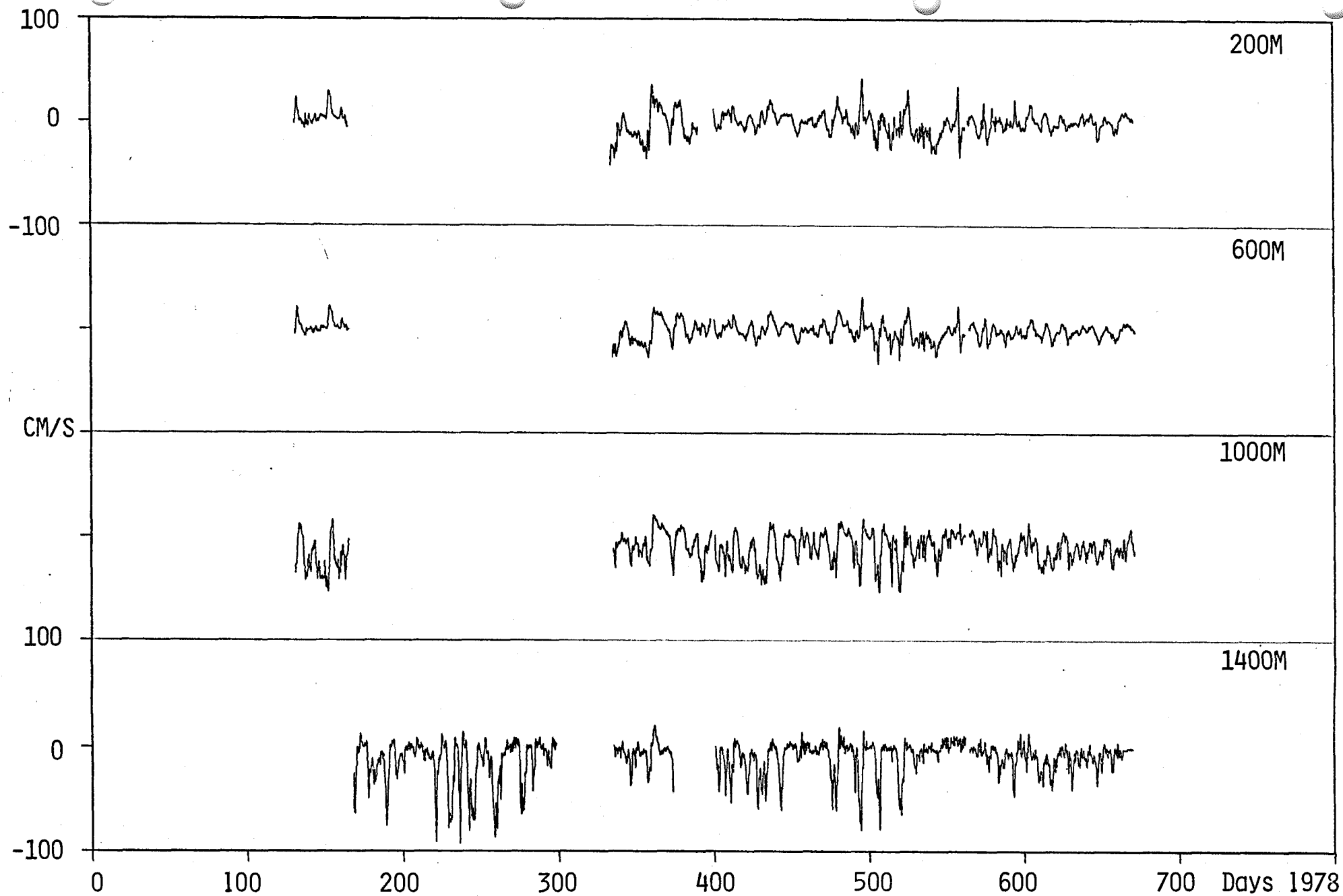
(12) 28504

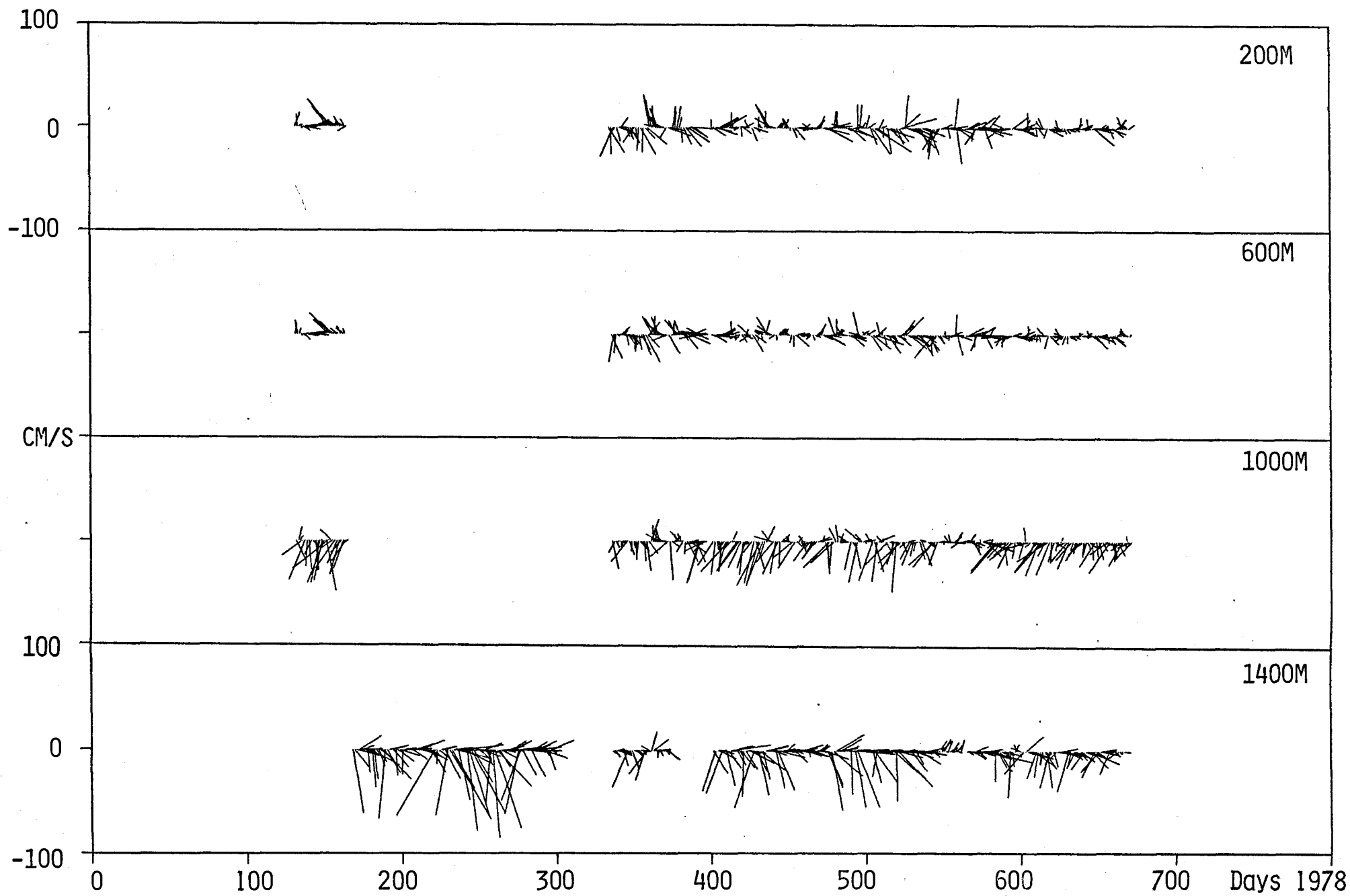


I2E



I2N

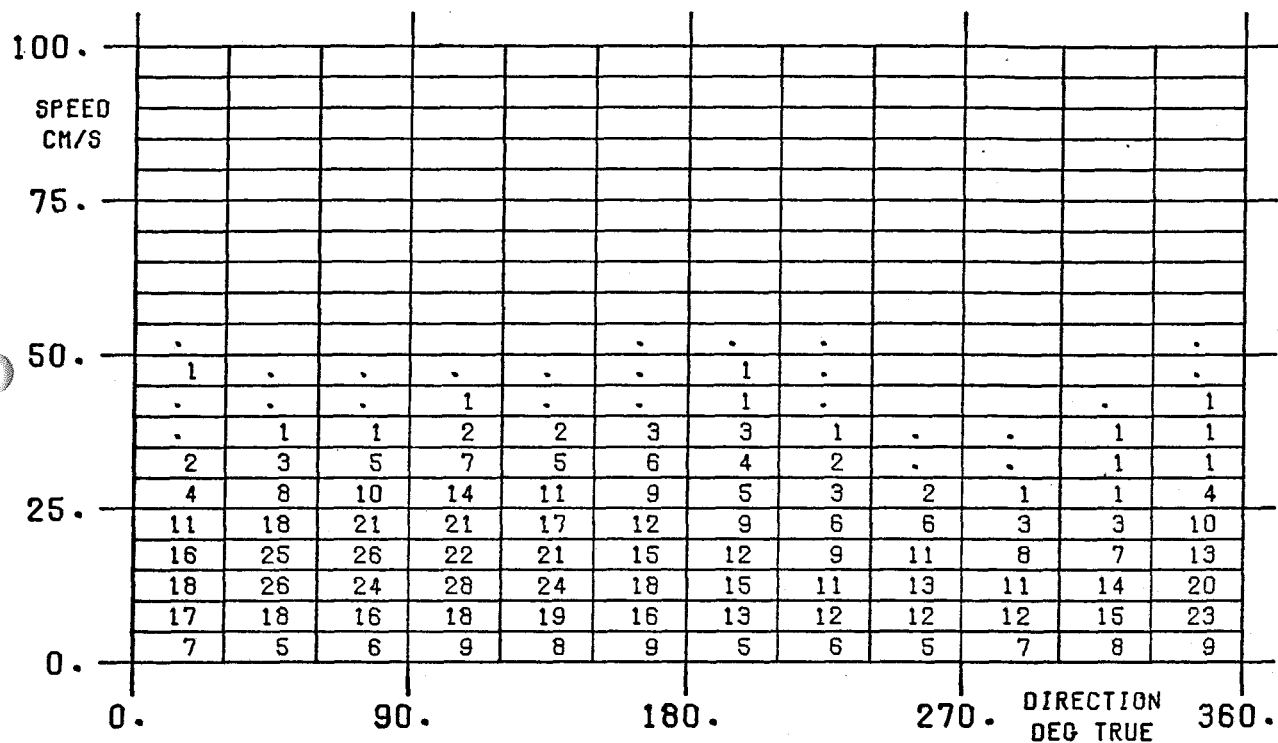




I2 200M

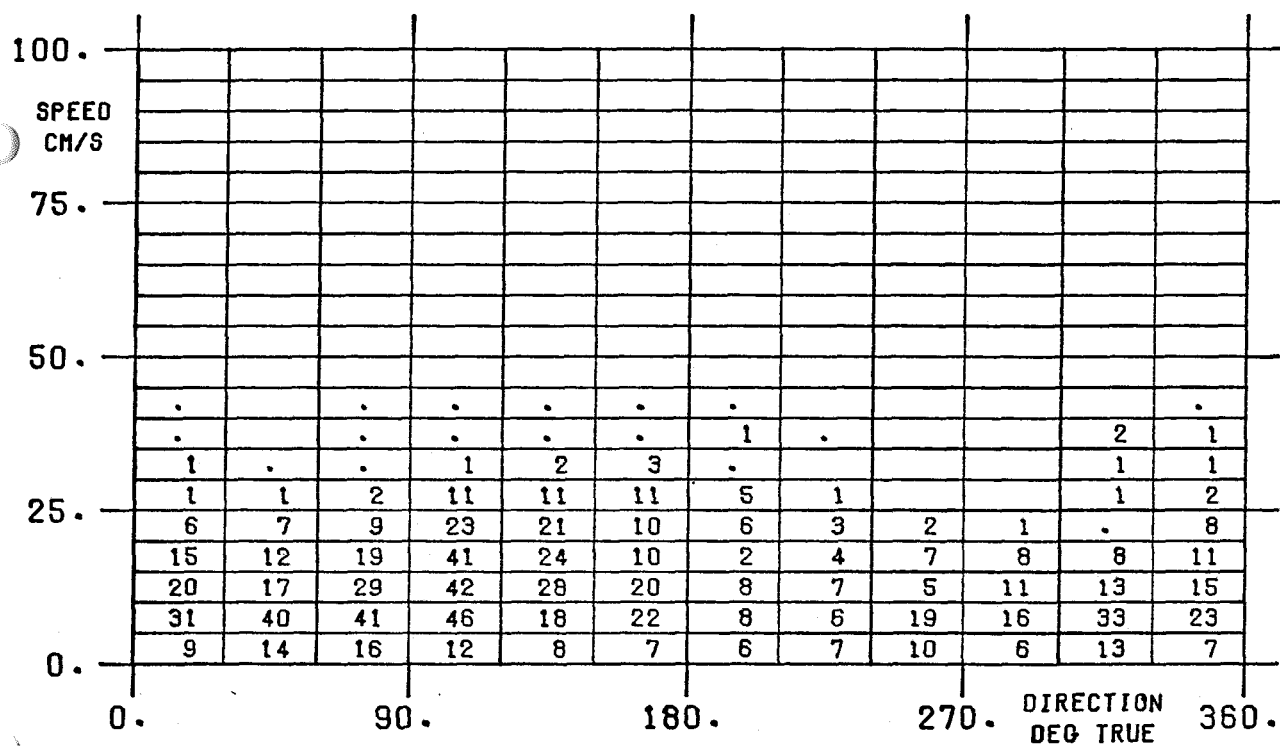
UNFILTERED 539.5 DAYS

15/ 7/78- 4/10/80



FILTERED 539.5 DAYS

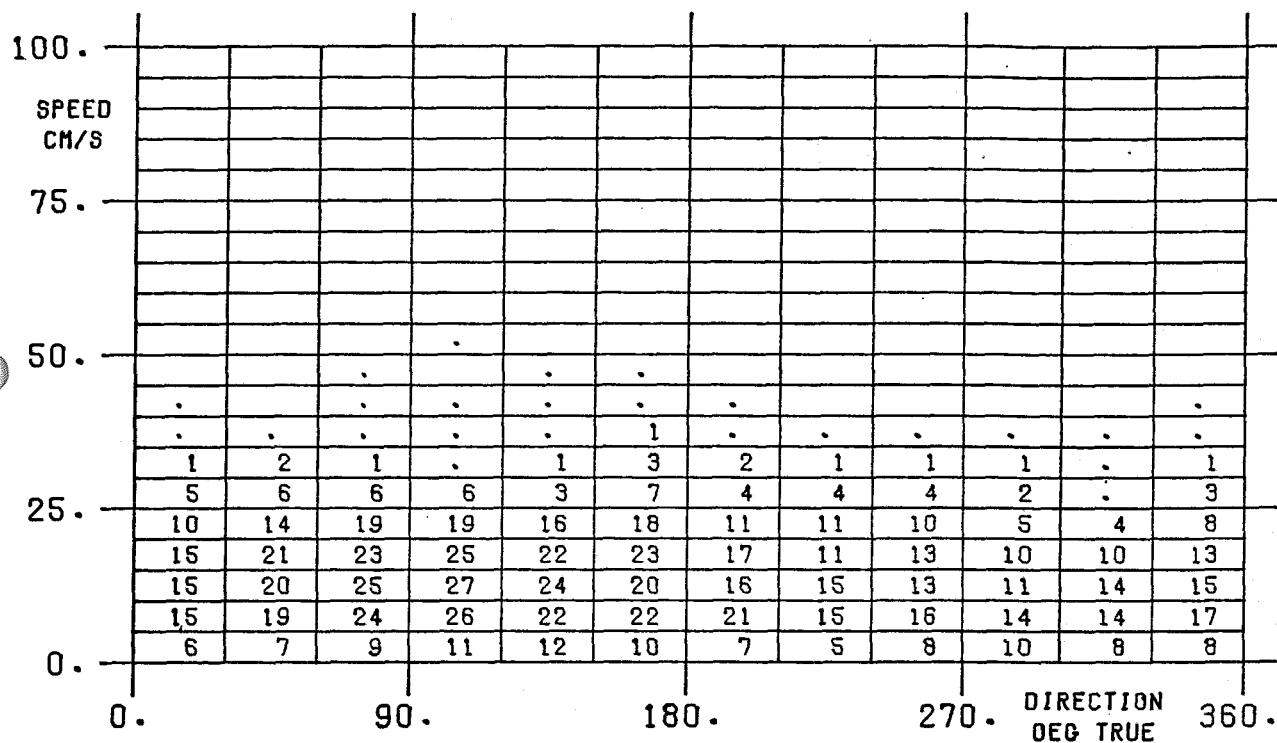
15/ 7/78- 4/10/80



I2 500M

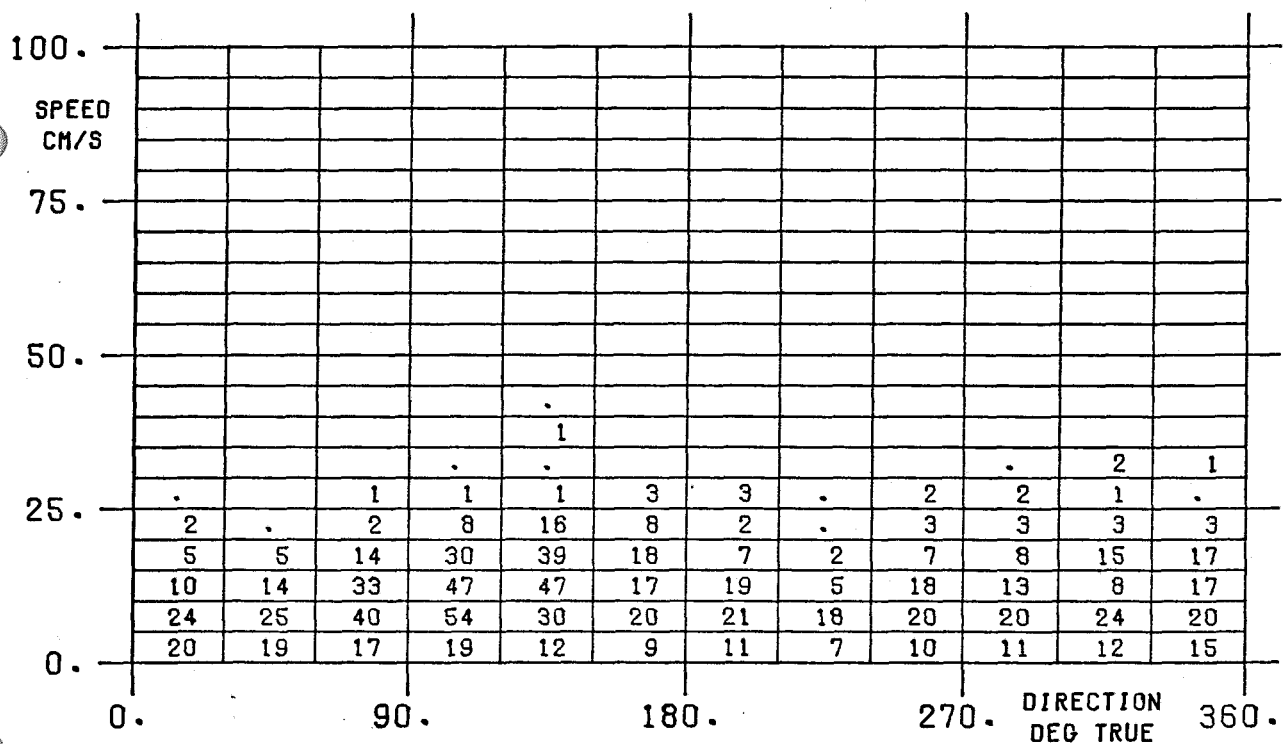
UNFILTERED 550.3 DAYS

15/ 7/78- 4/10/80



FILTERED 550.3 DAYS

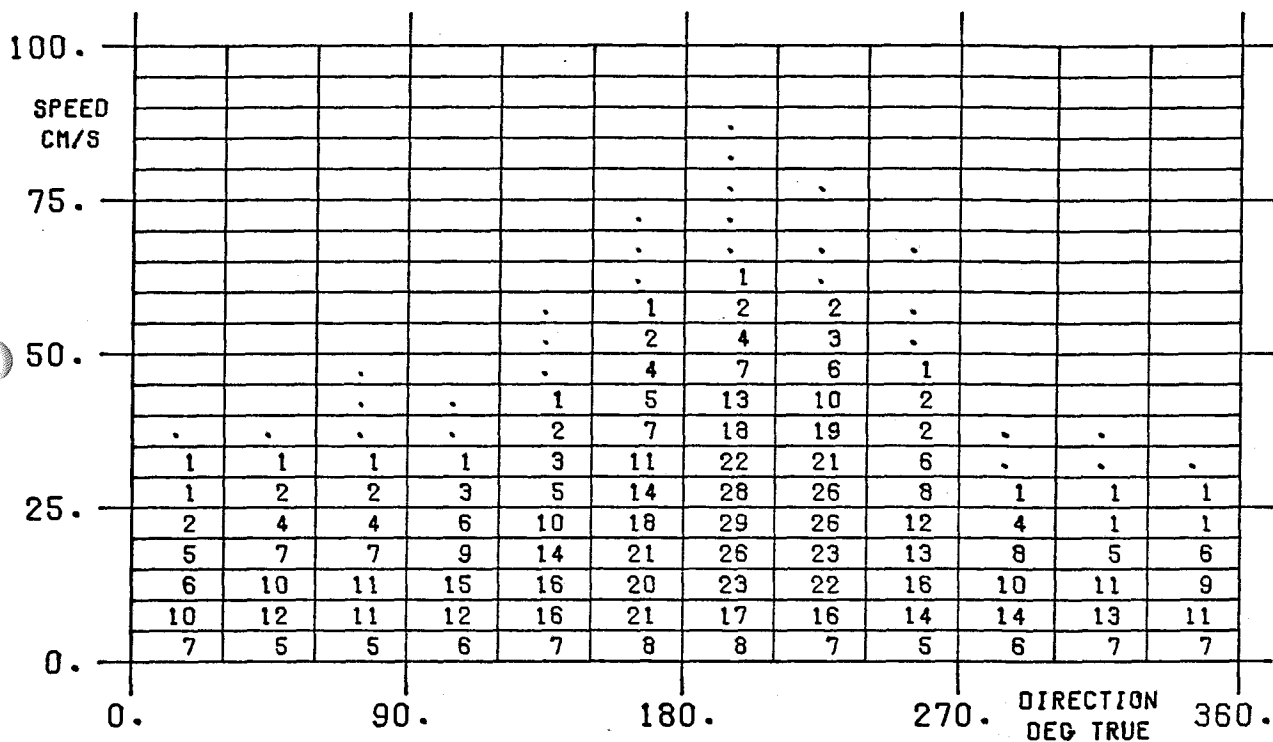
15/ 7/78- 4/10/80



I2 1000M

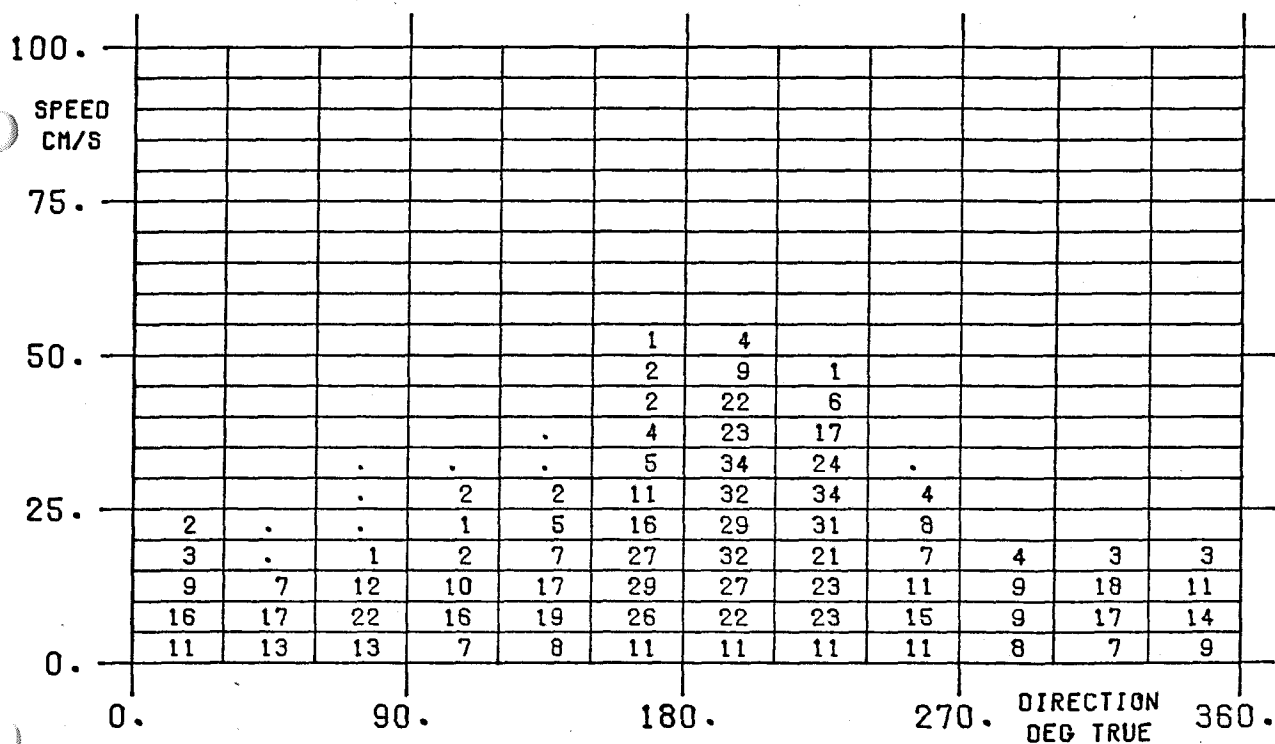
UNFILTERED 549.9 DAYS

15/ 7/78- 4/10/80



FILTERED 549.9 DAYS

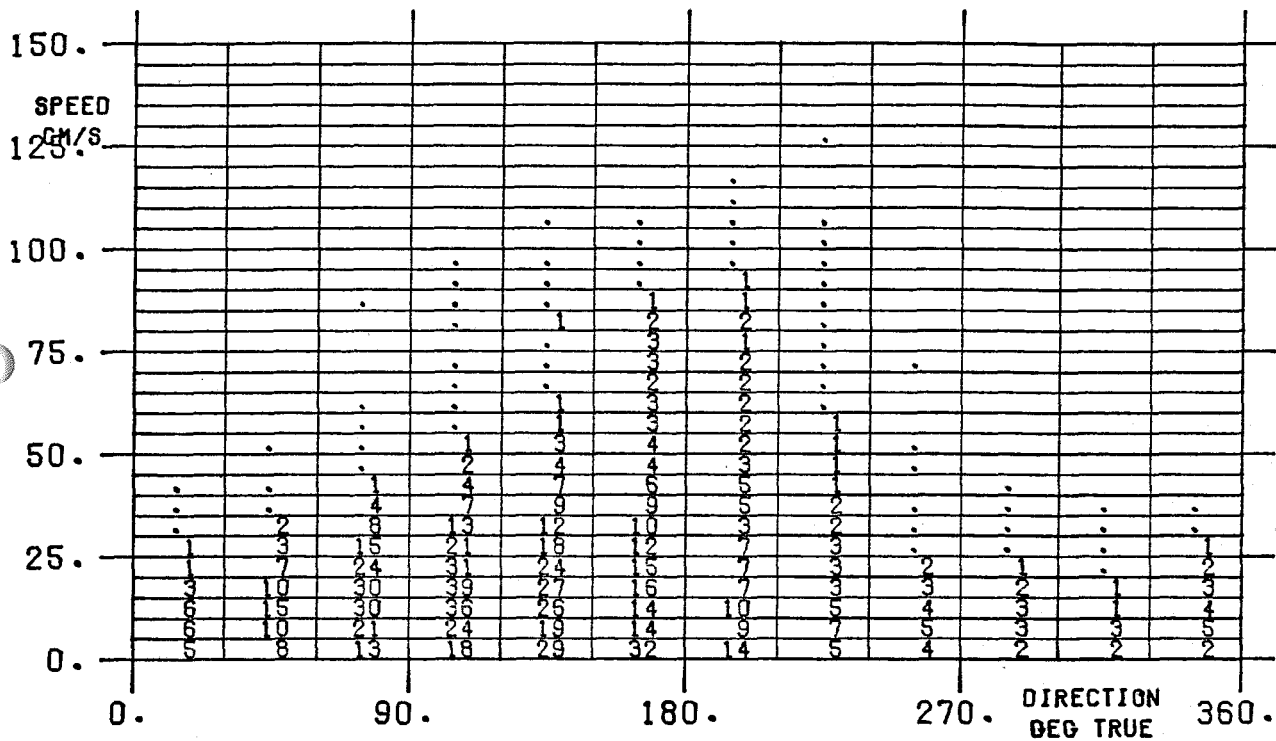
15/ 7/78- 4/10/80



I2 1500M

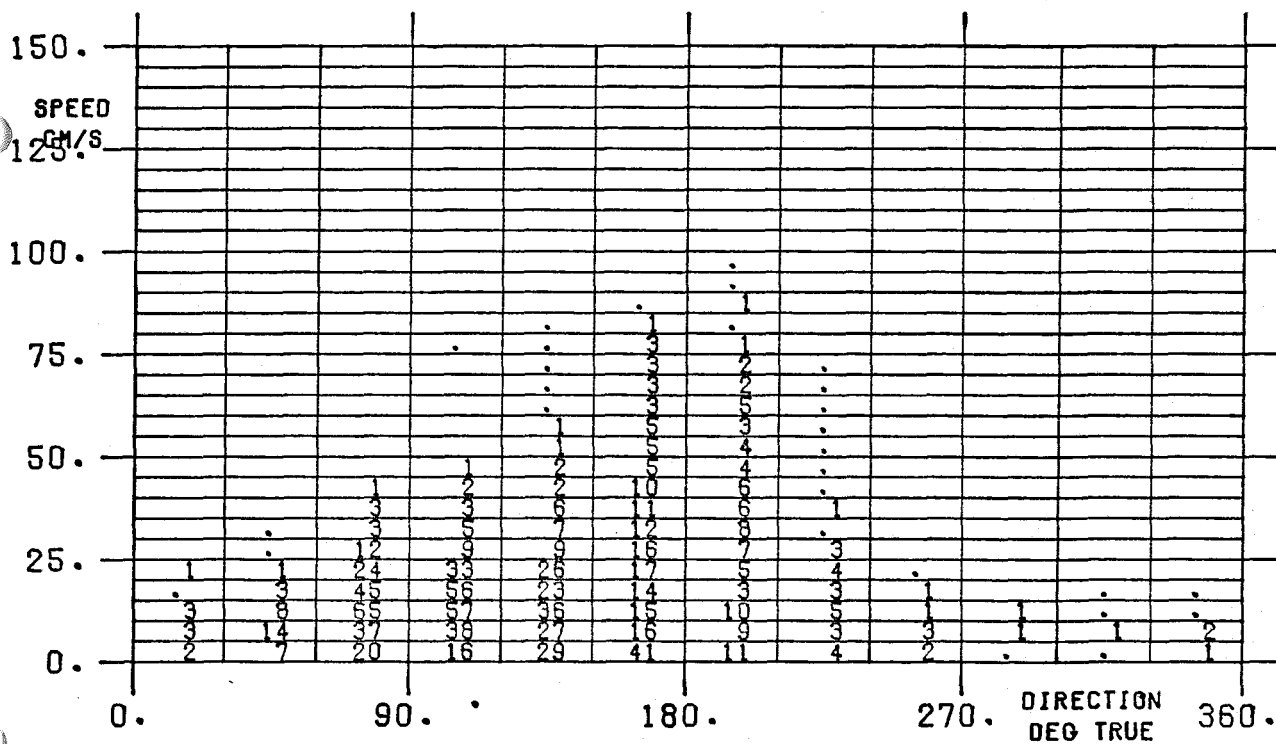
UNFILTERED 706.1 DAYS

15/ 7/78- 4/10/80



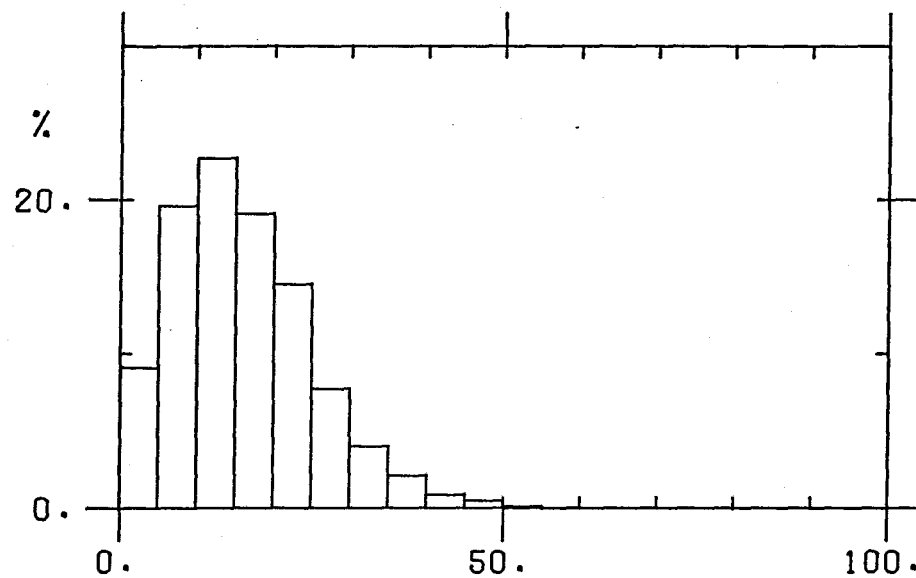
FILTERED 706.1 DAYS

15/ 7/78- 4/10/80



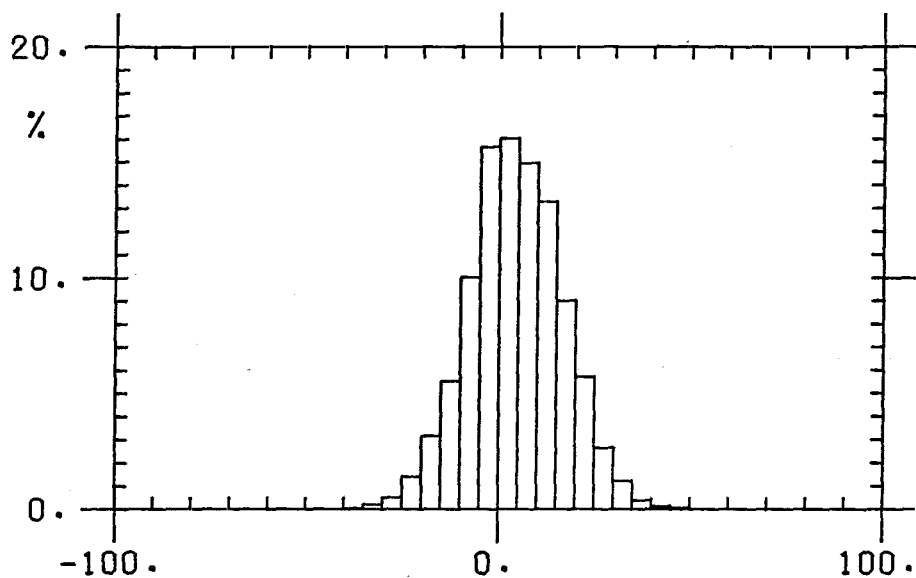
I2 200M UNFILTERED

15/ 7/78- 4/10/80



SPEED

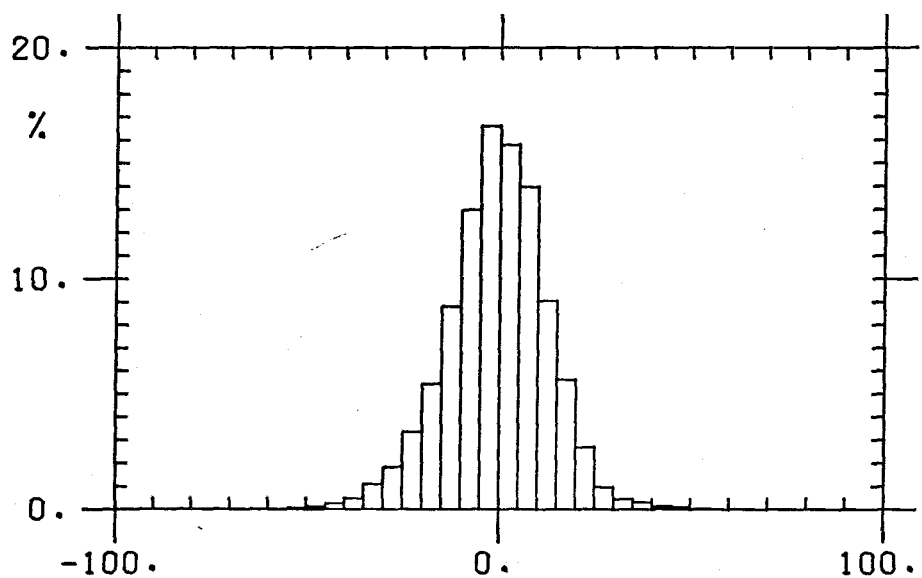
539.5 DAYS
MAX= 53.57
MIN= 0.02
MEAN= 15.93



CM/S

EAST

539.5 DAYS
MAX= 48.73
MIN= -37.84
MEAN= 4.47
VAR= 145.24



CM/S

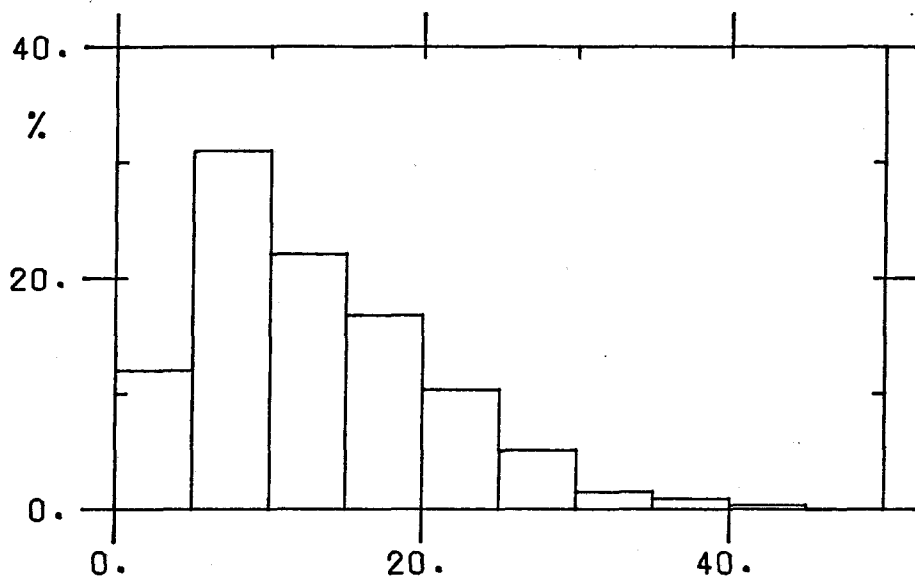
NORTH

539.5 DAYS
MAX= 52.24
MIN= -53.21
MEAN= -0.59
VAR= 169.13

CM/S

I2 200M FILTERED

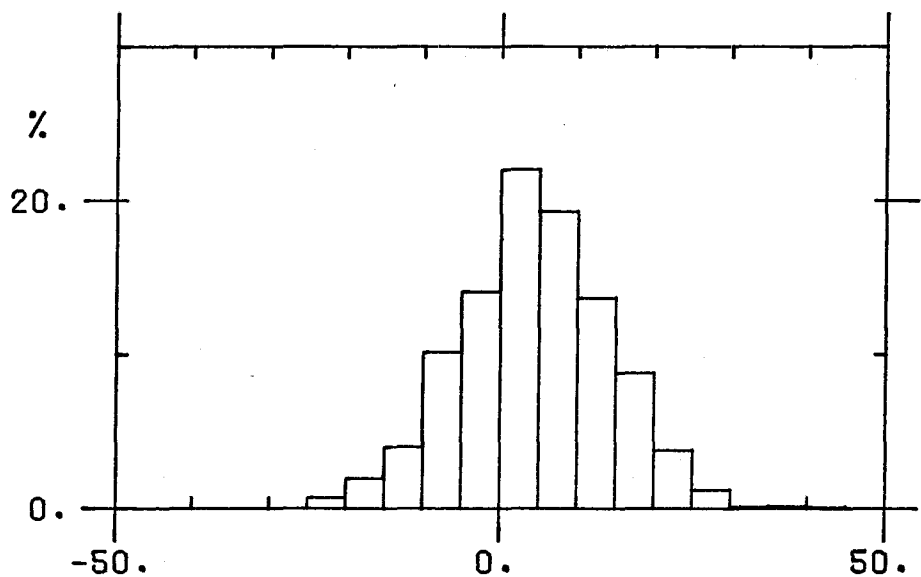
15/ 7/78- 4/10/80



SPEED

539.5 DAYS
MAX= 43.47
MIN= 0.19
MEAN= 13.09

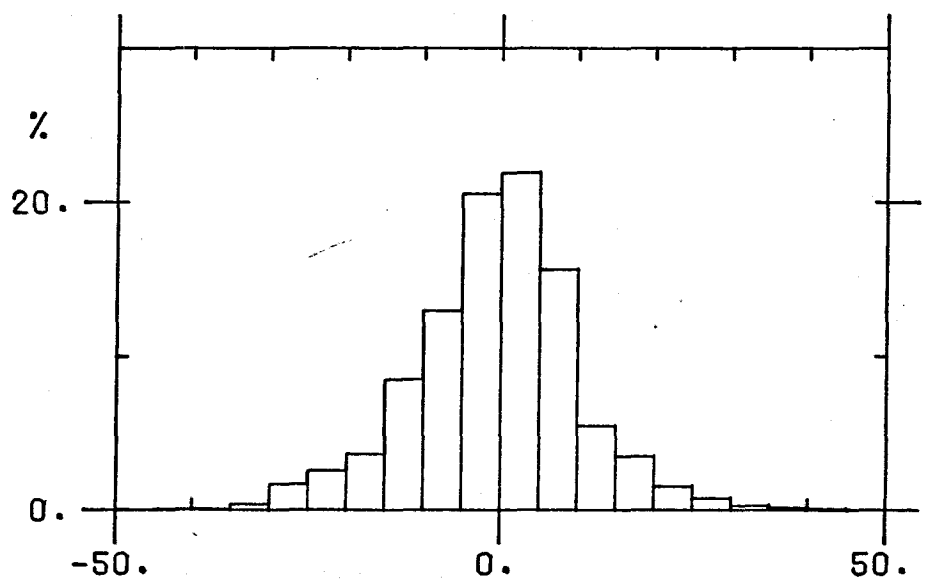
CM/S



EAST

539.5 DAYS
MAX= 43.46
MIN= -24.14
MEAN= 4.46
VAR= 94.52

CM/S



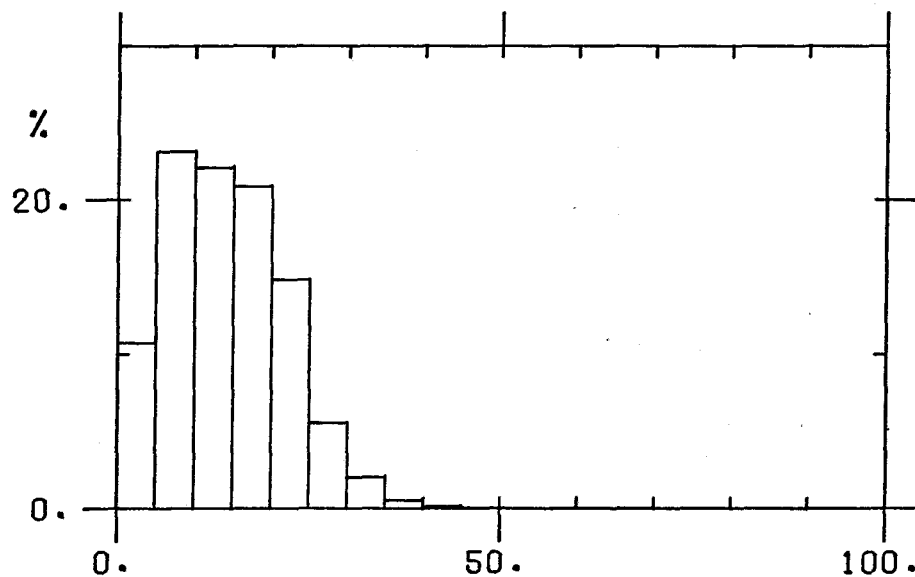
NORTH

539.5 DAYS
MAX= 42.70
MIN= -42.00
MEAN= -0.59
VAR= 114.33

CM/S

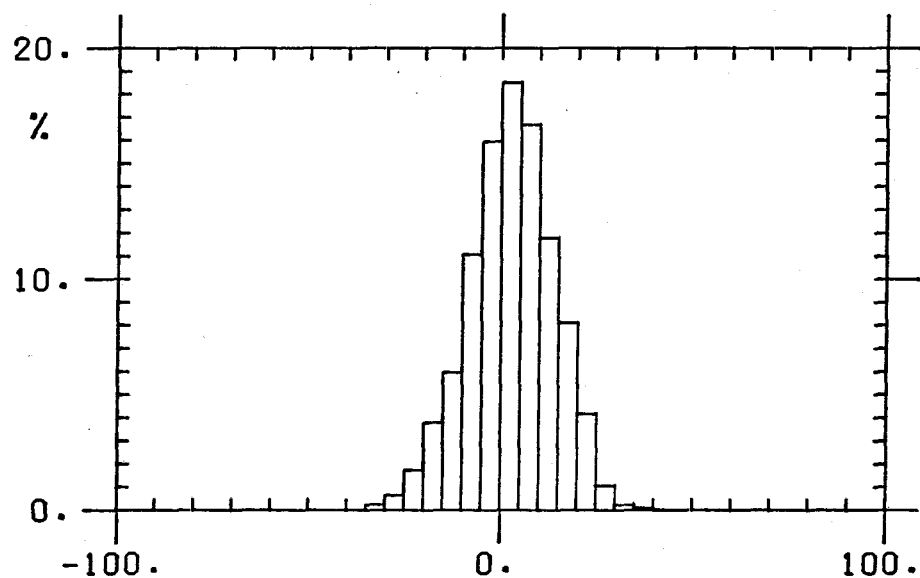
I2 500M UNFILTERED

15/ 7/78- 4/10/80



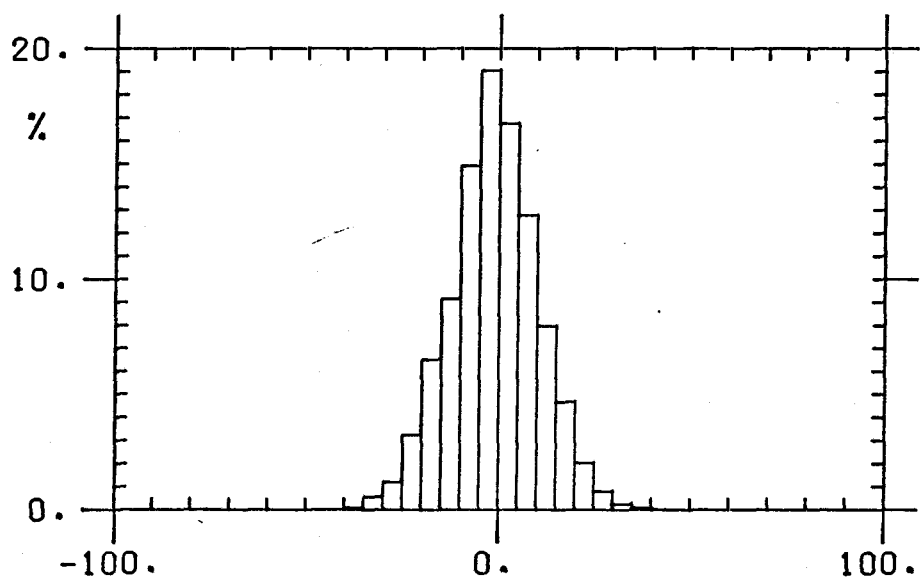
SPEED

550.3 DAYS
MAX= 51.69
MIN= 0.01
MEAN= 14.21



EAST

550.3 DAYS
MAX= 51.63
MIN= -37.51
MEAN= 2.65
VAR= 122.66

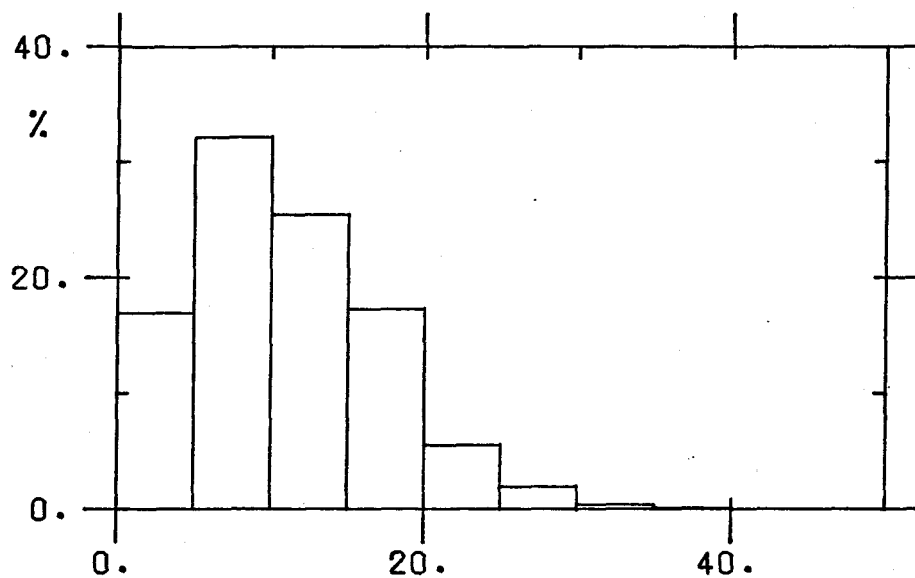


NORTH

550.3 DAYS
MAX= 40.76
MIN= -42.51
MEAN= -1.20
VAR= 128.58

I2 500M FILTERED

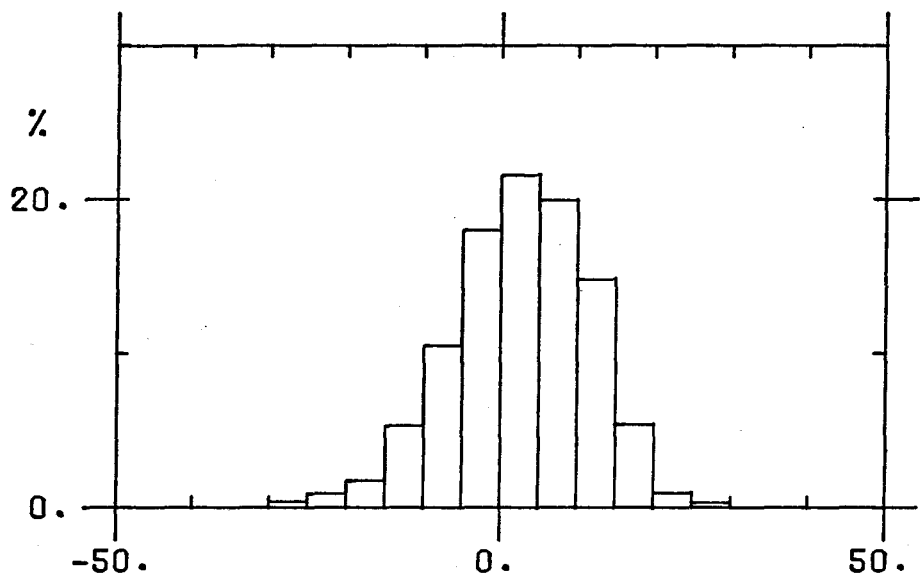
15/ 7/78- 4/10/80



SPEED

550.3 DAYS
MAX= 40.41
MIN= 0.12
MEAN= 11.01

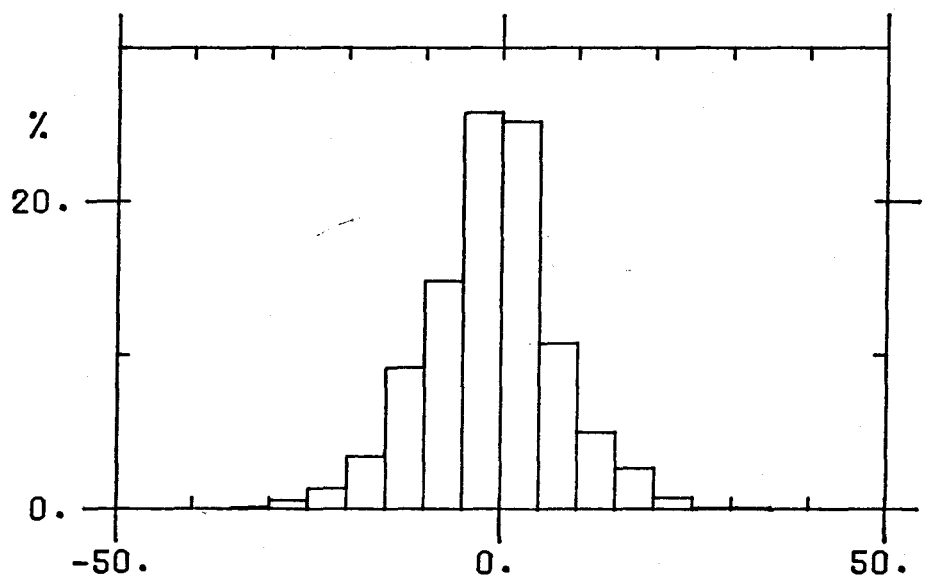
CM/S



EAST

550.3 DAYS
MAX= 28.15
MIN= -30.08
MEAN= 2.65
VAR= 78.35

CM/S



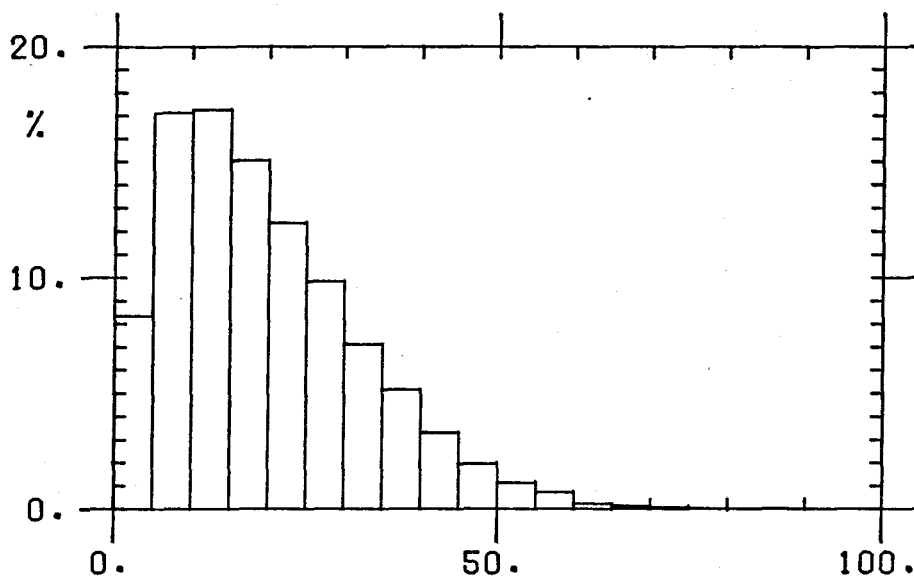
NORTH

550.3 DAYS
MAX= 31.79
MIN= -33.26
MEAN= -1.21
VAR= 72.52

CM/S

I2 1000M UNFILTERED

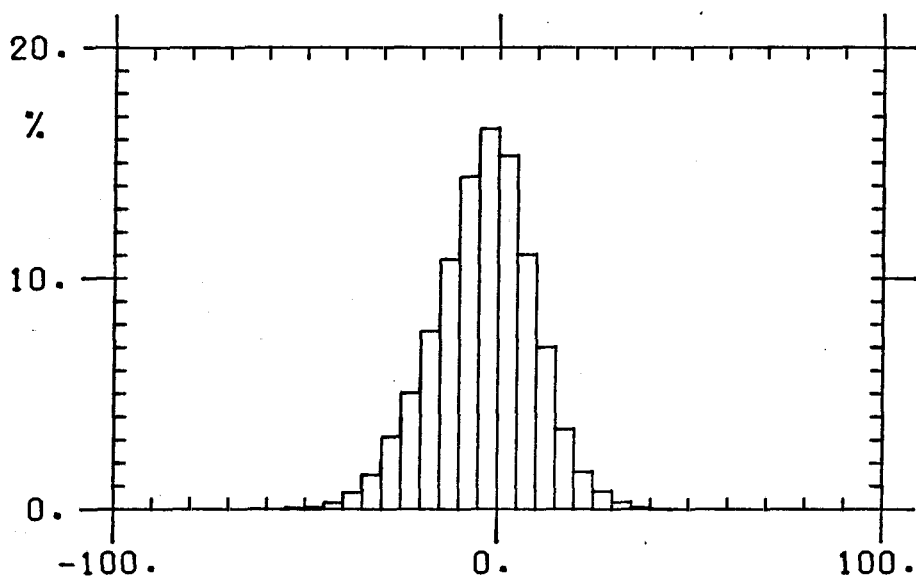
15/ 7/78- 4/10/80



SPEED

549.9 DAYS
MAX= 85.73
MIN= 0.04
MEAN= 19.73

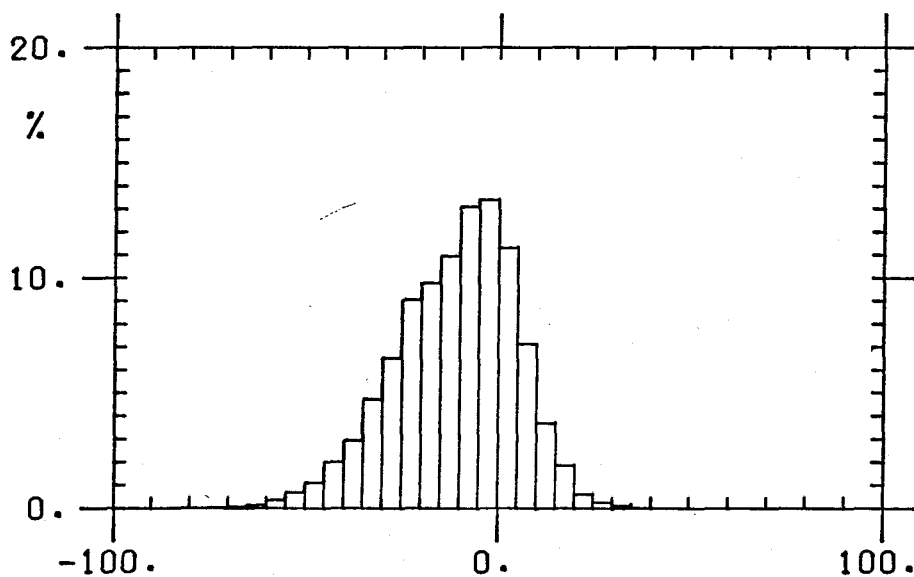
CM/S



EAST

549.9 DAYS
MAX= 46.99
MIN= -61.05
MEAN= -3.78
VAR= 167.72

CM/S



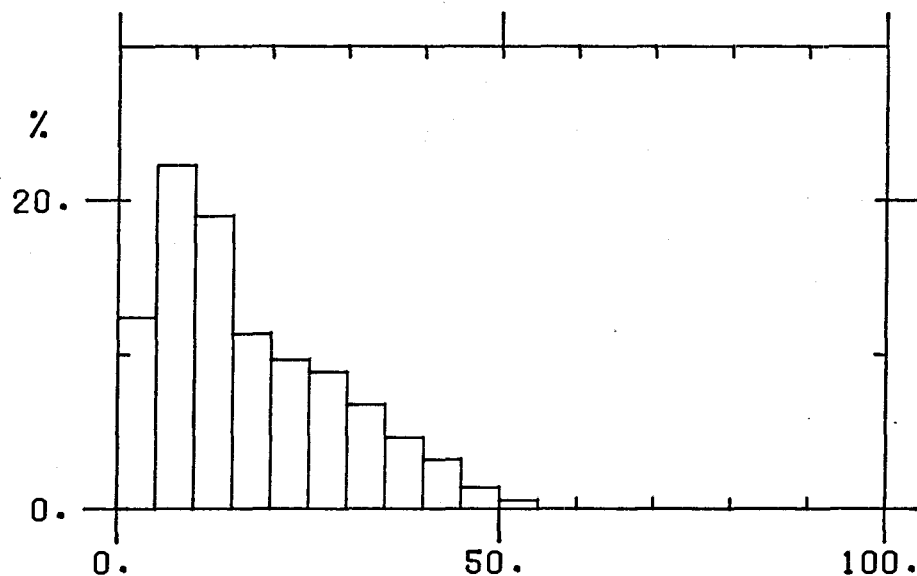
NORTH

549.9 DAYS
MAX= 38.93
MIN= -82.69
MEAN= -11.16
VAR= 243.80

CM/S

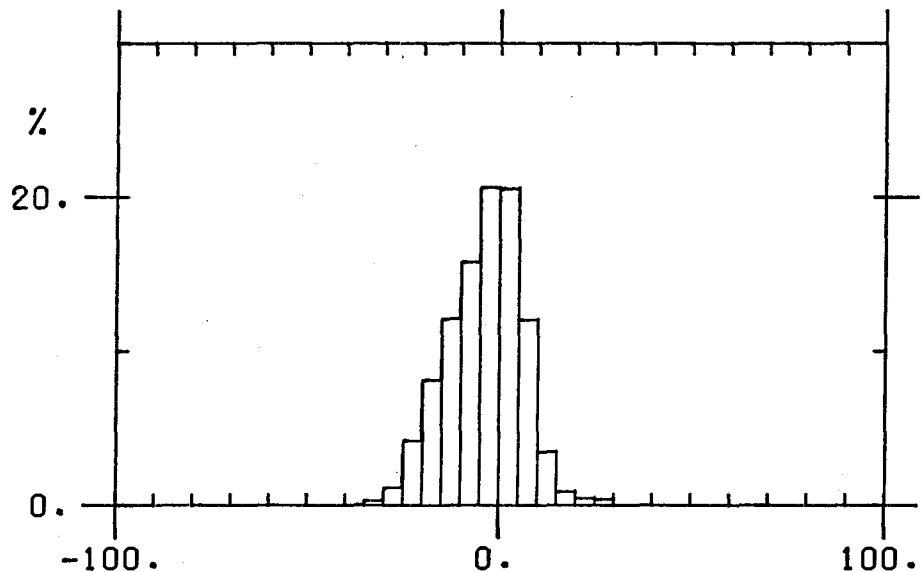
I2 1000M FILTERED

15/ 7/78- 4/10/80



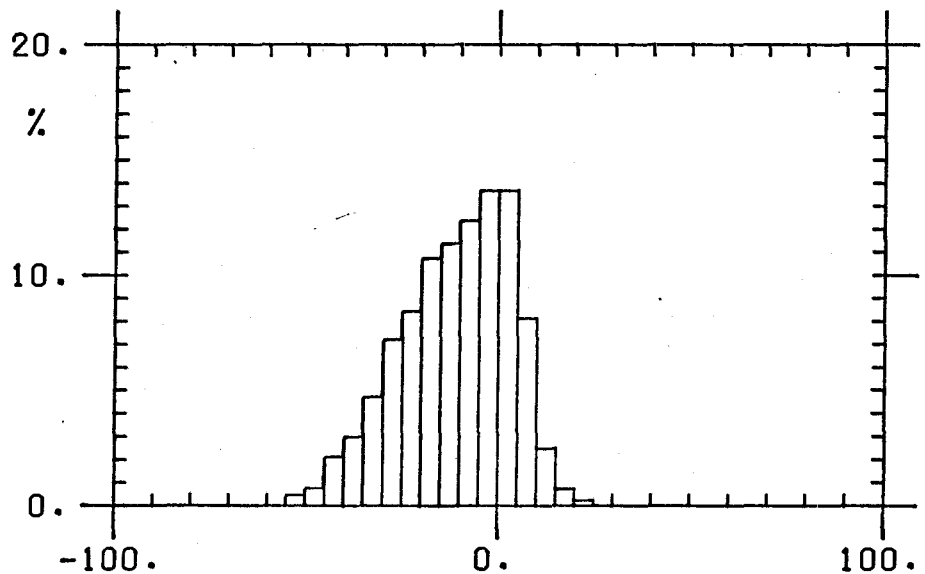
SPEED

549.9 DAYS
MAX= 54.36
MIN= 0.05
MEAN= 17.17



EAST

549.9 DAYS
MAX= 29.51
MIN= -35.92
MEAN= -3.78
VAR= 92.79



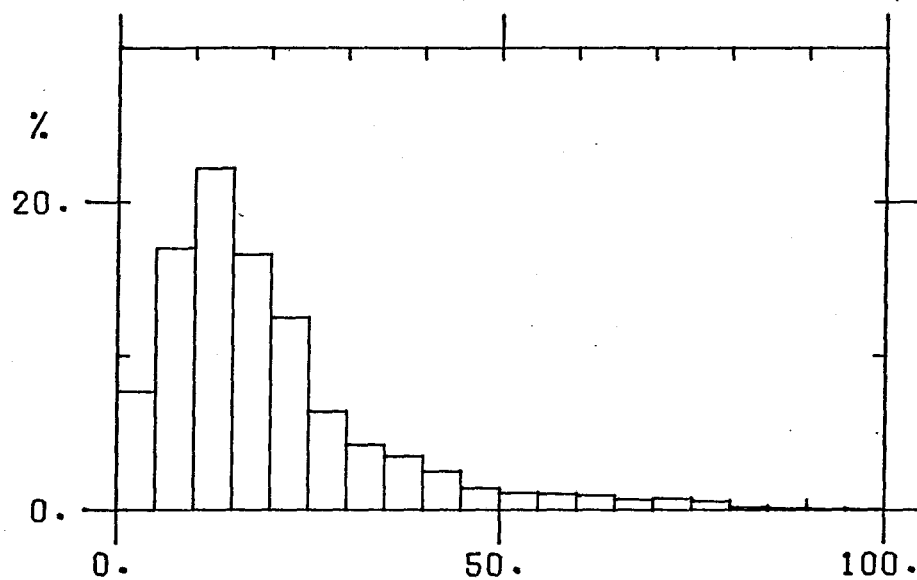
NORTH

549.9 DAYS
MAX= 21.44
MIN= -53.42
MEAN= -11.16
VAR= 200.36

CM/S

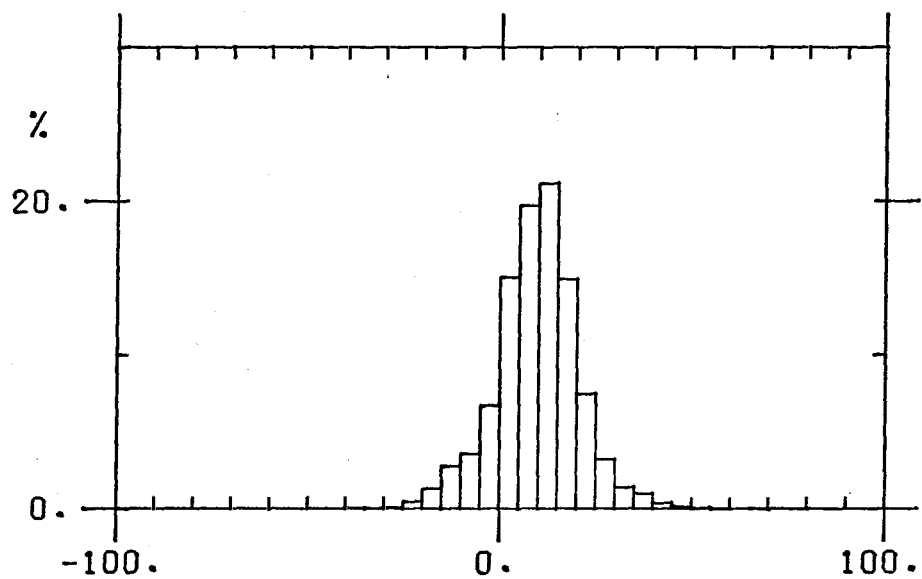
I2 1500M FILTERED

15/ 7/78- 4/10/80



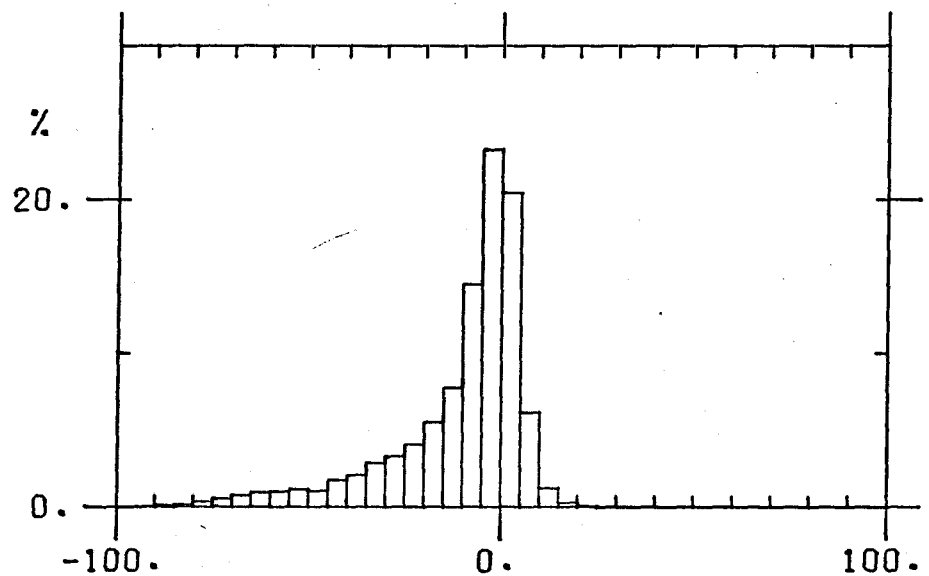
SPEED

654.0 DAYS
MAX= 98.36
MIN= 0.13
MEAN= 19.97



EAST

654.0 DAYS
MAX= 66.93
MIN= -40.76
MEAN= 9.63
VAR= 117.68

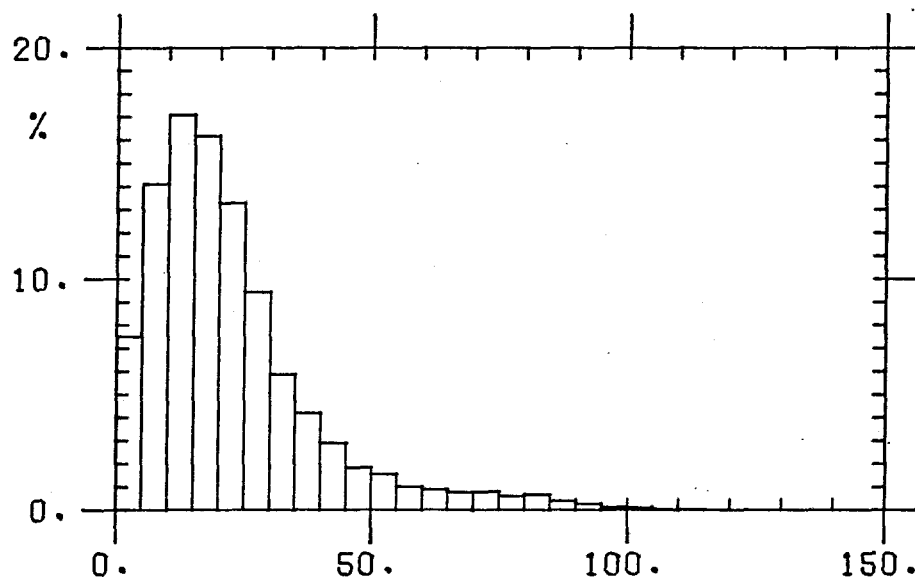


NORTH

654.0 DAYS
MAX= 20.79
MIN= -92.90
MEAN= -10.54
VAR= 311.64

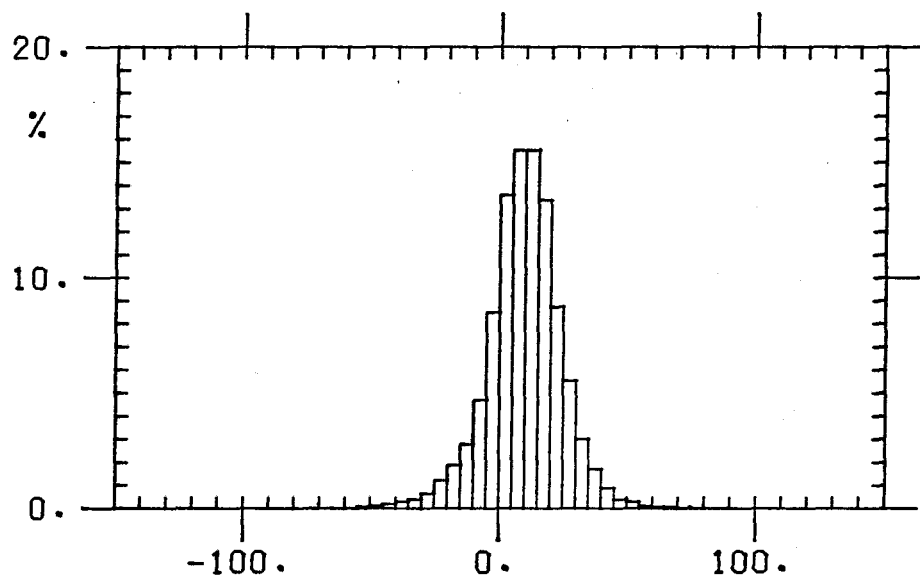
I2 1500M UNFILTERED

15/ 7/78- 4/10/80



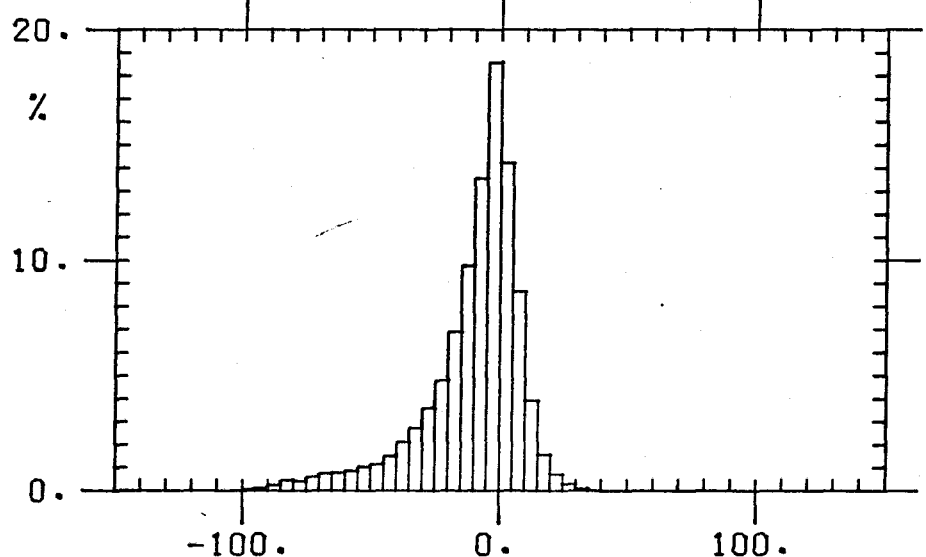
SPEED

654.0 DAYS
MAX= 125.88
MIN= 0.04
MEAN= 22.52



EAST

654.0 DAYS
MAX= 89.96
MIN= -95.71
MEAN= 9.63
VAR= 215.73



NORTH

654.0 DAYS
MAX= 43.52
MIN= -112.05
MEAN= -10.54
VAR= 383.91

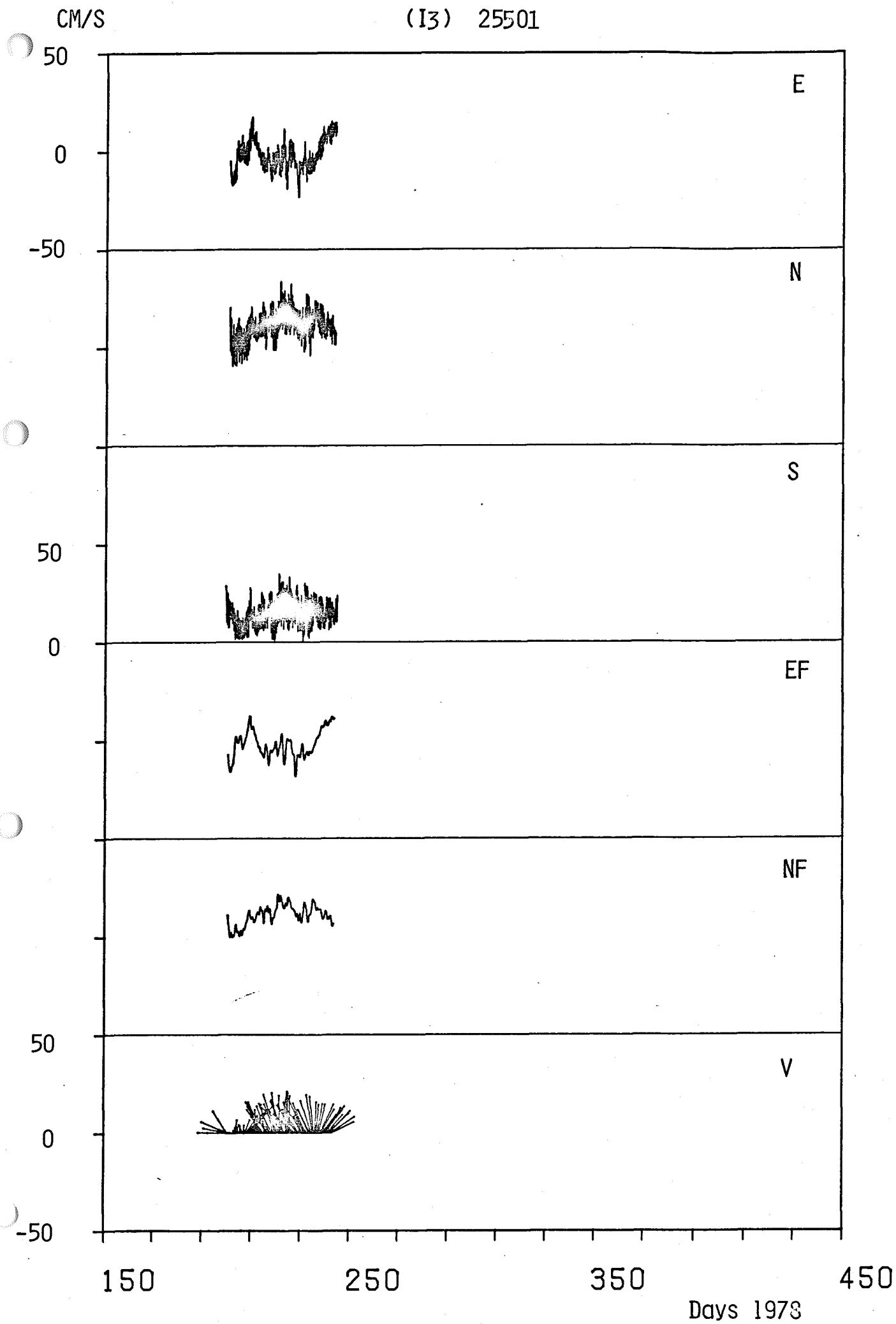
CM/S

MOORING 255 (I3)

Set 18-VII-78 Position: 58° 30'.0N 12° 40'.2W
Recovered 1- IX-78 Water Depth: 1591

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
25501	Aa 940	189	Sp,D,T,P	600	
25502	Aa 1622	595	Sp,D,T	600	
25503	Aa 3251	999	Sp,D,T	600	
25504	Aa 3254	1503	Sp,D,T	600	

Comments



(13) 25502

CM/S

50

0

-50

50

0

50

-50

E

N

S

EF

NF

V

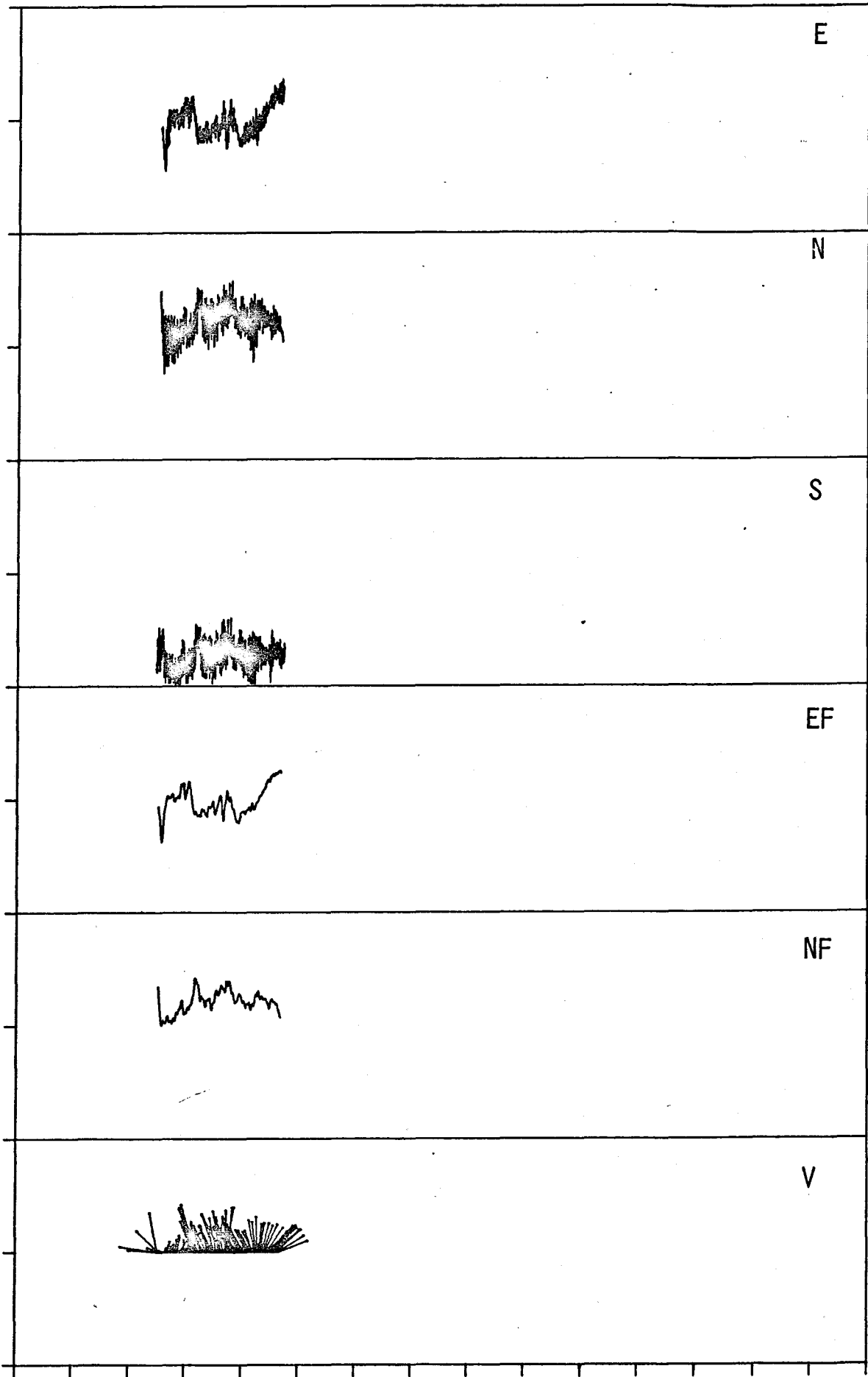
150

250

350

450

Days 1978



CM/S

(I3) 25503

50

E

0

-50

N

50

S

0

EF

NF

50

V

0

-50

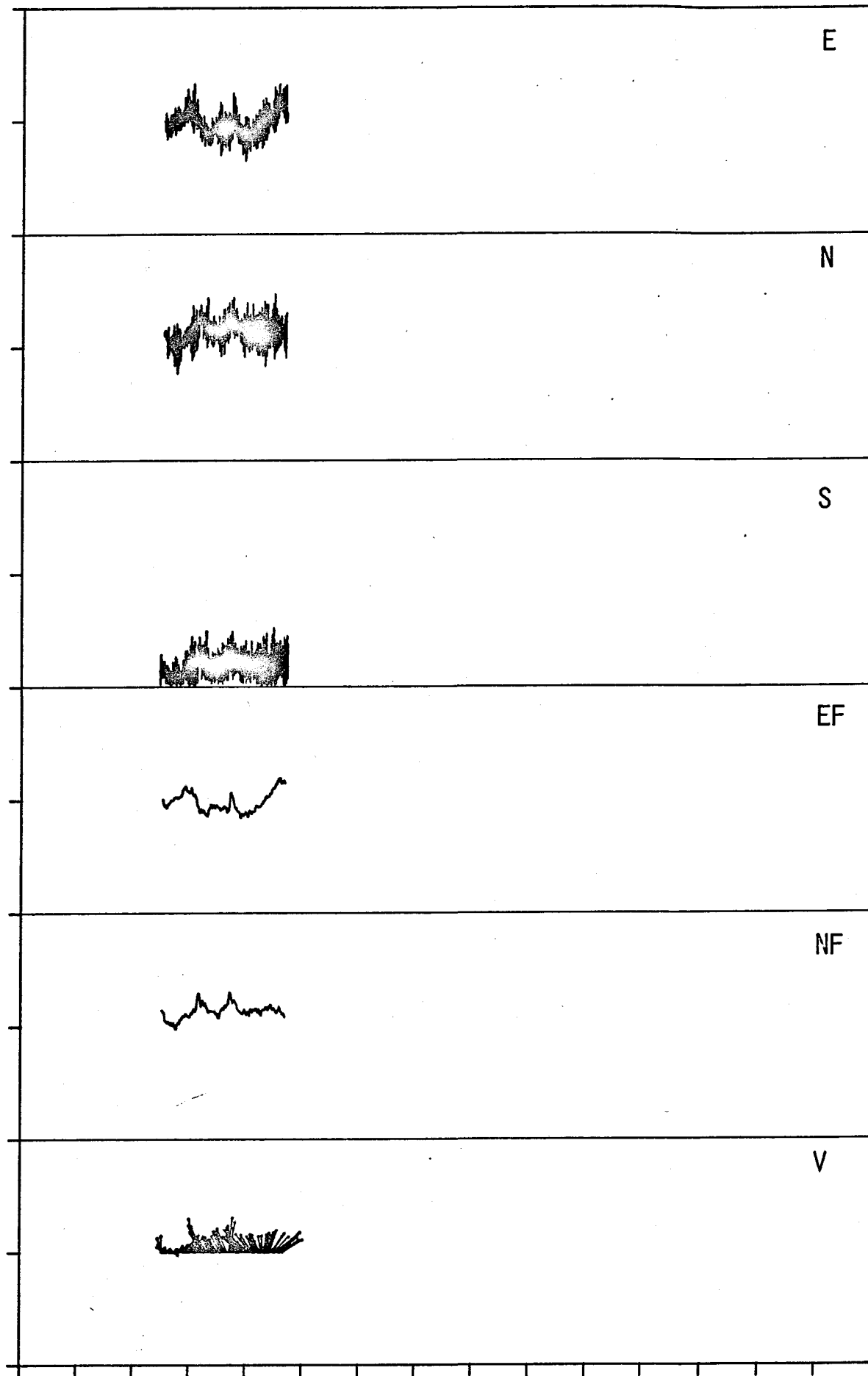
150

250

350

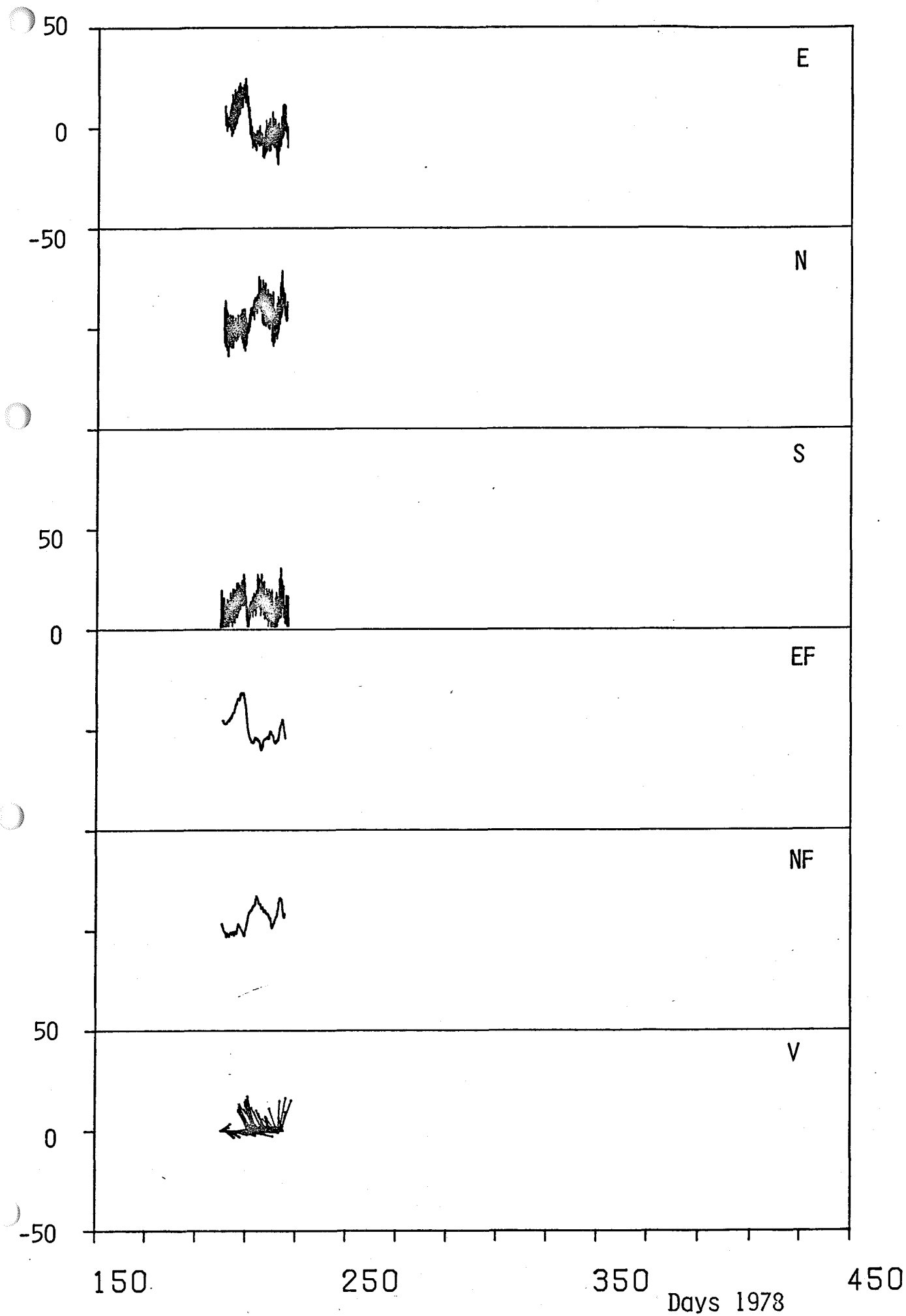
Days 1978

450



CM/S

(I3) 25504



MOORING 258 (I3A)

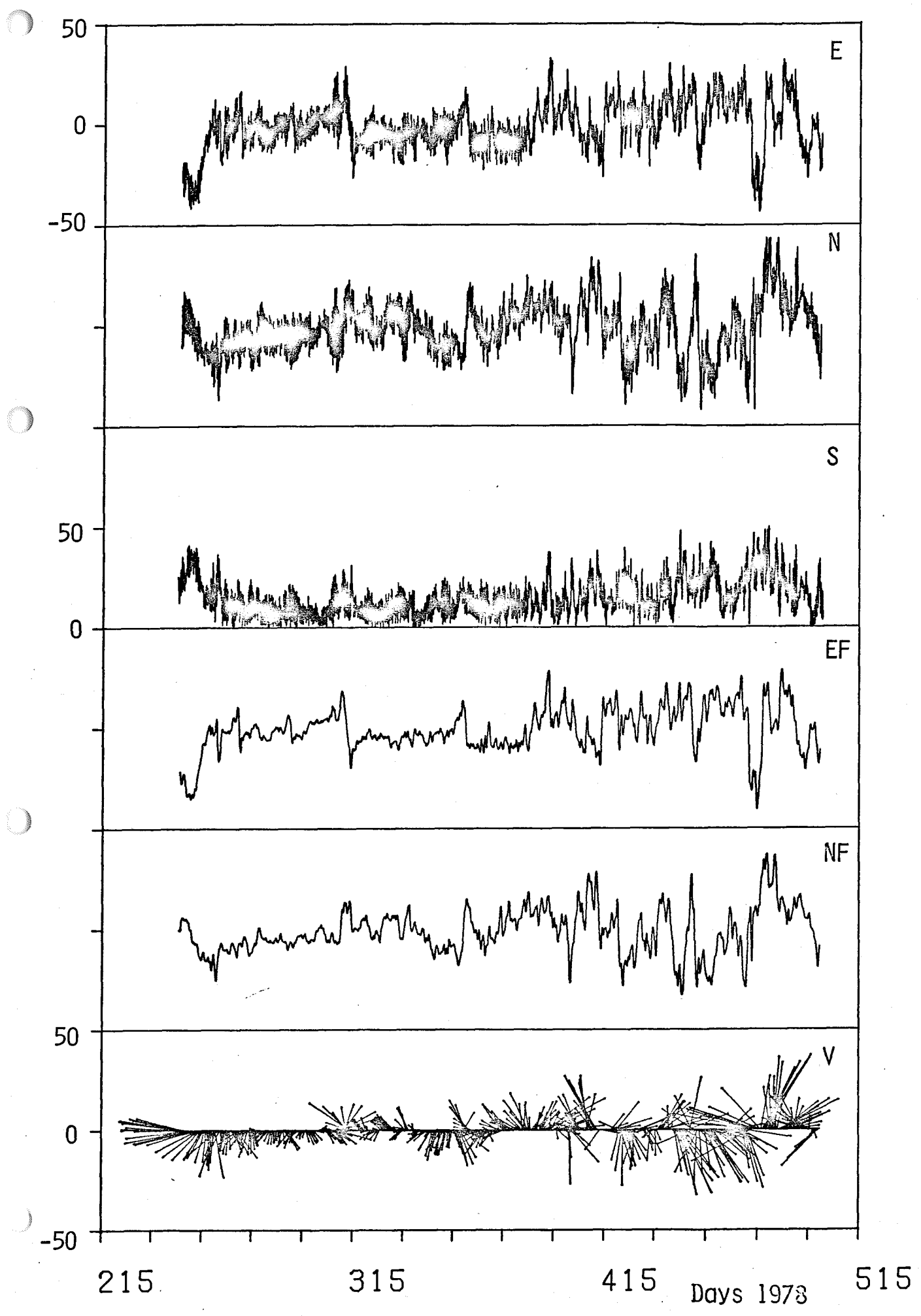
Set 1-IX-78 Position: 58° 55'.8N 13° 15'.1W
Recovered 15- V-79 Water Depth: 1616 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
25801	Aa 3720	216 m	Sp,D,T,P	3600	
25802	Aa 3630	620 m	Sp,D,T	3600	
25803	Aa 3727	1025 m	Sp,D,T	3600	
25804	Aa 3728	1531 m	Sp,D,T	3600	

Comments

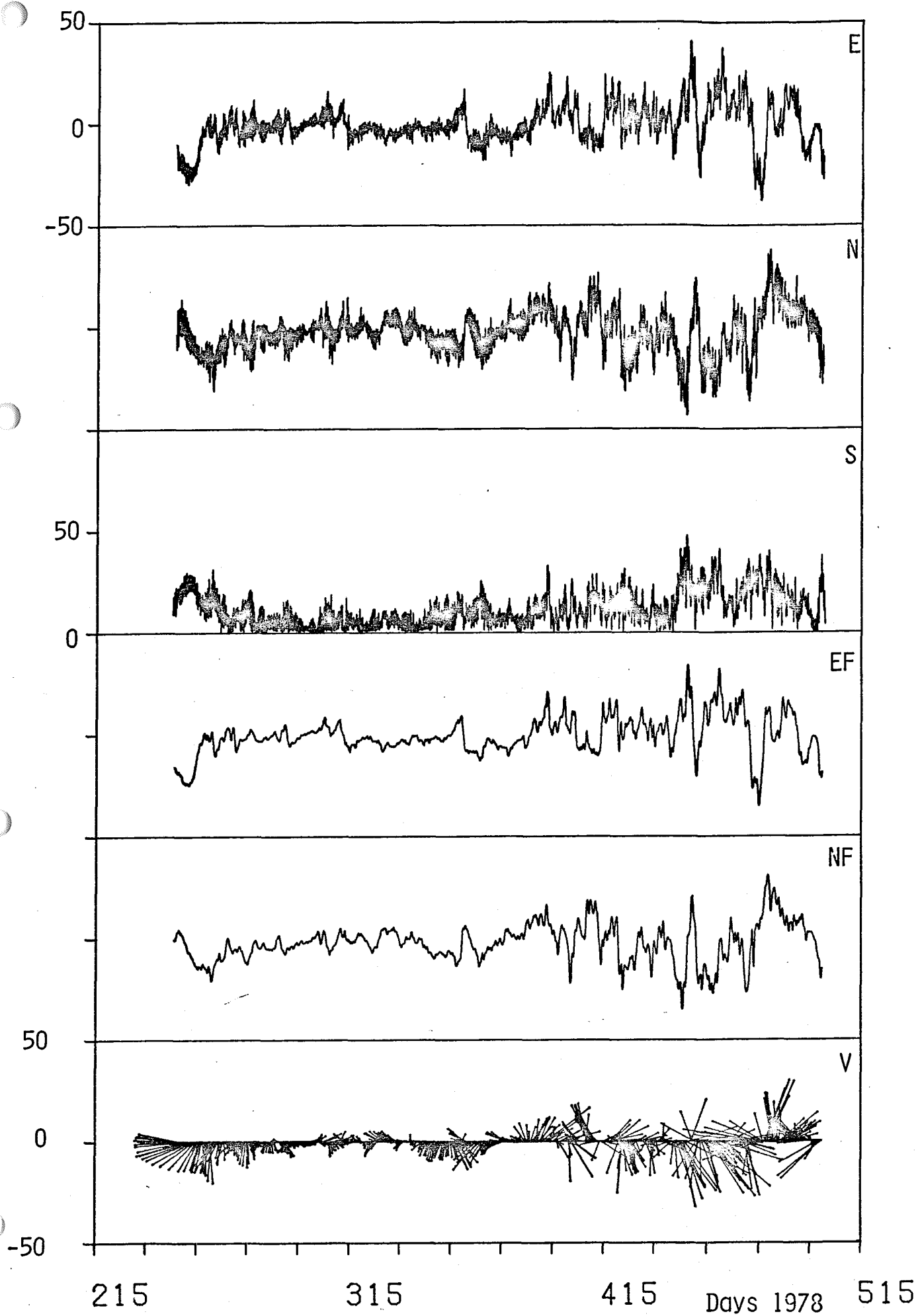
(I3A) 25801

CM/S



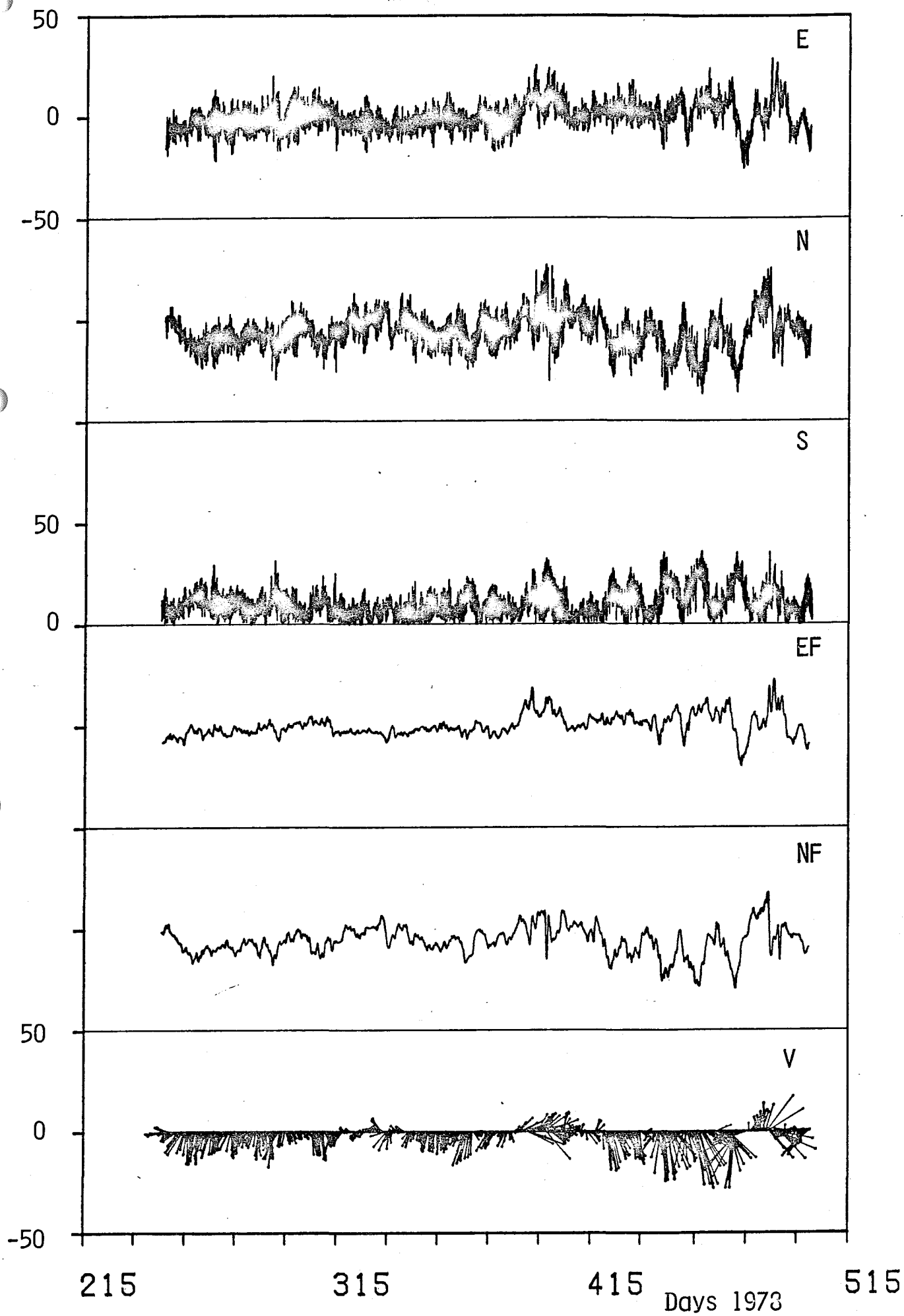
CM/S

(I3A) 25802



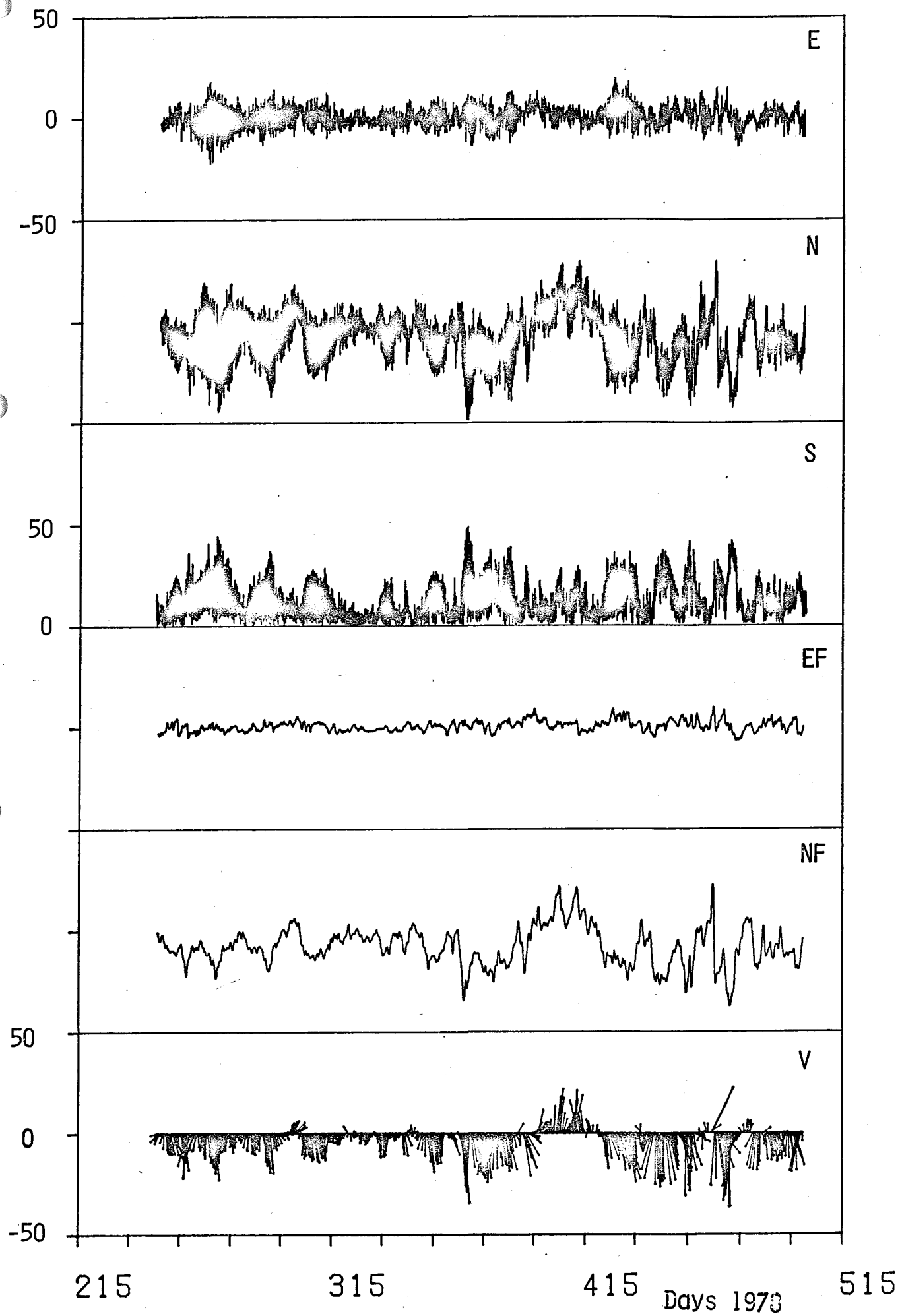
CM/S

(13A) 25803



CM/S

(I3A) 25804



MOORING 268 (I3A)

Set 15- V-79 Position: 58 55'.3N 13°16'.3W
Recovered 20-VIII-79 Water Depth: 1610

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
26801	Aa 1259	214 m	Sp,D,T,P	3600	
26802	Aa 421	619 m	Sp,D,T	3600	
26803	Aa 2107	1024 m	Sp,D,T	3600	Temperature bad at end of record.
26804	Aa 3254	1530 m	Sp,D,T	3600	

Comments

(I3A) 26801

CM/S

50

0

-50

50

0

50

-50

E

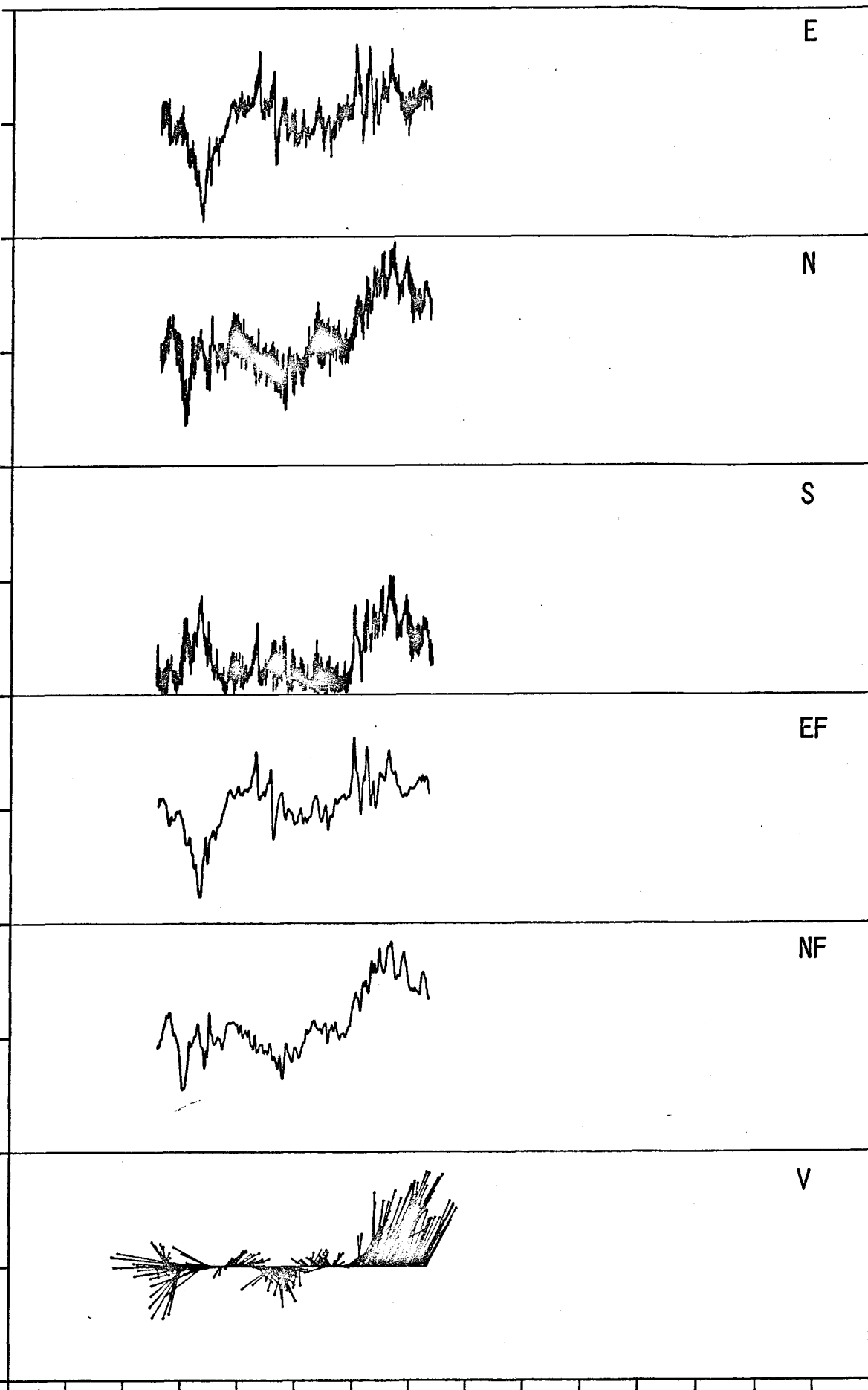
N

S

EF

NF

V



450

550

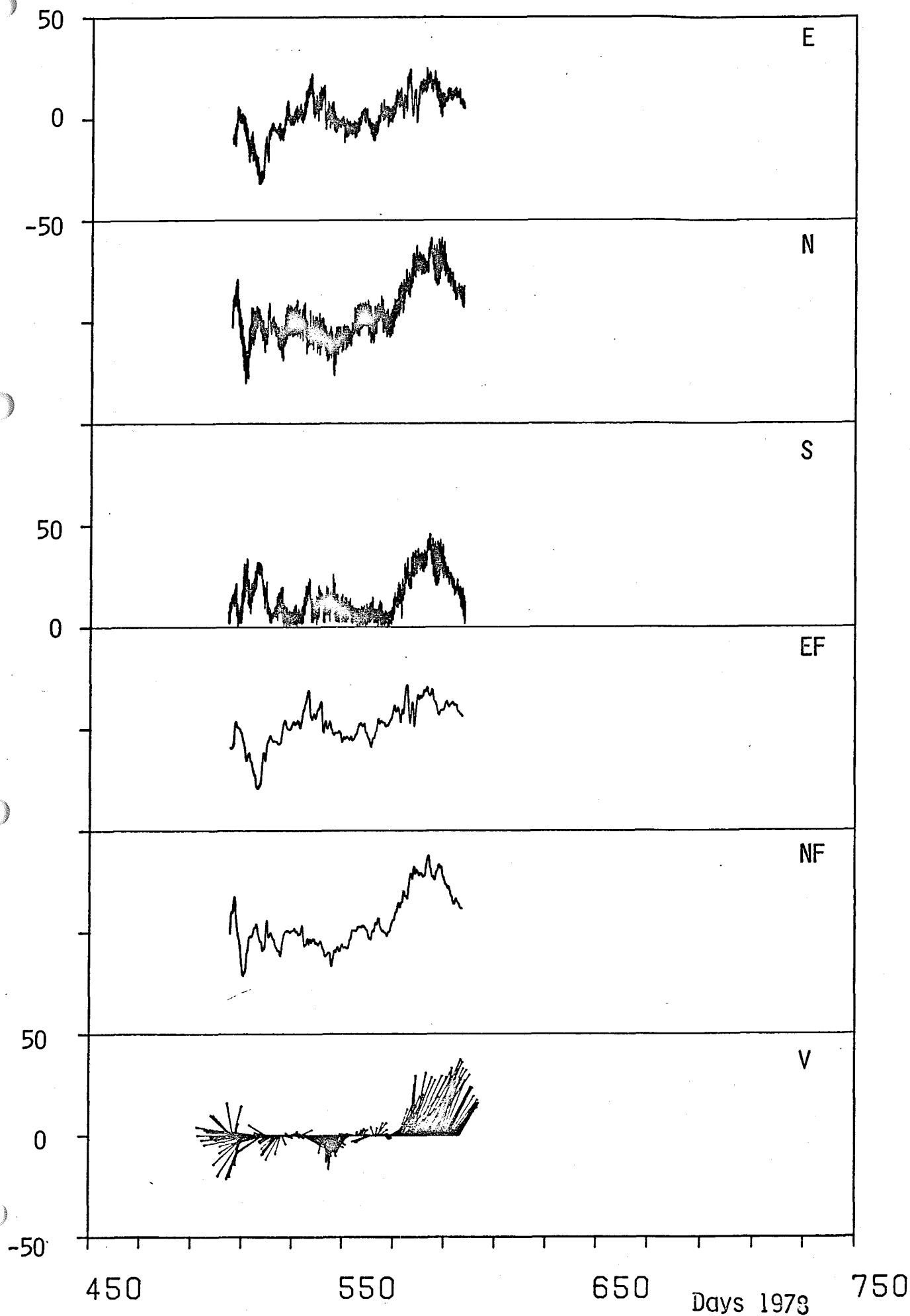
650

Days 1973

750

CM/S

(I3A) 26802



CM/S

(I3A) 26803

50

E

0

-50

N

50

S

0

EF

NF

50

V

0

-50

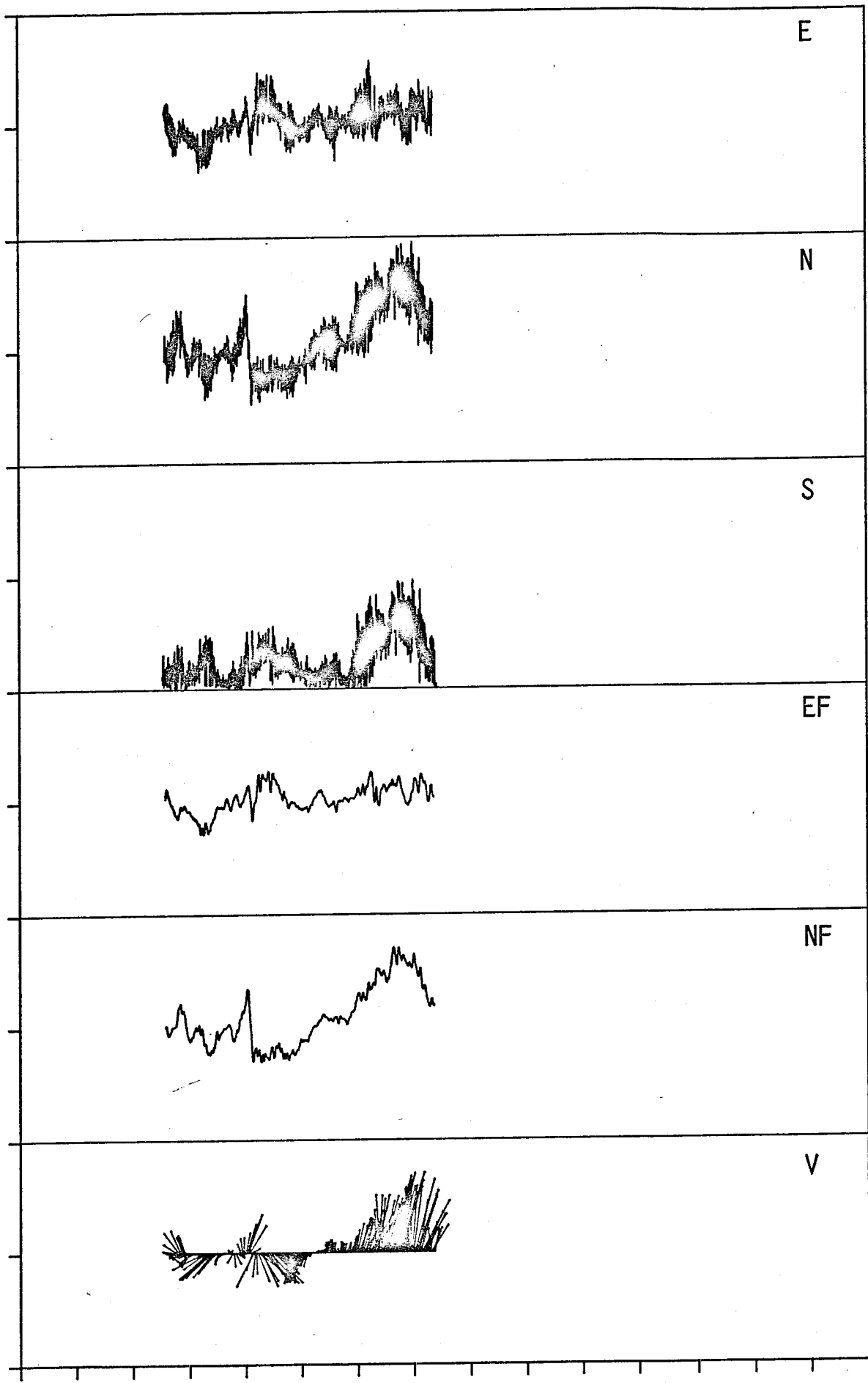
450

550

650

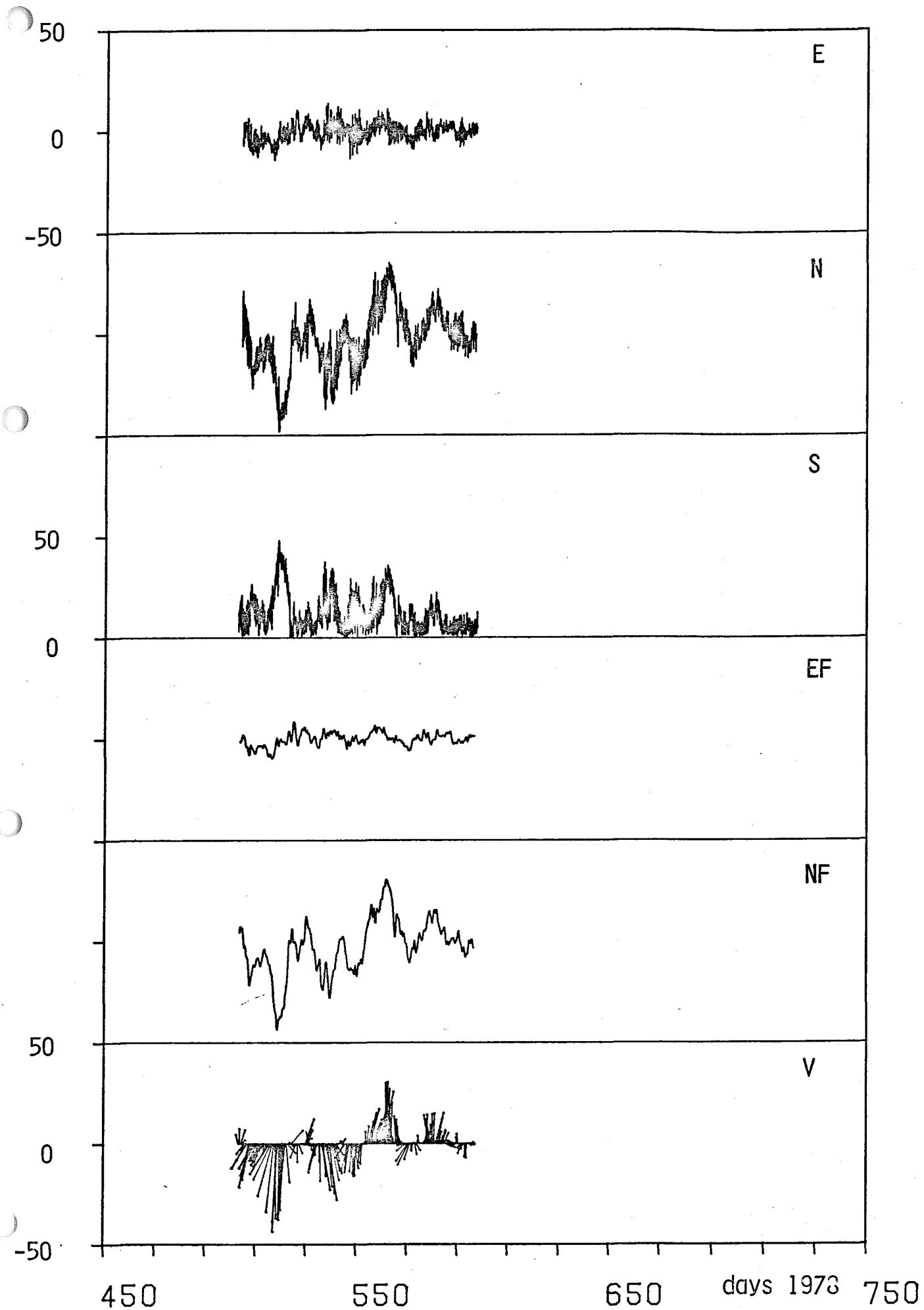
Days 1978

750



CM / S

(I3A) 26804



MOORING 277 (I3A)

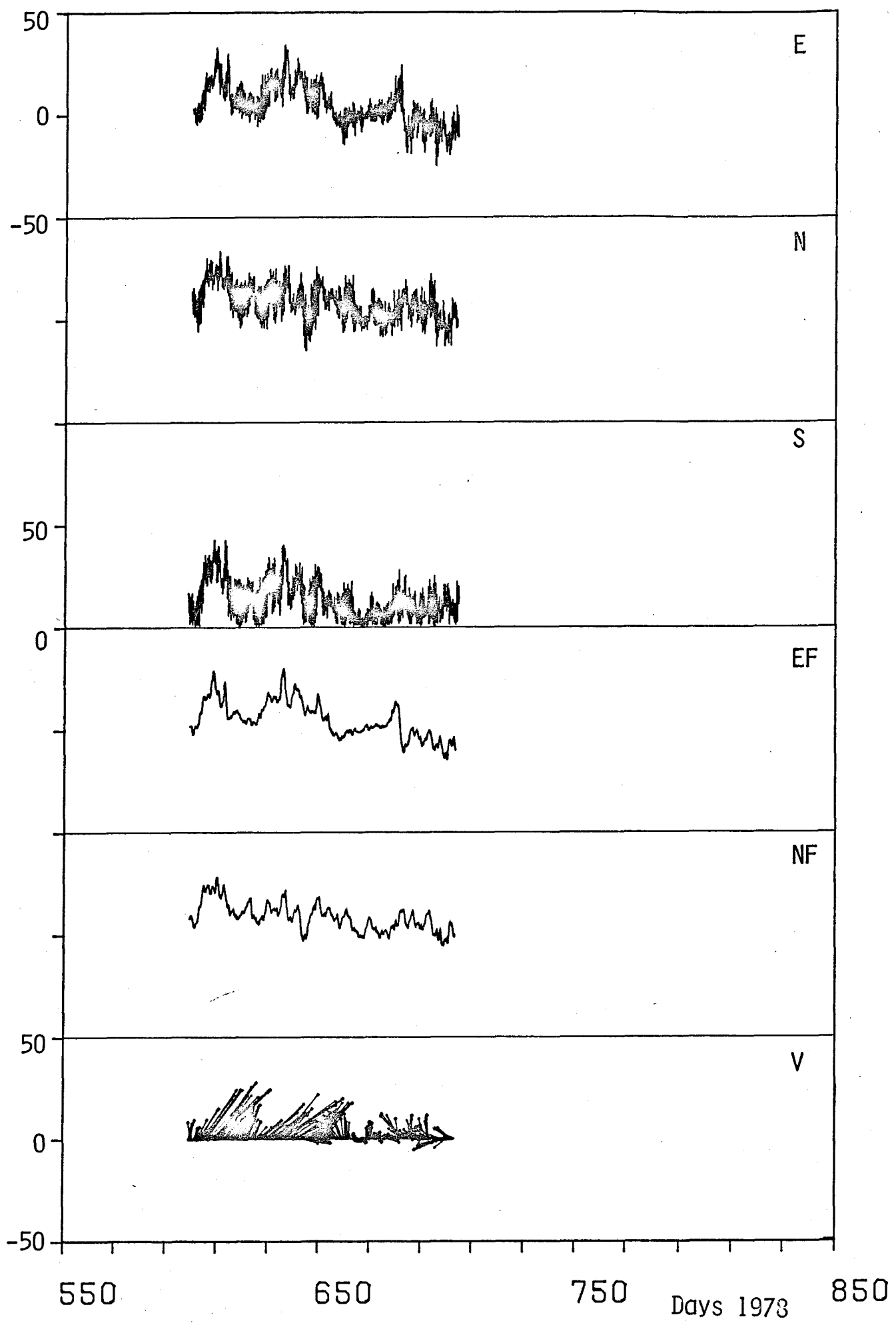
Set 21-VIII-79 Position: 58° 55'.6N 13° 16'.5W
Recovered 10- XII-79 Water Depth: 1616 m

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
27701	Aa 3720	189 m	Sp,D,T,P	900	Tape ran out
27702	Aa 1078	610 m	Sp,D,T	900	Tape ran out
27703	Aa 2452	1025 m	Sp,D,T	900	Tape ran out
27704	Aa 2451	1537 m	Sp,D,T	900	Tape ran out

Comments

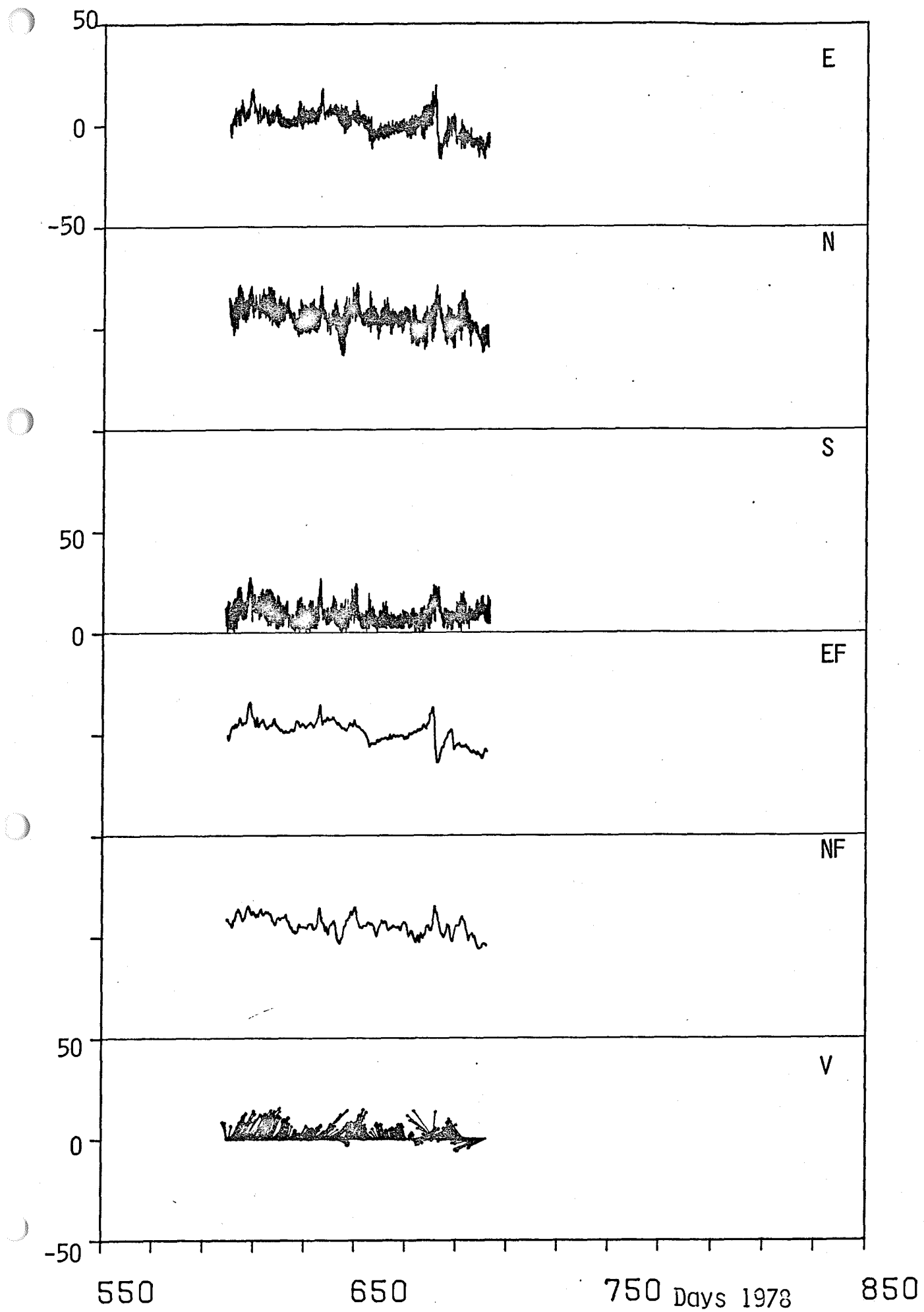
CM/S

(I3A) 27701



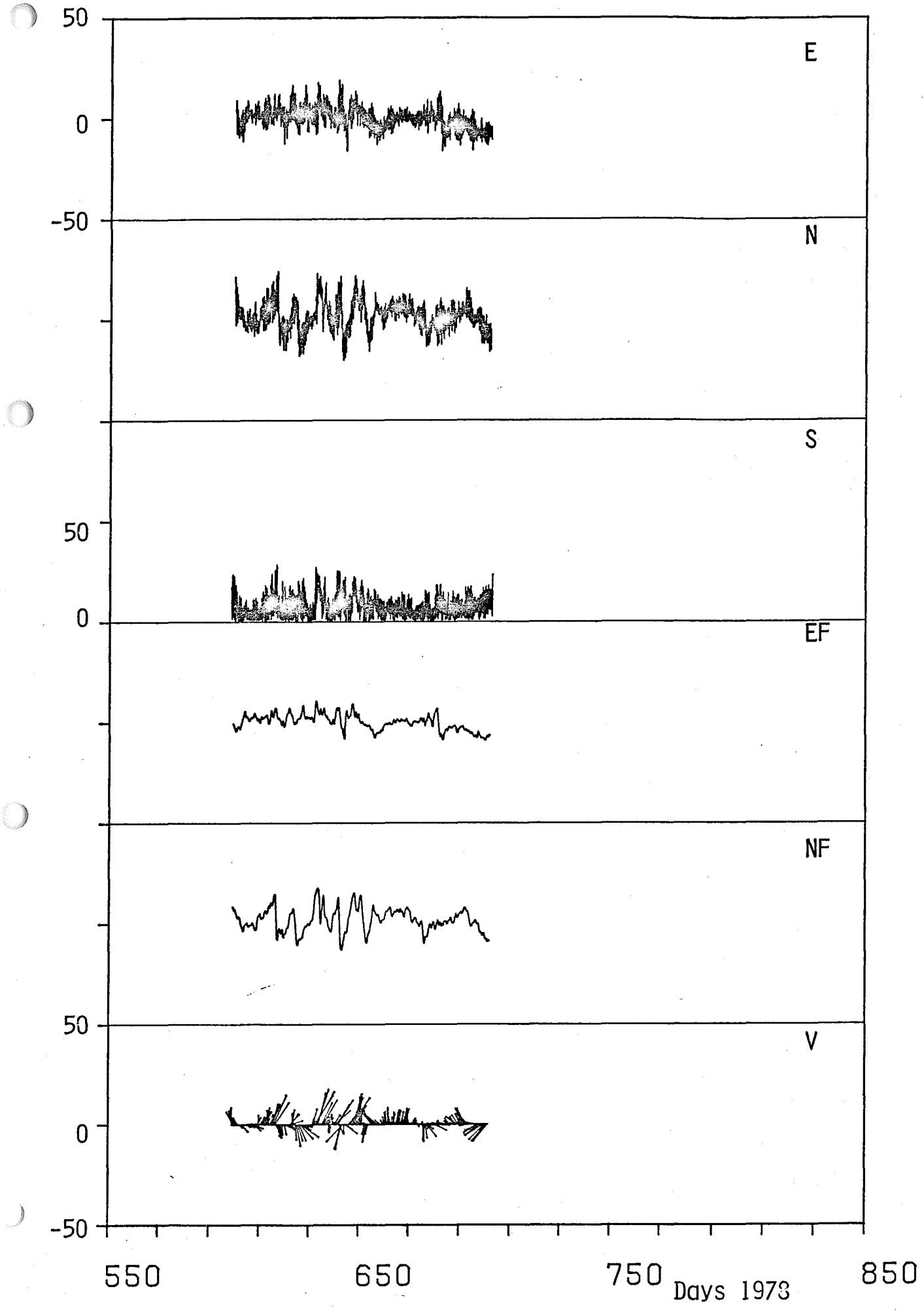
CM/S

(I3A) 27702



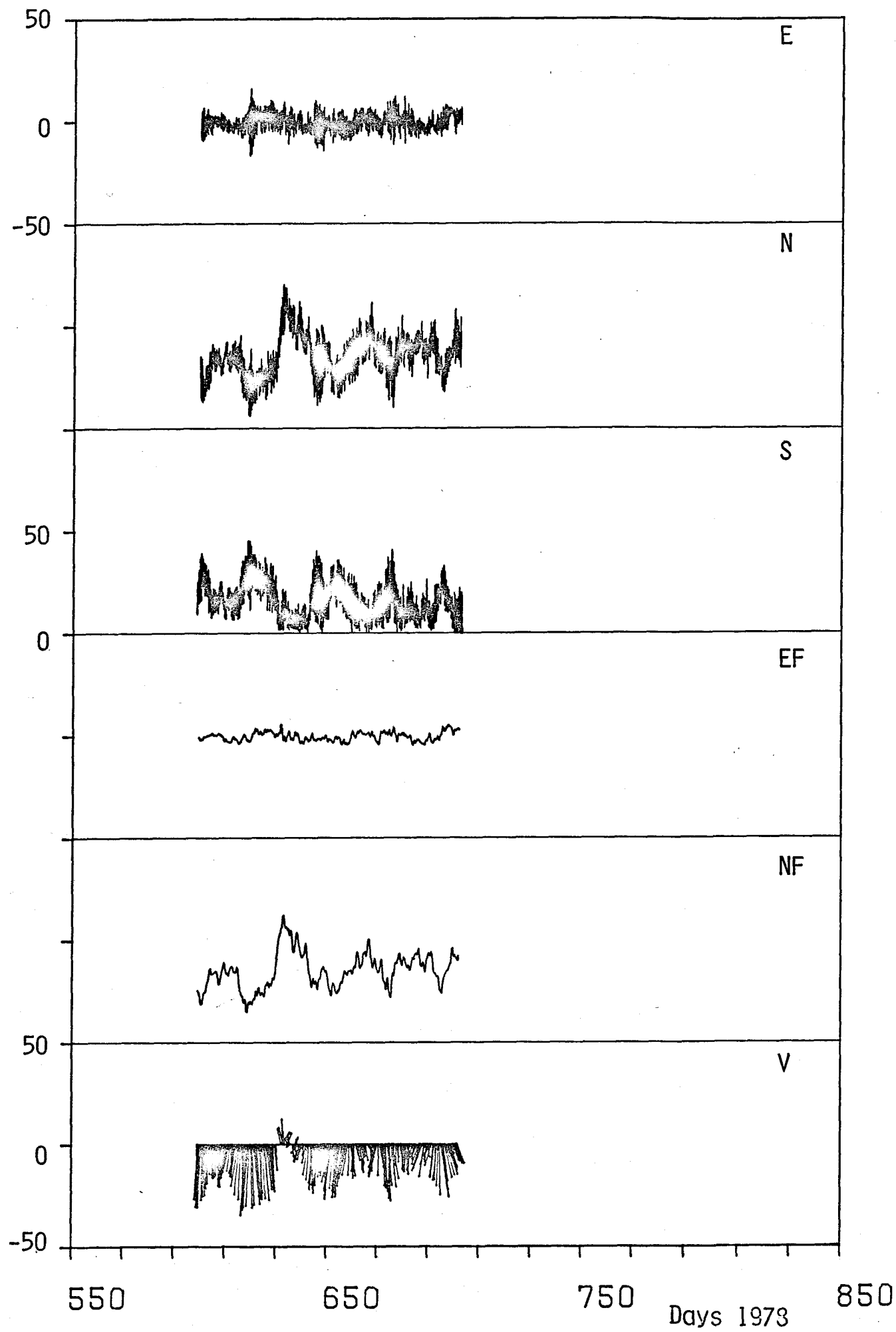
CM/S

(I3A) 27703



CM/S

(I3A) 27704



MOORING 287 (I3A)

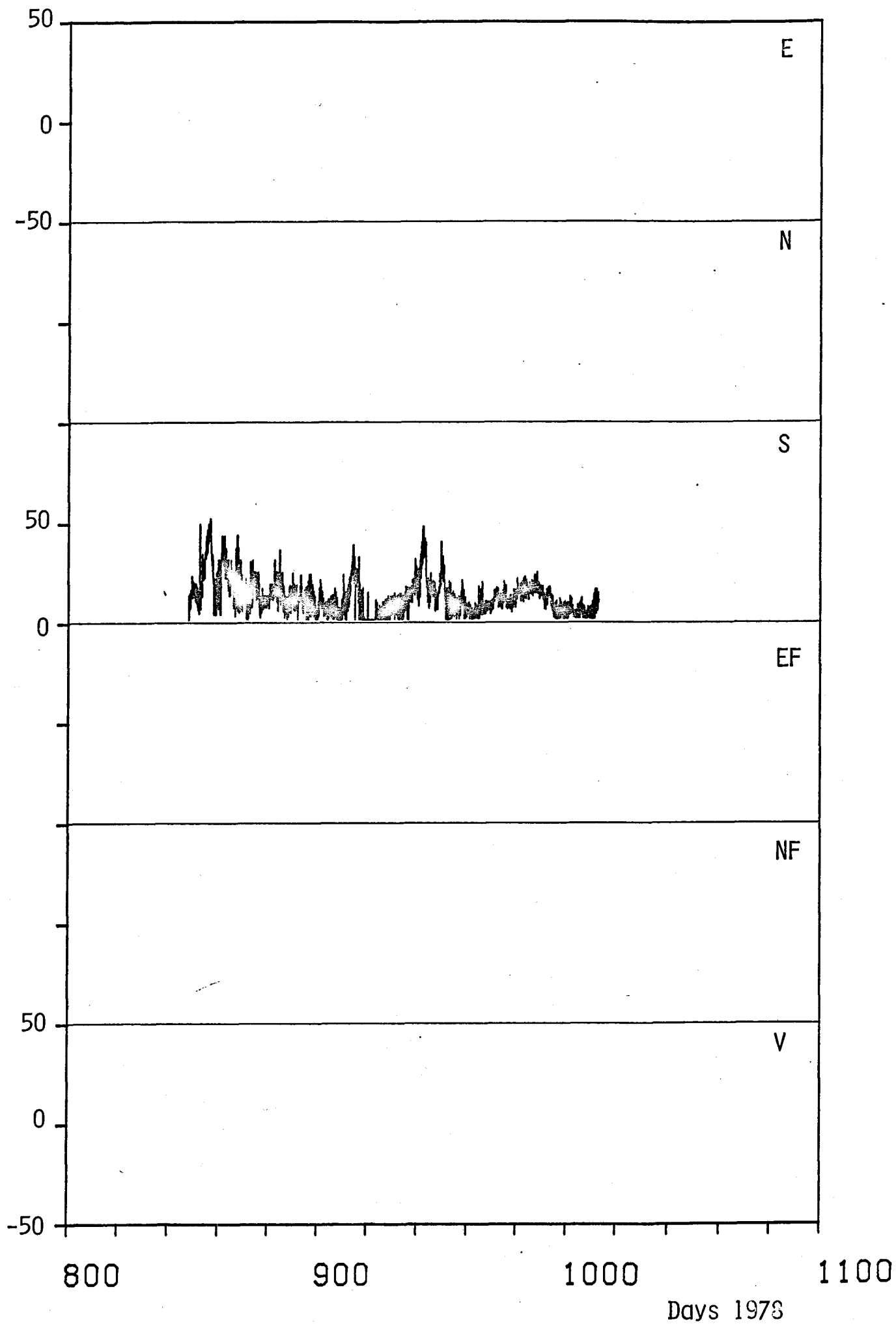
Set 26-IV-80 Position: 58° 52'.1M 13° 15'.4W
Recovered 8- X-80 Water Depth: 1634 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
28701	Aa 3255	218	Sp,D,T,P	3600	No direction values
28702	Aa 420	627	Sp,D,T	3600	
28703	Aa 156	1043	Sp,D,T	3600	No data
28704	Aa 1260	1553	Sp,D,T	3600	

Comments

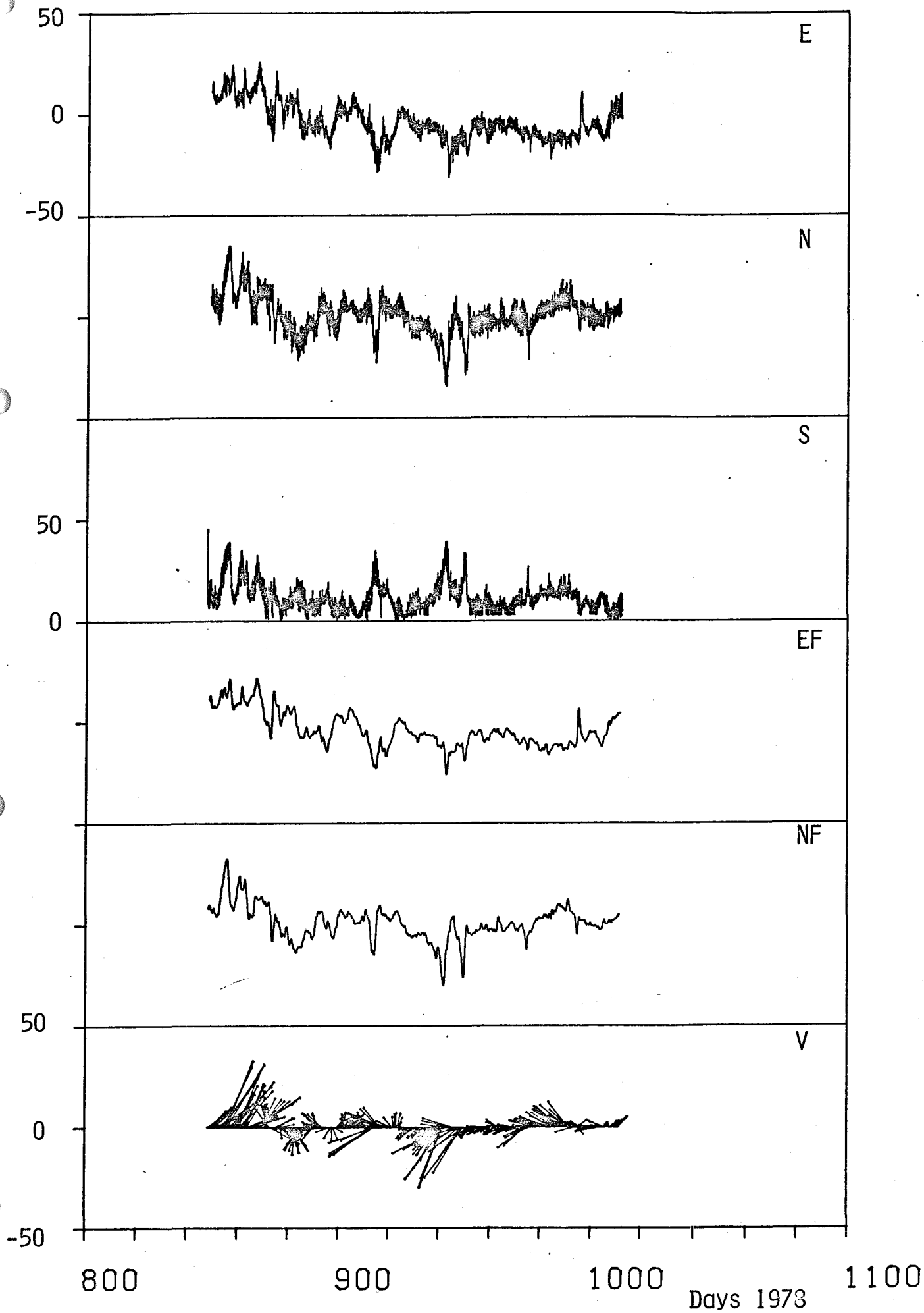
CM/S

(I3A) 23701



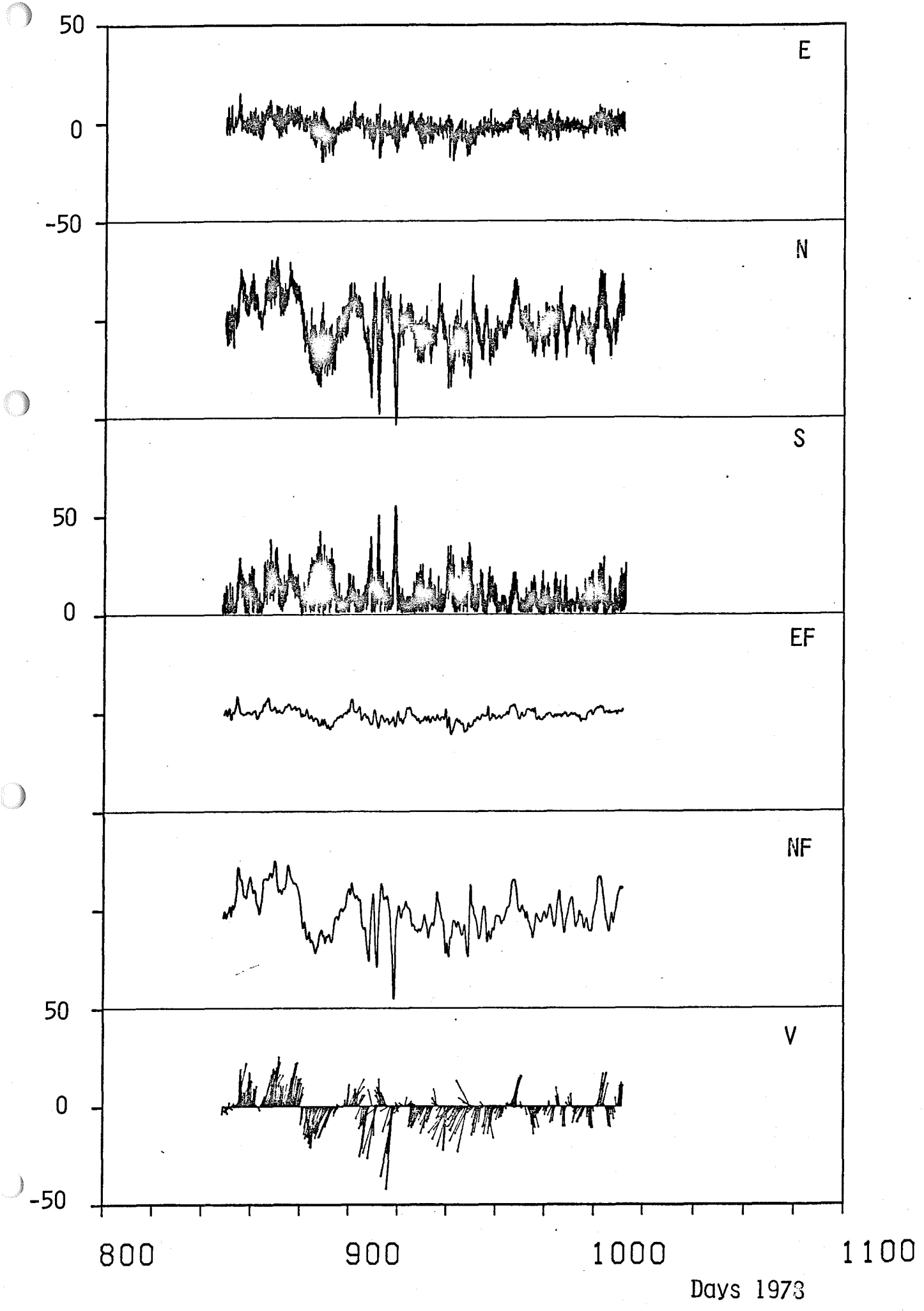
CM/S

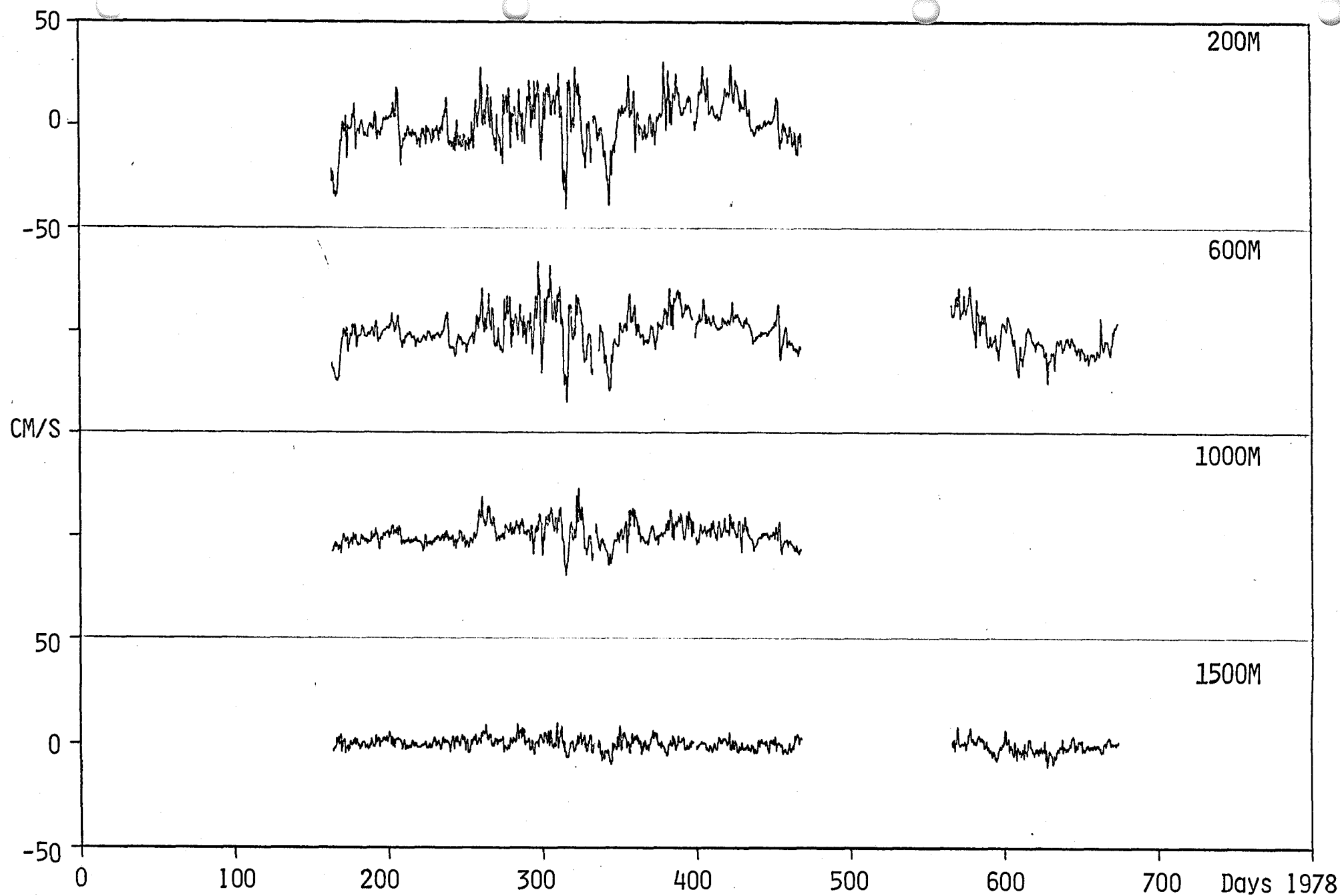
(I3A) 28702



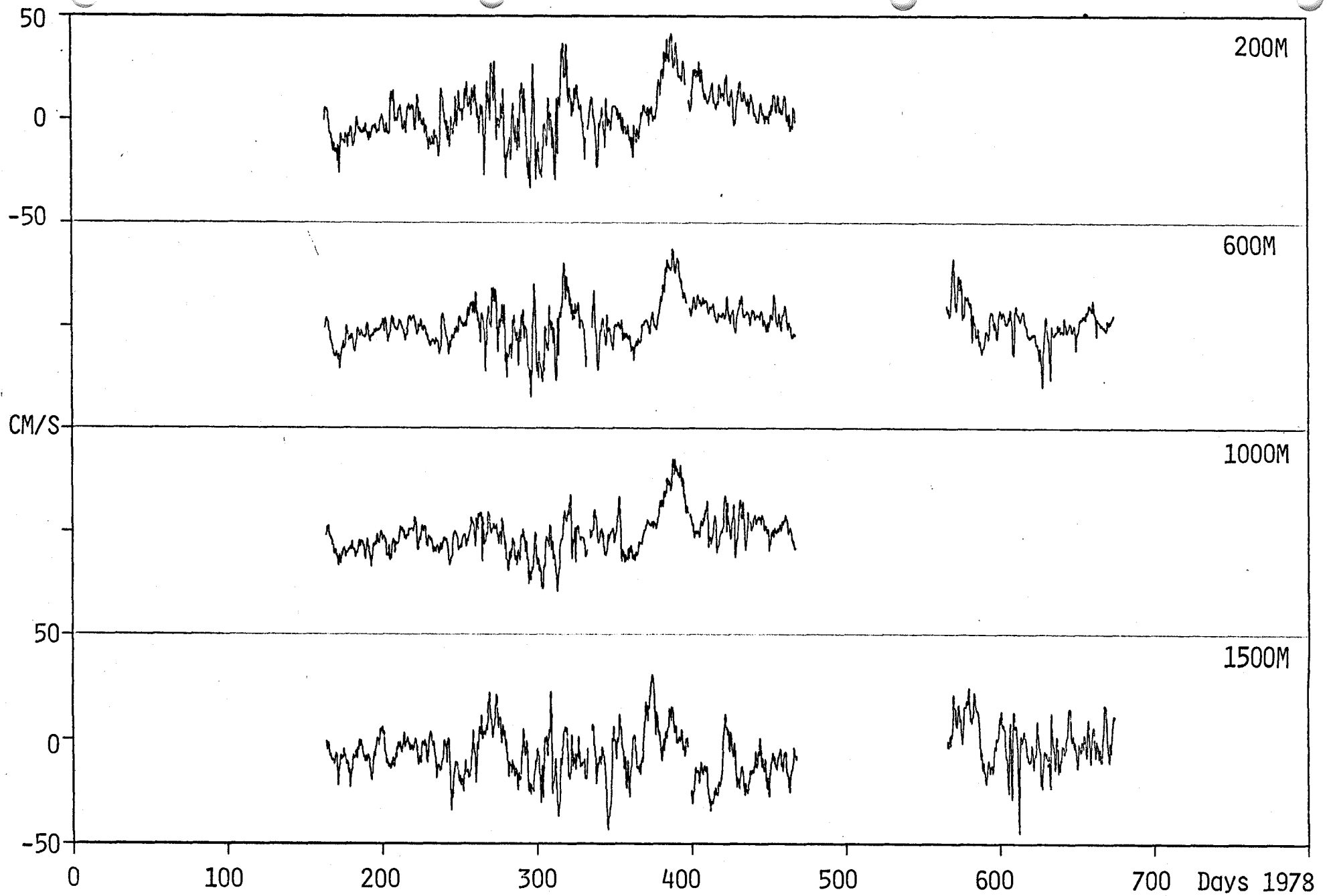
CM/S

(I3A) 23704

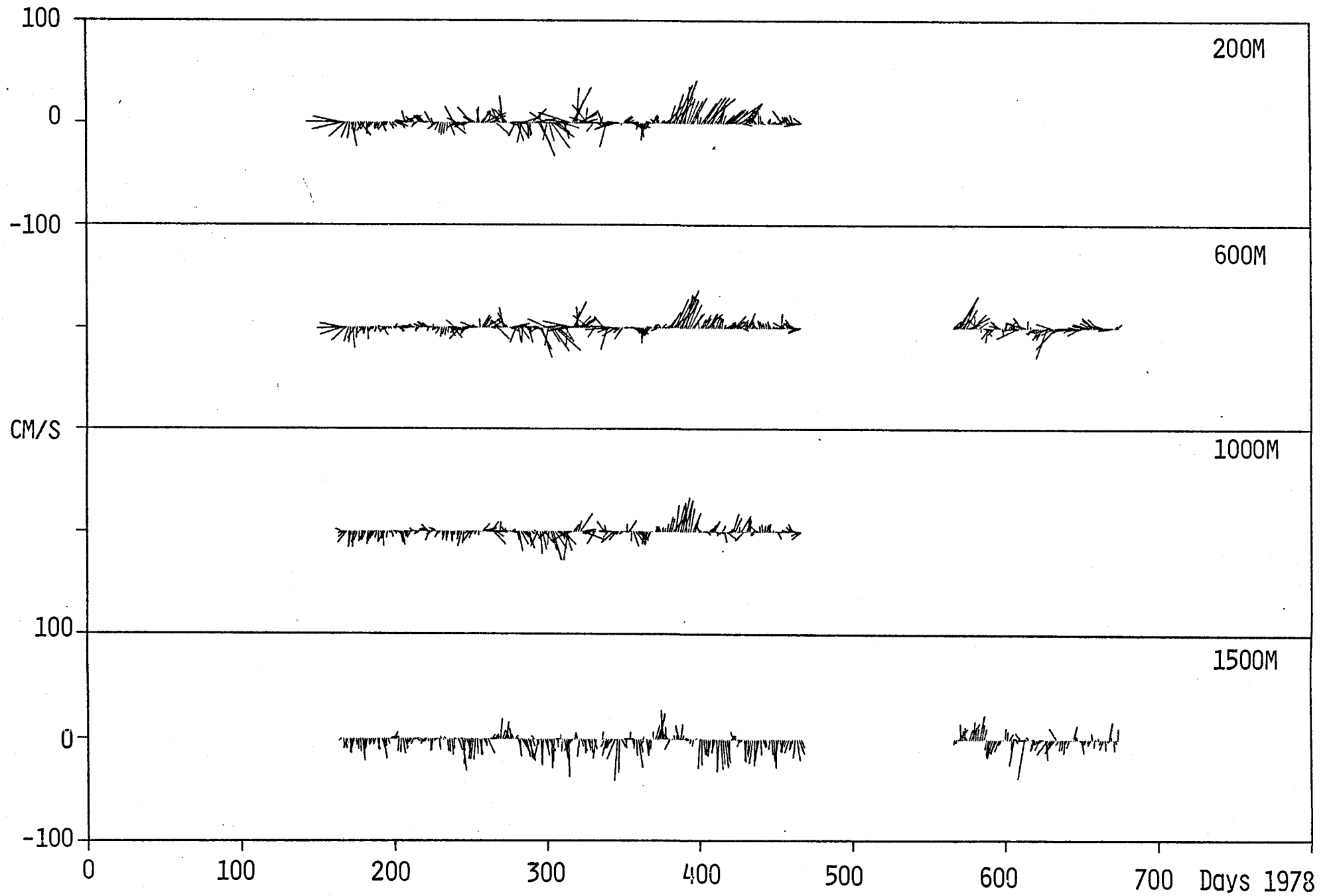




13N



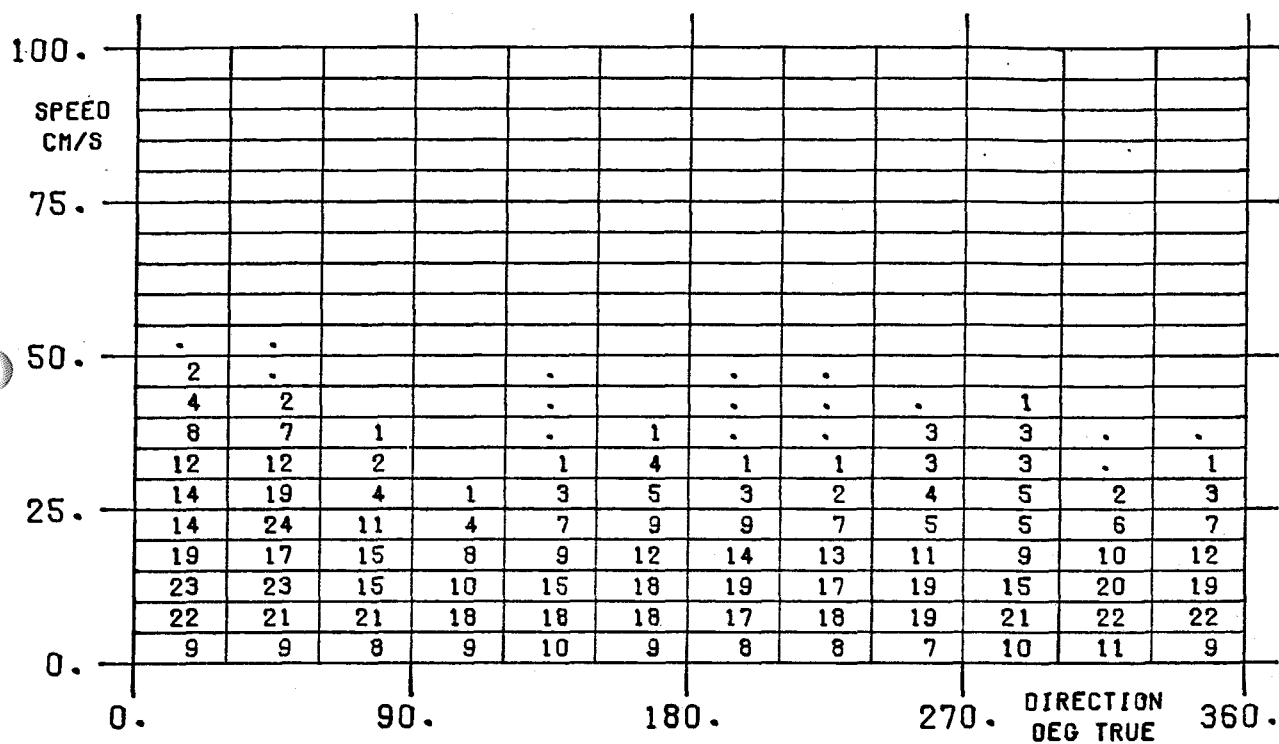
I3A



I3A 200M

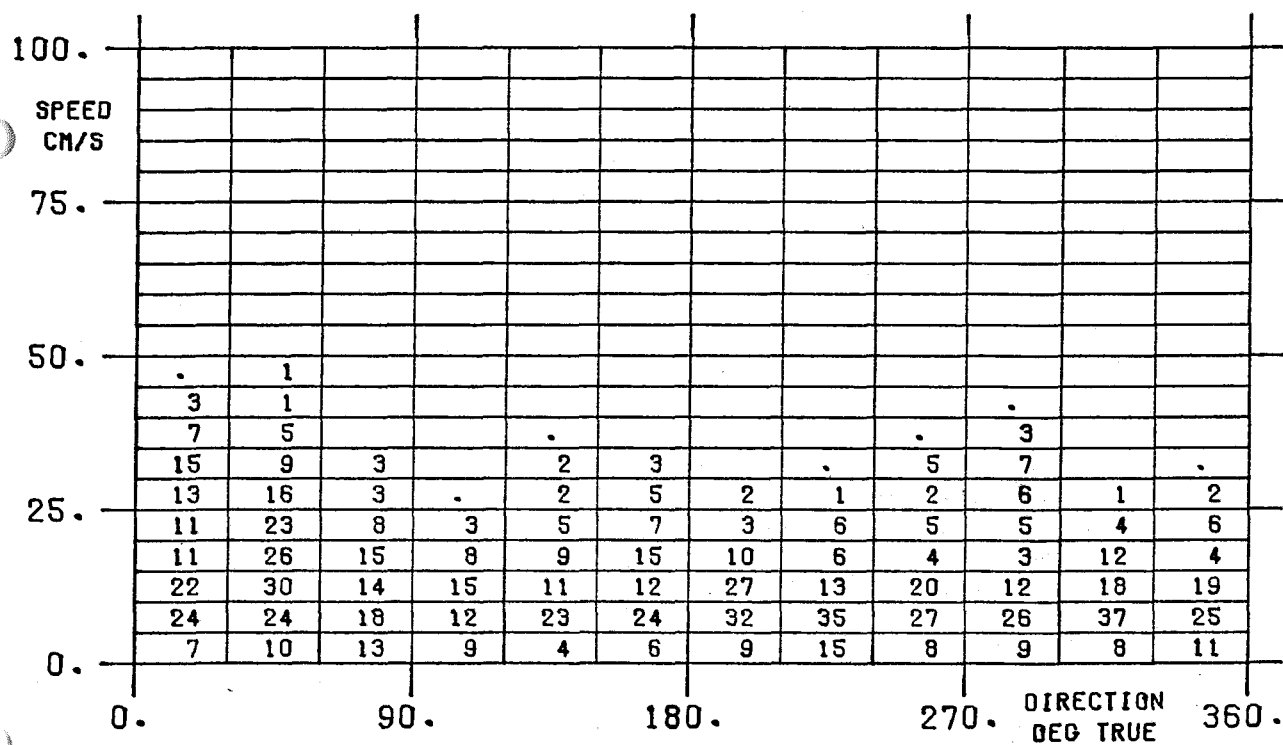
UNFILTERED 452.8 DAYS

2/ 9/78- 7/10/80



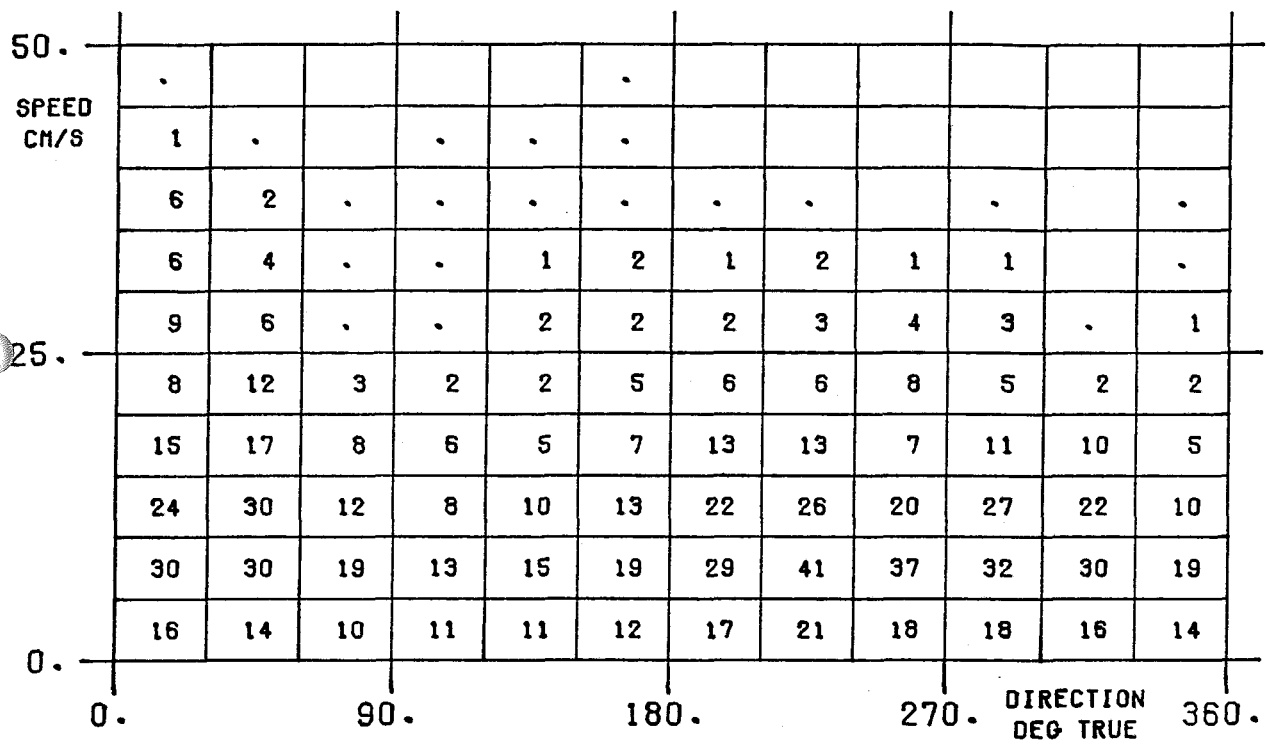
FILTERED 452.8 DAYS

2/ 9/78- 7/10/80

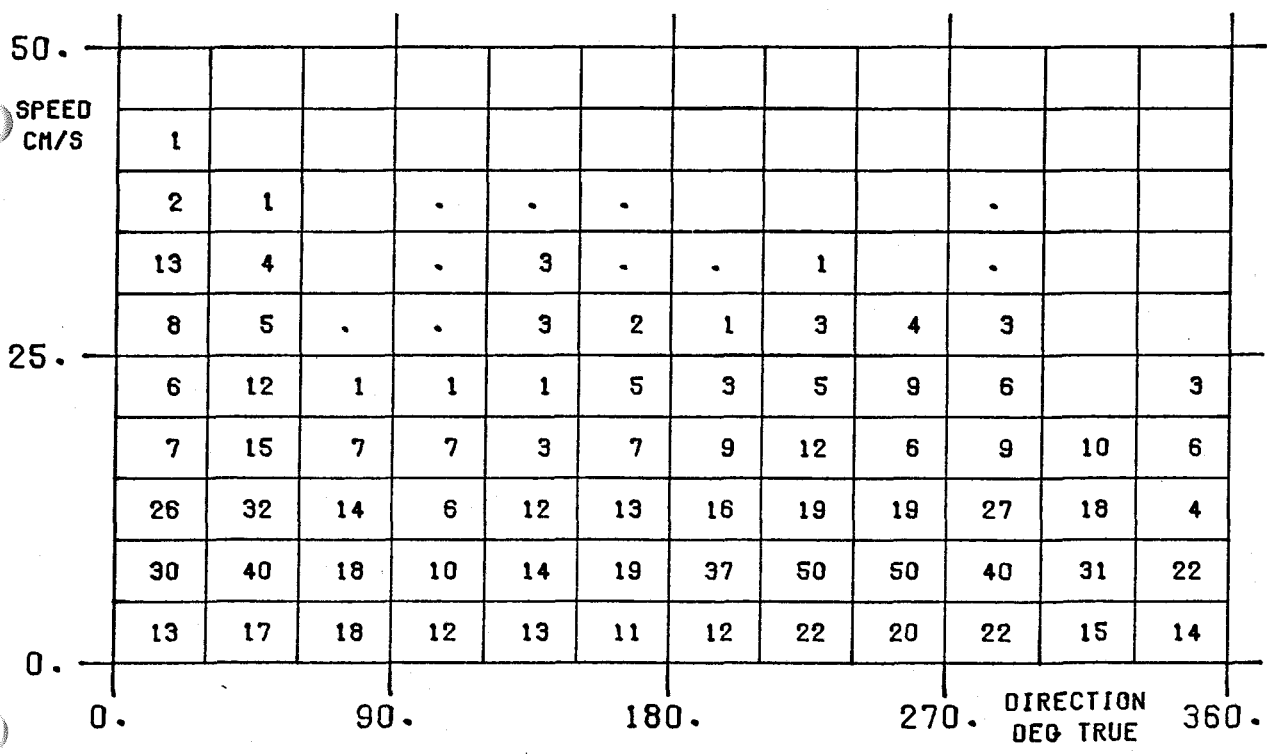


I3A 500M

UNFILTERED 610.6 DAYS 2/ 9/78- 7/10/80



FILTERED 610.6 DAYS 2/ 9/78- 7/10/80



I3A 1000M

UNFILTERED 451.7 DAYS

2/ 9/78- 7/10/80

50.											
SPEED											
CM/S											
	2	.									.
	4	.				.	.				1
	6	1	.		.	2	1	.			1
	8	1	.	.	2	5	3	1	.		1
25.	10	4	.	2	7	11	9	5	1		2
	16	6	2	4	15	26	22	13	4	.	5
	17	10	8	10	23	34	34	26	12	8	13
	27	21	19	22	27	43	48	43	27	22	24
0.	19	20	19	15	17	18	20	17	20	16	15
	0.	90.	180.	270.	DIRECTION		360.				
					DEG TRUE						

FILTERED 451.7 DAYS

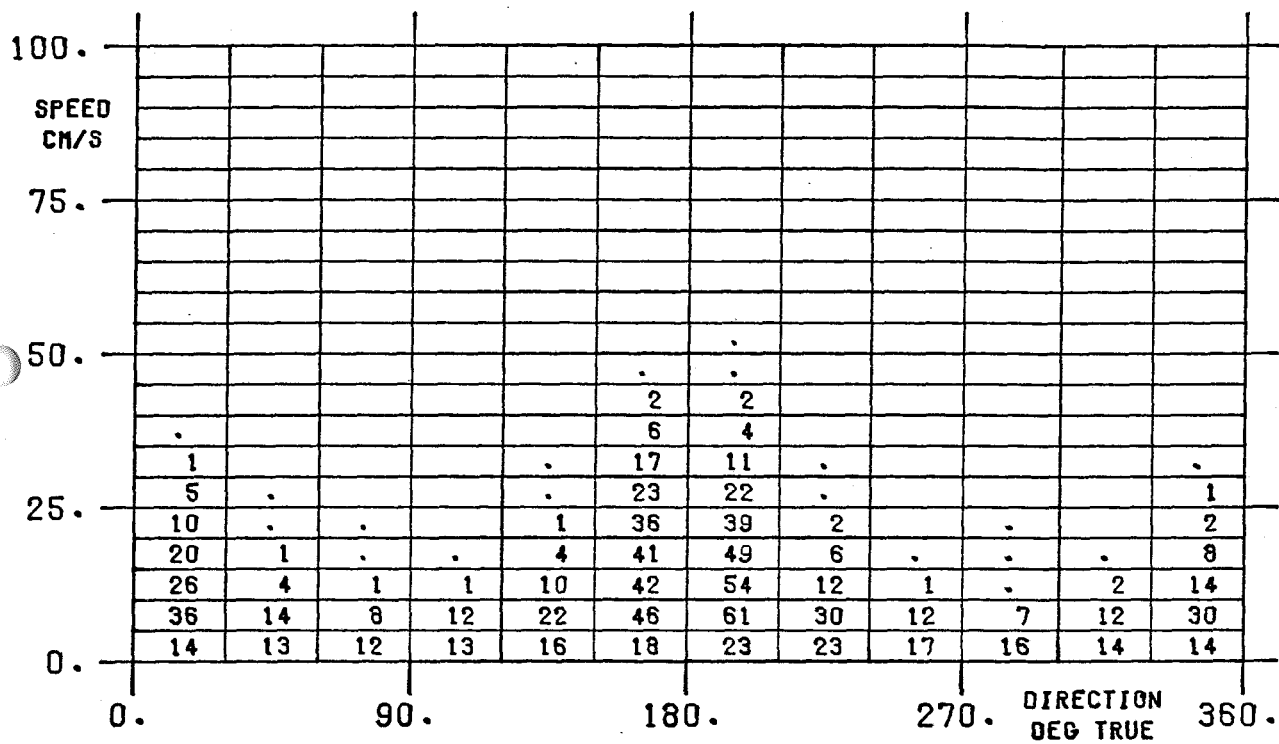
2/ 9/78- 7/10/80

50.											
SPEED											
CM/S											
	2										
	8										
	11	.				5	3	1			4
25.	10	3		1	1	9	2	1	.		.
	15	4	1	2	20	15	10	6	2		.
	21	10	6	5	15	45	53	18	6	.	2
	35	23	11	17	26	41	92	36	27	14	16
0.	26	16	19	20	25	21	33	30	16	34	23
	0.	90.	180.	270.	DIRECTION		360.				
					DEG TRUE						

I3A 1500M

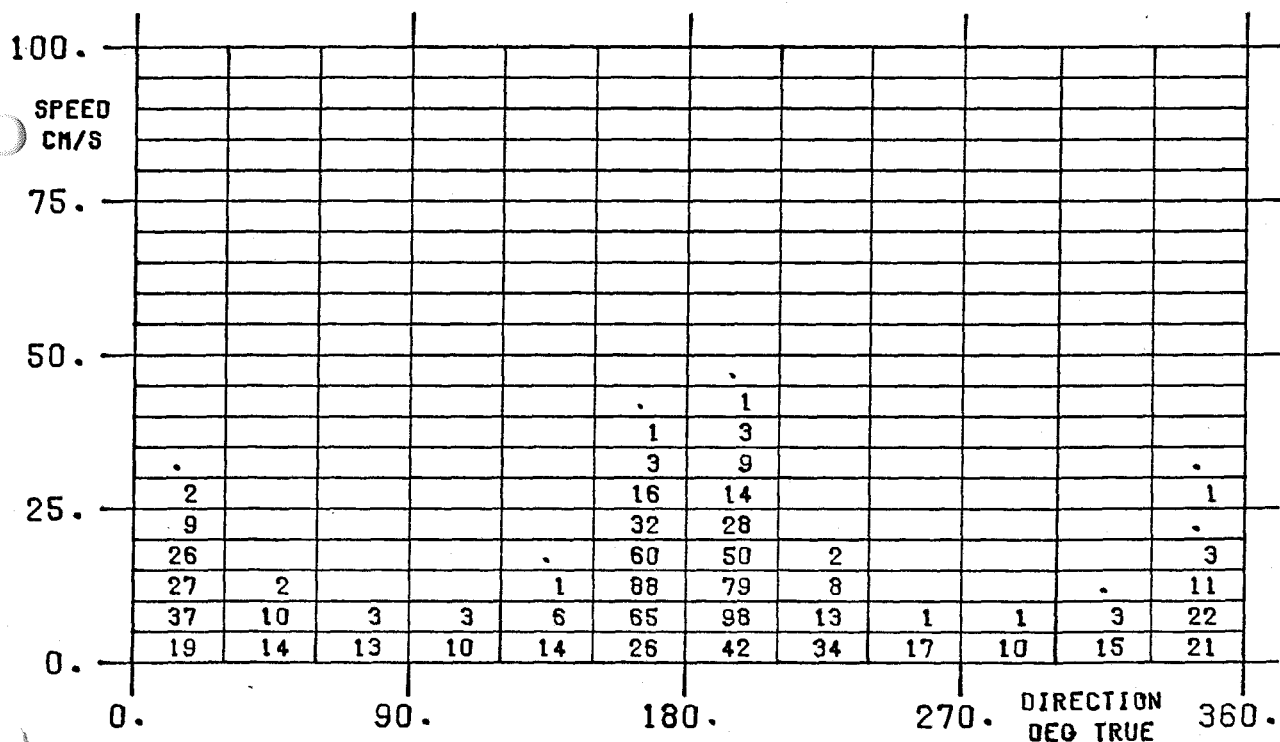
UNFILTERED 612.0 DAYS

2/ 9/78- 7/10/80

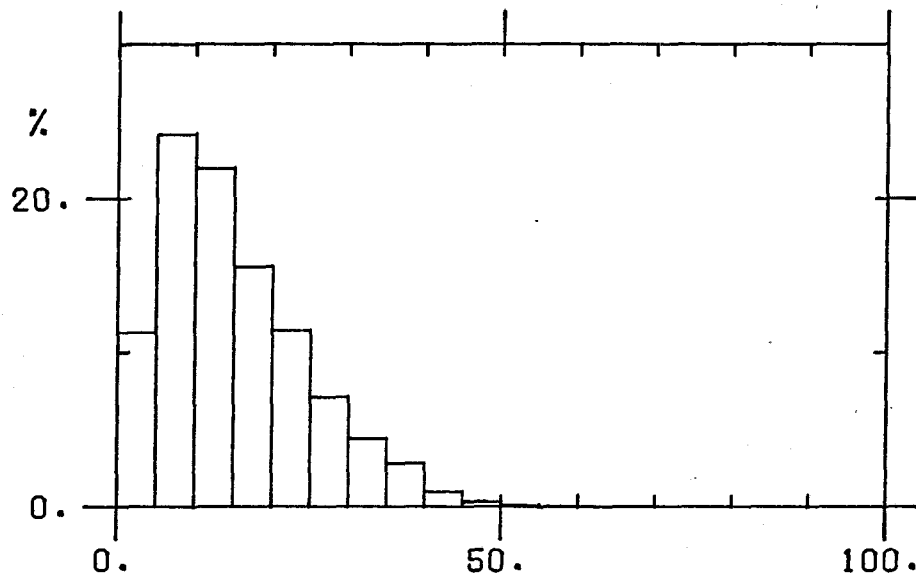


FILTERED 612.0 DAYS

2/ 9/78- 7/10/80

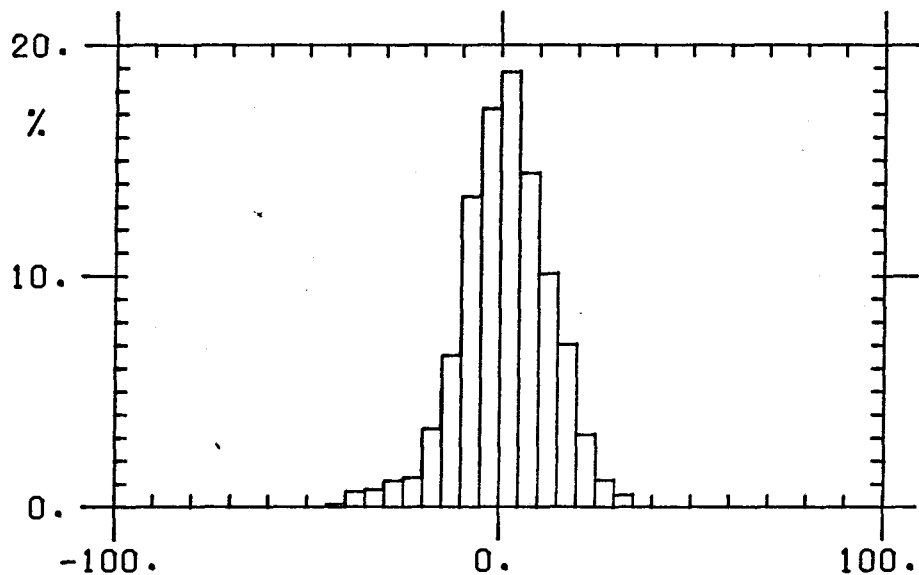


I3A 200M UNFILTERED 2/ 9/78- 7/10/80



SPEED

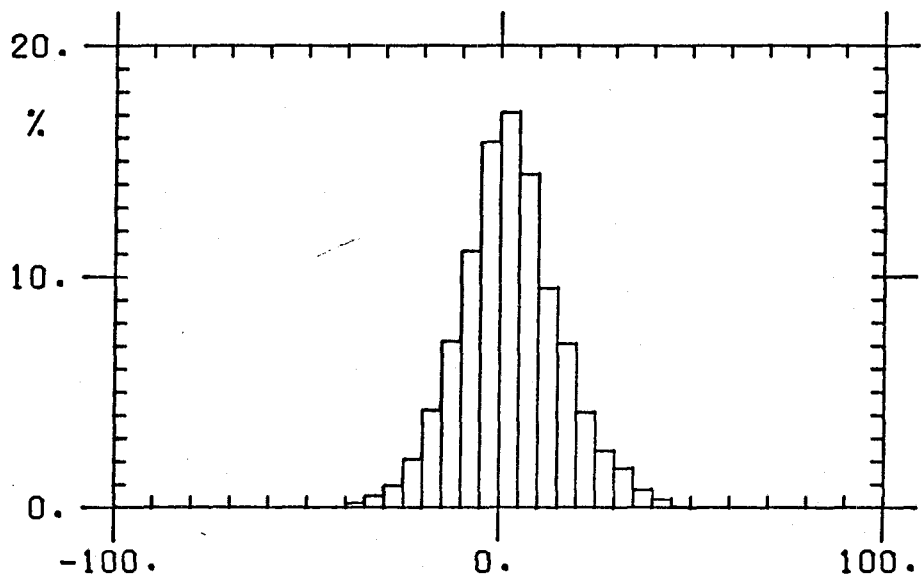
452.7 DAYS
MAX= 52.39
MIN= 0.04
MEAN= 15.15



CM/S

EAST

452.7 DAYS
MAX= 34.76
MIN= -43.29
MEAN= 1.25
VAR= 137.49



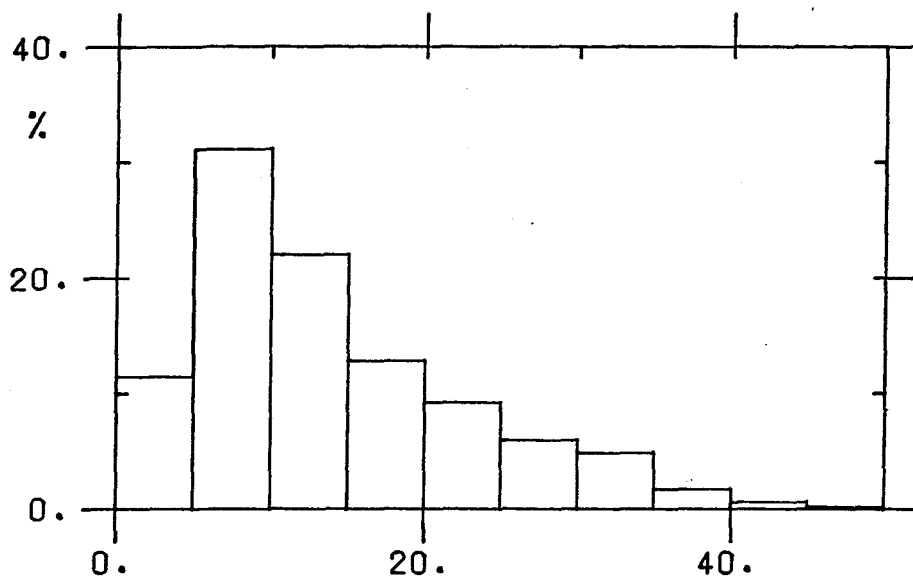
CM/S

NORTH

452.7 DAYS
MAX= 47.81
MIN= -41.85
MEAN= 2.70
VAR= 172.19

CM/S

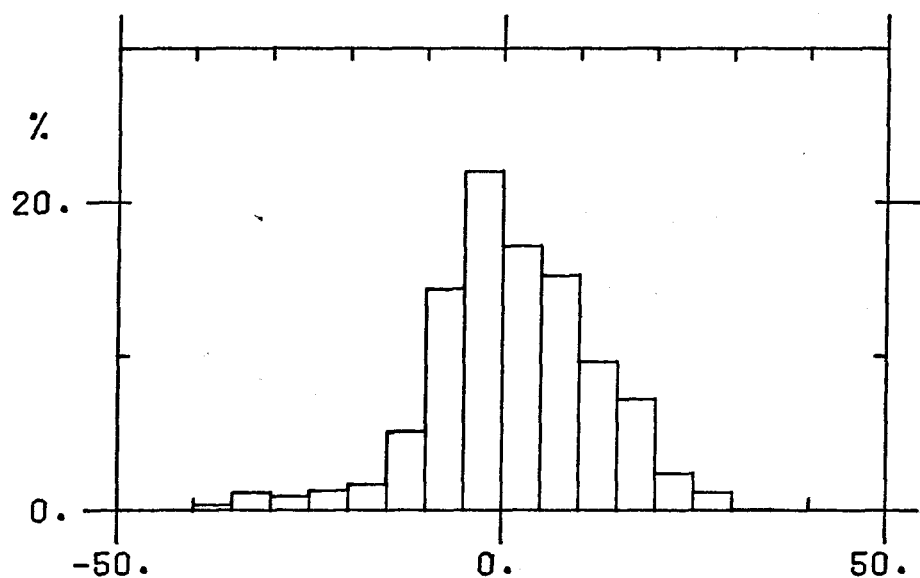
I3A 200M FILTERED 2/ 9/78- 7/10/80



SPEED

452.7 DAYS
MAX= 47.43
MIN= 0.20
MEAN= 13.94

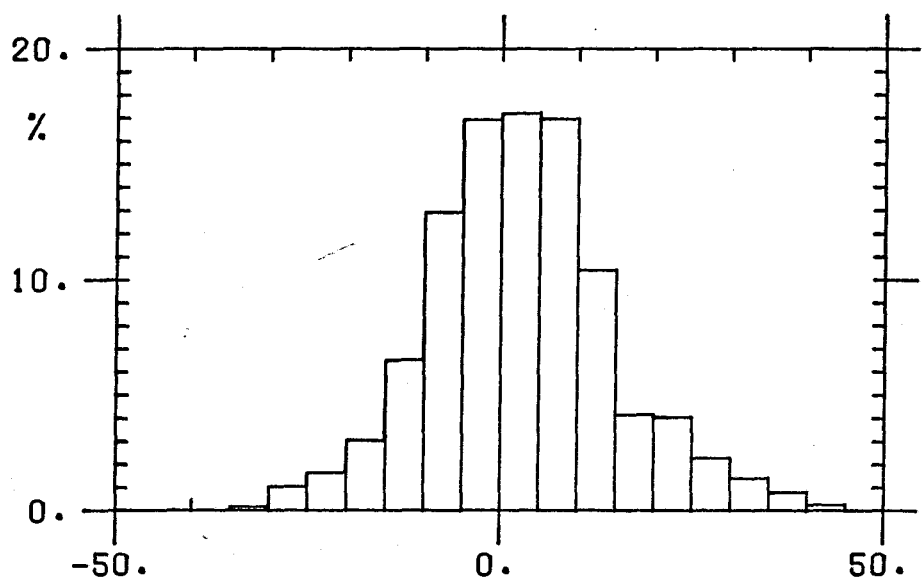
CM/S



EAST

452.7 DAYS
MAX= 31.29
MIN= -40.47
MEAN= 1.25
VAR= 120.01

CM/S

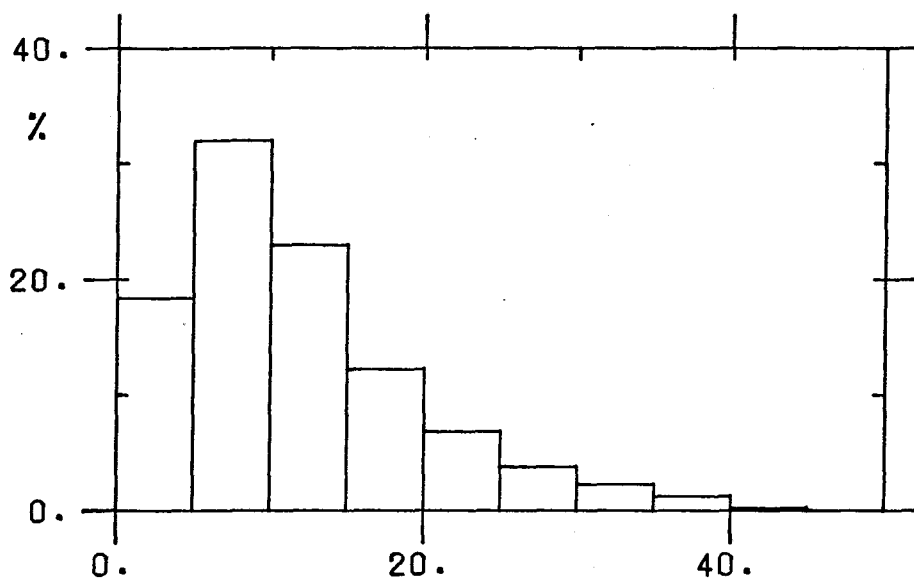


NORTH

452.7 DAYS
MAX= 41.89
MIN= -32.93
MEAN= 2.69
VAR= 145.19

CM/S

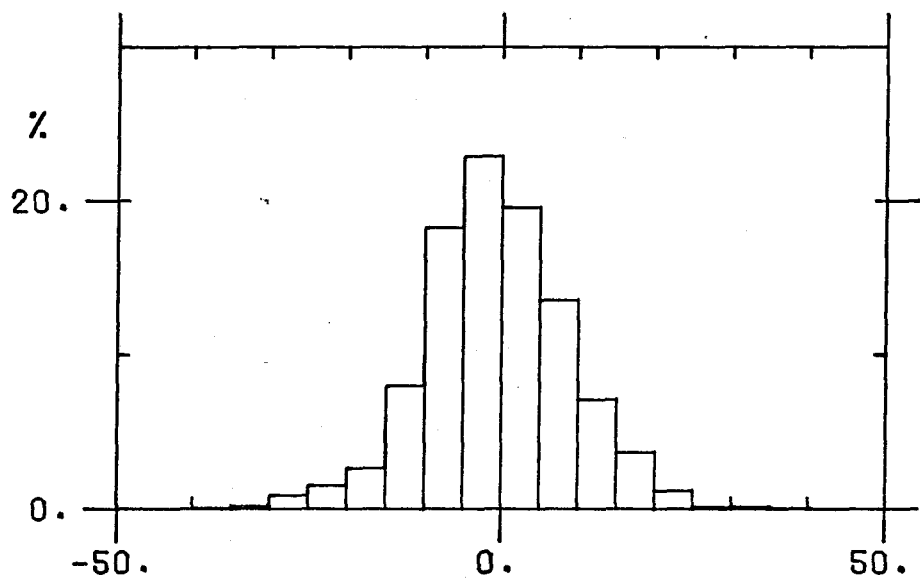
I3A 500M UNFILTERED 2/ 9/78- 7/10/80



SPEED

610.6 DAYS
MAX= 47.82
MIN= 0.04
MEAN= 11.80

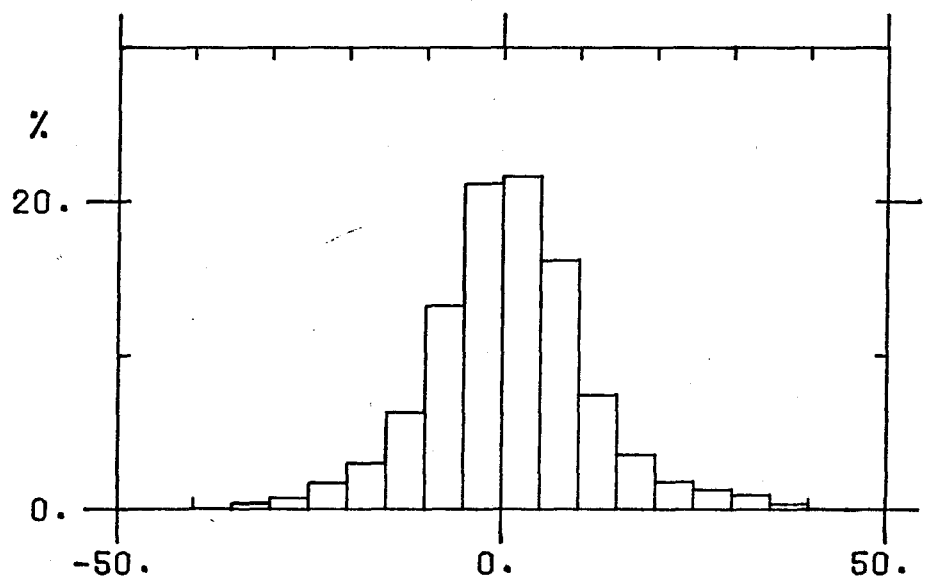
CM/S



EAST

610.6 DAYS
MAX= 40.69
MIN= -37.53
MEAN= -0.65
VAR= 87.82

CM/S

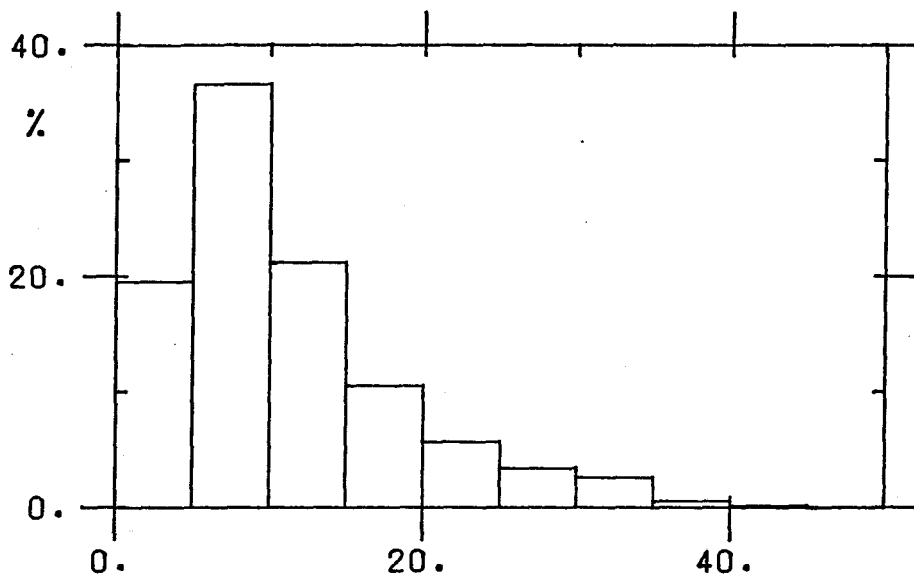


NORTH

610.6 DAYS
MAX= 41.80
MIN= -43.32
MEAN= 0.98
VAR= 112.52

CM/S

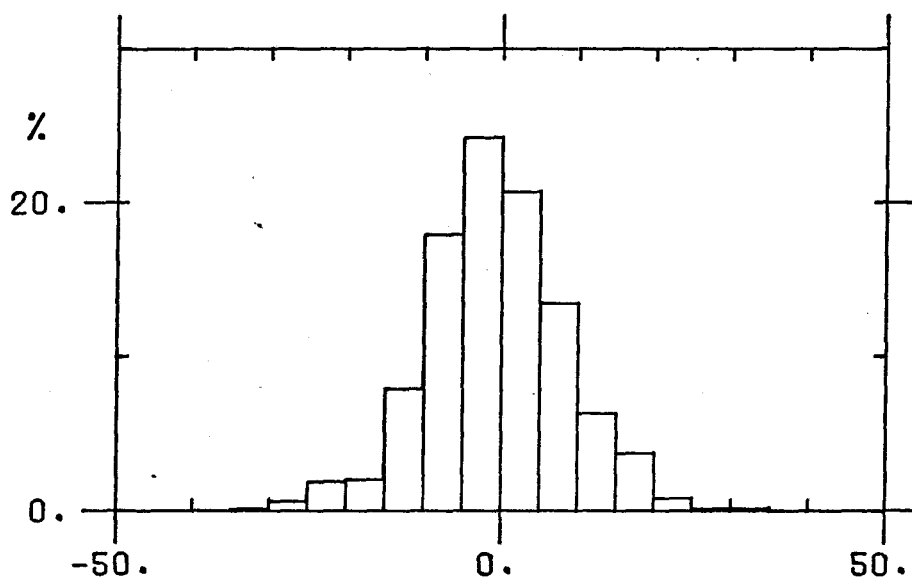
I3A 500M FILTERED 2/ 9/78- 7/10/80



SPEED

610.6 DAYS
 MAX= 41.00
 MIN= 0.20
 MEAN= 11.03

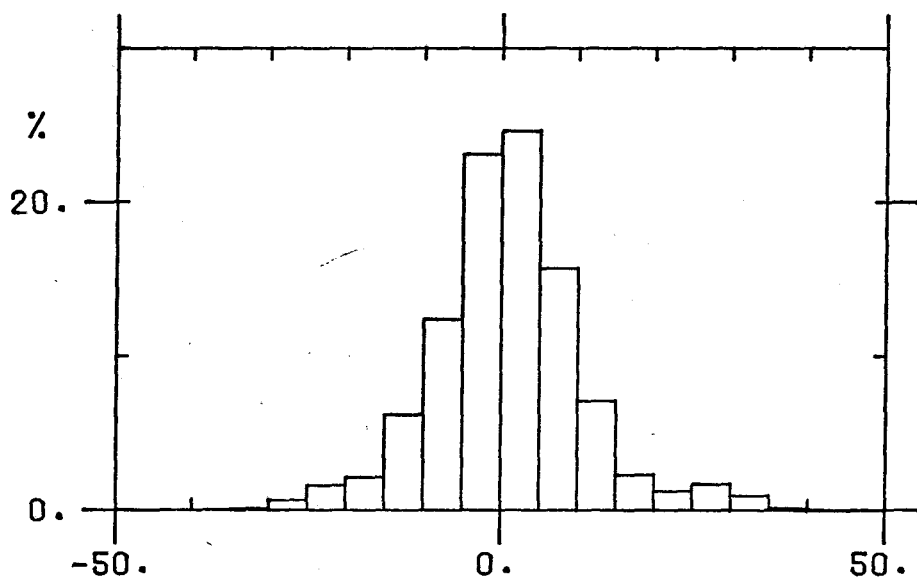
CM/S



EAST

610.6 DAYS
 MAX= 34.24
 MIN= -35.20
 MEAN= -0.65
 VAR= 80.50

CM/S

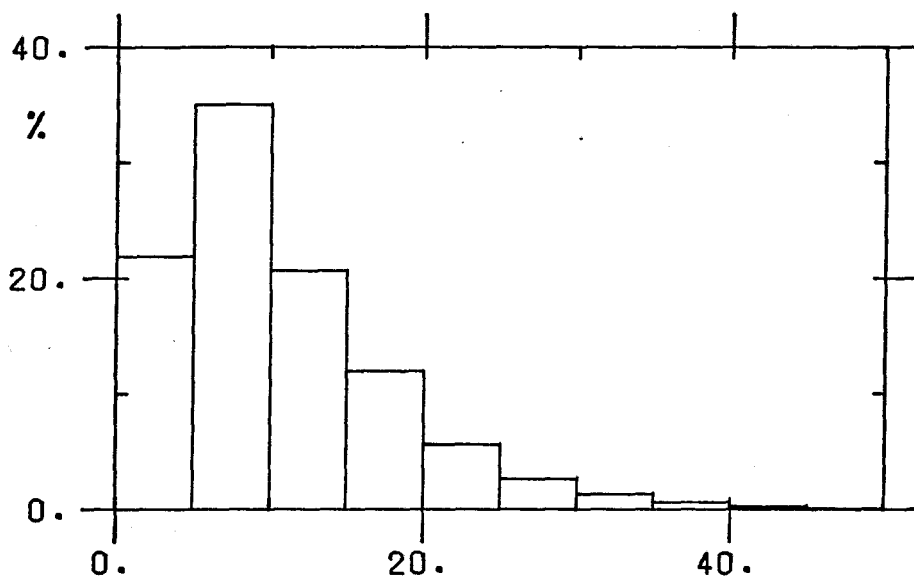


NORTH

610.6 DAYS
 MAX= 37.55
 MIN= -34.75
 MEAN= 0.98
 VAR= 95.79

CM/S

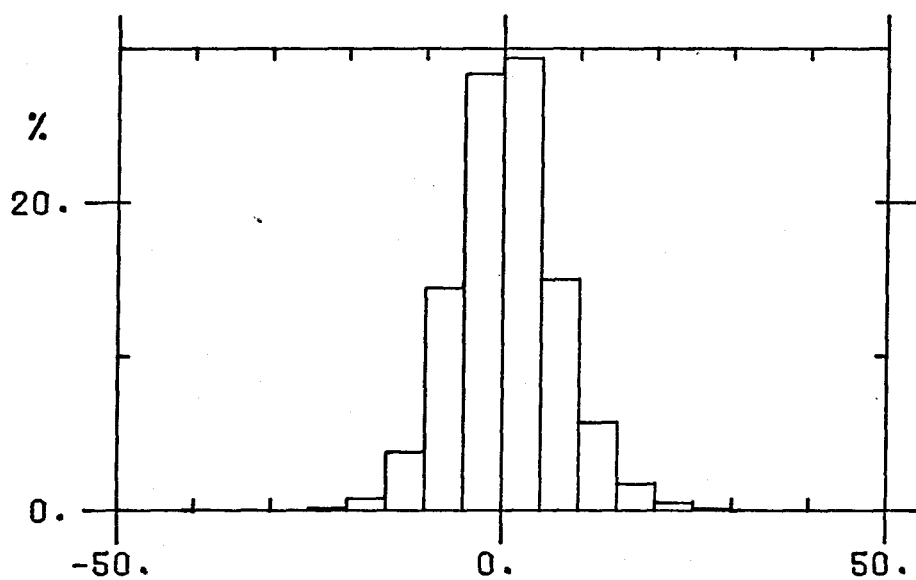
I3A 1000M UNFILTERED 2/ 9/78- 7/10/80



SPEED

451.7 DAYS
MAX= 48.27
MIN= 0.01
MEAN= 10.61

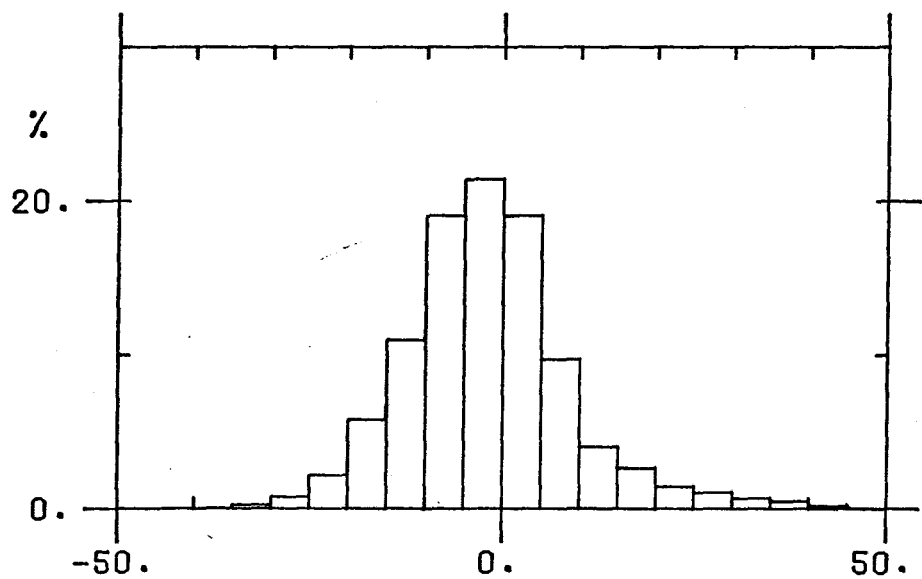
CM/S



EAST

451.7 DAYS
MAX= 29.32
MIN= -25.12
MEAN= 0.58
VAR= 44.59

CM/S

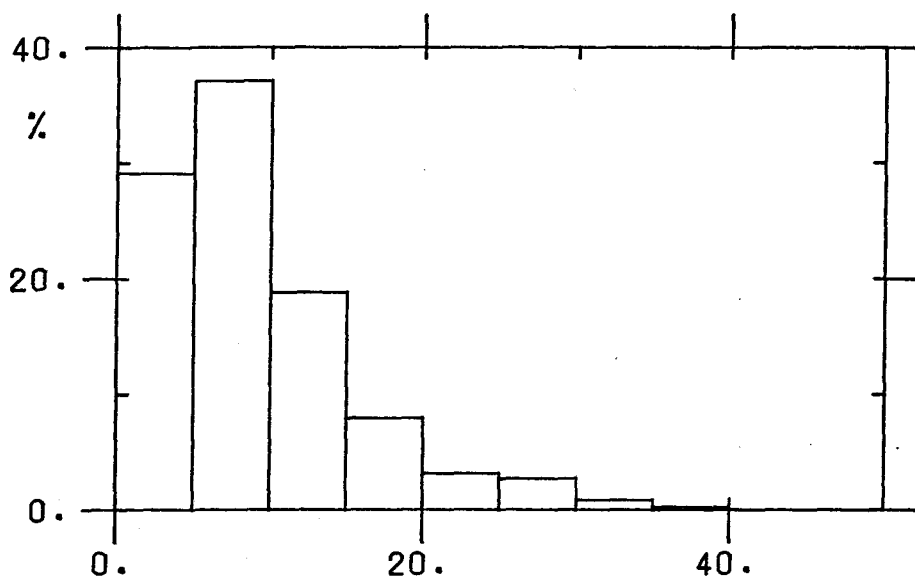


NORTH

451.7 DAYS
MAX= 48.09
MIN= -36.09
MEAN= -1.81
VAR= 117.31

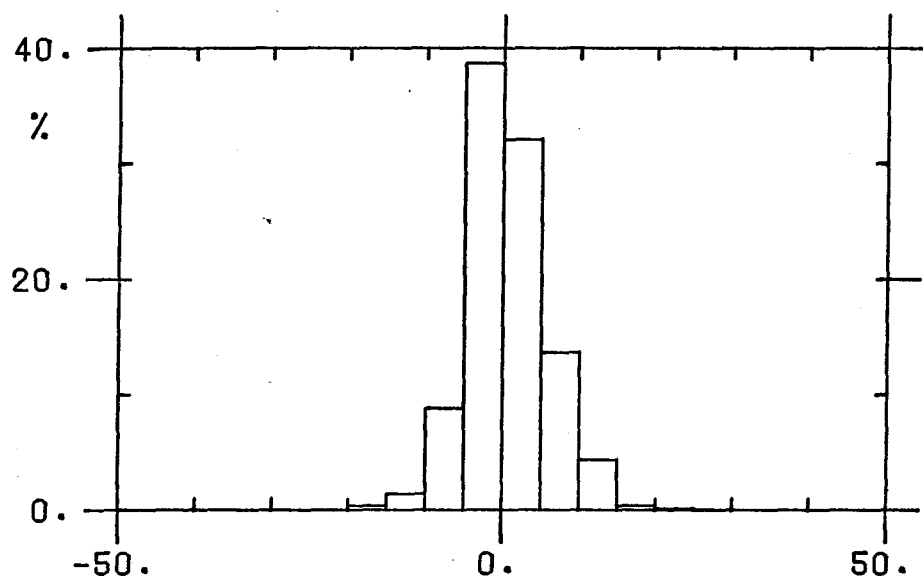
CM/S

I3A 1000M FILTERED 2/ 9/78- 7/10/80



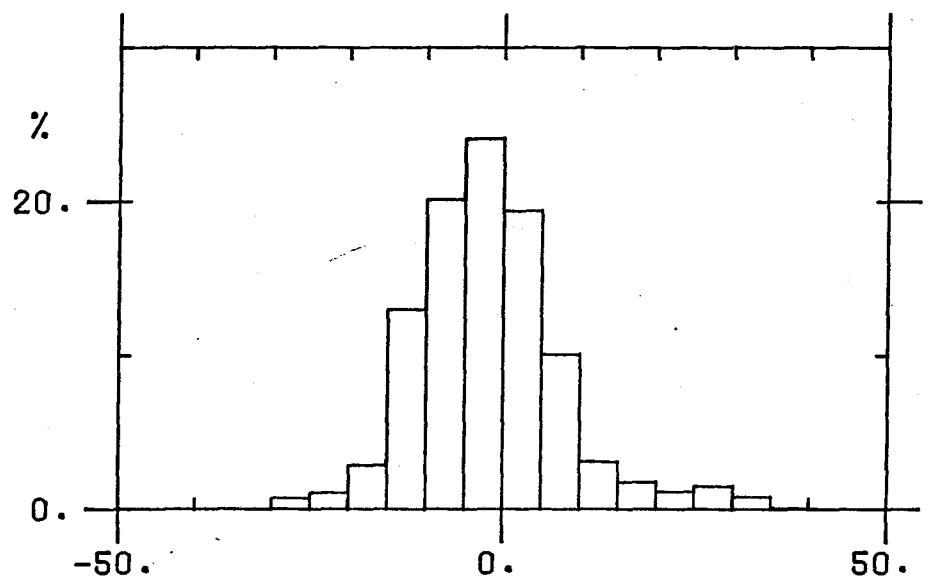
SPEED

451.7 DAYS
MAX= 36.85
MIN= 0.05
MEAN= 9.08



EAST

451.7 DAYS
MAX= 23.27
MIN= -19.71
MEAN= 0.57
VAR= 26.73

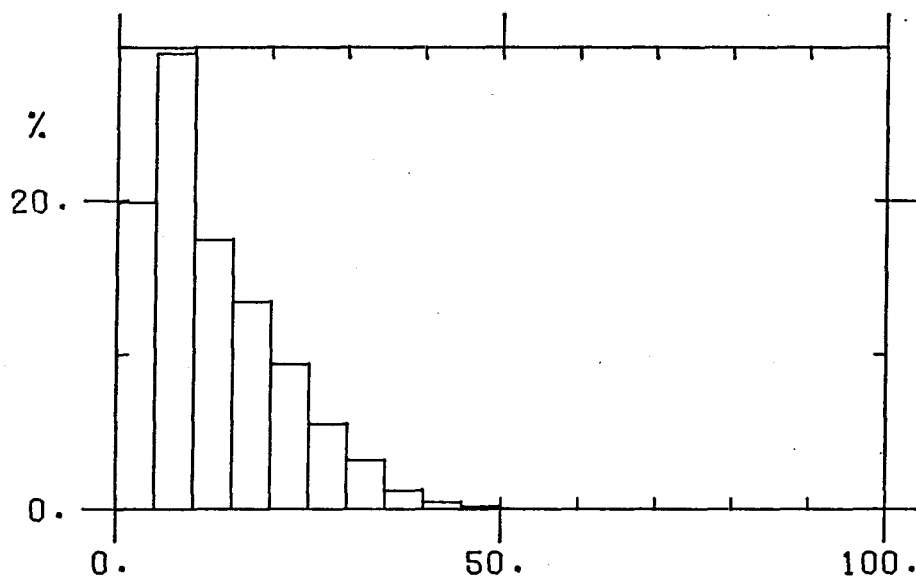


NORTH

451.7 DAYS
MAX= 35.33
MIN= -29.45
MEAN= -1.81
VAR= 93.02

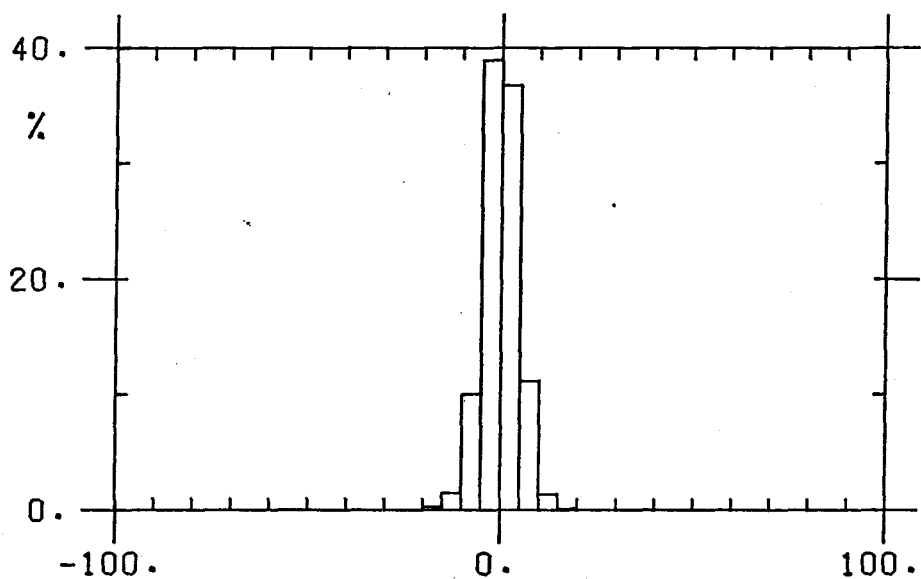
CM/S

I3A 1500M UNFILTERED 2/ 9/78- 7/10/80



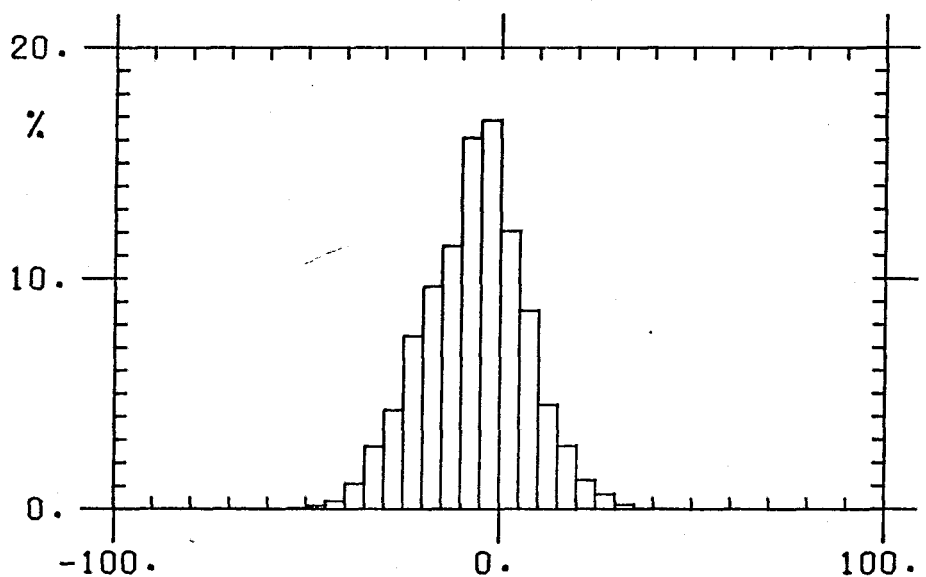
SPEED

612.0 DAYS
MAX= 54.28
MIN= 0.01
MEAN= 12.56



EAST

612.0 DAYS
MAX= 19.76
MIN= -21.98
MEAN= -0.02
VAR= 20.14



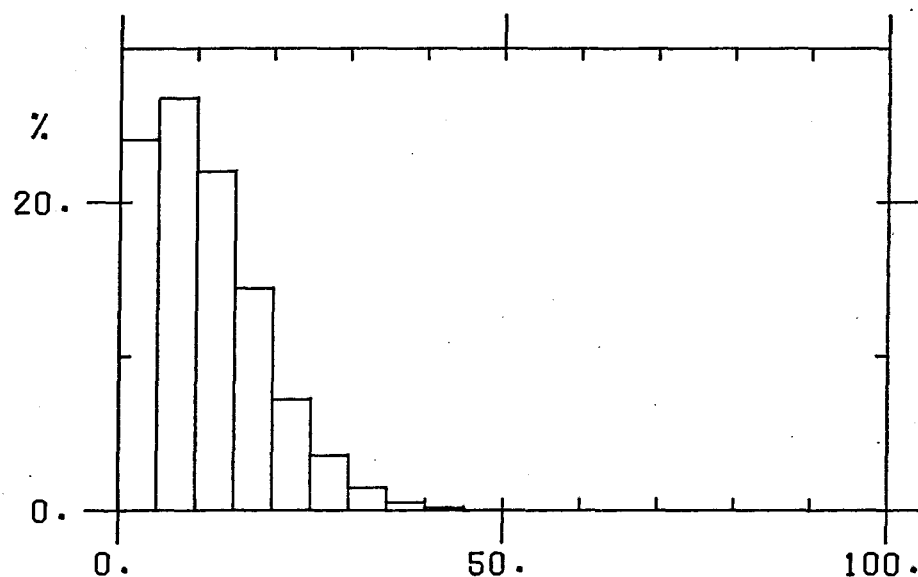
NORTH

612.0 DAYS
MAX= 35.24
MIN= -53.18
MEAN= -6.59
VAR= 170.80

CM/S

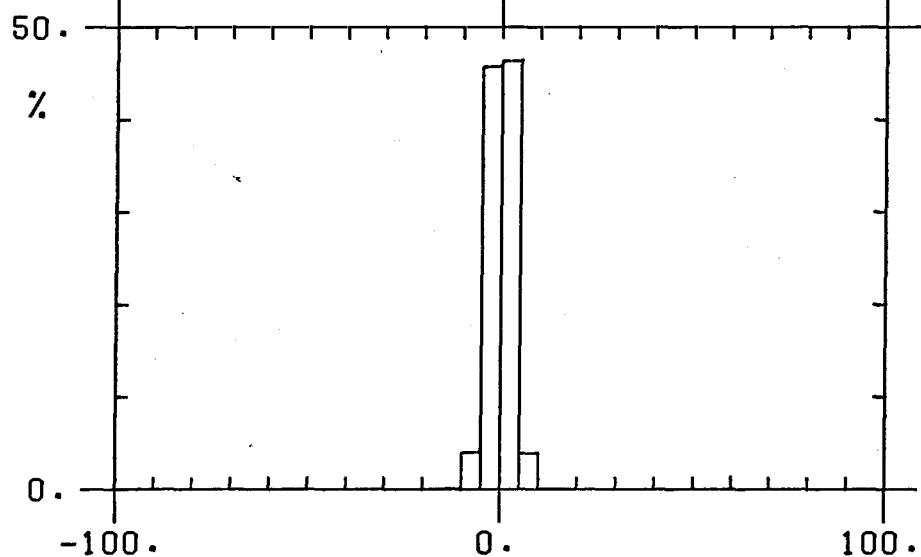
I3A 1500M FILTERED

2/ 9/78- 7/10/80



SPEED

612.0 DAYS
MAX= 45.66
MIN= 0.04
MEAN= 11.13

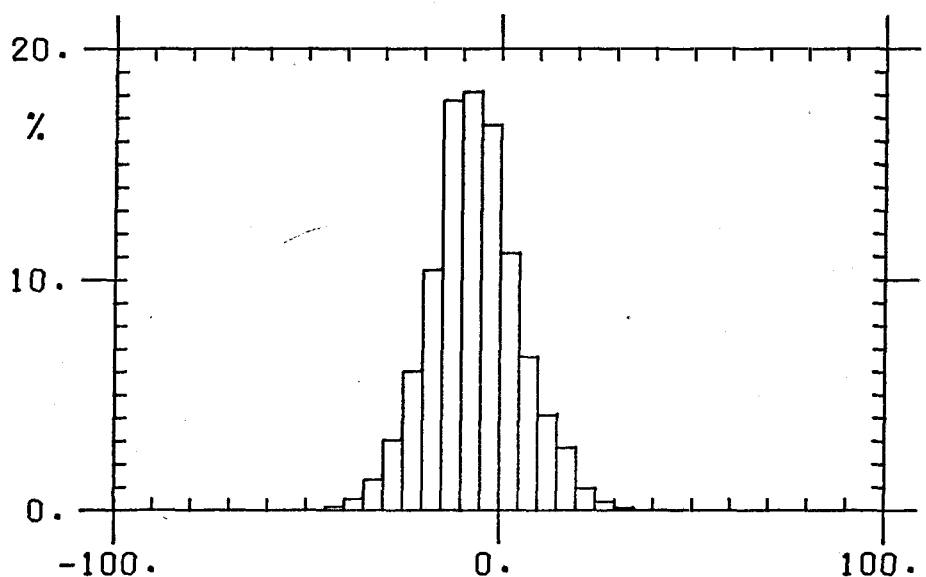


CM/S

EAST

612.0 DAYS
MAX= 10.27
MIN= -10.95
MEAN= -0.02
VAR= 7.95

CM/S



NORTH

612.0 DAYS
MAX= 30.70
MIN= -45.36
MEAN= -6.59
VAR= 129.22

CM/S

MOORING 253 (I4)

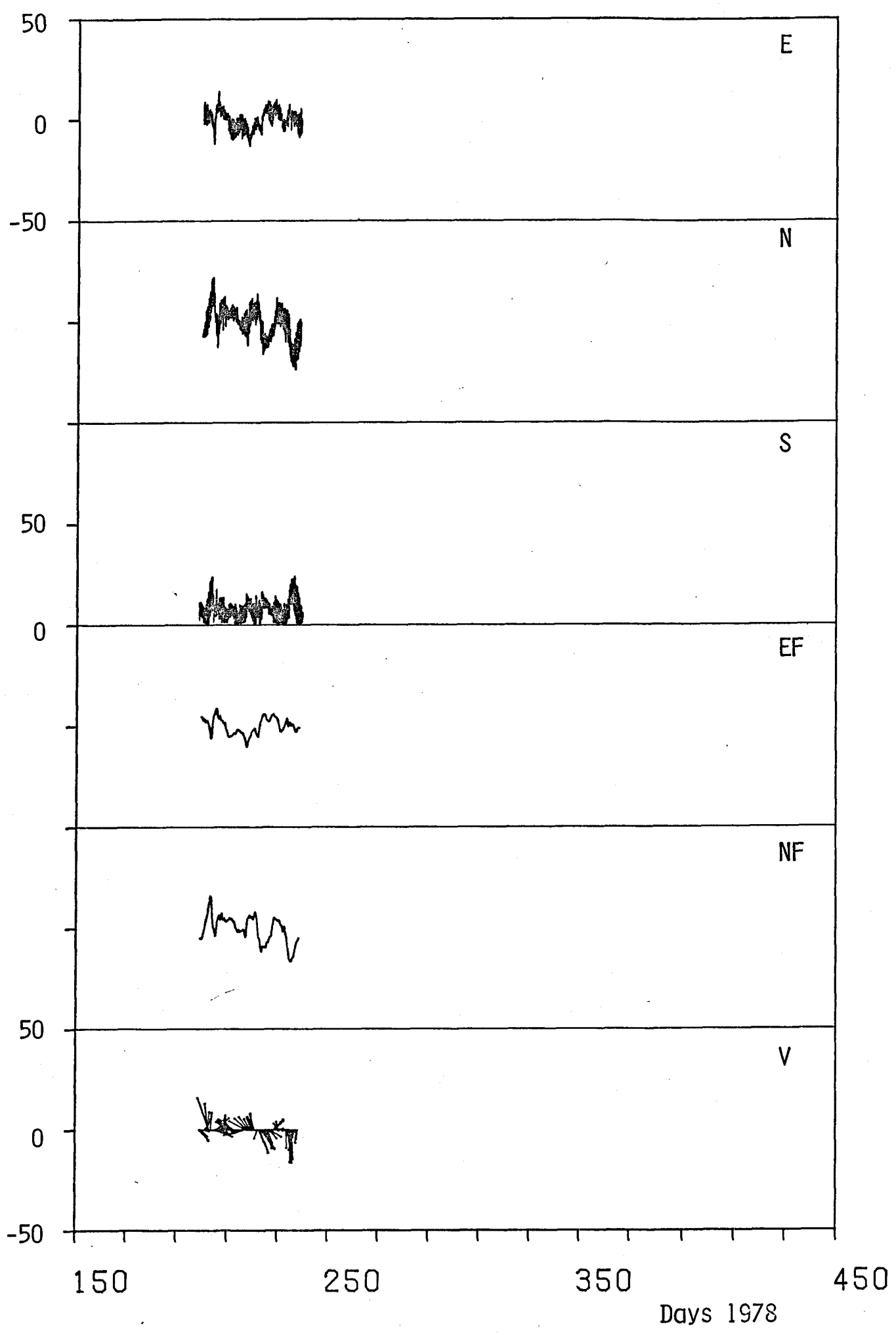
Set 17-VII-78 Position: 58° 49'.8N 11° 39'.8W
Recovered 27-VIII-78 Water Depth: 1821 m

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
25301	Aa 3338	198	Sp,D,T	600	No pressure record
25302	Aa 2449	667	Sp,D,T	600	
25303	Aa 2106	1016	Sp,D,T	600	
25304	Aa 420	1522	Sp,D,T	600	

Comments

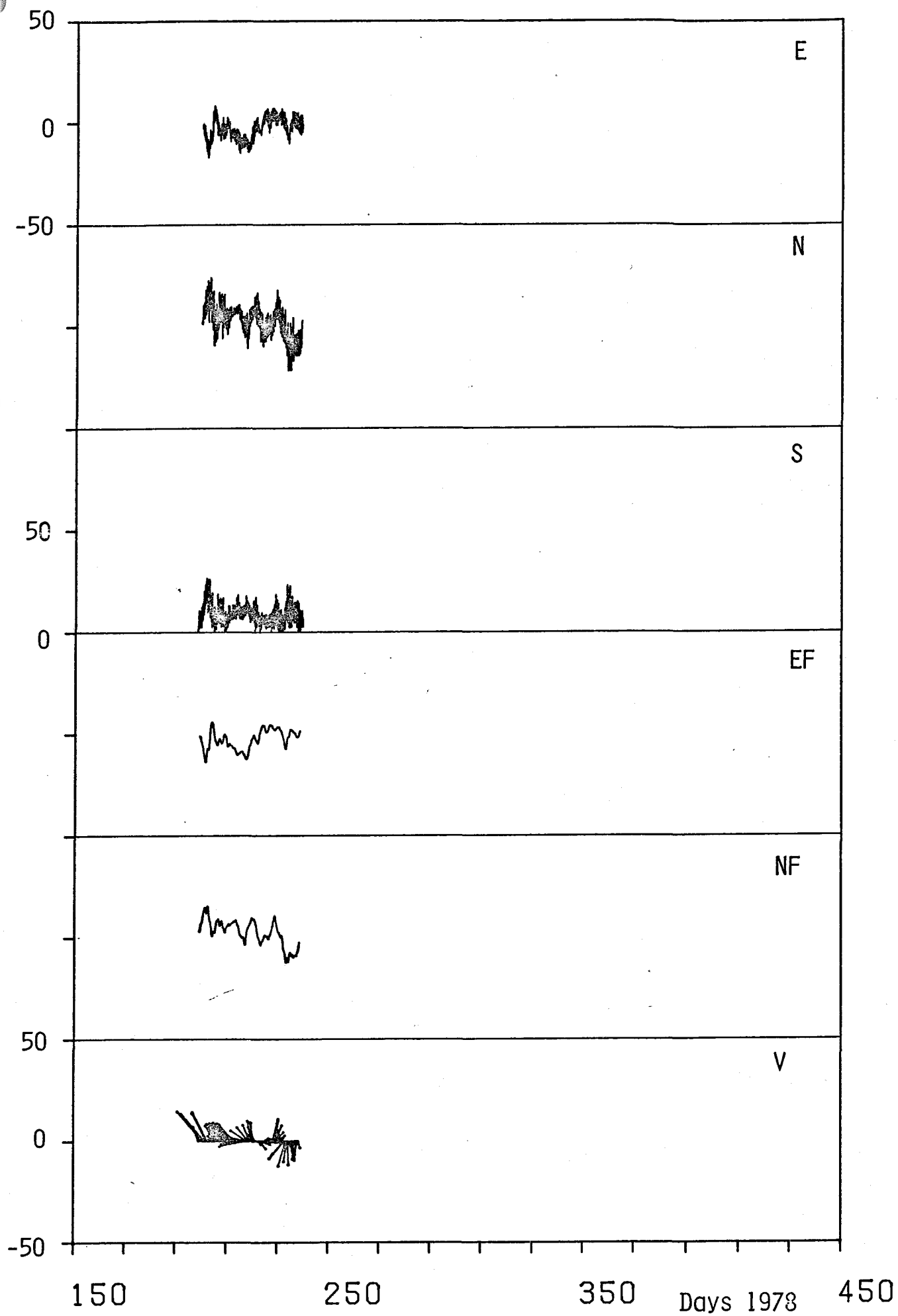
CM/S

(14) 25301



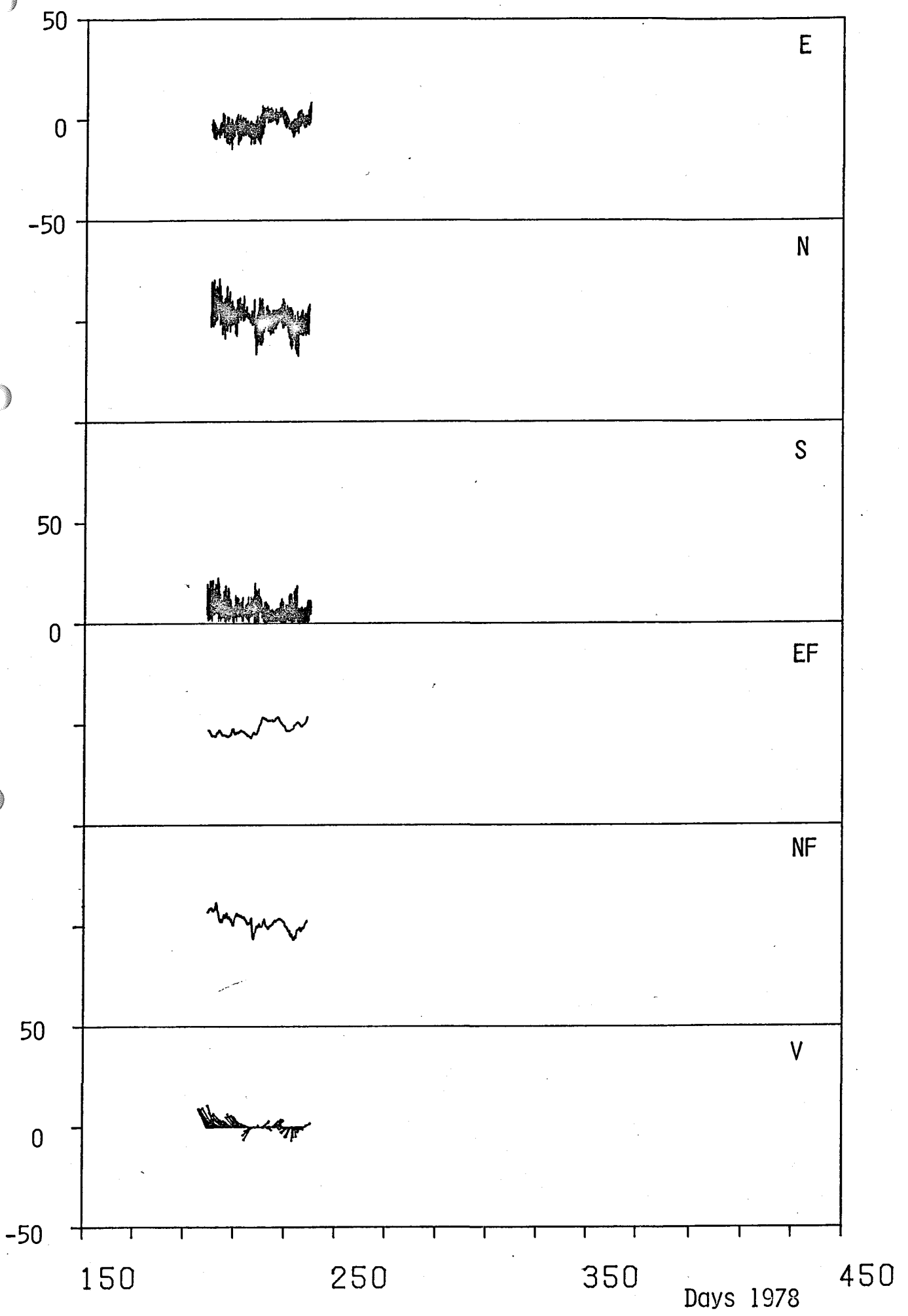
CM/S

(14) 25302



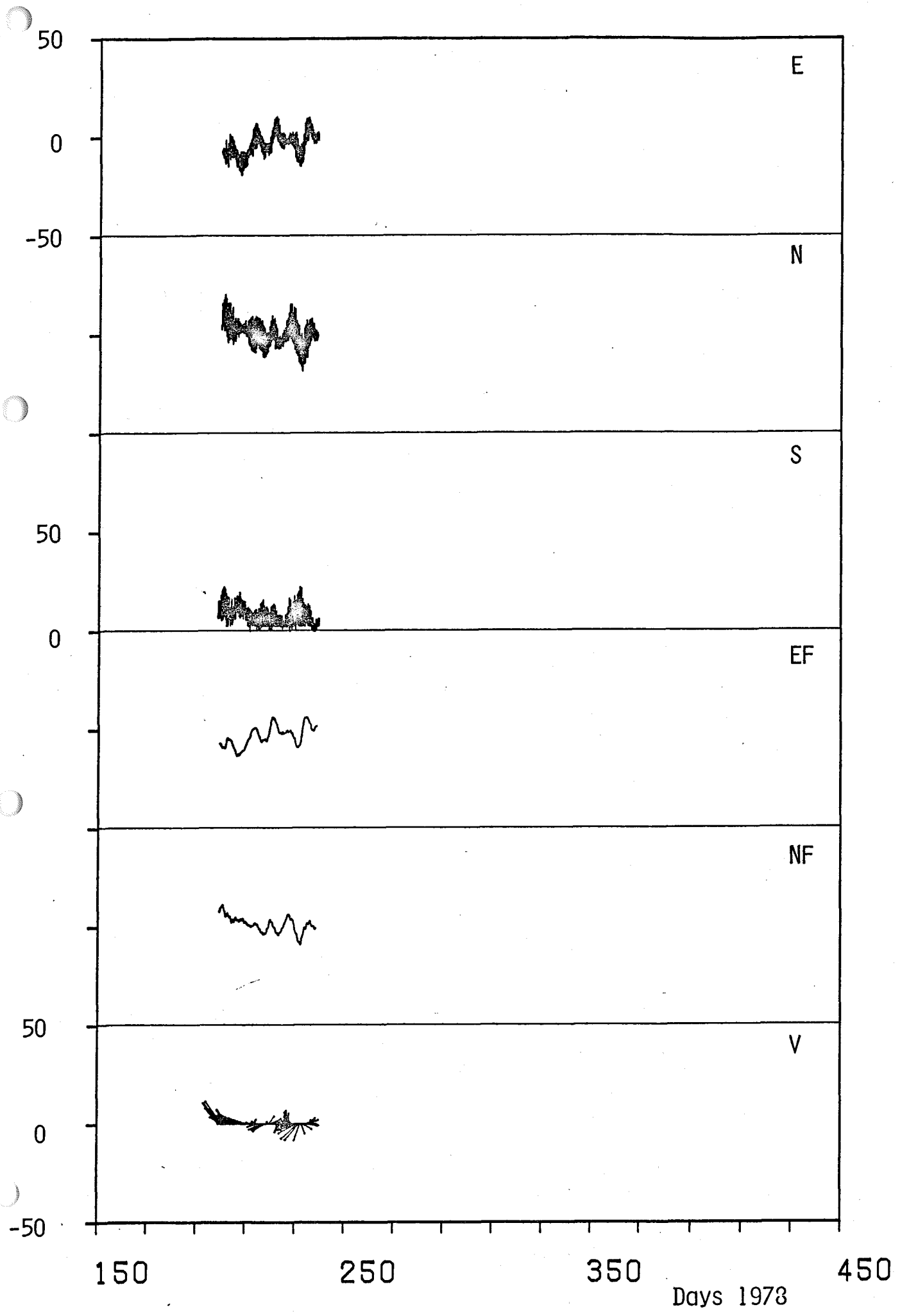
CM/S

(14) 25303



CM/S

(14) 25304



MOORING 257 (I4)

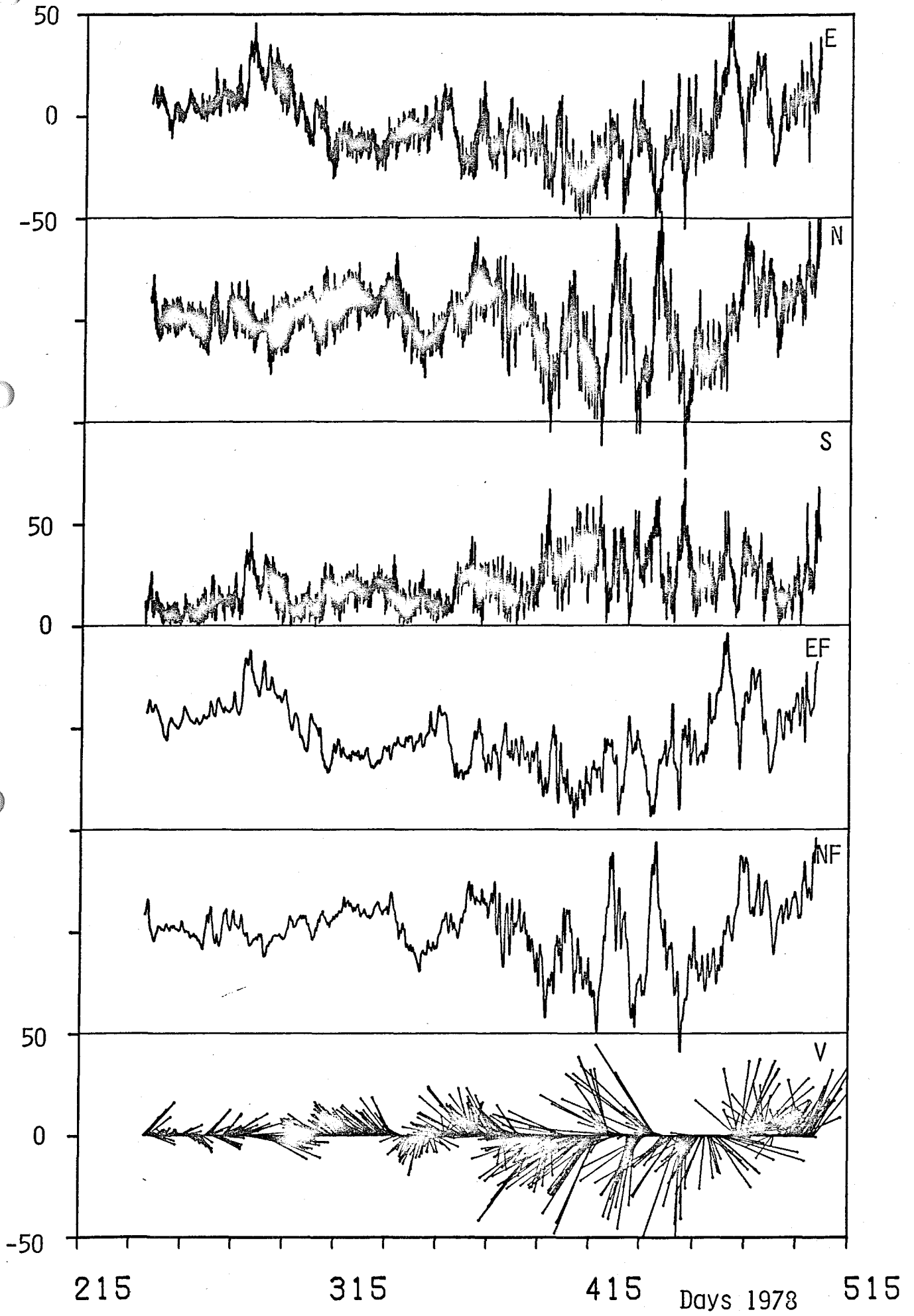
Set 27-VIII-78 Position: 58° 49'.5N 11° 38'.6W
Recovered 18- V-79 Water Depth: 1824 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
25701	Aa 3719	211	Sp,D,T,P	3600	No pressure record
25702	Aa 3722	616	Sp,D,T	3600	Short record
25703	Aa 3632	1022	Sp,D,T	3600	
25704	Aa 3631	1527	Sp,D,T	3600	

Comments

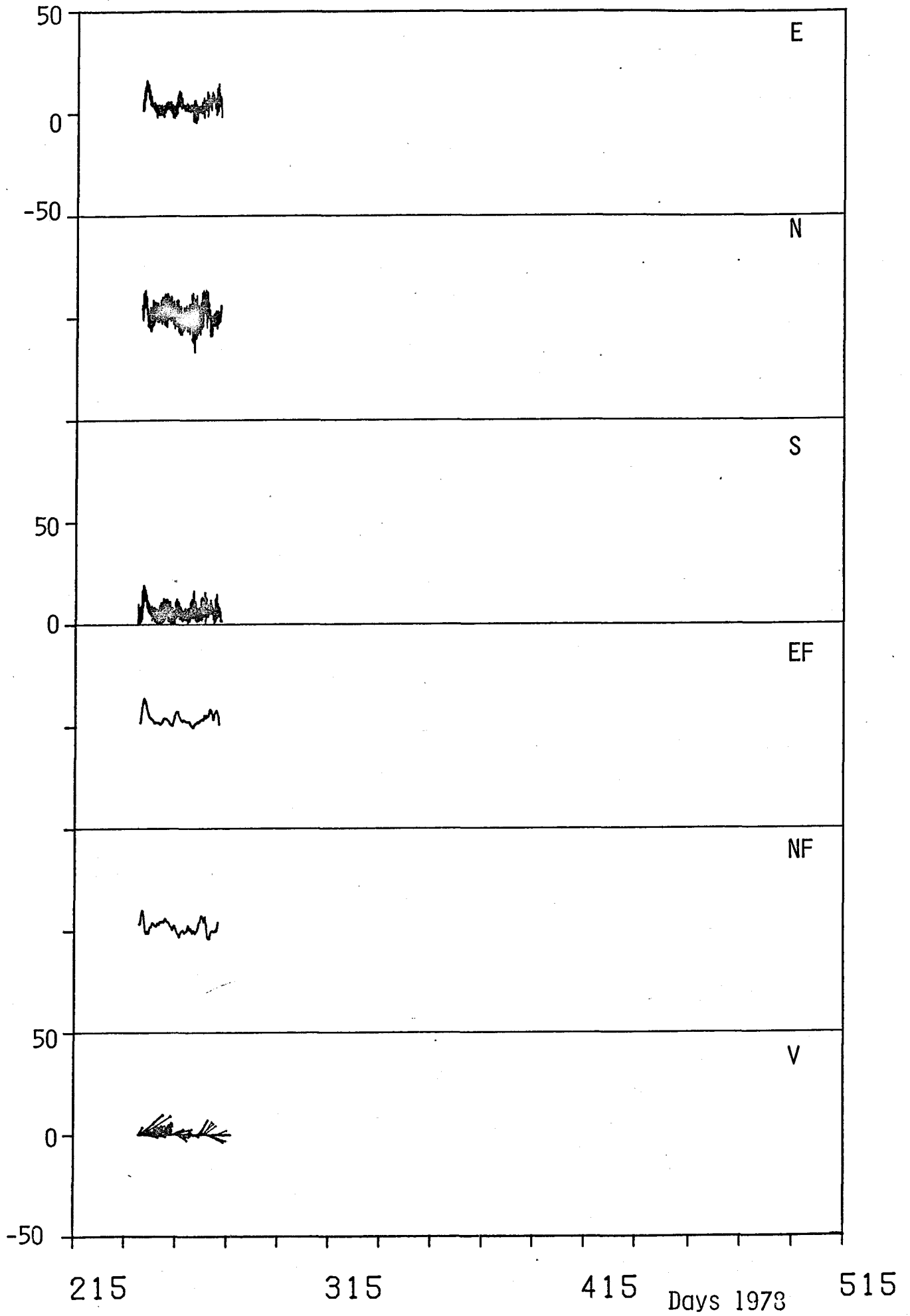
CM/S

(14) 25701



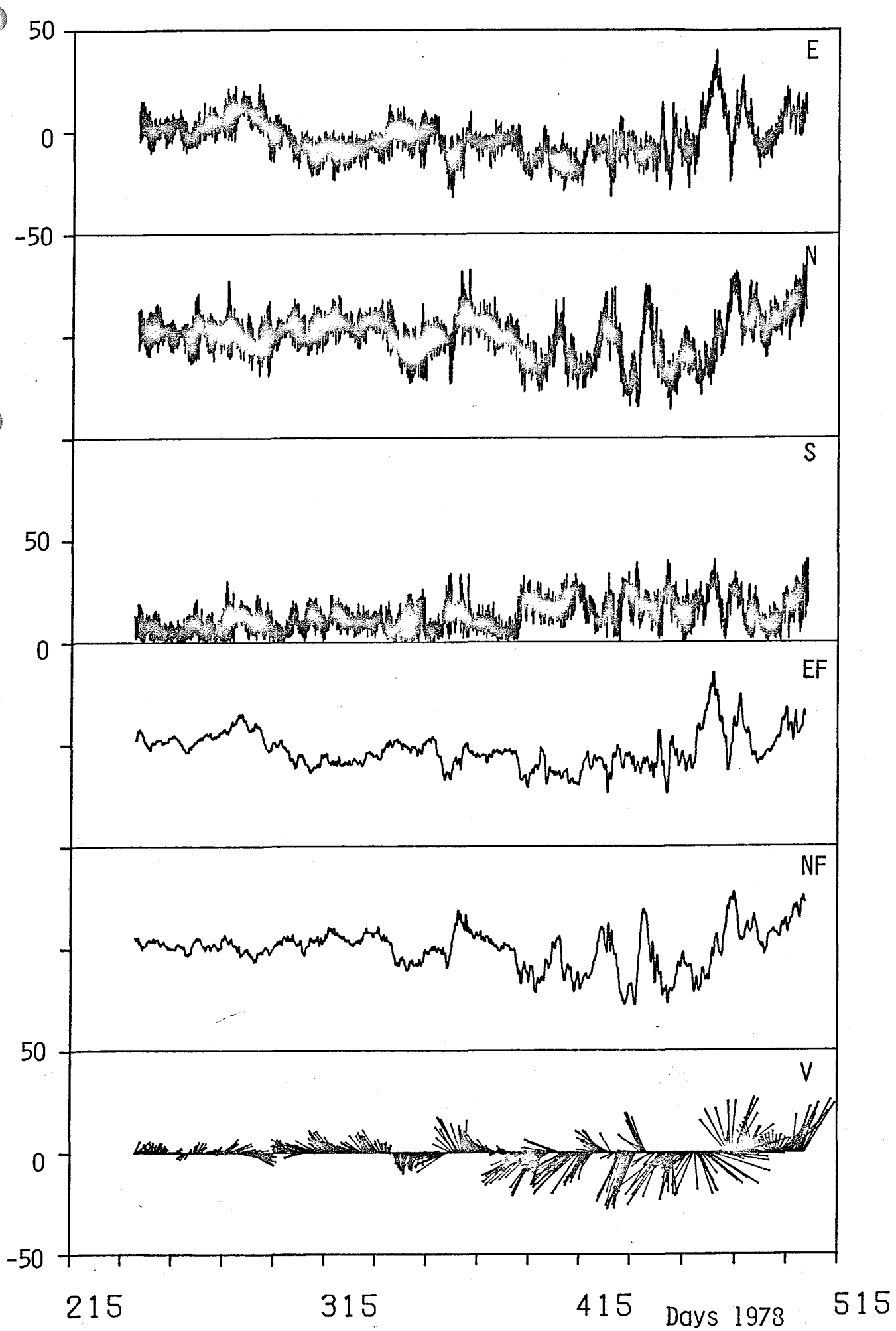
CM /S

(I4) 25702



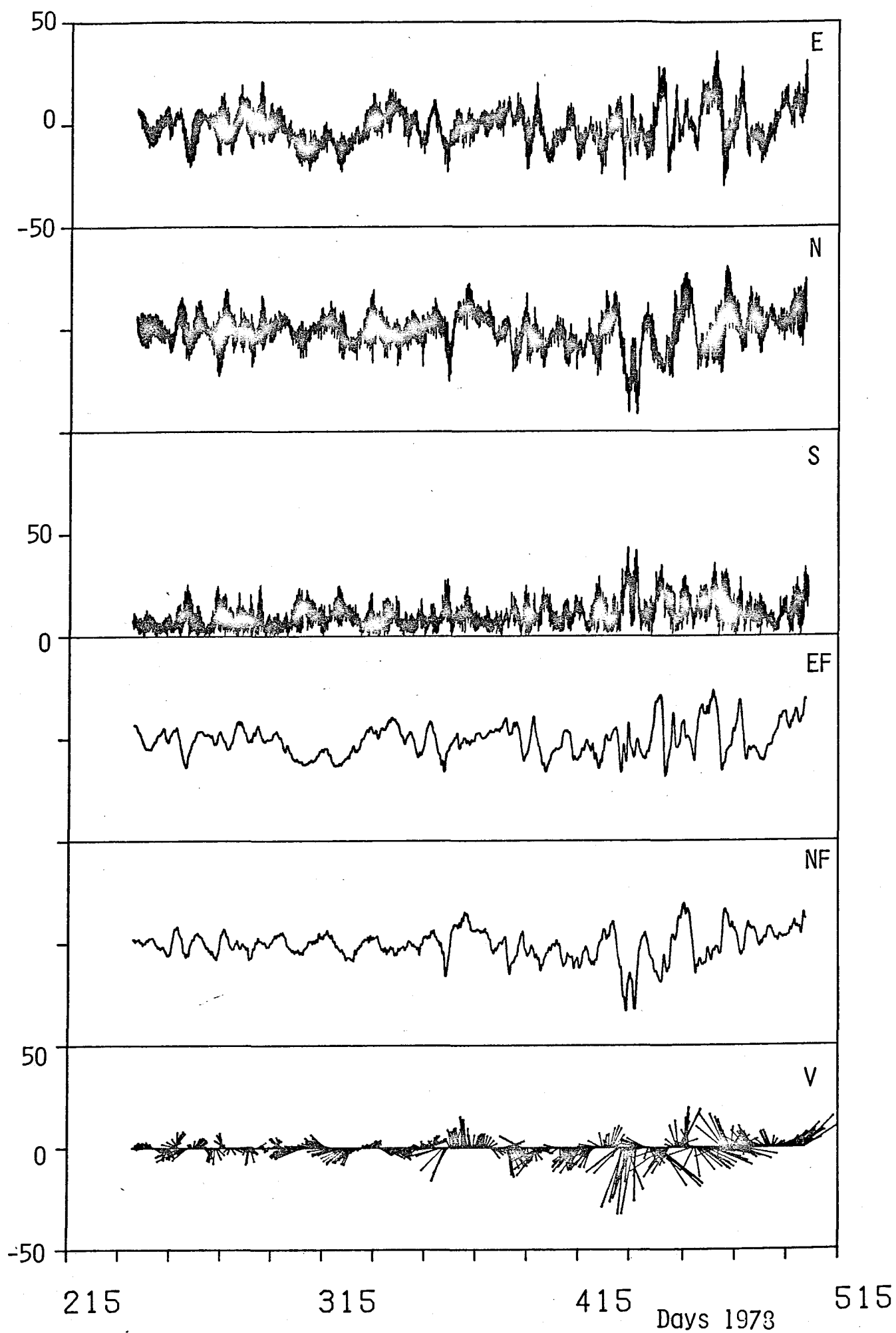
CM/S

(14) 25703



CM/S

(I4) 25704



MOORING 271 (I4)

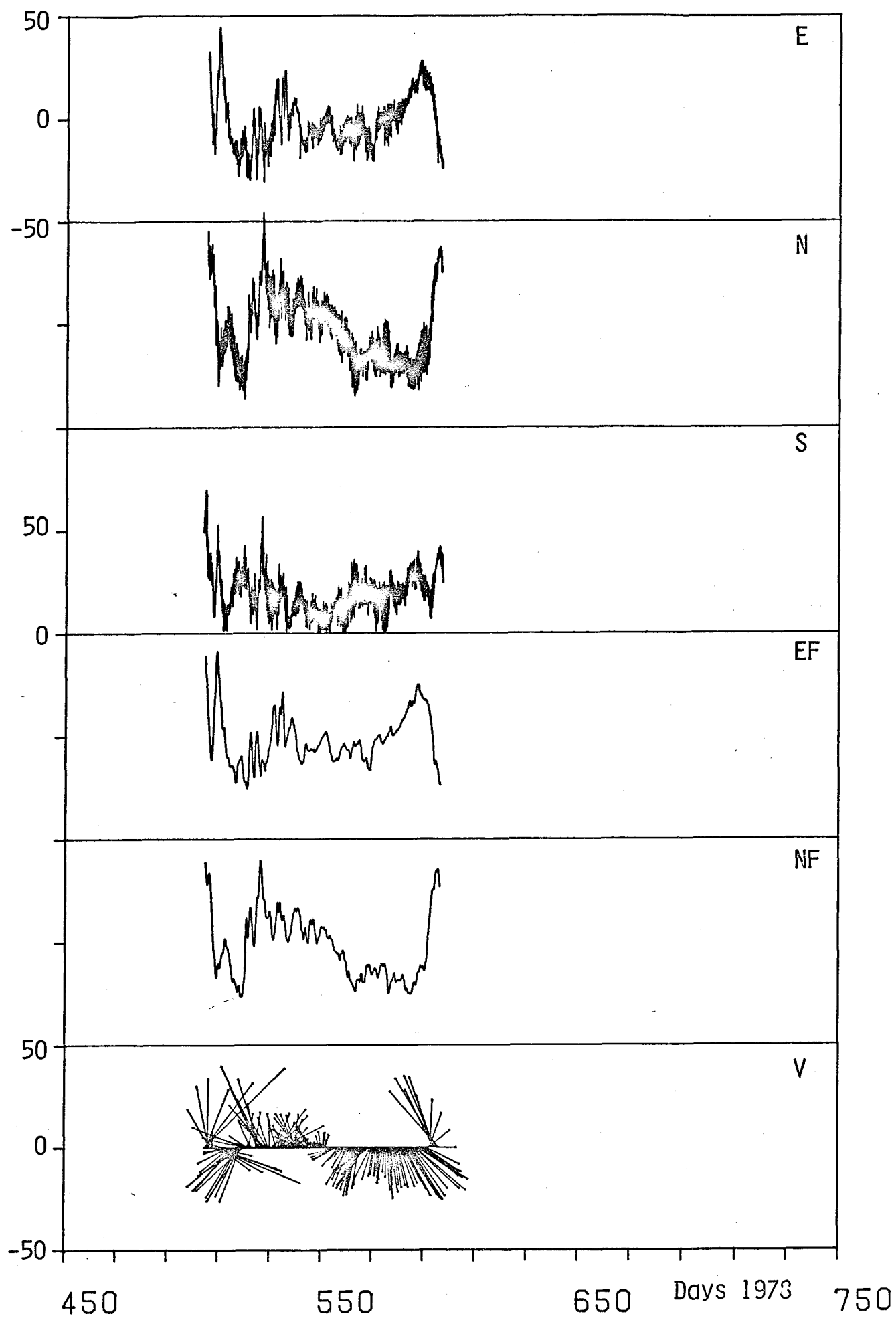
Set 18- V-79 Position: 58° 51'.7N 11° 37'.7w
Recovered 20-VIII-79 Water Depth: 1855 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
27101	Aa 1261	247 m	Sp,D,T,P	3600	
27102	Aa 1078	656 m	Sp,D,T	3600	
27103	Aa 2452	1060 m	Sp,D,T	3600	Short record
27104	Aa 2451	1567 m	Sp,D,T	3600	Short record

Comments

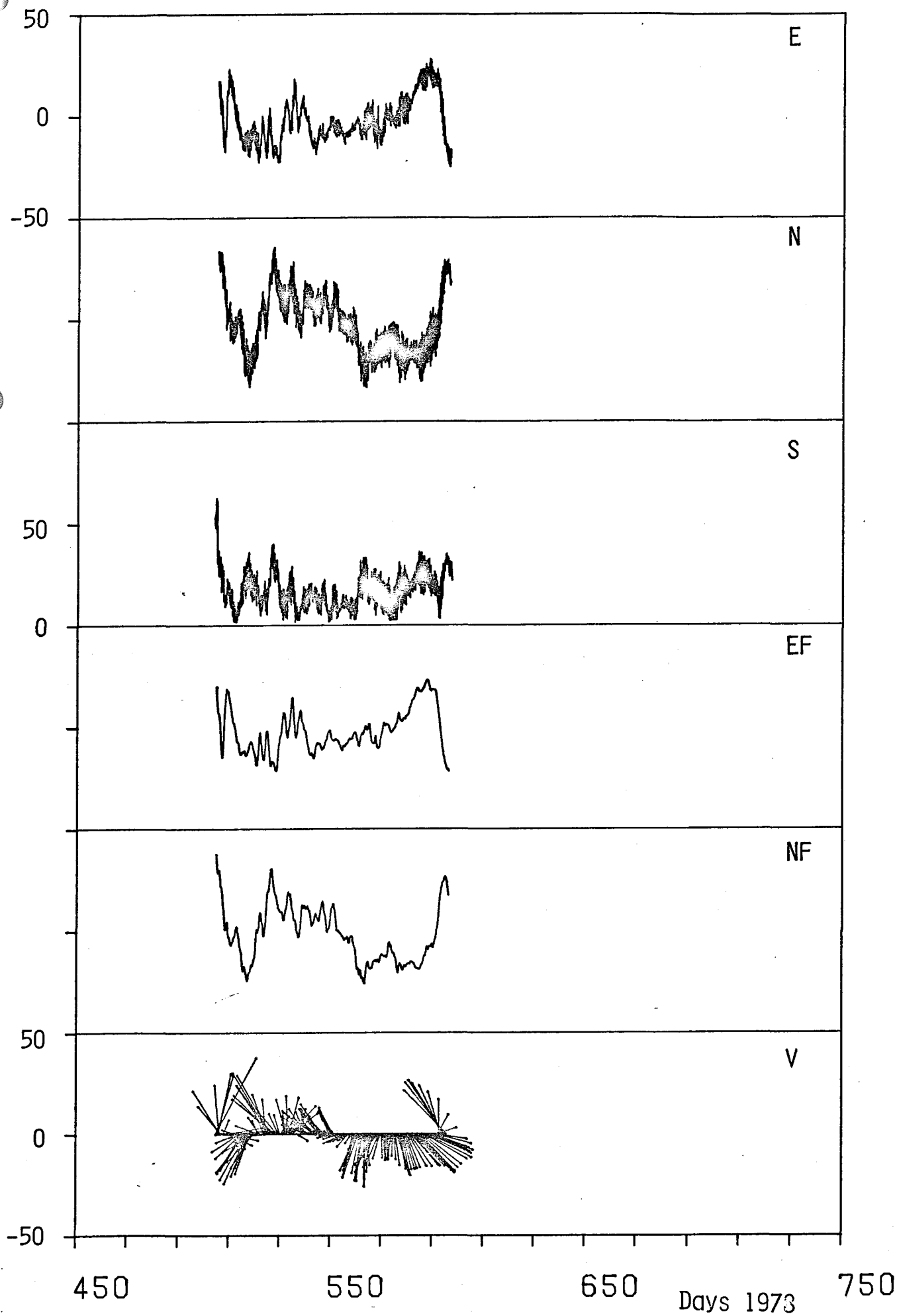
CM/S

(14) 27101



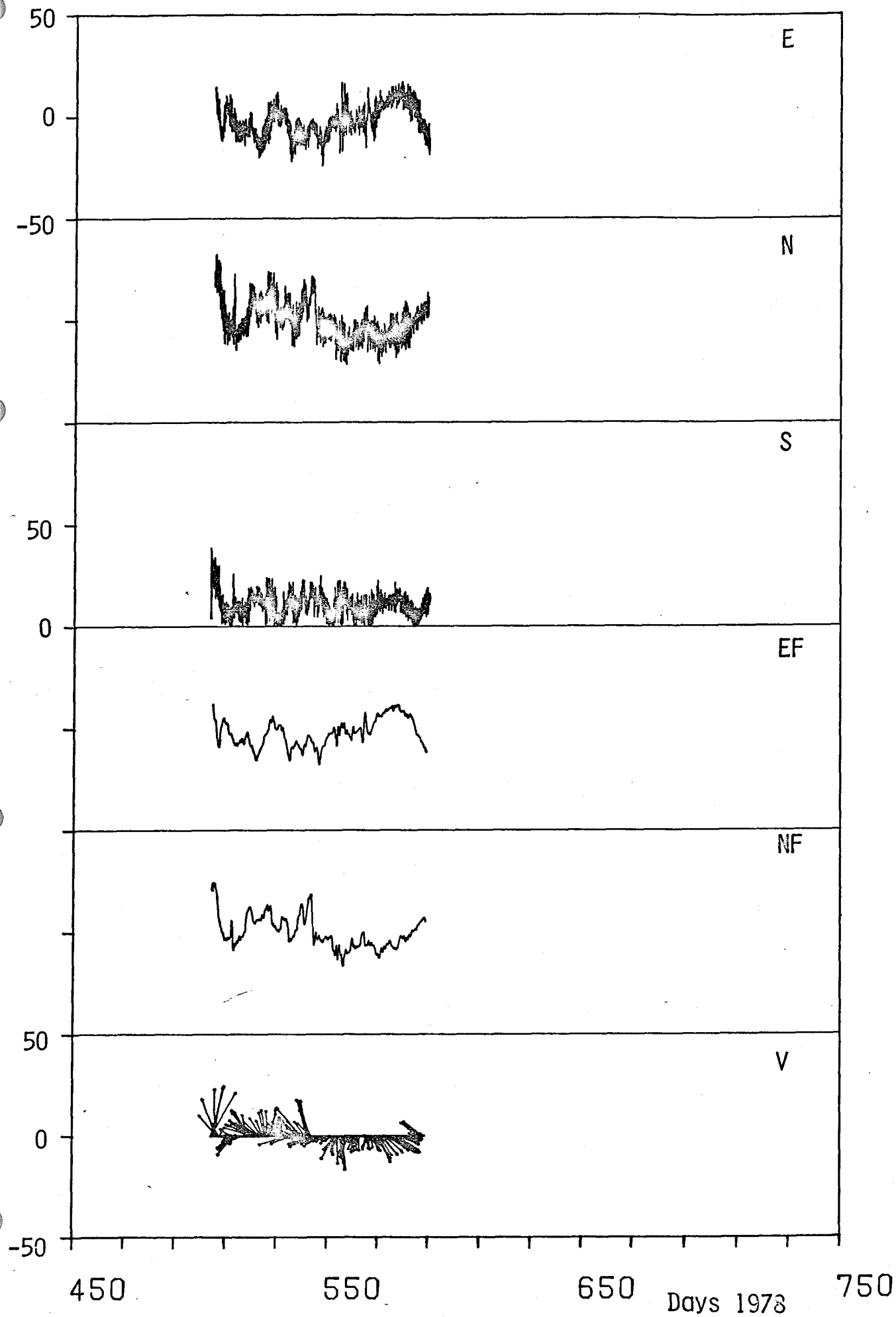
CM/S

(14) 27102



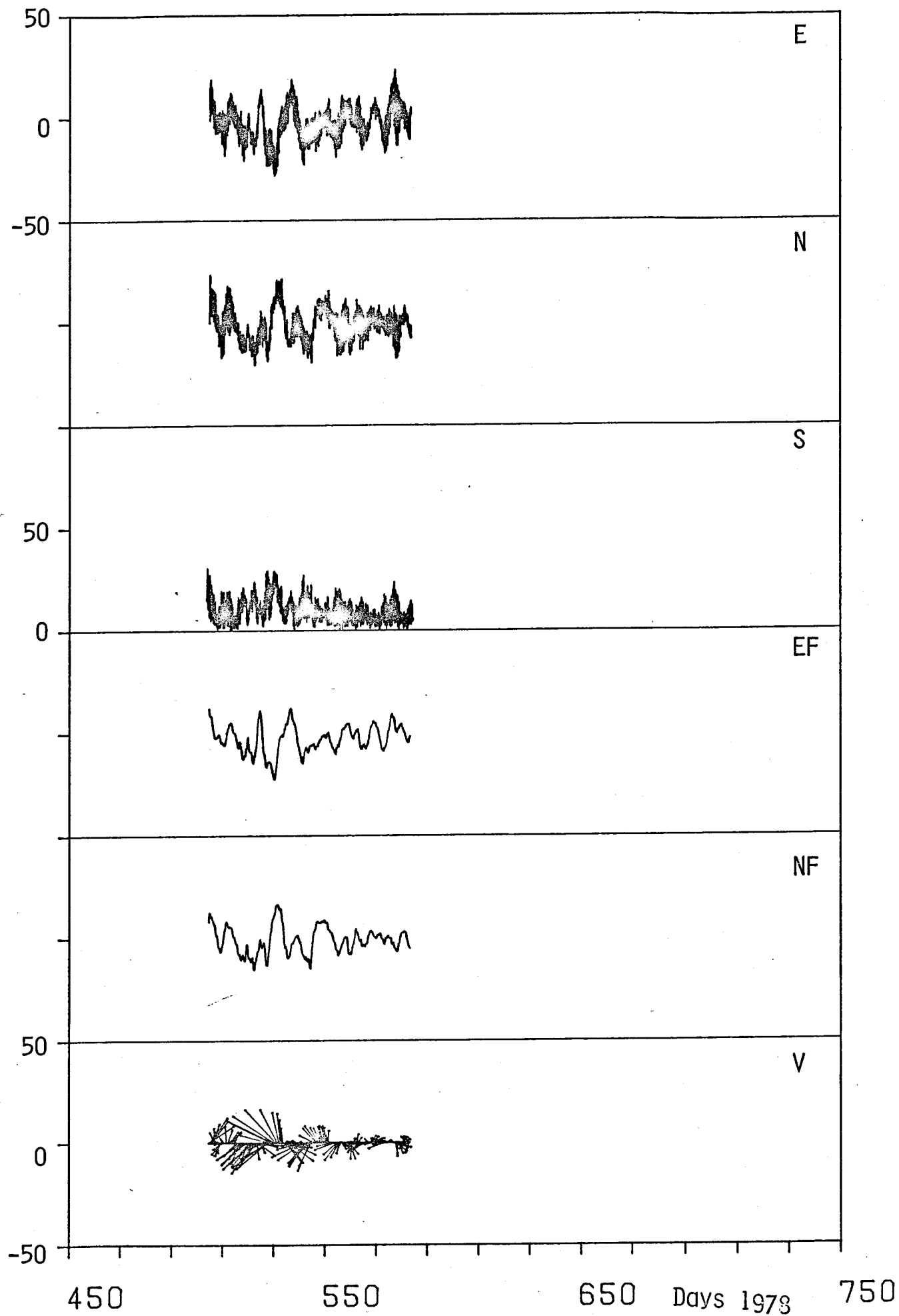
CM/S

(14) 27103



CM/S

(14) 27104



MOORING 276 (I4)

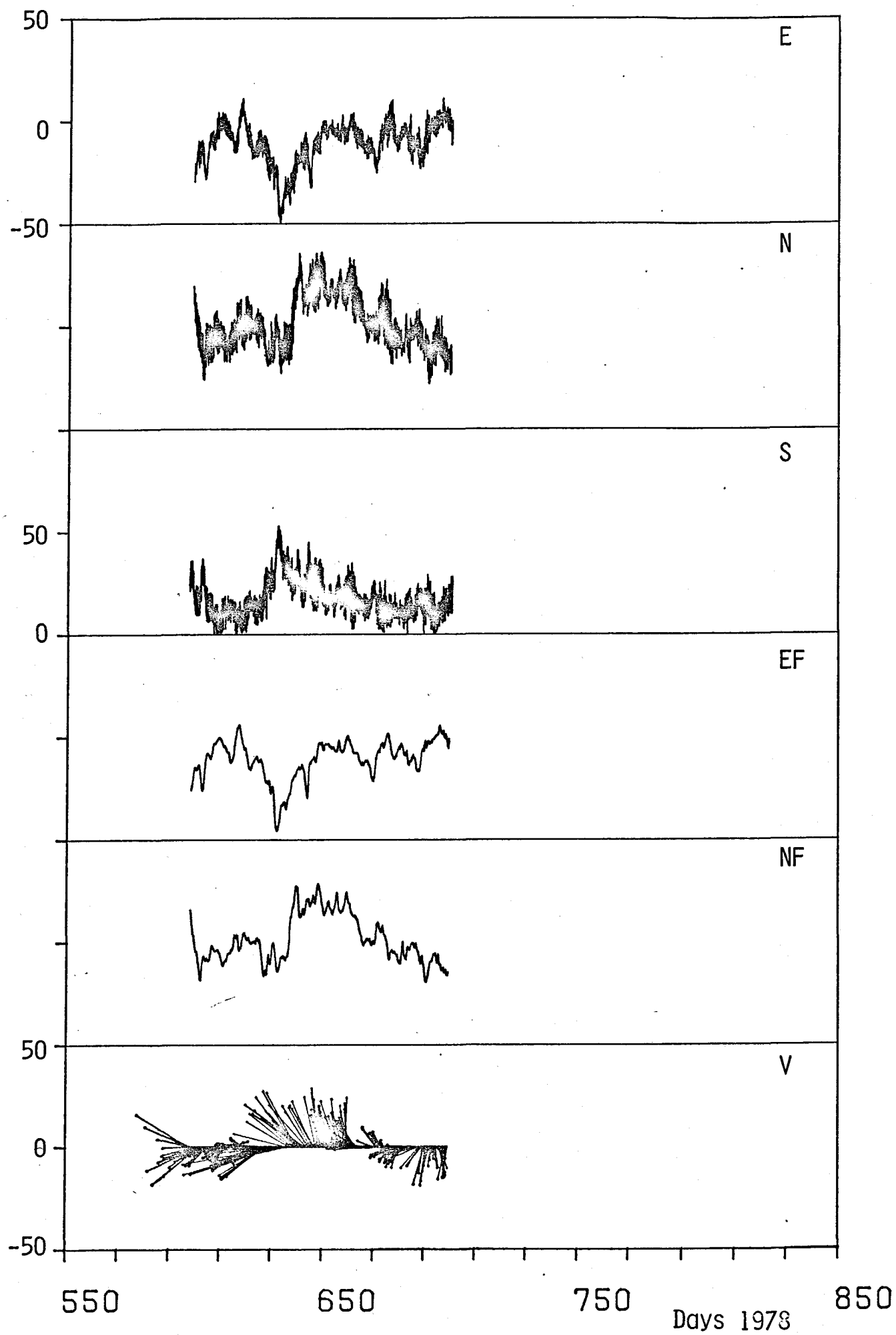
Set 20-VIII-79 Position: 58° 51'.8N 11° 37'.9W
Recovered 10- XII-79 Water Depth: 1861 m.

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
27601	Aa 3719	161 m	Sp,D,T,P	900	Tape ran out
27602	Aa 3722	579 m	Sp,D,T	900	Short record
27603	Aa 3631	987 m	Sp,D,T	900	Short record
27604	Aa 793	1496 m	Sp,D,T	900	Short record

Comments

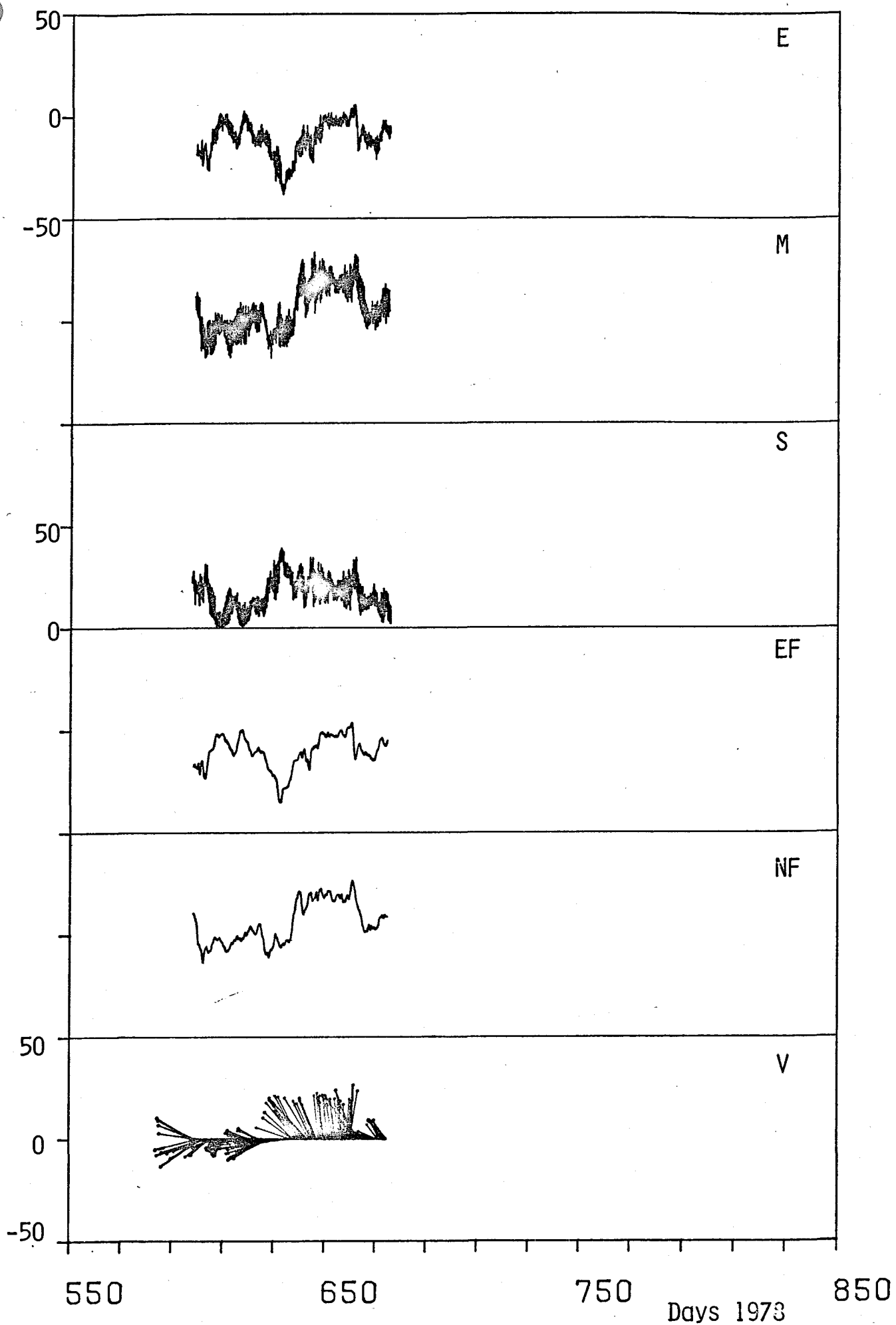
CM/S

(I4) 27601



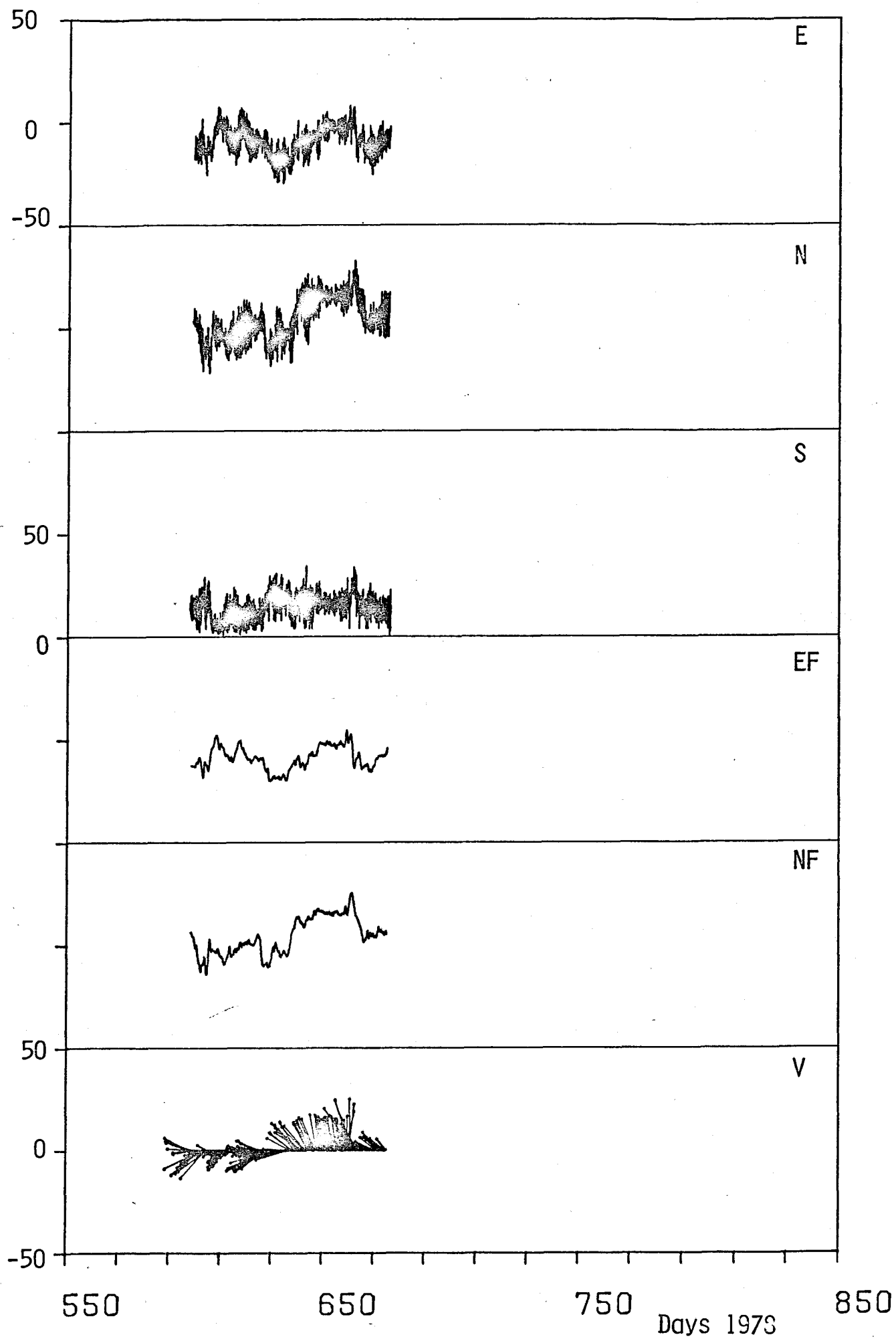
CM/S

(14) 27602



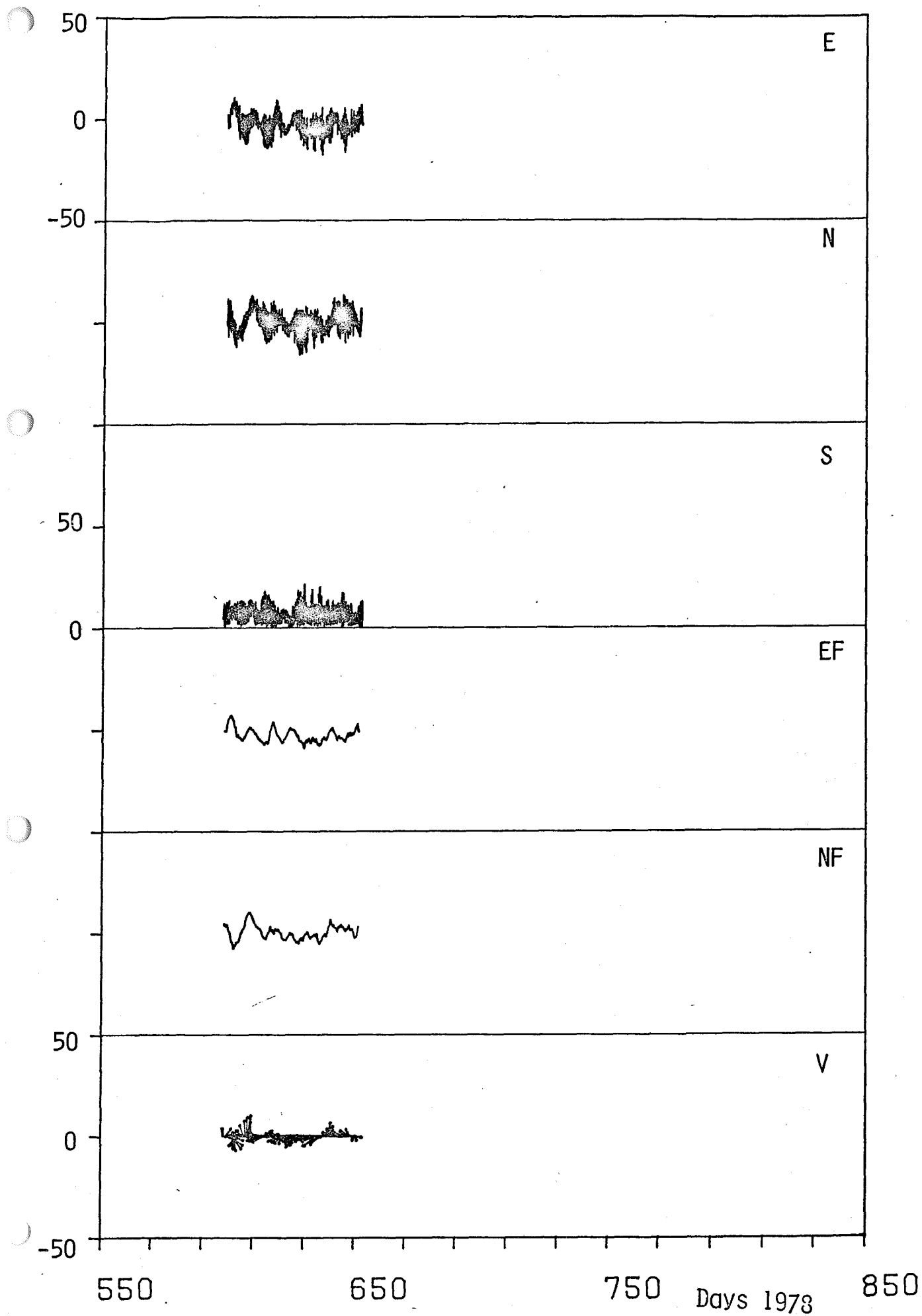
CM/S

(14) 27603



(1/4) 27604

CM/S



MOORING 283 (I4)

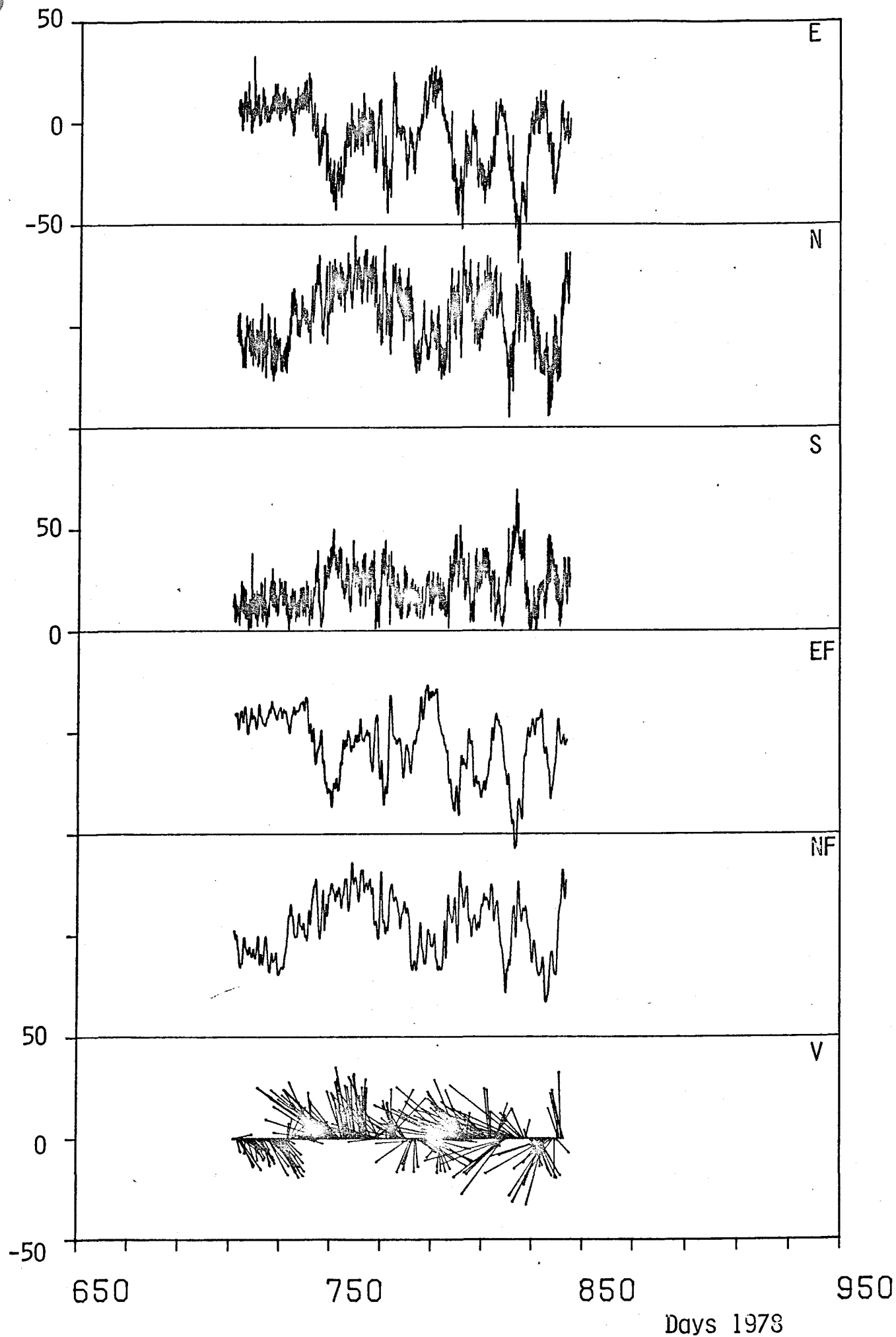
Set 11-XII-79 Position: 58 49'.9N 11°41'.1W
Recovered 26- IV-80 Water Depth: 1861 m

<u>Record</u>	<u>Inst</u>	<u>Depth</u>	<u>Variables</u>	<u>Samp</u> <u>Int.</u>	<u>Comments</u>
28301	Aa 3338	216 m	Sp,D,T,P	3600	
28302	Aa 3340	625 m	Sp,D,T	3600	Short record
28303	Aa 3341	1034 m	Sp,D,T	3600	
28304	Aa 2108	1544 m	Sp,D,T	3600	

Comments

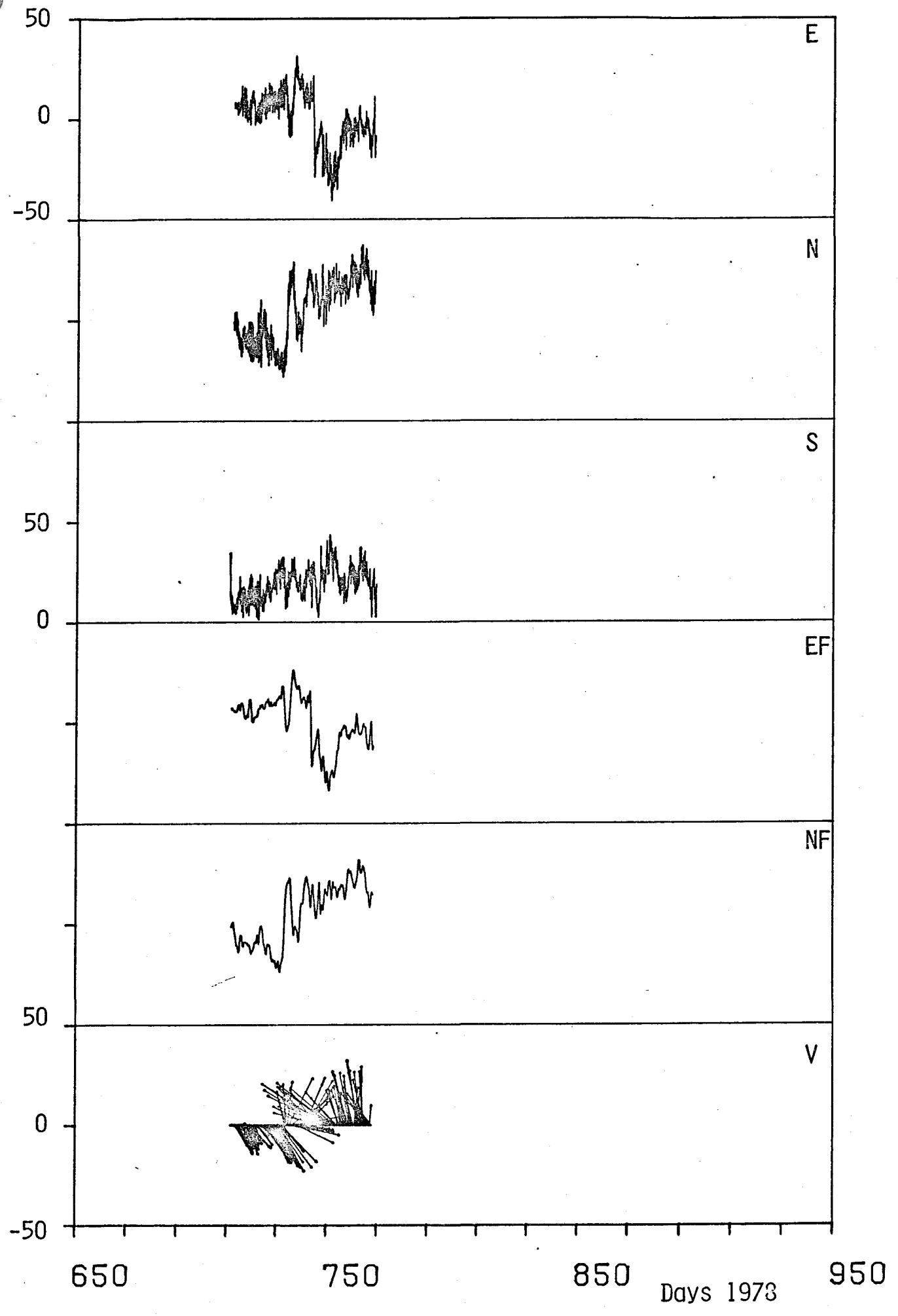
(I4) 28301

CM/S



CM/S

(14) 28302



(14) 28303

CM/S

50

E

0

-50

N

S

50

0

EF

NF

V

50

0

-50

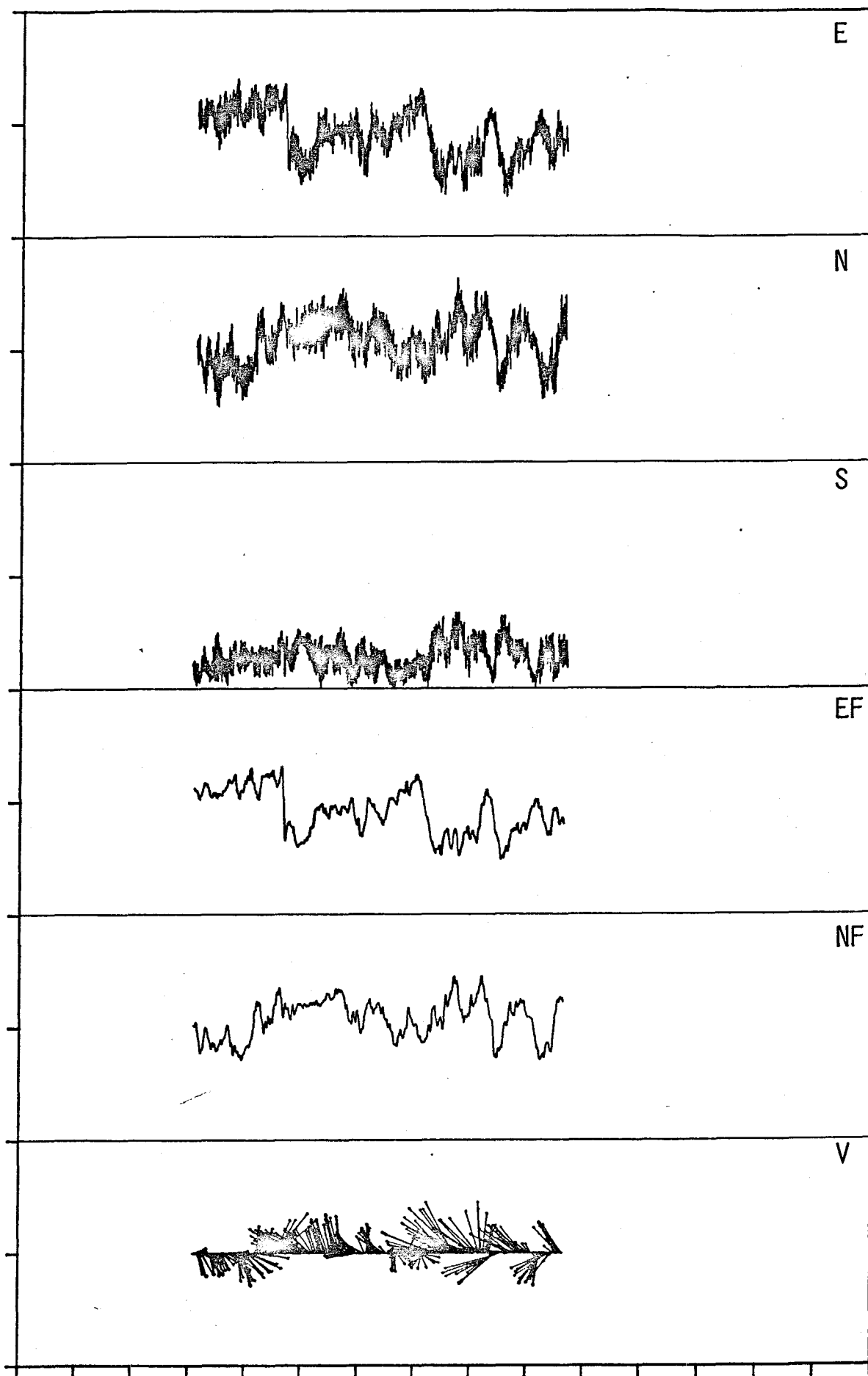
650

750

850

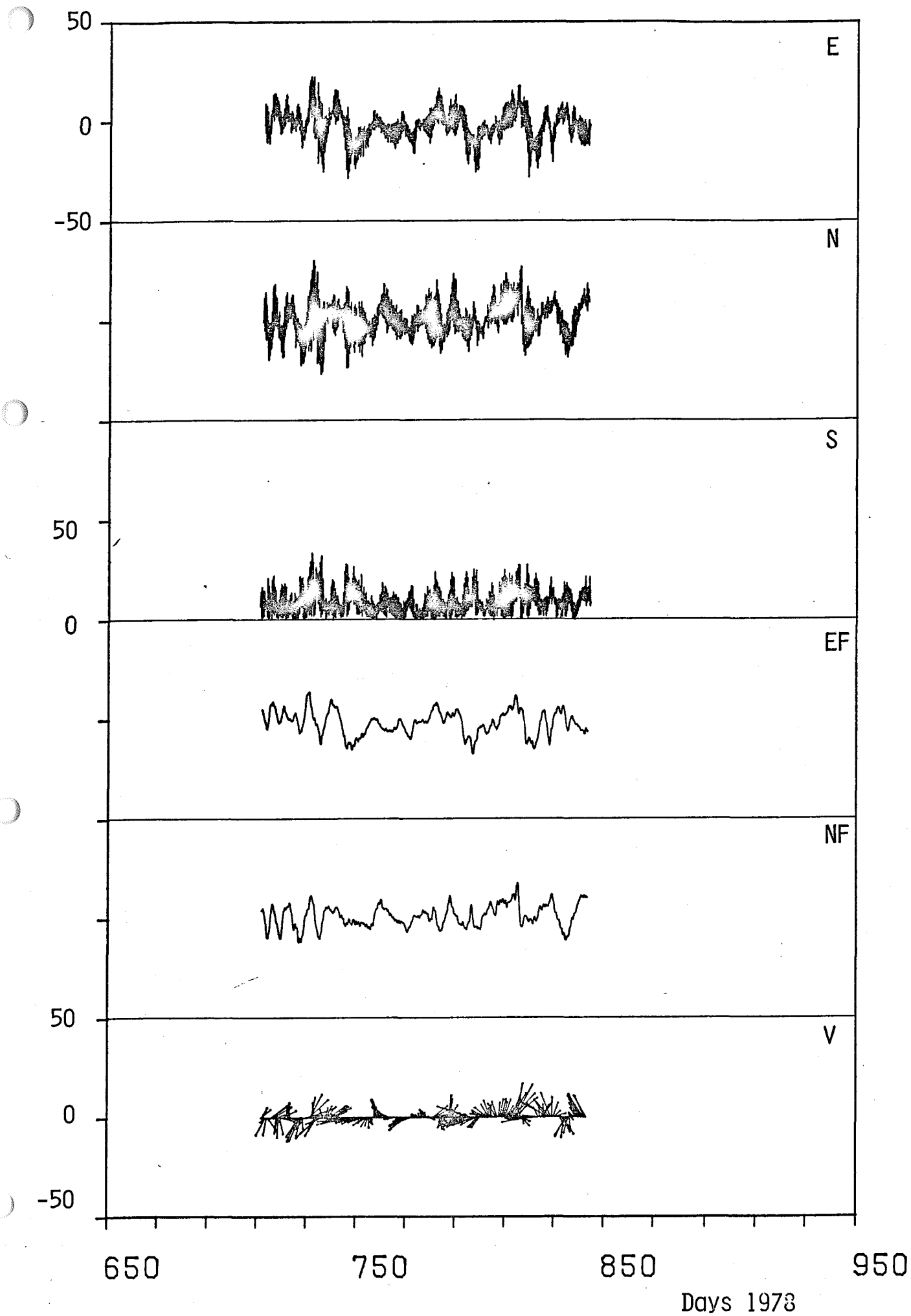
Days 1973

950

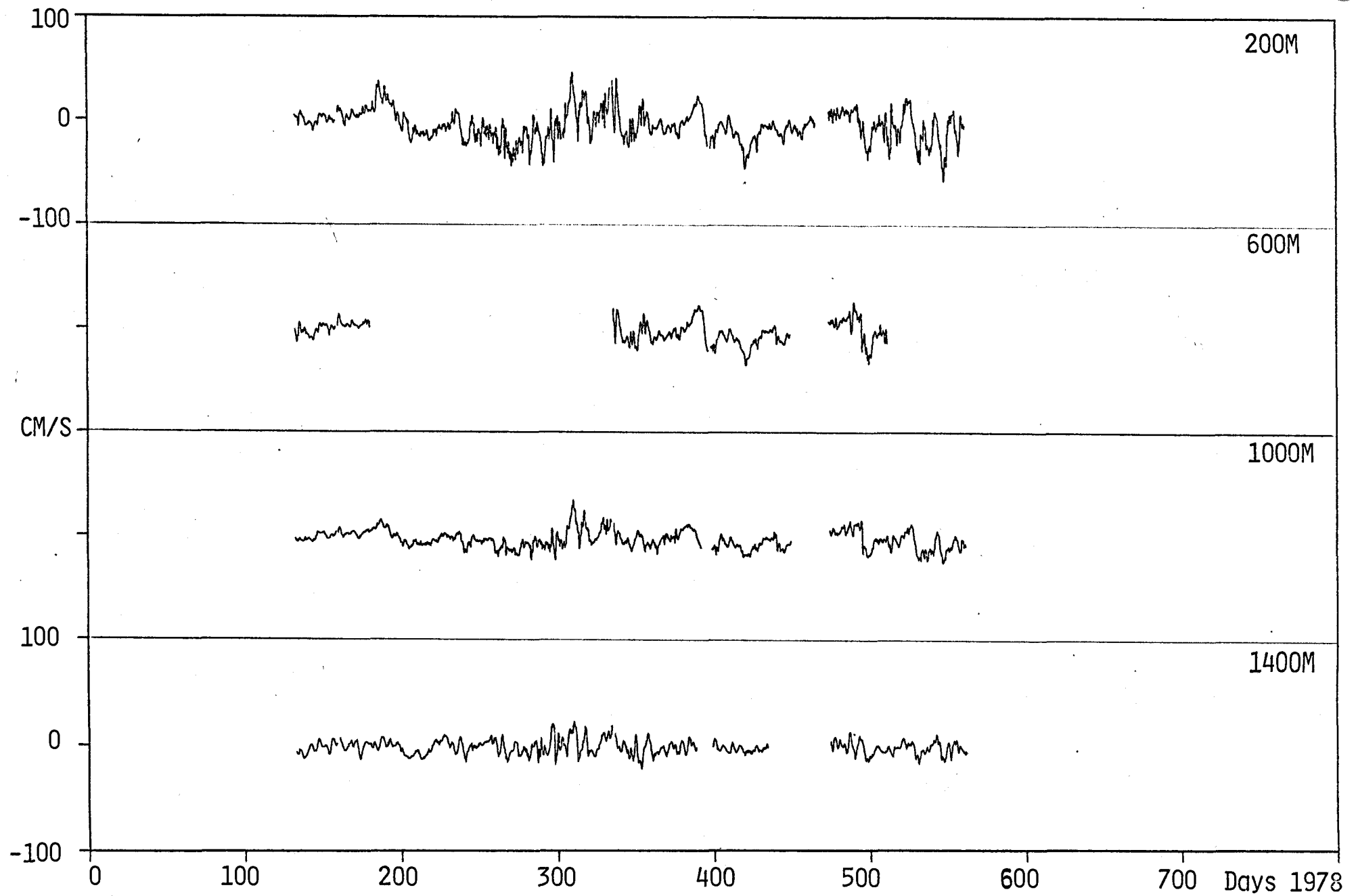


CM/S

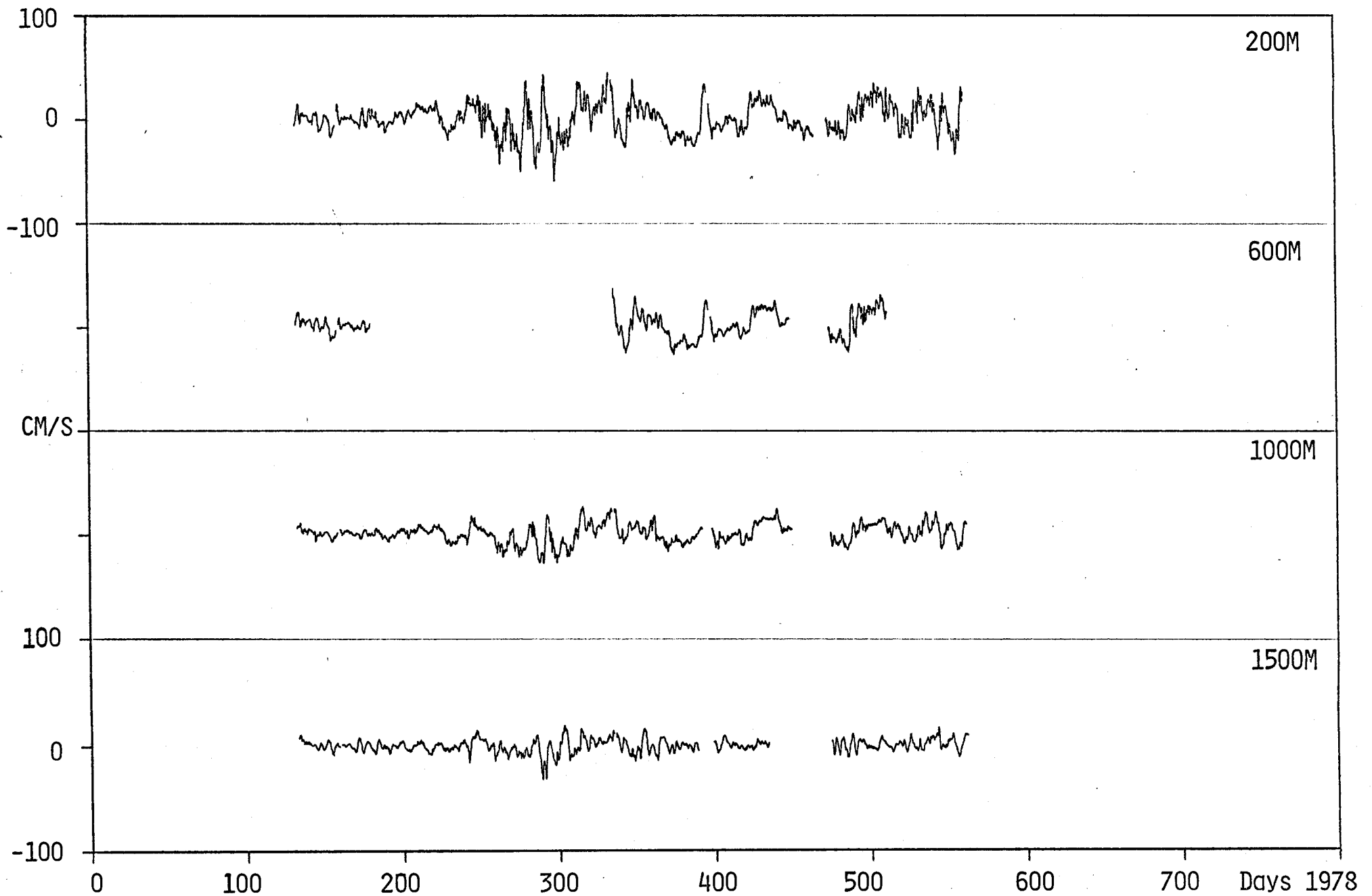
(I4) 28304

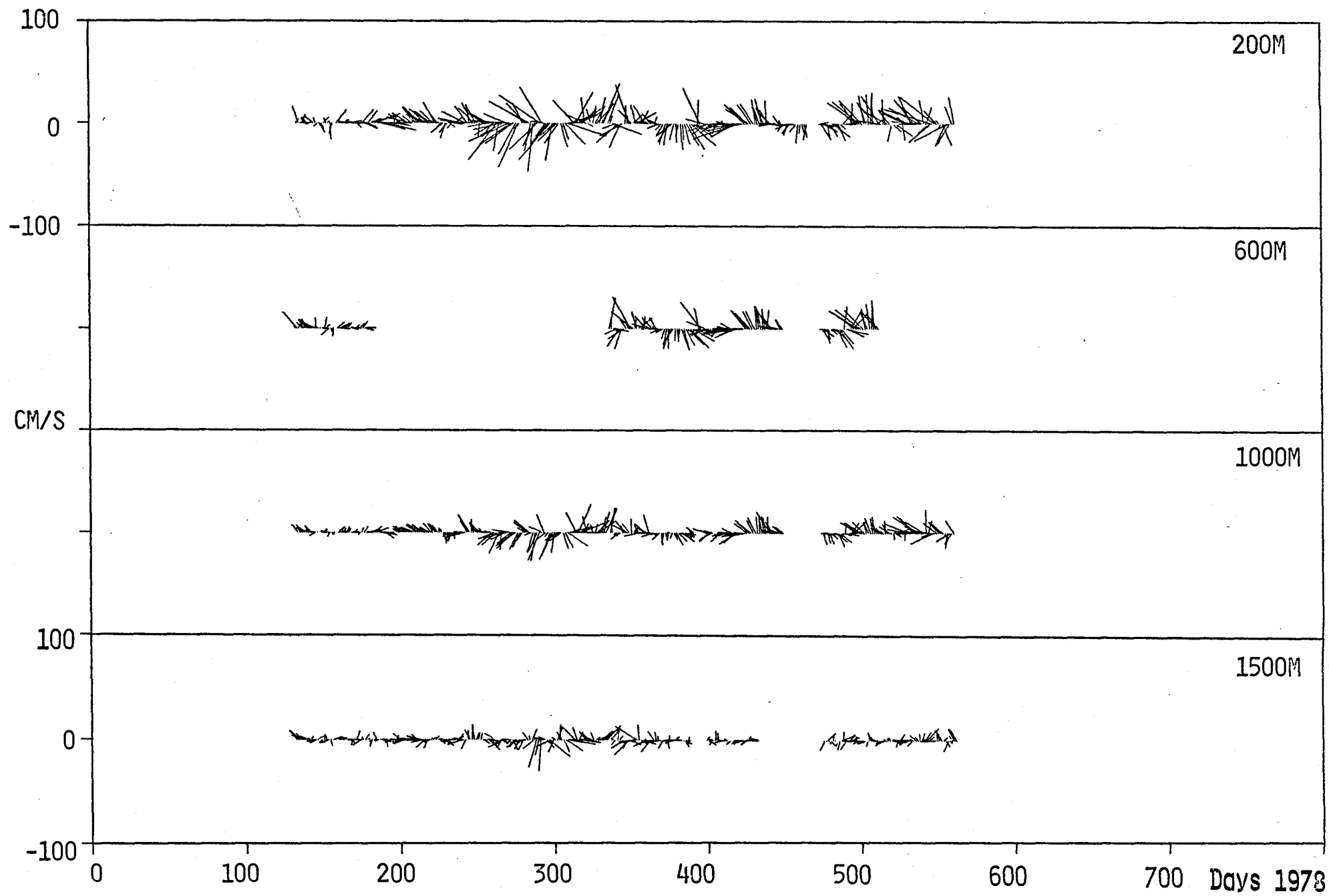


I4E



I4N

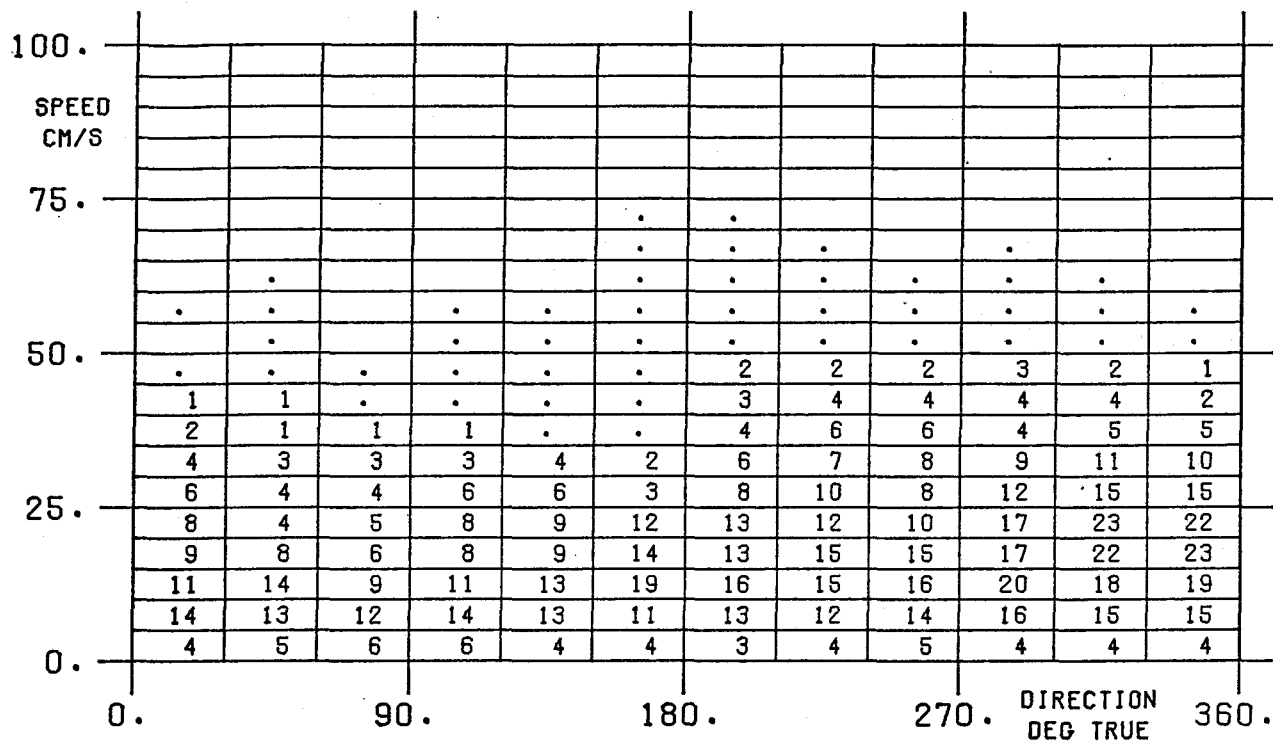




I4 200M

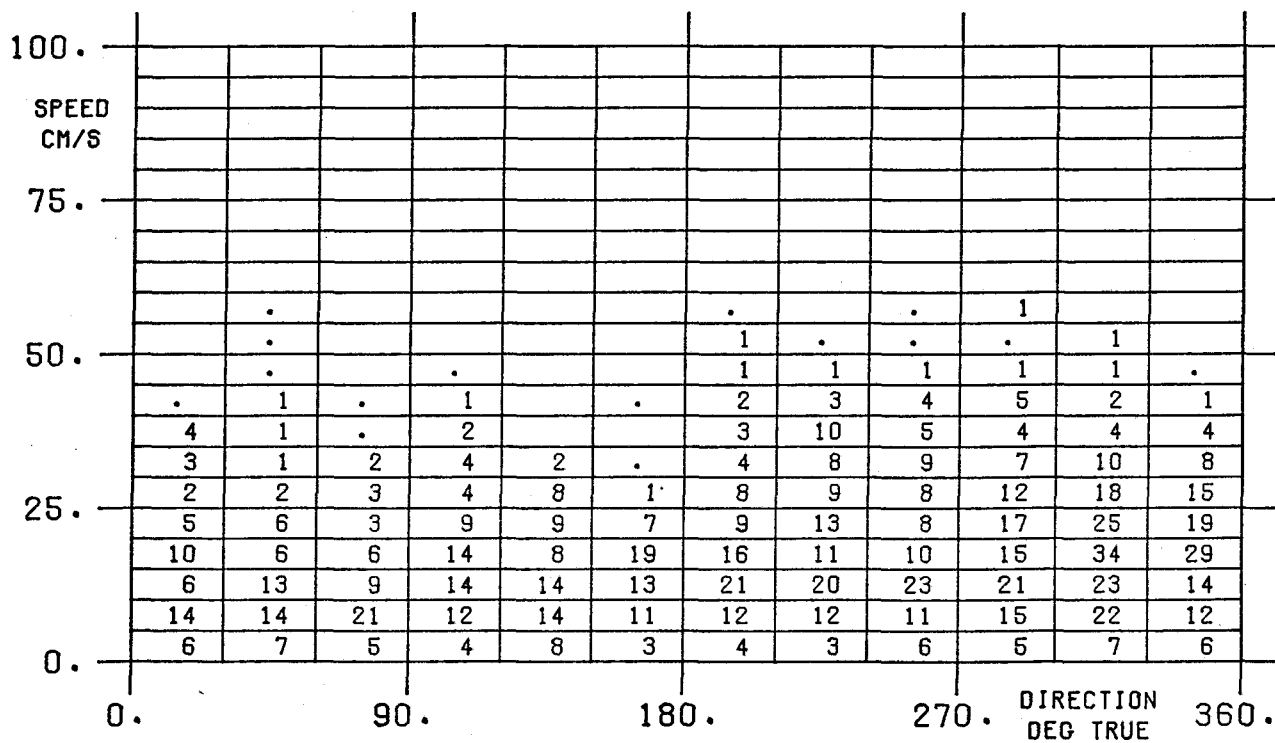
UNFILTERED 624.9 DAYS

18/ 7/78-22/ 4/80



FILTERED 624.9 DAYS

18/ 7/78-22/ 4/80



I4 500M

UNFILTERED 294.0 DAYS

18/ 7/78-22/ 4/80

50.												
SPEED CM/S												
	.				.		.		2	1	3	2
	3	.	.	.	5	.	2	.	5	3	11	7
	7	2	1	1	8	3	6	2	8	5	12	18
25.	13	2	2	6	15	10	13	9	12	10	22	37
	10	5	6	10	15	17	13	10	11	12	24	38
	17	8	8	7	9	11	16	16	22	33	36	24
	21	21	14	16	18	19	13	12	15	24	29	20
0.	6	8	9	10	9	7	6	6	6	6	5	5
	0.		90.			180.			270.		DIRECTION DEG TRUE	360.

FILTERED 294.0 DAYS

18/ 7/78-22/ 4/80

50.												
SPEED CM/S	.											
	.								2	.	1	.
	2								3	1	12	3
	5	2	2	2	9	2	2	.	11	1	19	17
25.	8	2		8	14	9	12	7	18	5	19	33
	10	8	3	15	13	19	17	13	10	13	27	50
	8	3	5	5	16	18	10	10	22	43	36	23
	11	27	10	25	7	17	13	11	19	22	27	26
0.	15	17	19	18	6	5	7	9	8	5	2	5
	0.		90.			180.			270.		DIRECTION DEG TRUE	360.

I4 1000M

UNFILTERED 593.0 DAYS

18/ 7/78-22/ 4/80

50.												
SPEED			.									
CM/S	.	.	.	.			.	.				
	1	.	.	.	.		1	2	.	.	.	1
	5	1	1	1	1	1	6	7	4	3	3	4
25.	7	4	2	1	2	3	10	17	13	14	12	15
	13	6	6	5	6	6	11	21	24	25	22	33
	16	12	11	15	13	13	18	23	29	32	38	40
	20	21	17	15	14	16	18	20	27	31	34	36
0.	8	8	8	8	9	8	7	7	10	10	15	11
	0.		90.			180.			270.			360.
										DIRECTION		
										DEG TRUE		

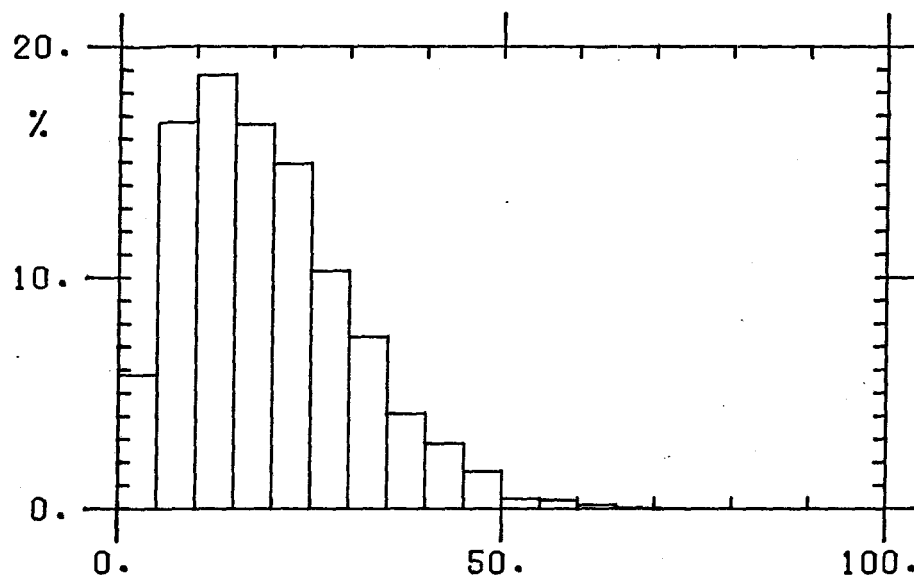
FILTERED 593.0 DAYS

18/ 7/78-22/ 4/80

50.												
SPEED												
CM/S				.								
	.	.	.	1			.	1				
	3	1	1	1	.		5	4	2	.	2	1
25.	7	4	2	.	2	3	8	11	7	14	6	5
	7	5	1	1	2	2	9	27	25	16	35	36
	10	5	12	12	21	12	12	18	18	51	52	32
	14	13	15	24	9	21	26	16	25	40	58	26
0.	18	21	20	10	10	8	8	16	15	16	10	15
	0.		90.			180.			270.			360.
										DIRECTION		
										DEG TRUE		

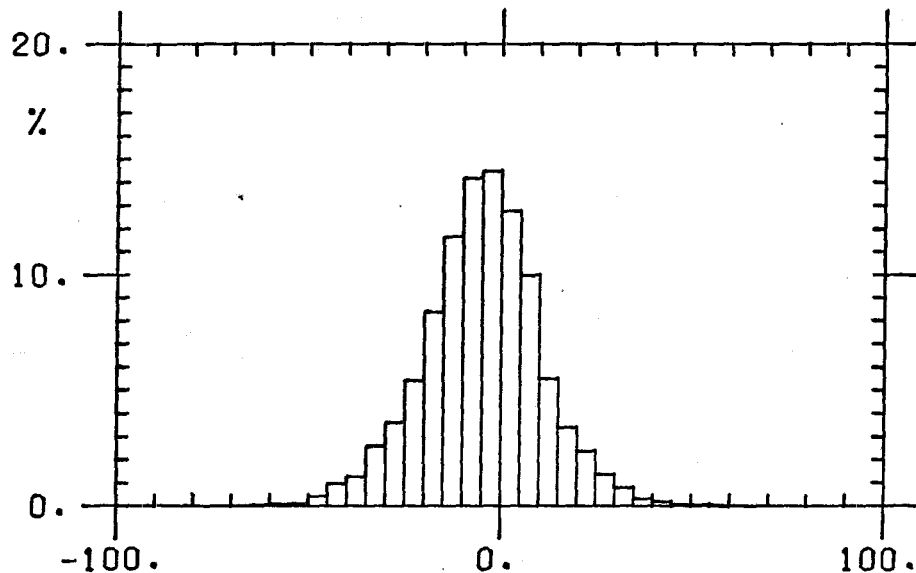
I4 200M UNFILTERED

18/ 7/78-22/ 4/80



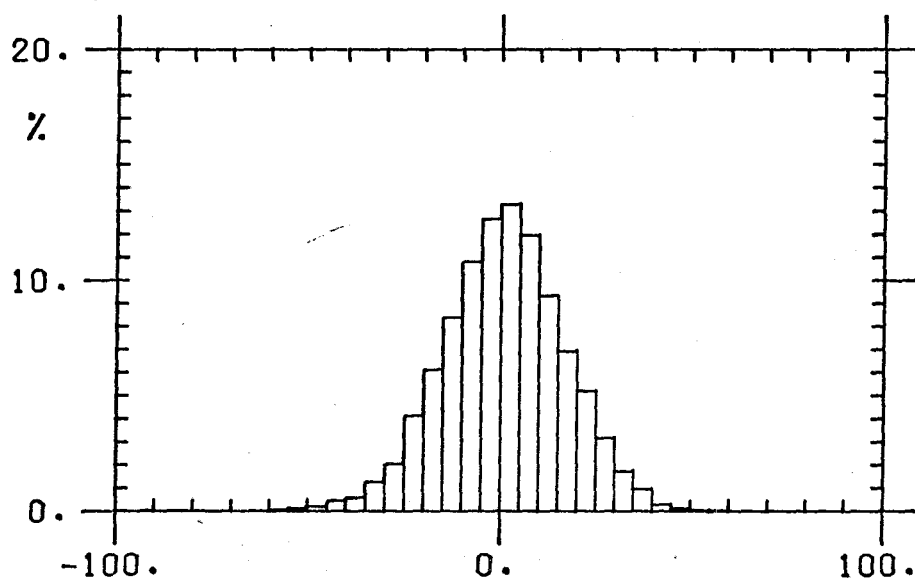
SPEED

624.9 DAYS
MAX= 72.67
MIN= 0.01
MEAN= 19.35



EAST

624.9 DAYS
MAX= 55.84
MIN= -69.04
MEAN= -4.82
VAR= 226.38



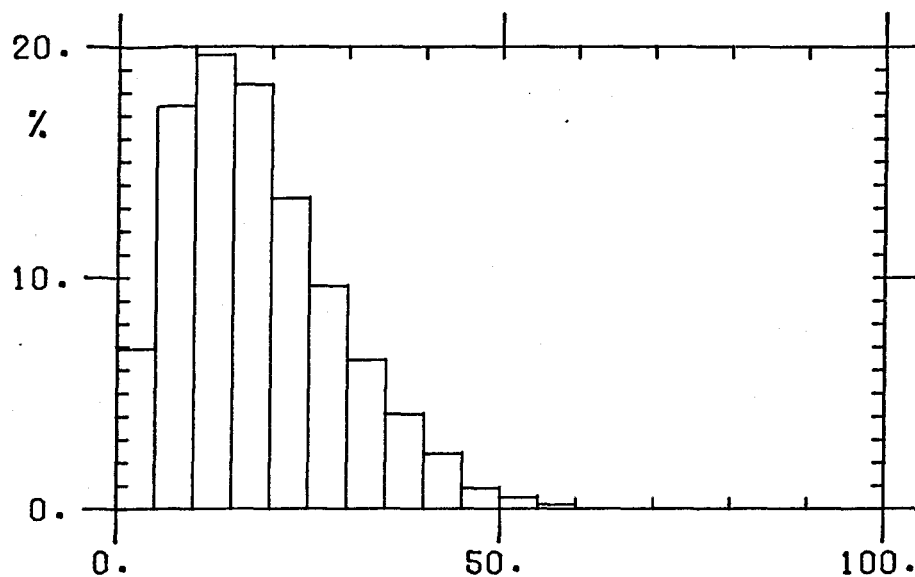
NORTH

624.9 DAYS
MAX= 54.55
MIN= -72.63
MEAN= 1.02
VAR= 248.94

CM/S

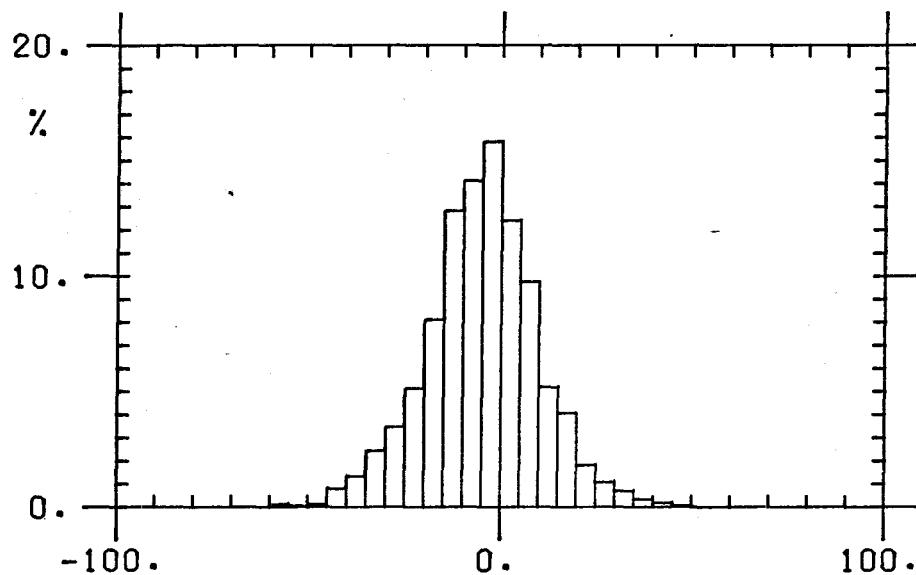
I4 200M FILTERED

18/ 7/78-22/ 4/80



SPEED

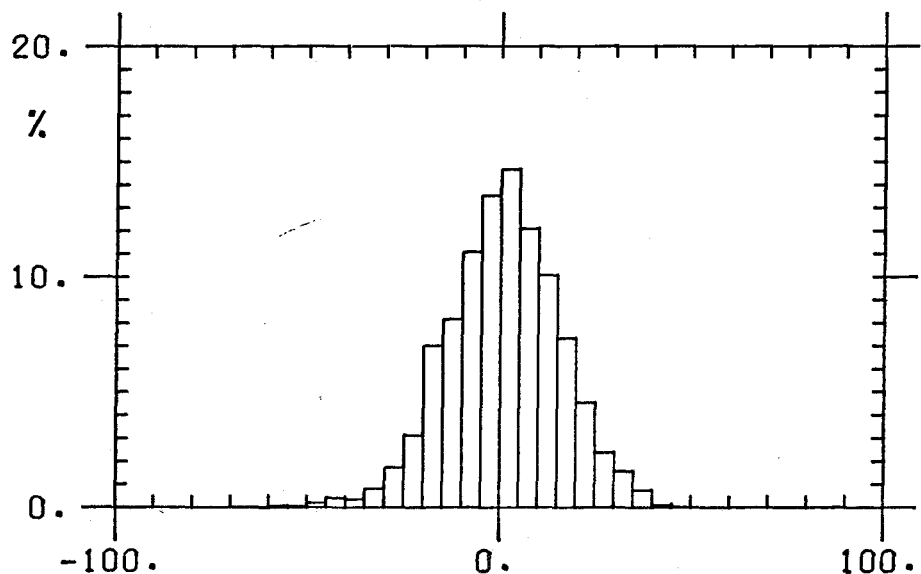
624.9 DAYS
MAX= 58.84
MIN= 0.25
MEAN= 18.29



CM/S

EAST

624.9 DAYS
MAX= 46.98
MIN= -56.99
MEAN= -4.81
VAR= 209.48



CM/S

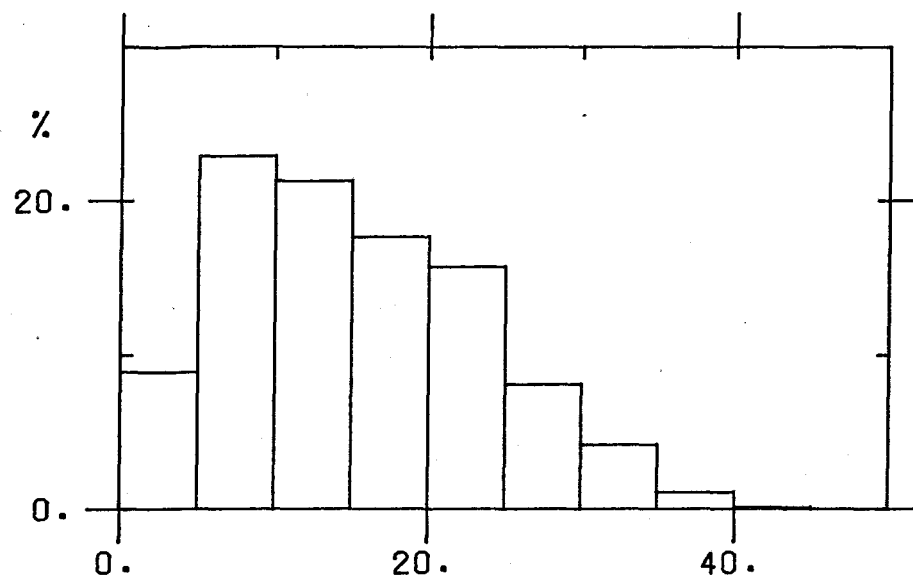
NORTH

624.9 DAYS
MAX= 45.89
MIN= -58.83
MEAN= 1.02
VAR= 212.77

CM/S

I4 500M UNFILTERED

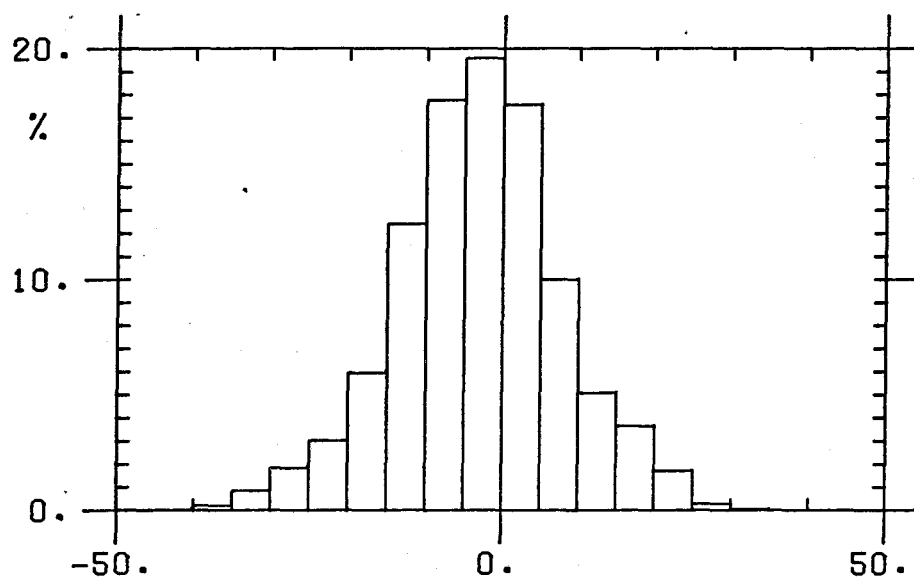
18/ 7/78-22/ 4/80



SPEED

294.0 DAYS
MAX= 43.88
MIN= 0.30
MEAN= 15.26

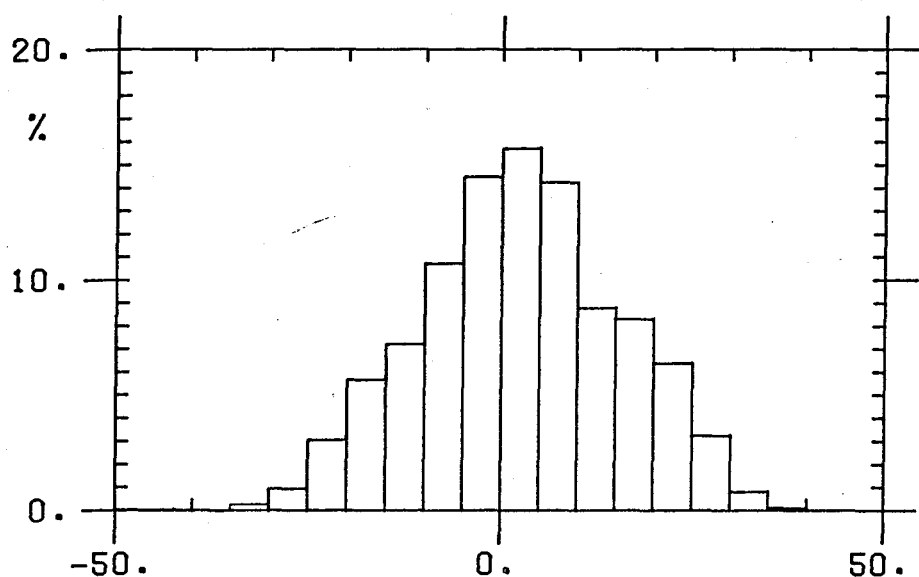
CM/S



EAST

294.0 DAYS
MAX= 31.76
MIN= -40.40
MEAN= -3.08
VAR= 116.86

CM/S



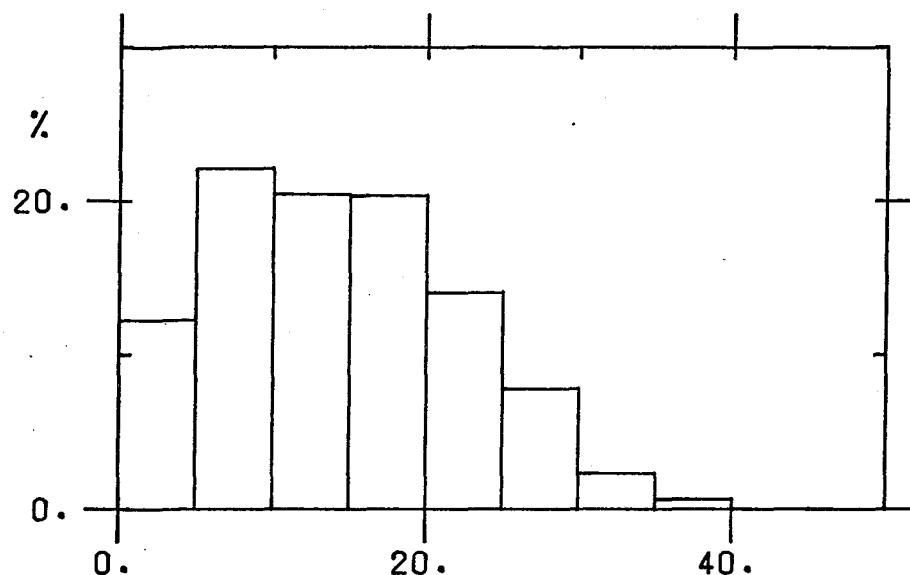
NORTH

294.0 DAYS
MAX= 37.61
MIN= -33.22
MEAN= 2.57
VAR= 168.60

CM/S

I4 500M FILTERED

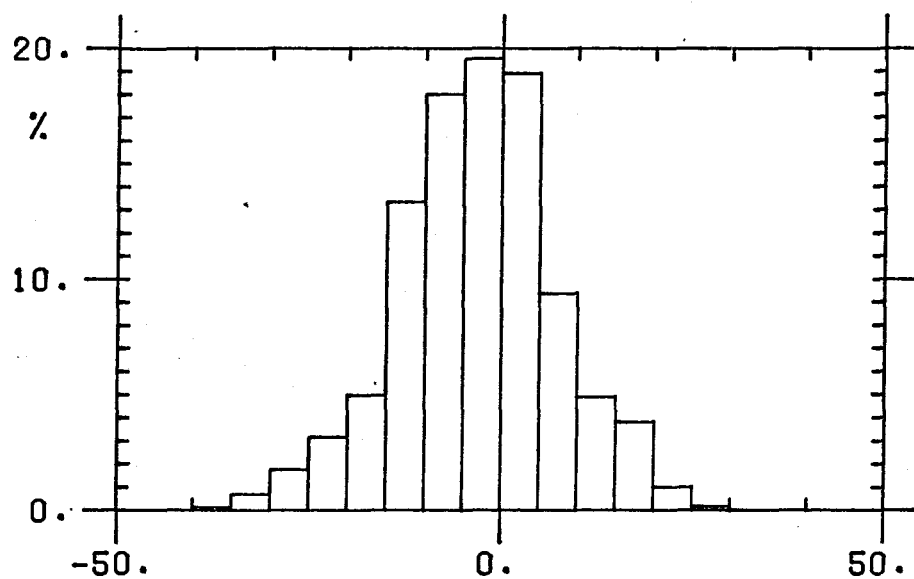
18/ 7/78-22/ 4/80



SPEED

294.0 DAYS
MAX= 42.79
MIN= 0.20
MEAN= 14.47

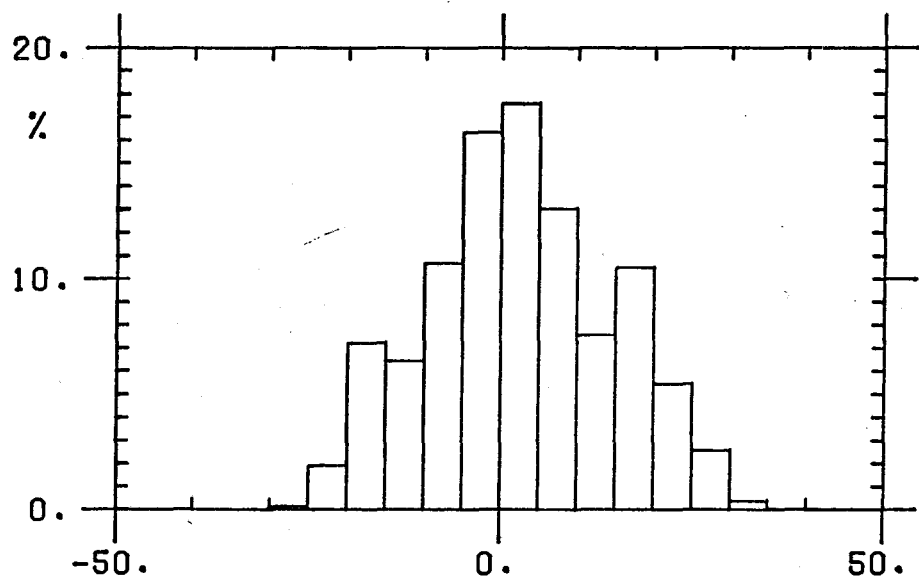
CM/S



EAST

294.0 DAYS
MAX= 26.62
MIN= -35.20
MEAN= -3.08
VAR= 108.77

CM/S



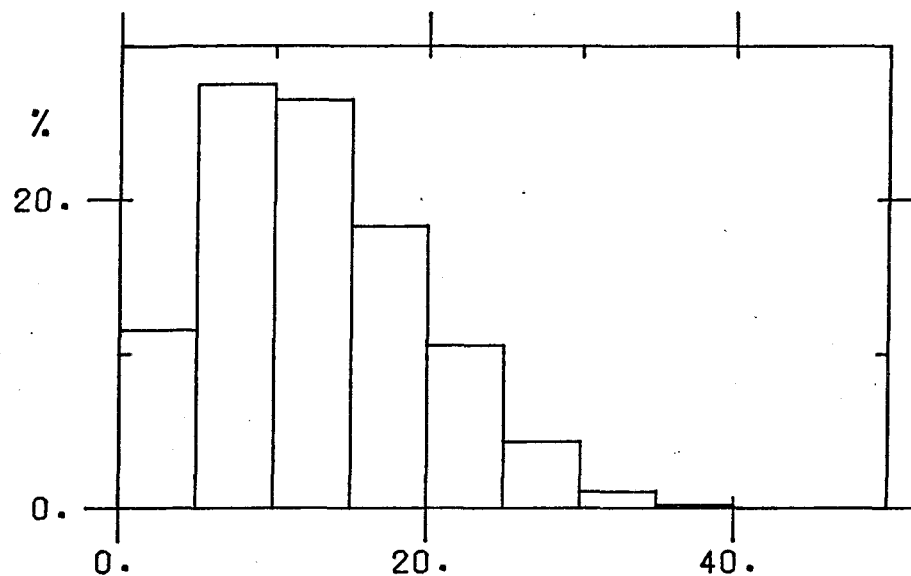
NORTH

294.0 DAYS
MAX= 37.78
MIN= -26.10
MEAN= 2.58
VAR= 146.91

CM/S

I4 1000M UNFILTERED

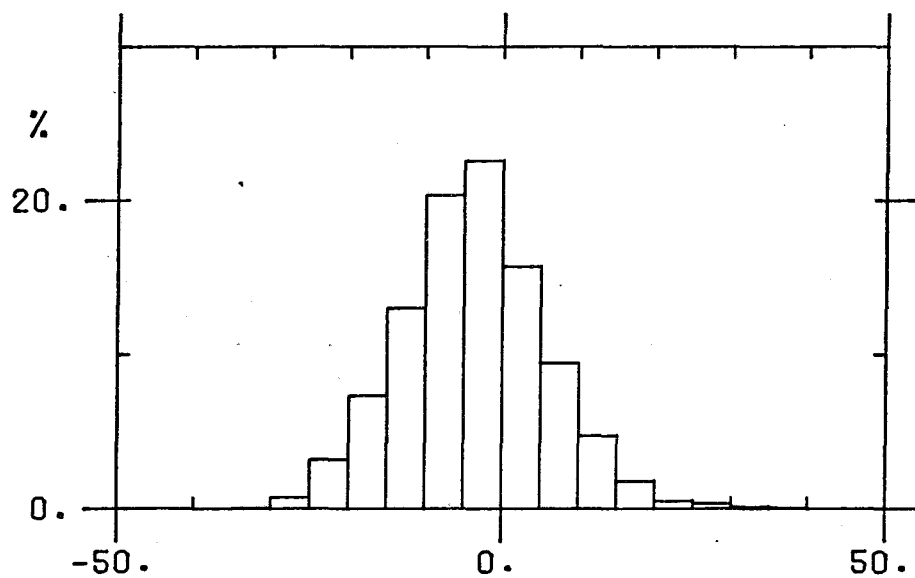
18/ 7/78-22/ 4/80



SPEED

593.0 DAYS
MAX= 40.63
MIN= 0.03
MEAN= 12.86

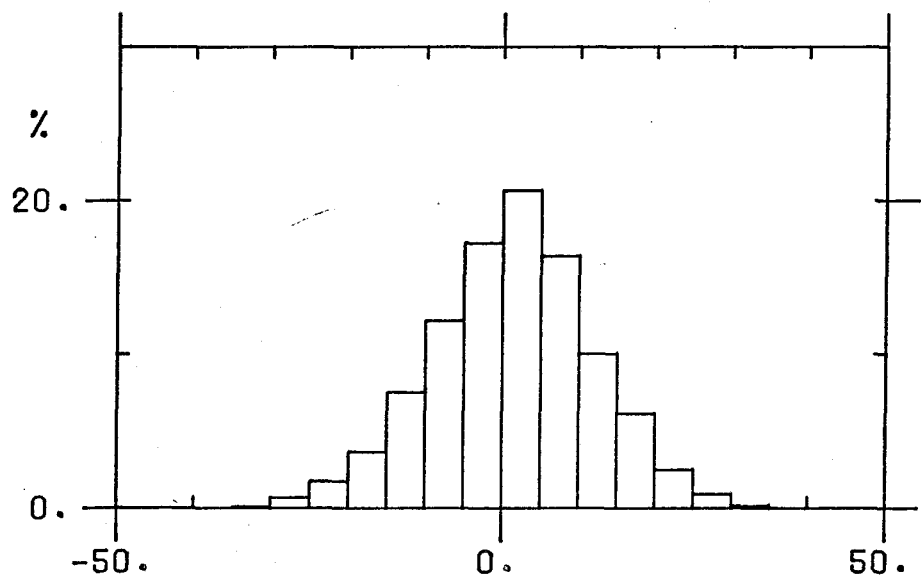
CM/S



EAST

593.0 DAYS
MAX= 40.45
MIN= -32.04
MEAN= -3.69
VAR= 88.31

CM/S



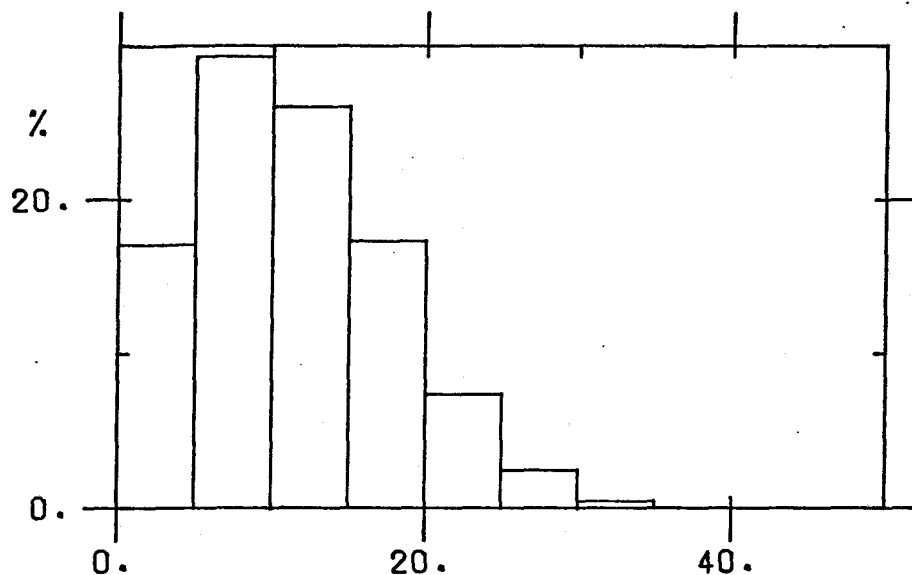
NORTH

593.0 DAYS
MAX= 34.86
MIN= -36.43
MEAN= 1.40
VAR= 108.67

CM/S

I4 1000M FILTERED

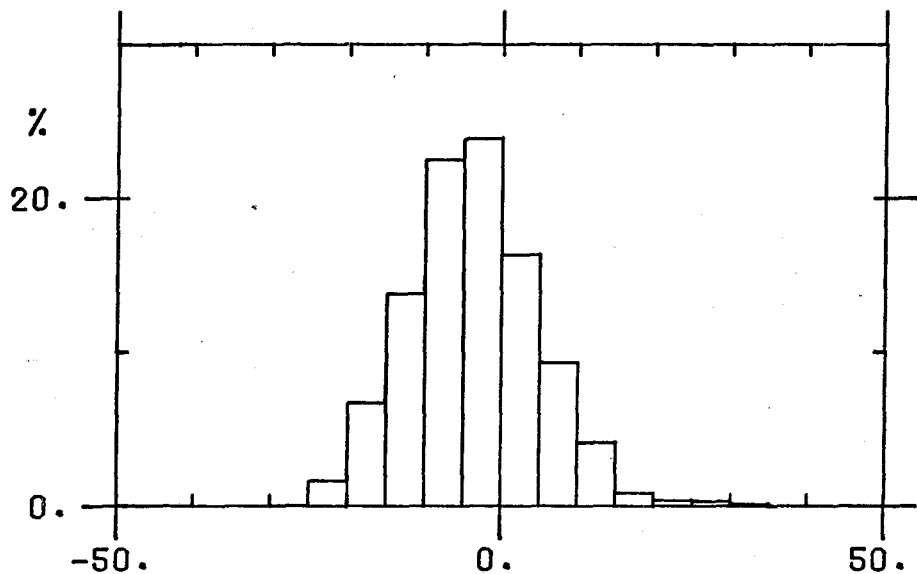
18/ 7/78-22/ 4/80



SPEED

593.0 DAYS
 MAX= 35.15
 MIN= 0.06
 MEAN= 11.40

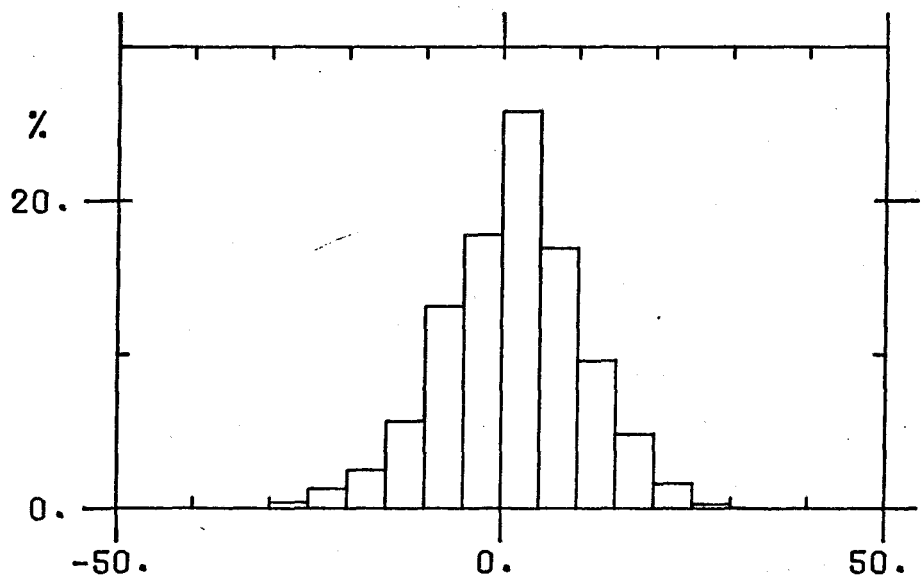
CM/S



EAST

593.0 DAYS
 MAX= 35.13
 MIN= -25.66
 MEAN= -3.69
 VAR= 72.21

CM/S



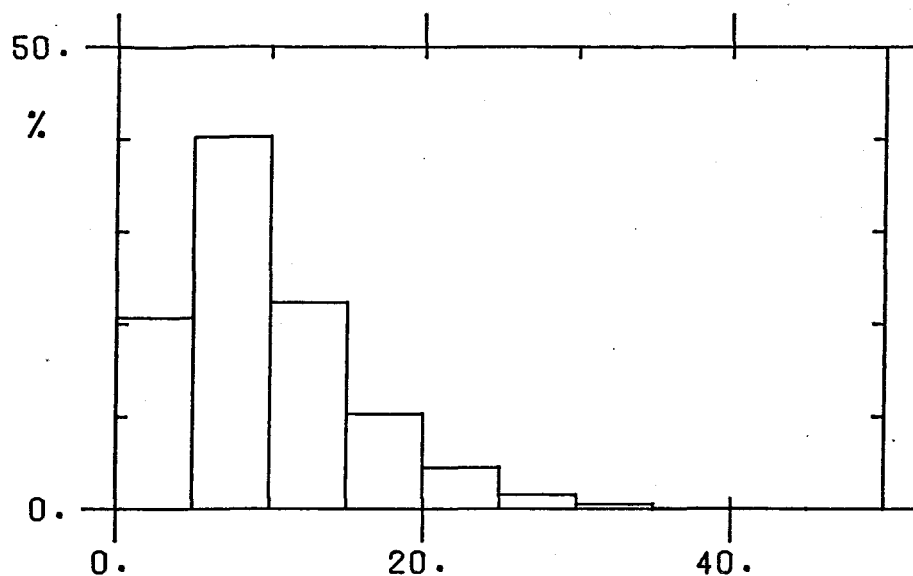
NORTH

593.0 DAYS
 MAX= 27.65
 MIN= -27.77
 MEAN= 1.40
 VAR= 82.02

CM/S

I4 1500M UNFILTERED

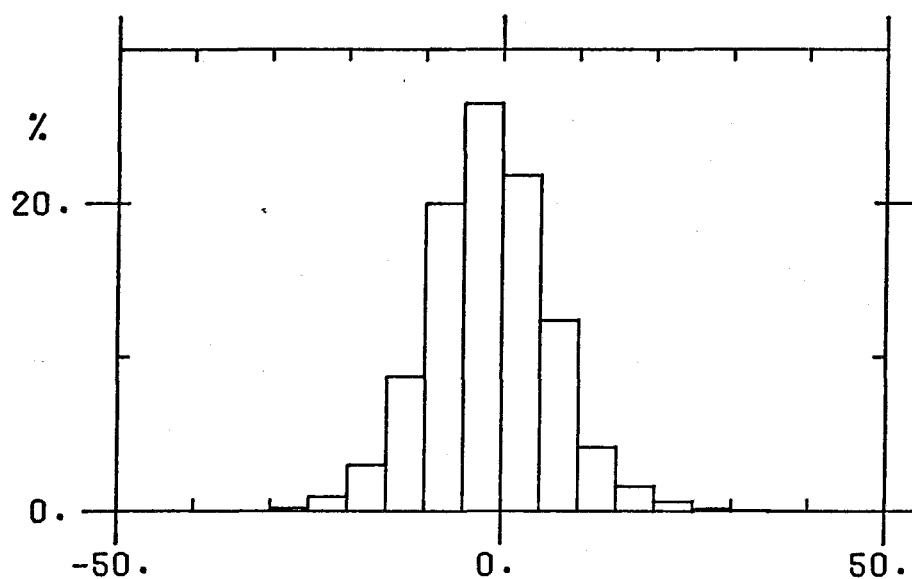
18/ 7/78-22/ 4/80



SPEED

563.7 DAYS
MAX= 43.37
MIN= 0.00
MEAN= 9.72

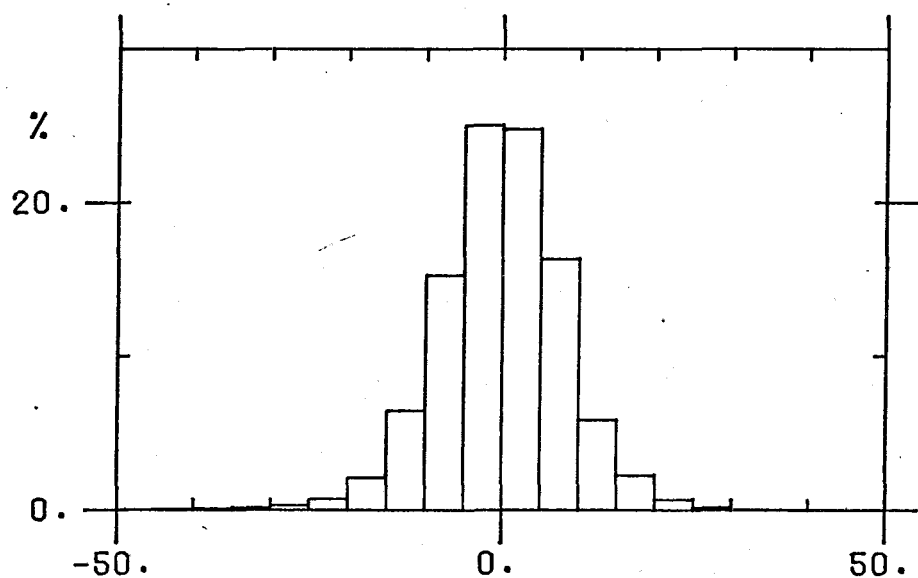
CM/S



EAST

563.7 DAYS
MAX= 35.70
MIN= -30.05
MEAN= -1.54
VAR= 61.99

CM/S



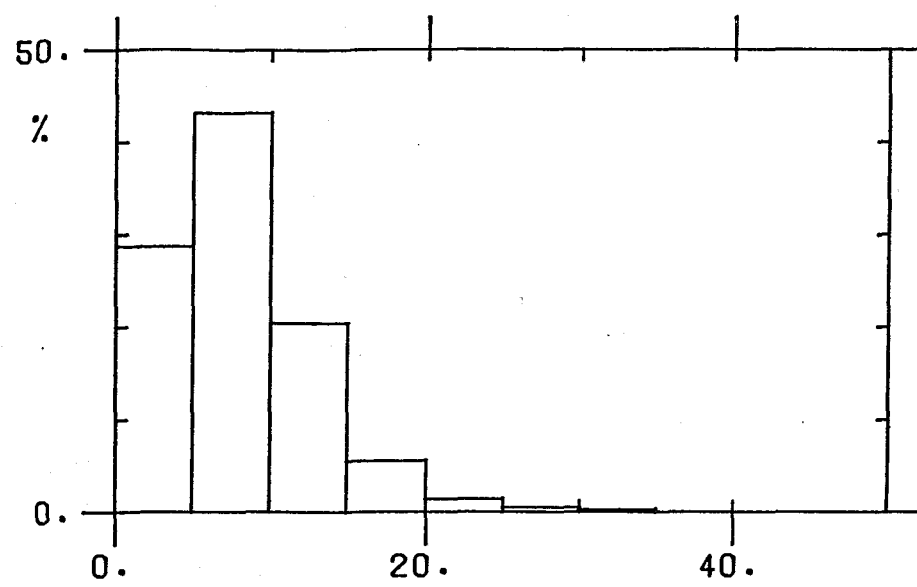
NORTH

563.7 DAYS
MAX= 30.99
MIN= -41.49
MEAN= -0.08
VAR= 64.65

CM/S

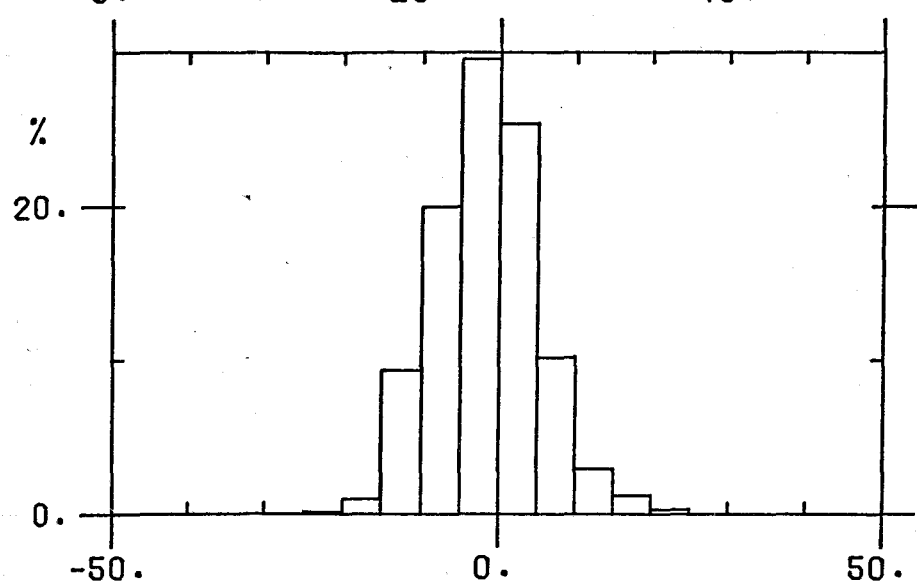
I4 1500M FILTERED

18/ 7/78-22/ 4/80



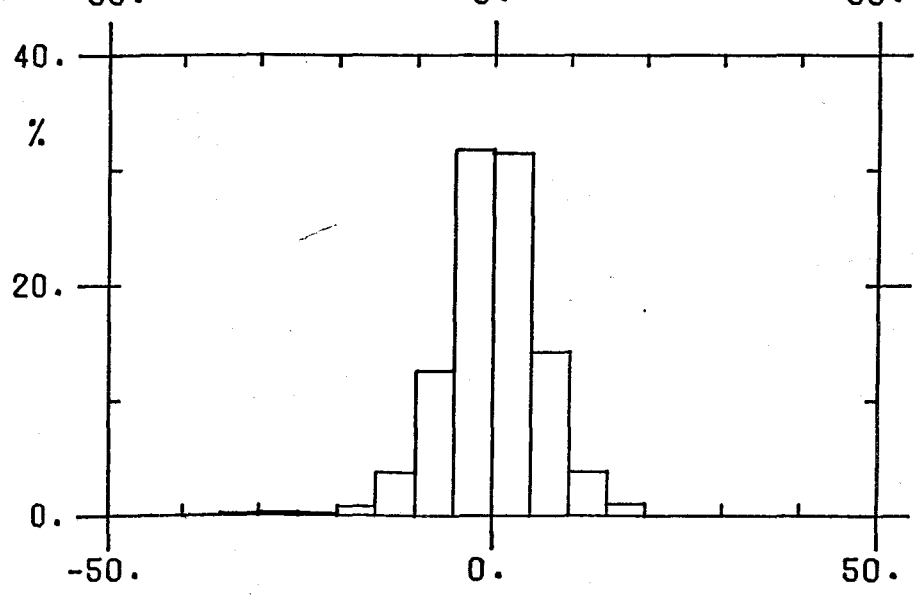
SPEED

563.7 DAYS
 MAX= 34.26
 MIN= 0.04
 MEAN= 7.96



EAST

563.7 DAYS
 MAX= 23.52
 MIN= -22.32
 MEAN= -1.54
 VAR= 44.09



NORTH

563.7 DAYS
 MAX= 19.50
 MIN= -33.16
 MEAN= -0.08
 VAR= 39.54

