NOAA Data Report ERL PMEL-17

EQUATORIAL CURRENT AND TEMPERATURE DATA:
108°W to 110°W: October 1979 to November 1983

H. Paul Freitag
Michael J. McPhaden
Andrew J. Shepherd

Pacific Marine Environmental Laboratory
Seattle, Washington
April 1987

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UNITED STATES DEPARTMENT OF COMMERCE

Malcolm Baldrige, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Anthony J. Calio, Administrator

Environmental Research Laboratories

Vernon E. Derr, Director

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I. DATA COLLECTION AND PROCESSING

A. INTRODUCTION

Since January, 1979, surface-moored arrays have been measuring surface winds, air temperature and upper ocean currents and temperature near the equator between 85°W and 140°W as part of NOAA's Equatorial Pacific Ocean Climate Studies (EPOCS). This report covers current and temperature measurements made between 108°W and 110°W from October, 1979, to November, 1983. Positions, deployment dates and recovery dates for these moorings are listed in Table 1. Positions are plotted in Figure 1 and record lengths in Figure 2. Bottom depths ranged from 3651 m to 3879 m. Reports from other EPOCS sites and time periods will be forthcoming.

Table 1. Mooring position, deployment date and recovery date.

Mooring	Latitude	Longitude	Deployment	Recovery
T5	0° 40.3'S	110° 7.3'W	24 Oct 79	3 Mar 80
T7	0° 45.1'N	110° 14.0'W	25 Oct 79	2 Mar 80
T9	0° 1.0'S	109° 27.4'W	5 Mar 80	8 Aug 80
T10	0° 34.4'S	110° 11.9'W	3 Mar 80	11 Aug 80
T8	0° 0.0'	109° 33.5'W	9 Aug 80	5 Feb 81
T11	0° 29.2'S	110° 28.3'W	12 Aug 80	3 Feb 81
T12	0° 29.4'N	110° 29.1'W	10 Aug 80	31 Jan 81
T14	0° 32.5'N	110° 30.3'W	1 Feb 81	7 Jul 81
T15	0° 0.6'N	109° 33.8'W	6 Feb 81	9 Jul 81
T16	0° 31.1'S	110° 30.0'W	3 Feb 81	11 Jul 81
T18	0° 2.6'S	109° 39.7'W	10 Jul 81	28 Oct 81
T20	0° 36.6'N	109° 33.3'W	8 Jul 81	31 Oct 81
T22	0° 1.6'N	109° 29.4'W	31 Oct 81	15 Apr 82
T27	0° 1.1'S	108° 0.2'W	15 Apr 82	27 Oct 82
T30	0° 4.0'S	108° 0.0'W	28 Oct 82	22 Apr 83
T31	0° 2.2'N	109° 13.3'W	26 Oct 82	23 Apr 83
T32	0° 2.9'N	108° 0.0'W	25 Apr 83	2 Nov 83
T34	0° 2.8'N	109° 10.1'W	24 Apr 83	1 Nov 83

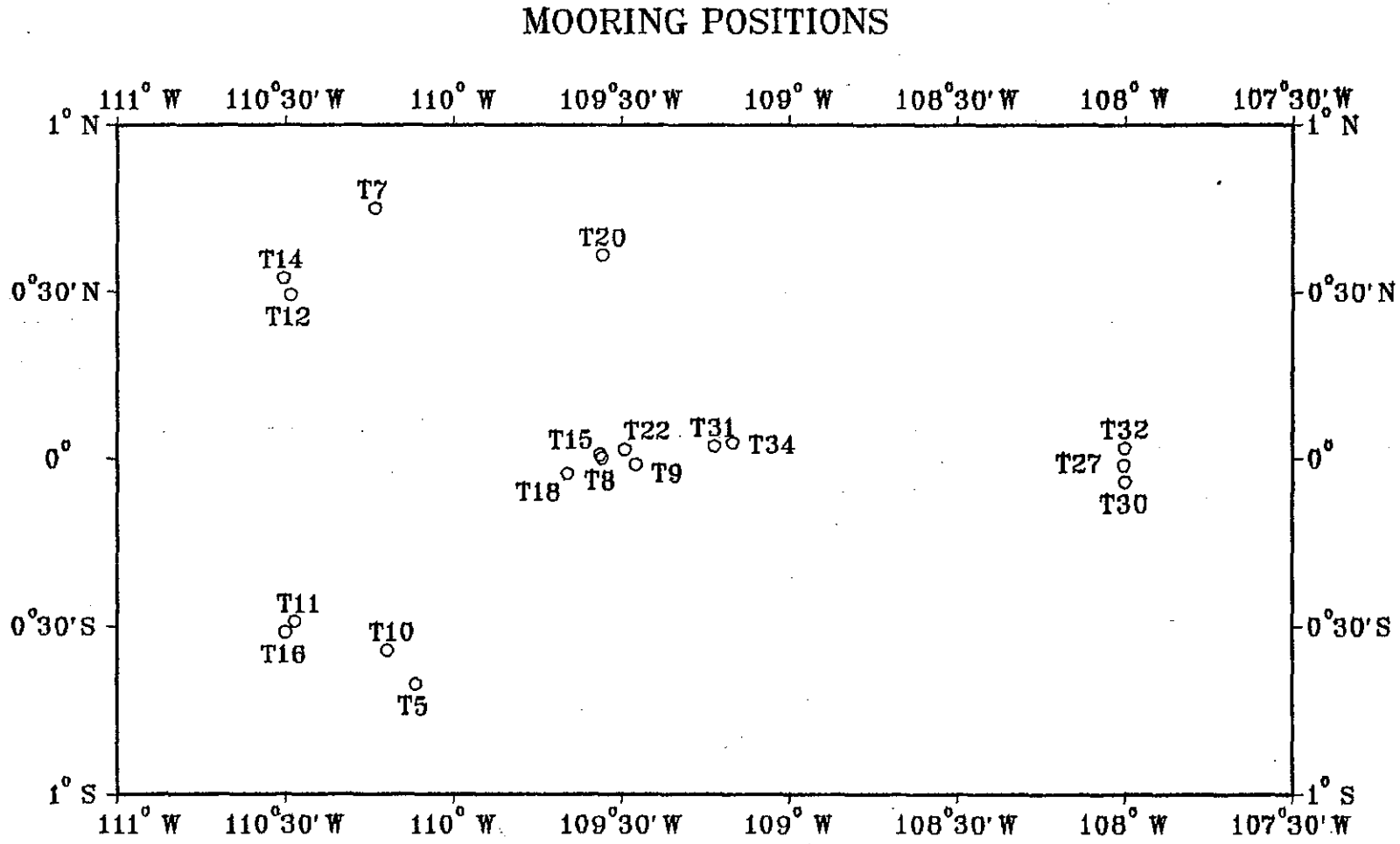

Figure 1. Mooring positions

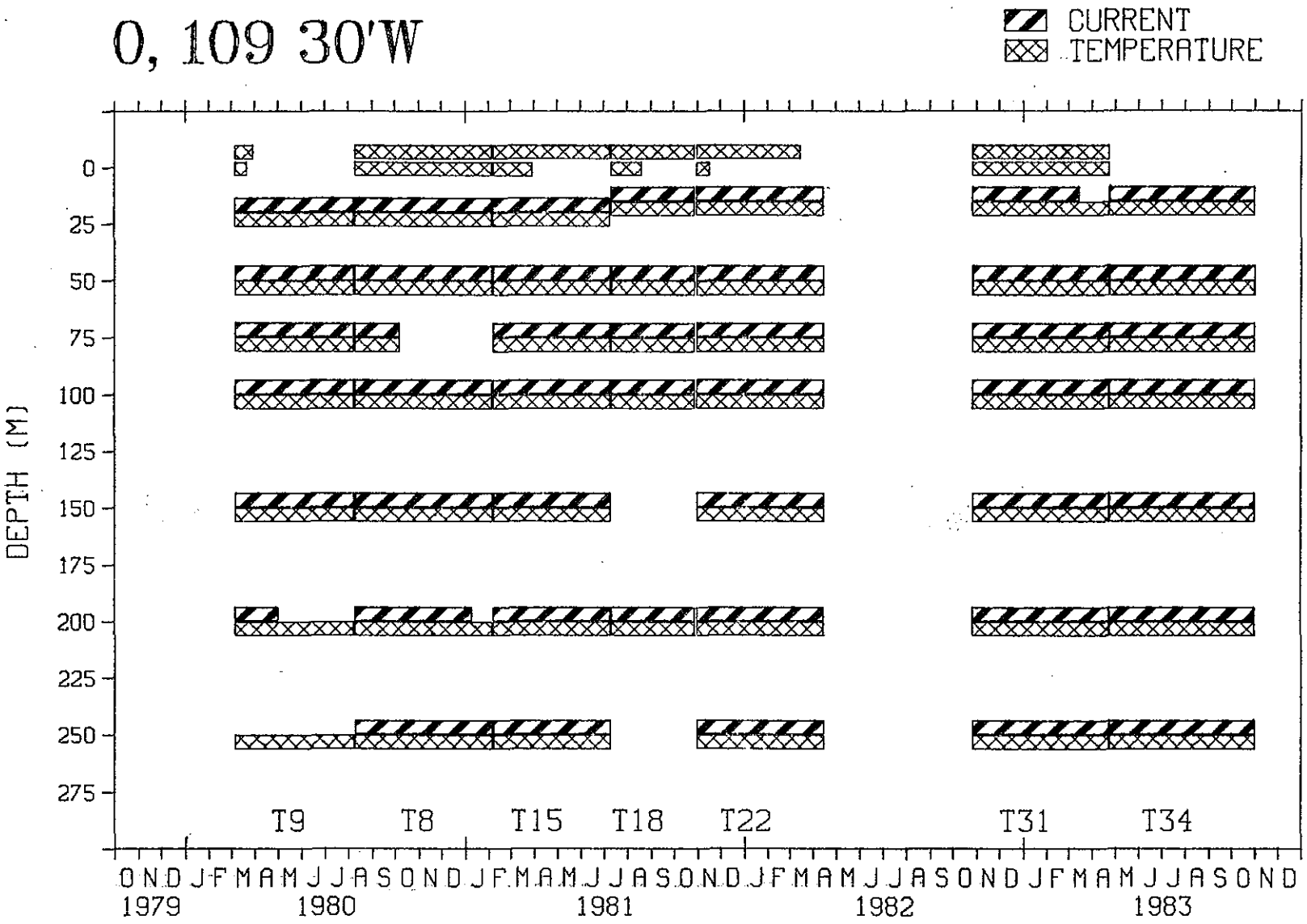

Figure 2a. Data distribution for moorings near 0°, 109°30'W.

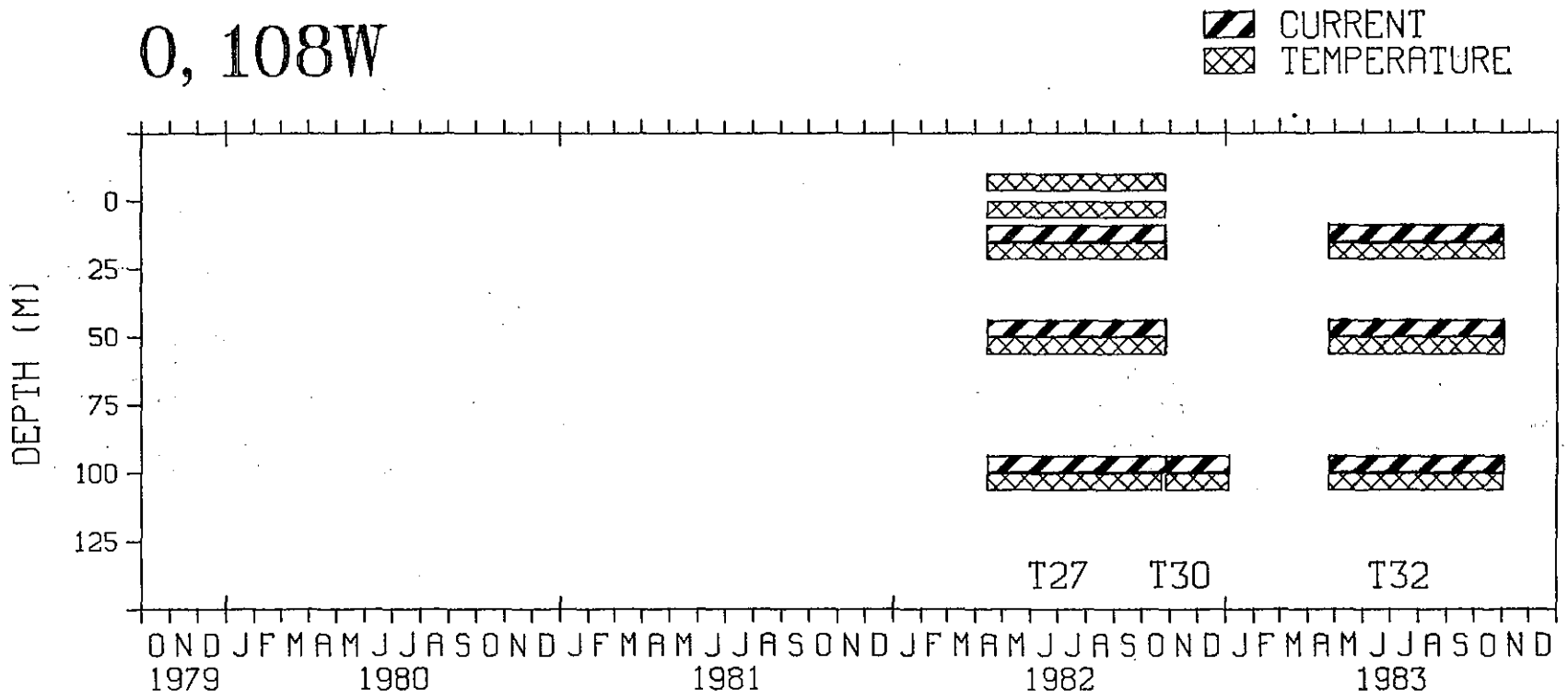

Figure 2b. Data distribution for moorings near 0°, 108°W.

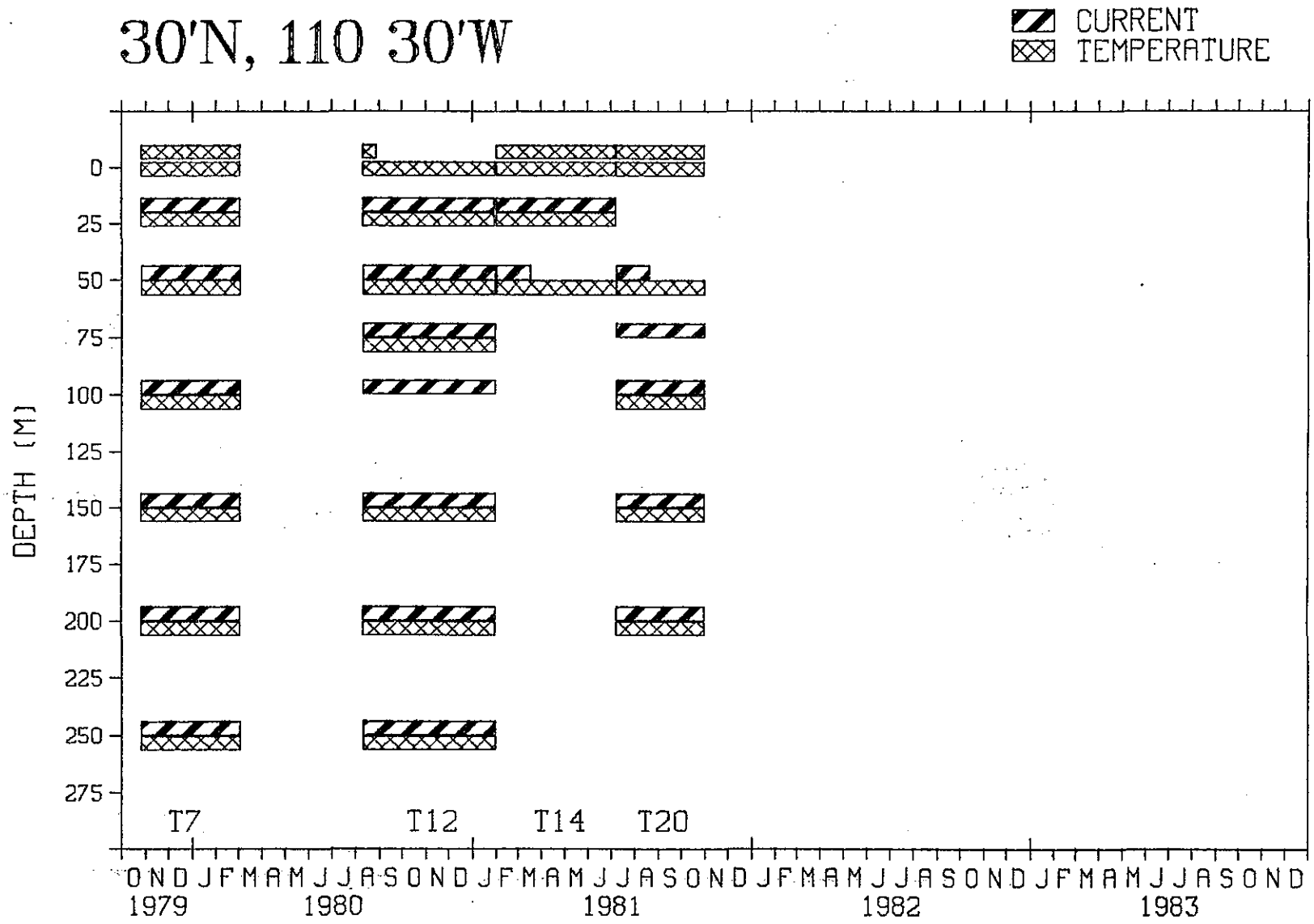

Figure 2c. Data distribution for moorings near 0°30'N, 110°30'W.

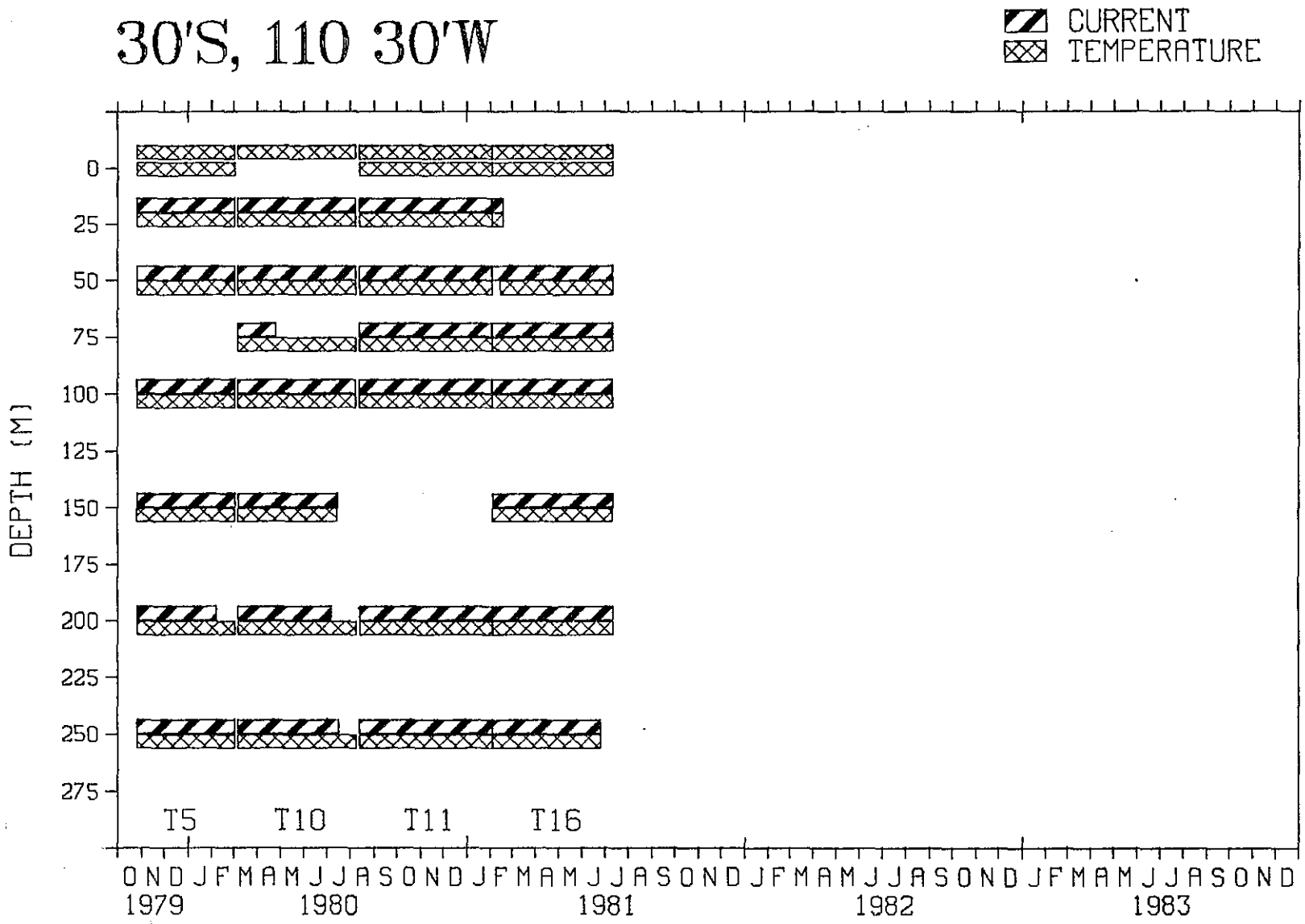

Figure 2d. Data distribution for moorings near 0°30'S, 110°30'W.

B. INSTRUMENTATION

Current velocity and temperature were measured by EG&G Model 610 Vector Averaging Current Meters (VACM). The VACM samples current direction (the sum of compass and vane readings) every eighth revolution of a Savonious rotor and converts to east and north components. The components are summed for 15 minutes and then recorded on digital cassette tape. Vector averaging in this manner has the advantage of limiting the amount of high frequency noise induced by mooring motion and surface waves.

Velocity calibation coefficients are based on tow tank runs made by John Cherriman at the Institute of Ocean Sciences in England. RMS differences between speeds computed using these coefficients and calibrations performed by PMEL were 1.2 cm/s or less.

While the absolute accuracy of a surface-moored VACM is unknown, there is evidence that it overestimates current velocity in highly variable flows by 17 percent or more (Karweit, 1974; McCullough, 1975). Nevertheless, the VACM gives results similar to those of the EG&G Vector Measuring Current Meter (VMCM), which underestimates velocity in highly variable, reversing flows (Weller and Davis, 1980). For example, from VACM/VMCM pairs separated by 1 m on taut-line equatorial moorings, Halpern (1987) reported RMS differences in 15-minute average zonal (meridional) current components ranging from 7.9 (10.0) cm/s at 13 m to 3.9 (2.5) cm/s at 160 m. These differences are from 14 to 4% of the mean speeds (69.2 cm/s at 13 m and 67.8 cm/s at 160 m).

Air and water temperatures were measured by Yellow Springs model 403 thermistors and averaged over the same 15-minute time period. Temperature circuitry was calibrated at PMEL and thermistors at Northwest Regional Calibration Center. Combined temperature accuracy is better than .01°C. Air temperature sensors were situated on the buoys at a height of 3.5 m above the

sea surface and were in multiplated, self-aspirated radiation shields to reduce the effects of wind and solar radiation. Water temperature thermistors which were situated inside the VACMs have a short time constant (about 100 s; Levine, 1981) relative to the 15-minute averaging interval.

C. DATA PROCESSING

Upon recovery of the moorings, data on the cassette tapes were transferred to half-inch computer tape. Conversion of the data to engineering units as well as initial quality checks were performed on a Control Data Corporation CYBER computer at NOAA's ERL computer facility in Boulder, Colorado. The details of this process are described by Halpern *et al.* (1974). The data were subsequently block averaged at 24-hour intervals, analyzed and plotted on PMEL's VAX 11/785 computer.

D. DATA PRESENTATION

These data have been grouped into four geographical areas: 0°, 109°30'W; 30'N, 110°30'W; 30'S 110°30'W; 0°, 108°W (Figure 1). The short meridional scales and long zonal scales associated with the equatorial undercurrent make it reasonable to assign mooring T20 to the north equatorial group rather than the closer equatorial group. The zonal (meridional) range of each group is 55 (10) km, 105 (29) km, 42 (21) km and 0 (13) km, respectively. In July, 1981, the depth of the uppermost current meter at the 0°, 109°30'W site was decreased from 20 m to 15 m. Because of the fairly large zonal shear at this depth (.025/s between 20 and 50 m) data from 20 and 15 m have been treated separately.

Individual velocity components and temperature have been plotted against time and depth for each site in section IIA. In order to keep a reasonable

and consistent time scale at all sites the 0°, 109°30'W site has been separated into periods before and after a six month gap in the summer of 1982. Velocity components have been combined and plotted as vectors (stick diagrams) on the same time scale in section IIB. Note that the vectors have been rotated so that east is towards the top of the page.

Mean, variance, skewness and extrema of the current components, speed and temperature were computed for each daily averaged time series and are tabulated in section IIC. Where gaps in the records occur statistics have been computed for each section of the time series separately.

Histograms of velocity components and temperature are in section IID. Starting and ending dates for the time period covered are listed above the plots as well as the total number of daily values used (NPOINTS) and the number of missing values (NOUT) for incomplete time series.

Spectral density of velocity components and temperature were computed using a Cooley-Tukey Fourier transform and are plotted in log-log format in section IIE. The number of periodogram points per spectral estimate along with the 95 percent confidence interval for the corresponding number of degrees of freedom are indicated in the lower portion of the plots. Where gaps occur in the time series the spectra of each section of the record has been plotted. Spectra of sections of less than 90 days were omitted.

E. ACKNOWLEDGMENTS

Dr. David Halpern (now at Jet Propulsion Laboratory, California Institute of Technology) supervised the program which gathered these data as a contribution to NOAA's Equatorial Pacific Ocean Climate Studies program. We are very grateful to Doug Fenton, Scott Newell and Gene Duley for their outstanding instrument and hardware preparation, logistical support and field operations.

F. REFERENCES

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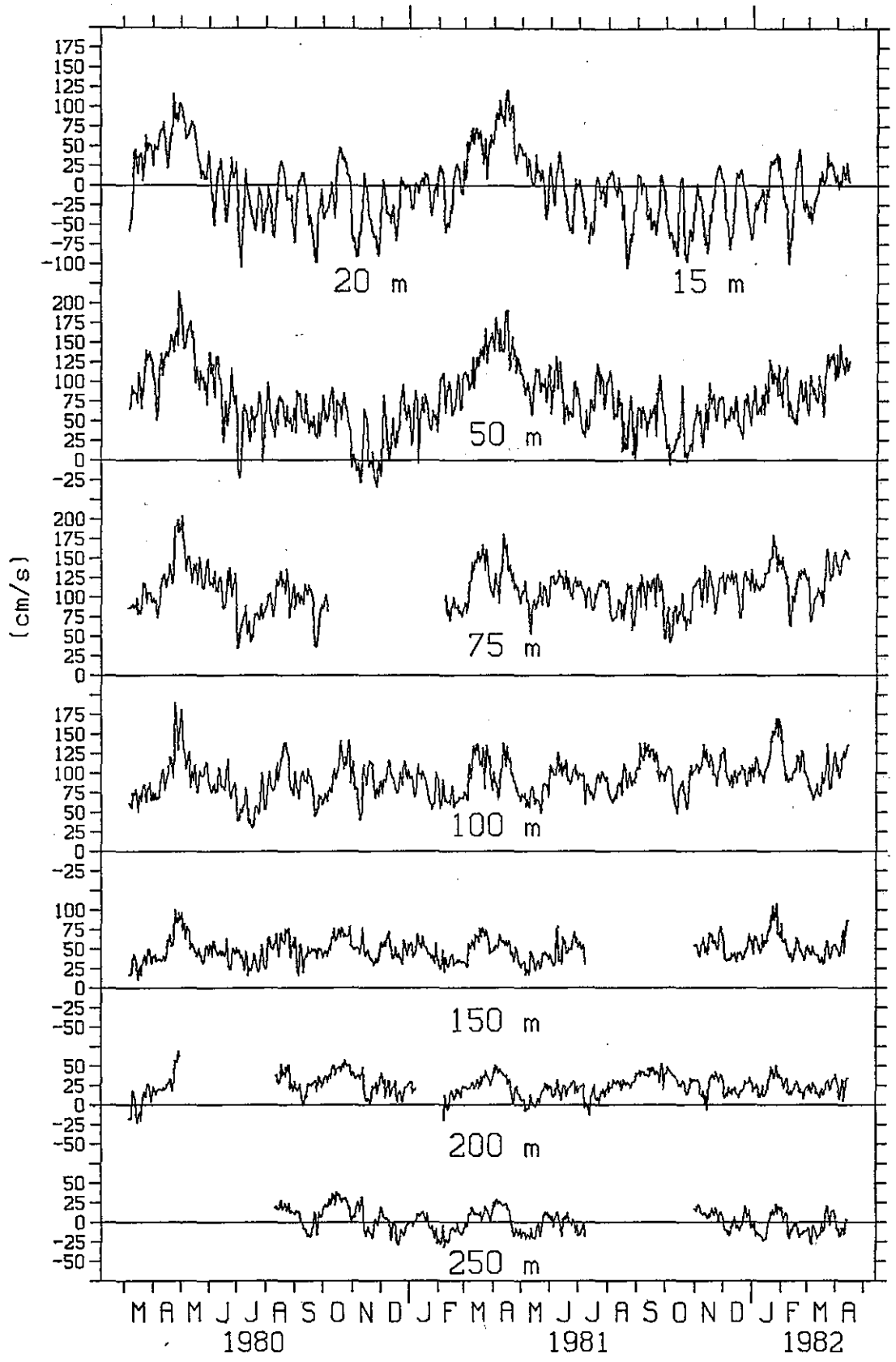
Karweit, M. (1974): Response of a Savonious rotor to unsteady flow. *J. Mar. Res., 32*, 359-364.

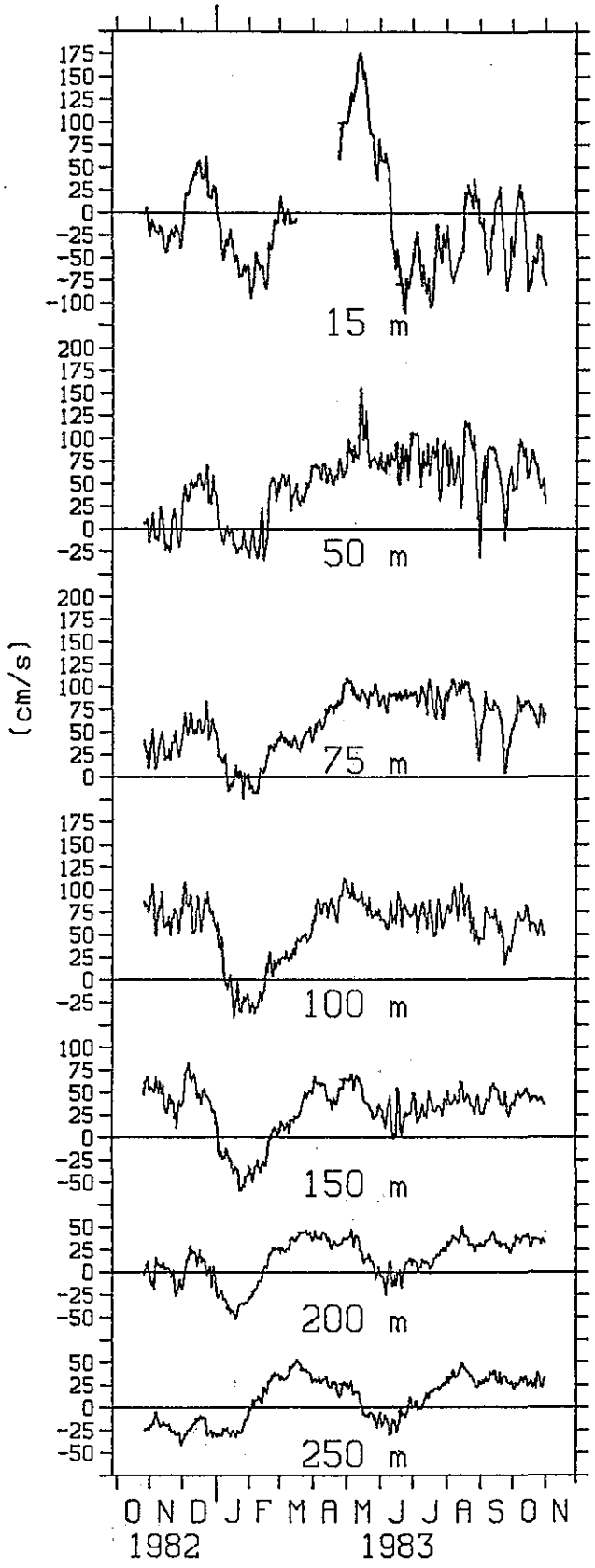
Levine, M.D. (1981): Dynamic response of the VACM temperature sensor. *Deep-Sea Res., 28A*, 1401-1408.

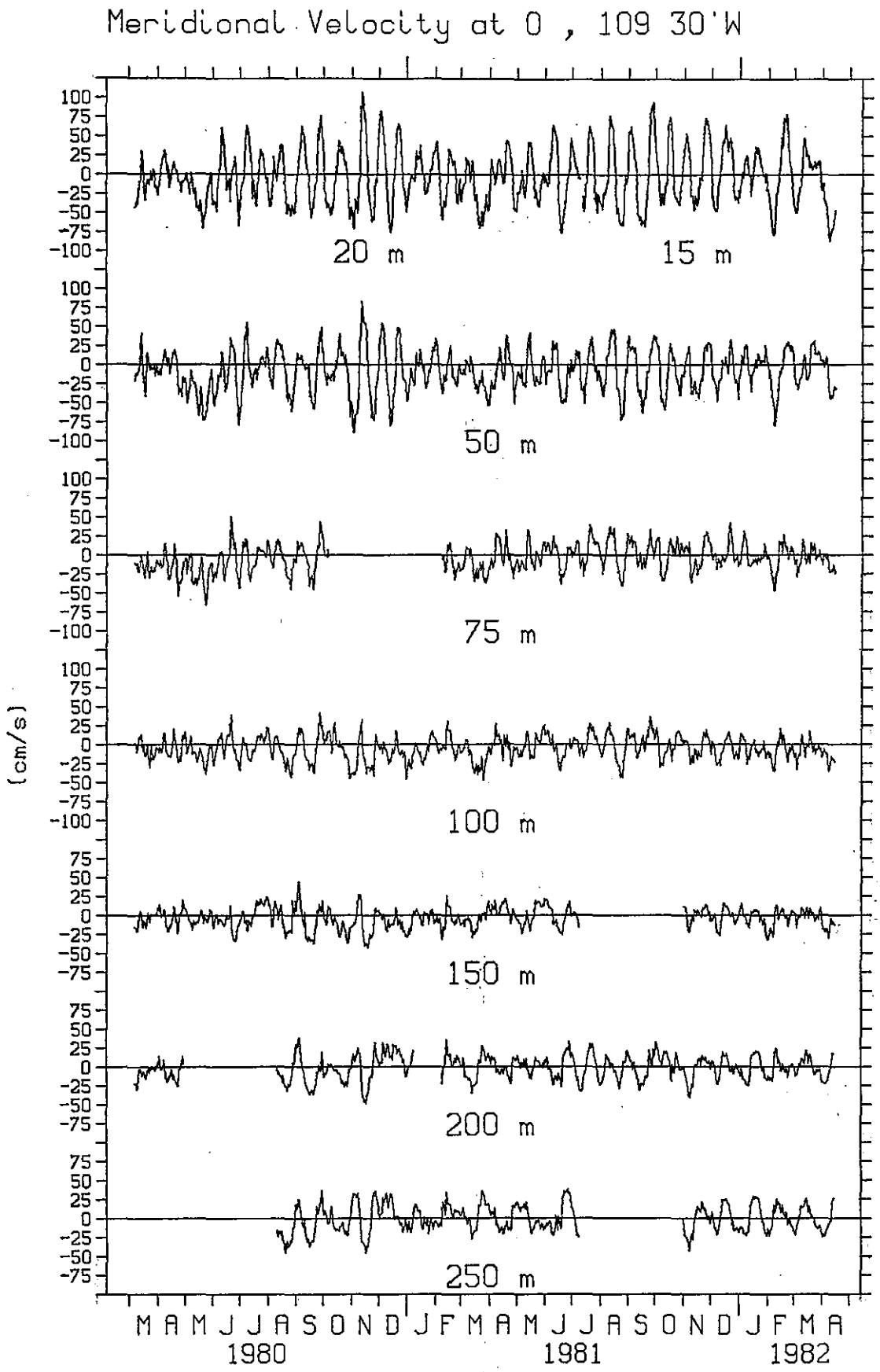
McCullough, J. (1975): Vector-averaging current meter speed calibration and recording technique. Tech. Rep. 75-44, Woods Hole Oceanographic Institution, Woods Hole, MA, 35 pp.

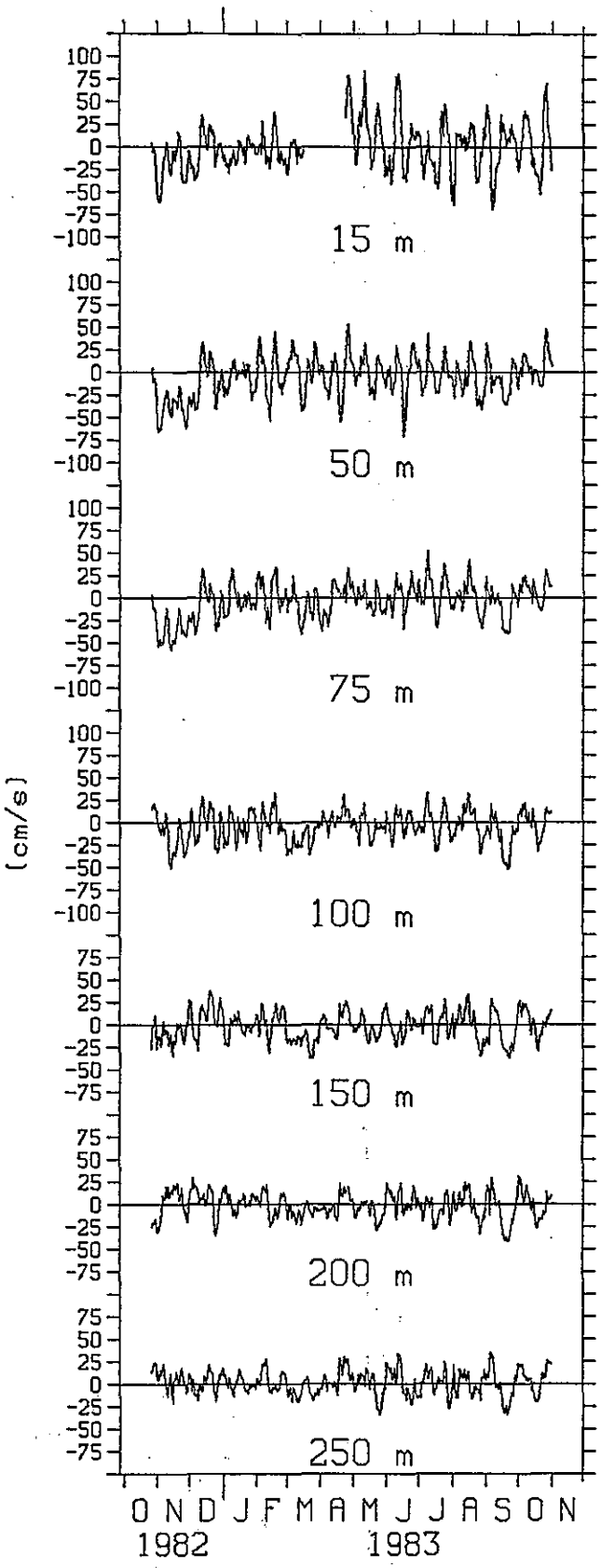
Weller, R.A. and R.E. Davis (1980): A vector-measuring current meter. *Deep-Sea Res., 27*, 565-581.

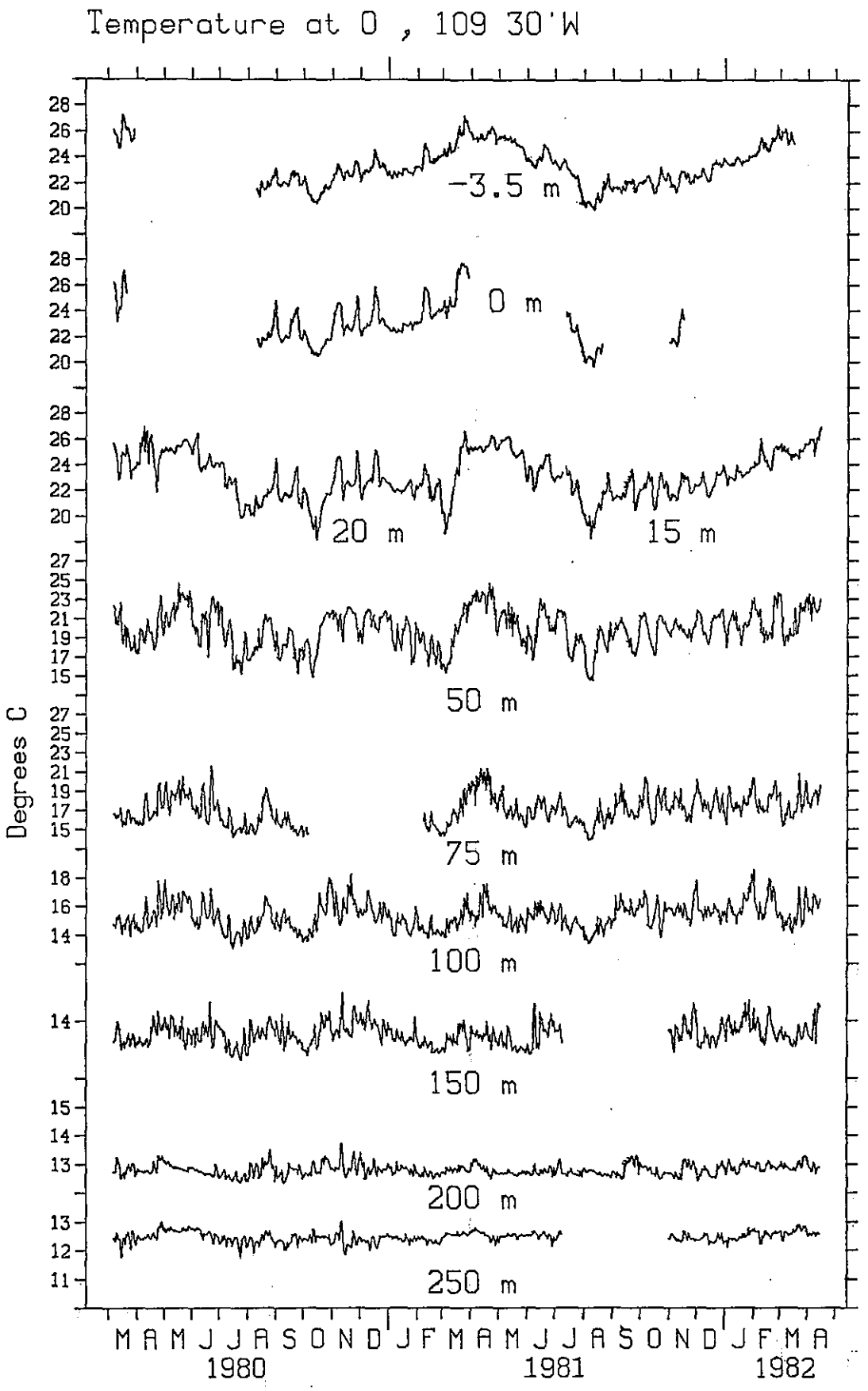
Section IIA: TIME SERIES

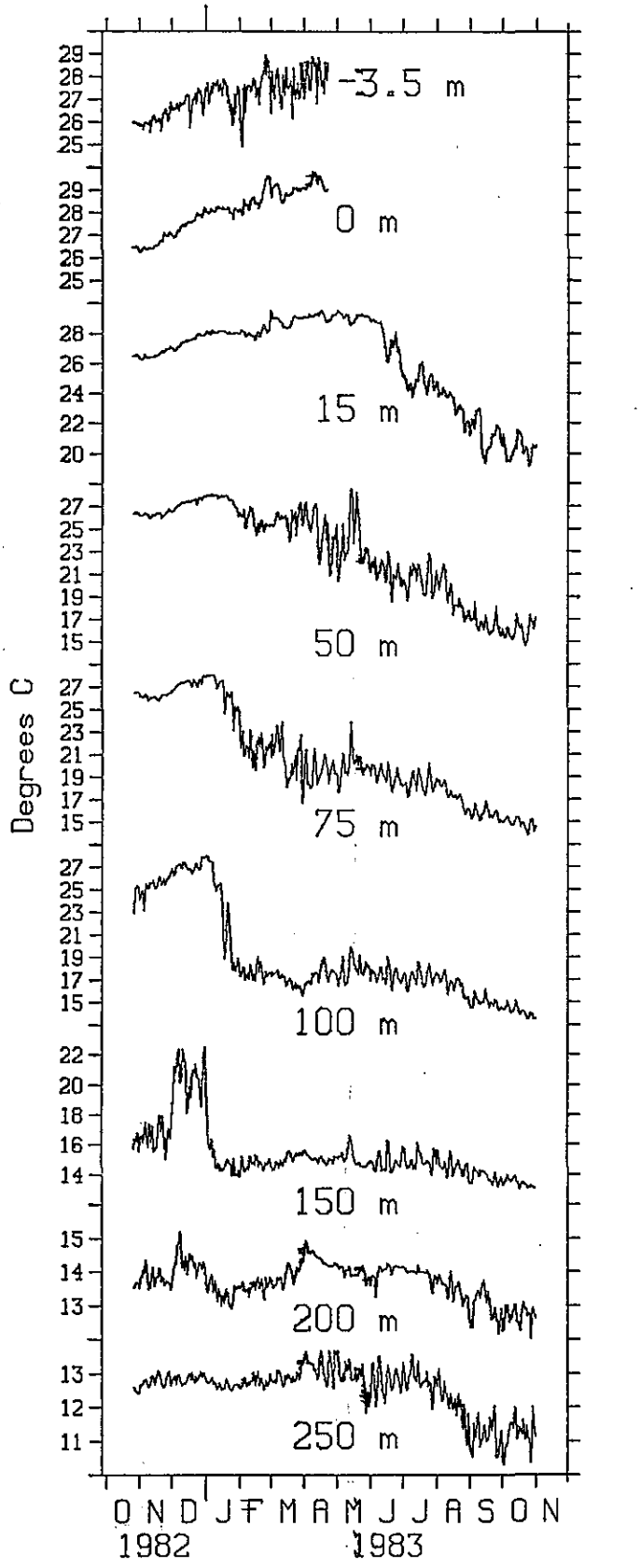

Zonal Velocity at 0 , 109 30'W
(cm/s)
20 m
15 m
50 m
75 m
100 m
150 m
200 m
250 m
M A M J J A S O N D J F M A M J J A S O N D J F M A
1980
1981
1982

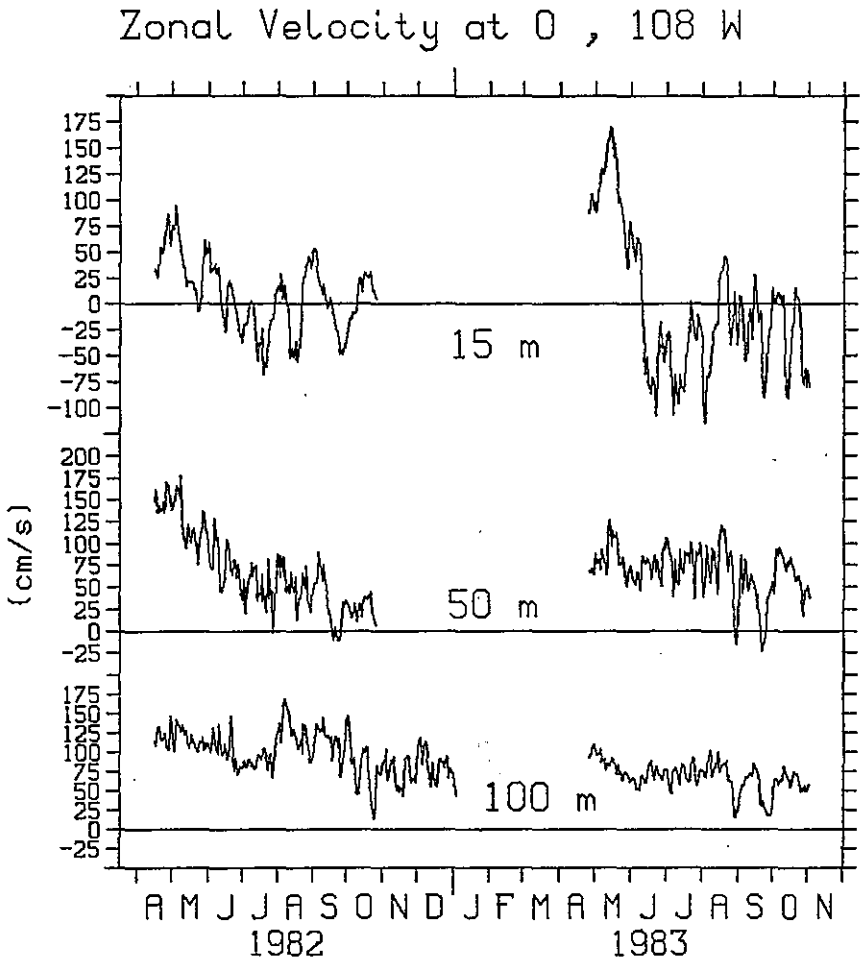

Zonal Velocity at 0 , 109 30'W
(cm/s)
15 m
50 m
75 m
100 m
150 m
200 m
250 m
O N D J F M A M J J A S O N
1982
1983


Meridional Velocity at 0 , 109 30'W
20 m
15 m
50 m
75 m
100 m
150 m
200 m
250 m
(cm/s)
M A M J J A S O N D J F M A M J J A S O N D J F M A
1980
1981
1982


Meridional Velocity at 0 , 109 30'W
100
75
50
25
0
-25
-50
-75
-100
15 m
50 m
75 m
100 m
150 m
200 m
250 m
(cm/s)
O N D J F M A M J J A S O N
1982
1983


Temperature at 0 , 109 30'W
Degrees C
-3.5 m
0 m
20 m
15 m
50 m
75 m
100 m
150 m
200 m
250 m
M A M J J A S O N D J F M A M J J A S O N D J F M A
1980
1981
1982


Temperature at 0 , 109 30'W
-3.5 m
0 m
15 m
50 m
75 m
100 m
150 m
200 m
250 m
Degrees C
O N D J F M A M J J A S O N
1982
1983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(cm/s)
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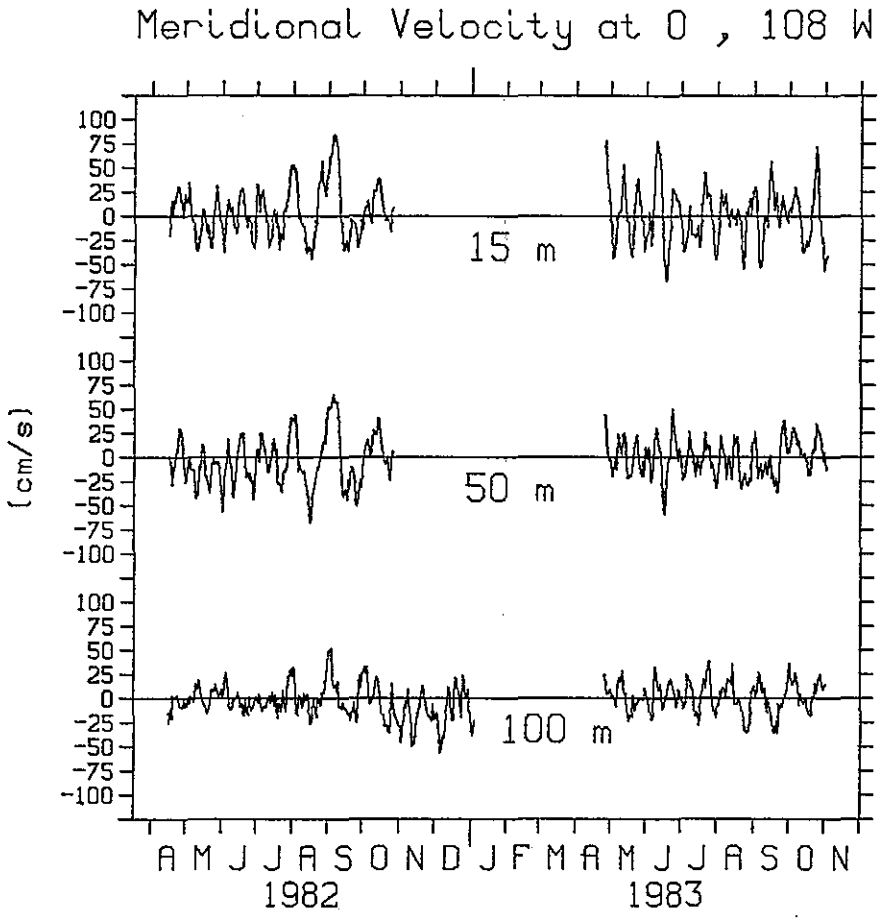
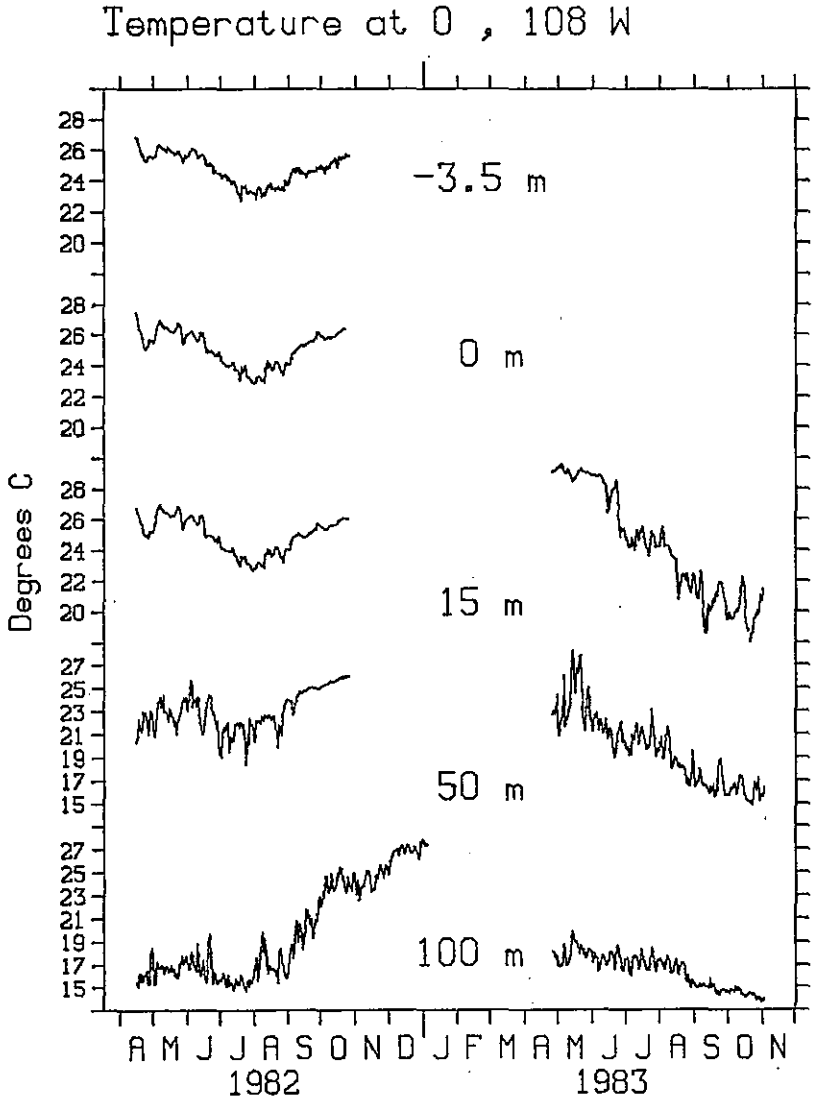
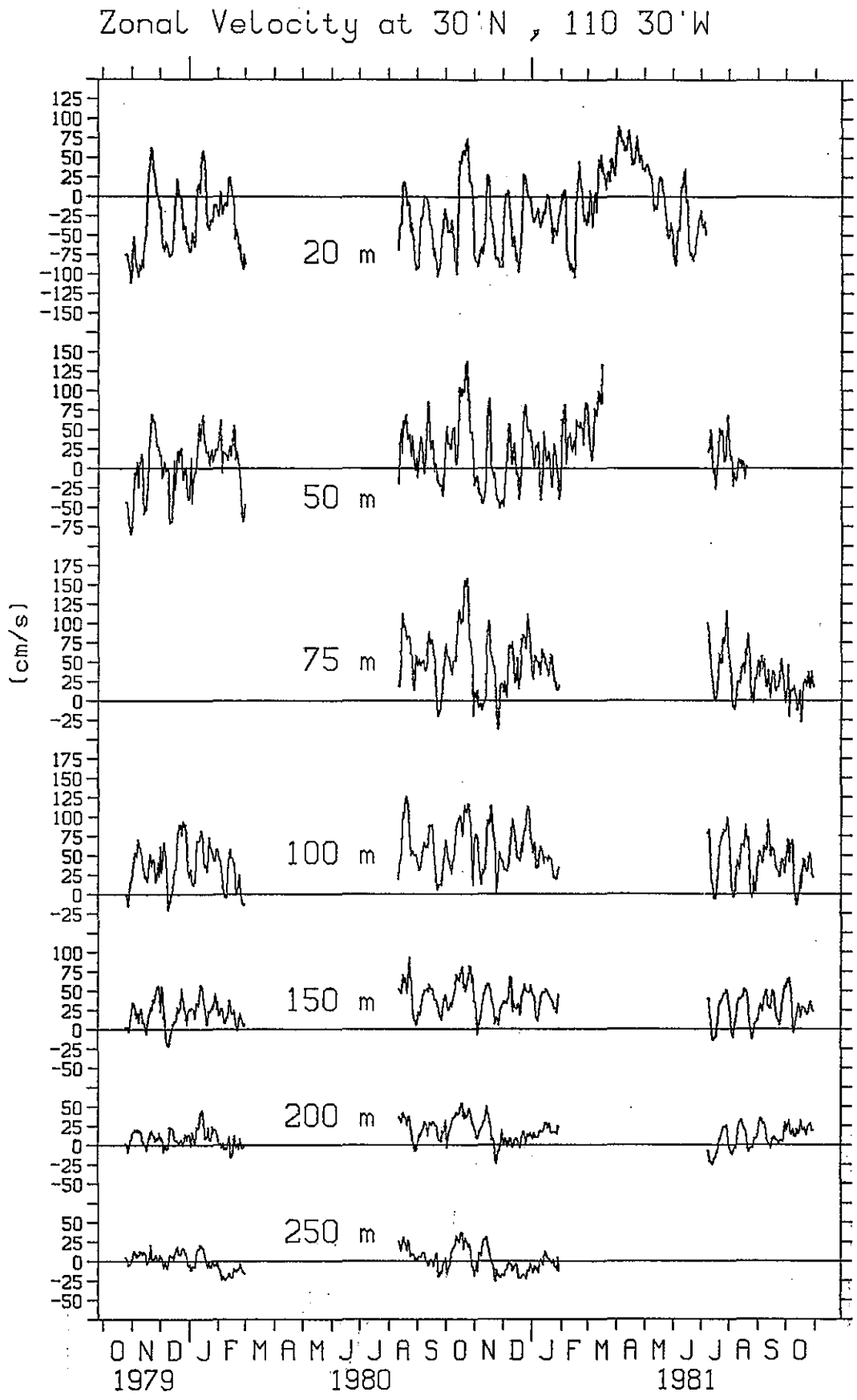
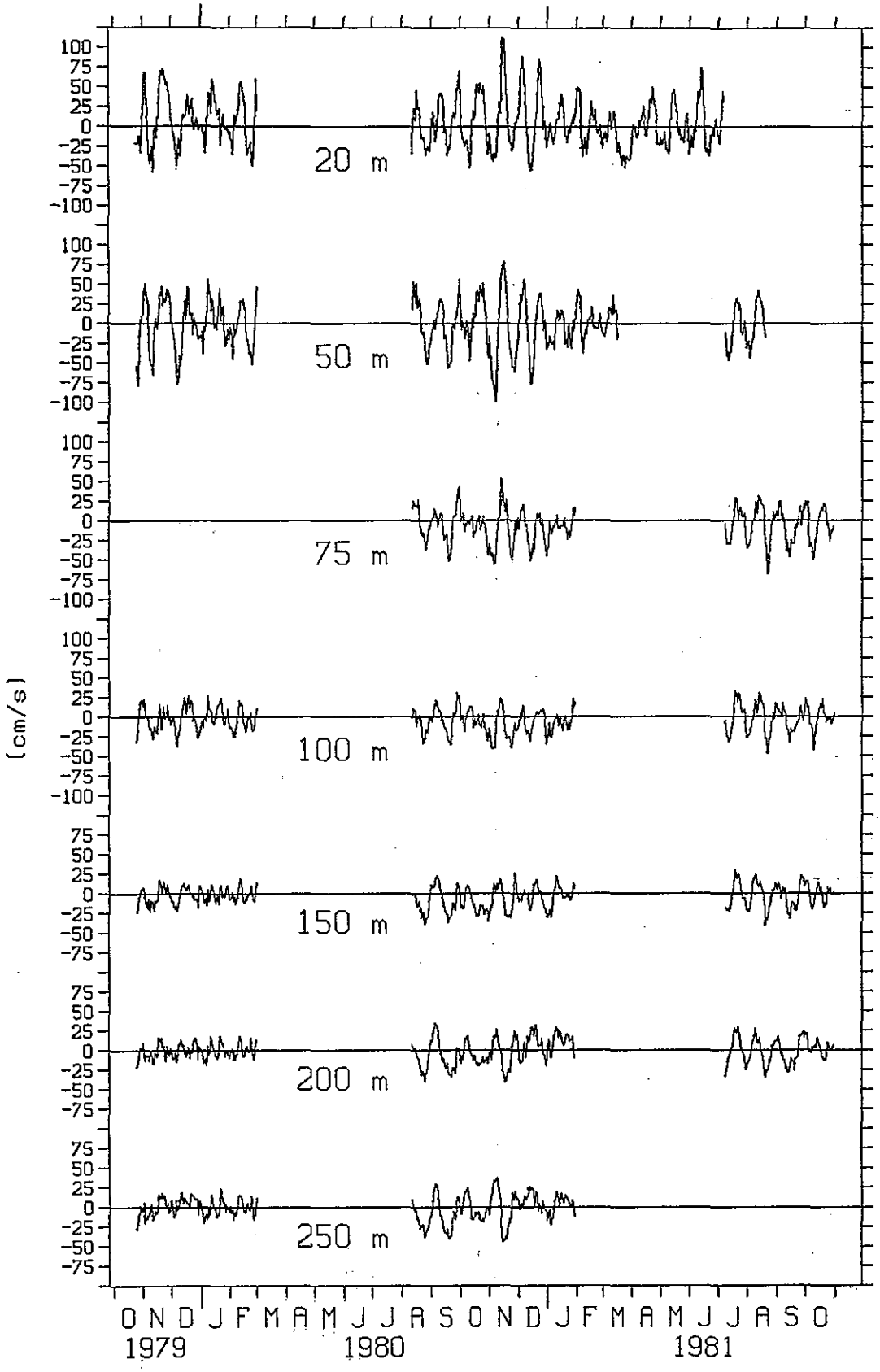
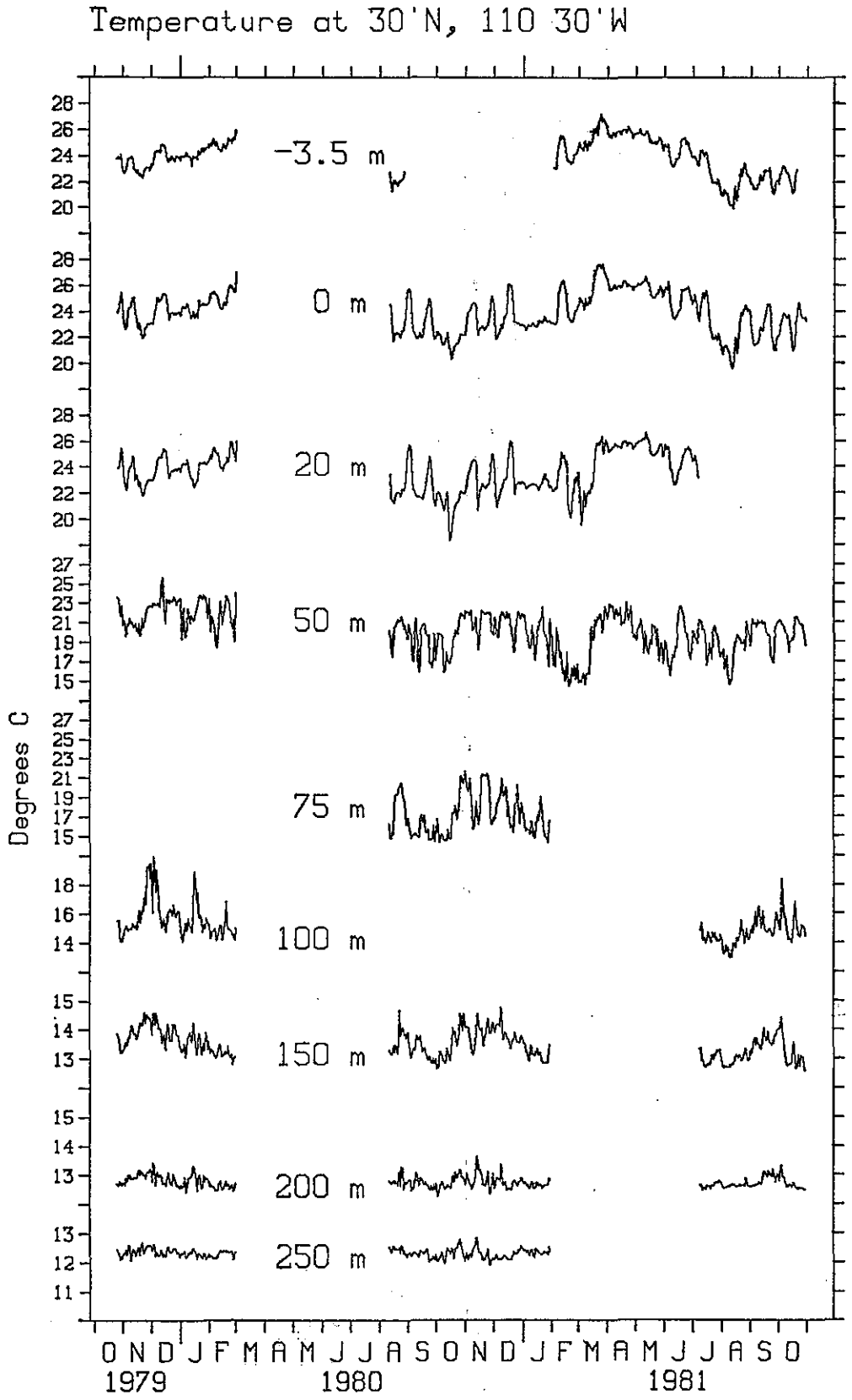
50 m
100 m
A M J J A S O N D J F M A M J J A S O N
1982
1983

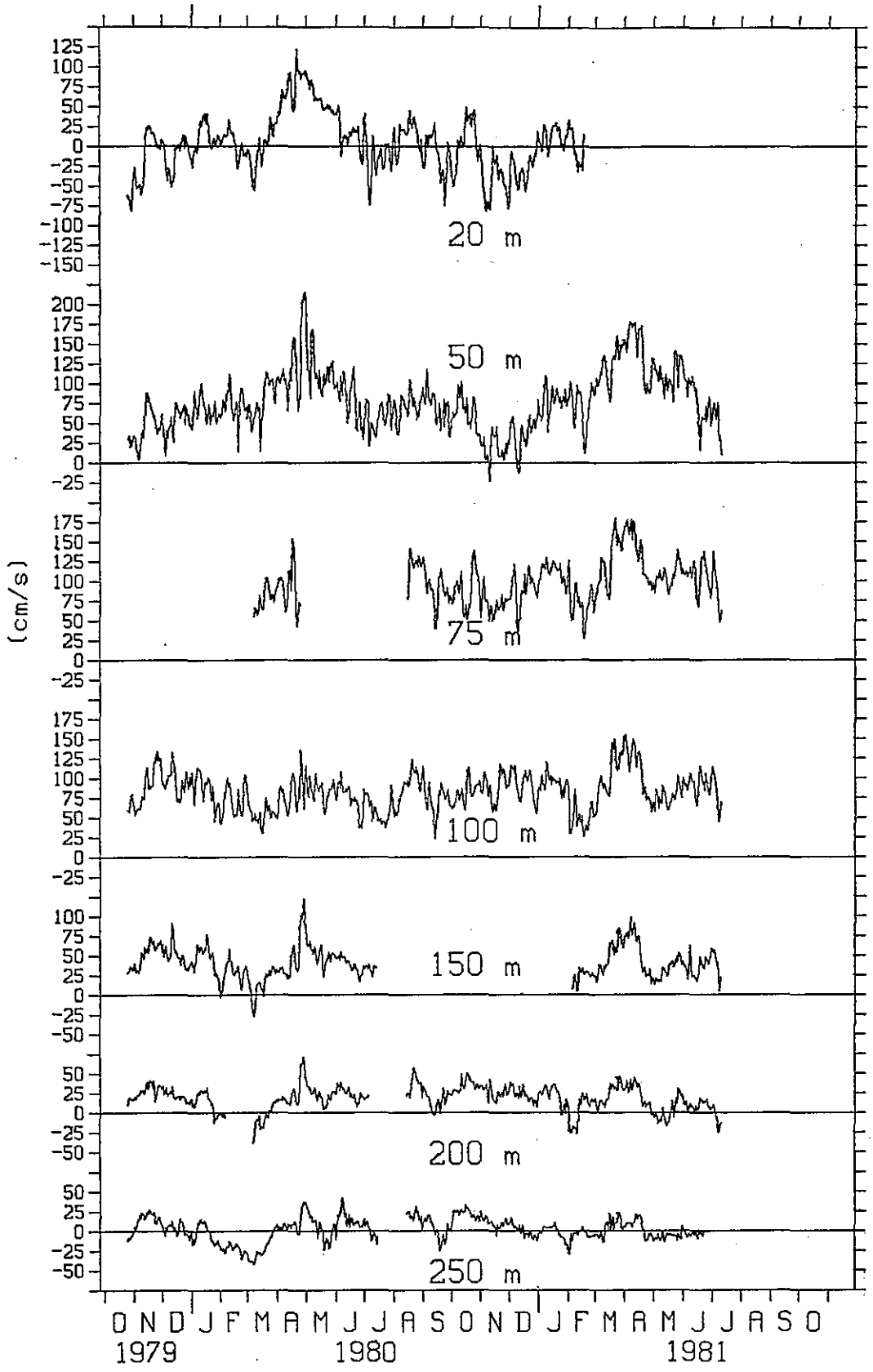

Meridional Velocity at 0 , 108 W
(cm/s)
100
75
50
25
0
-25
-50
-75
-100
15 m
50 m
100 m
A M J J A S O N D J F M A M J J A S O N
1982
1983

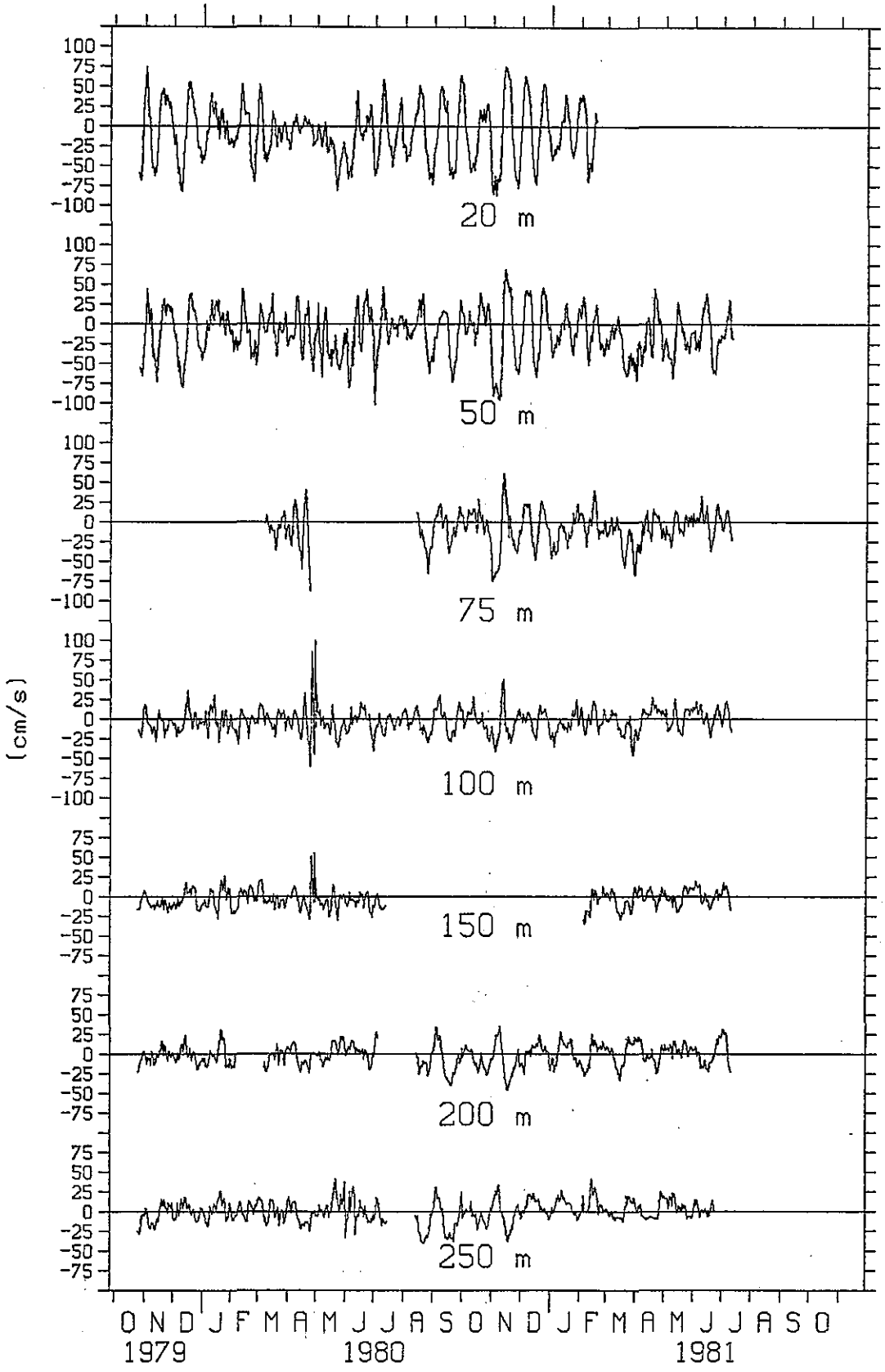

Temperature at 0 , 108 W
Degrees C
-3.5 m
0 m
15 m
50 m
100 m
A M J J A S O N D J F M A M J J A S O N
1982
1983

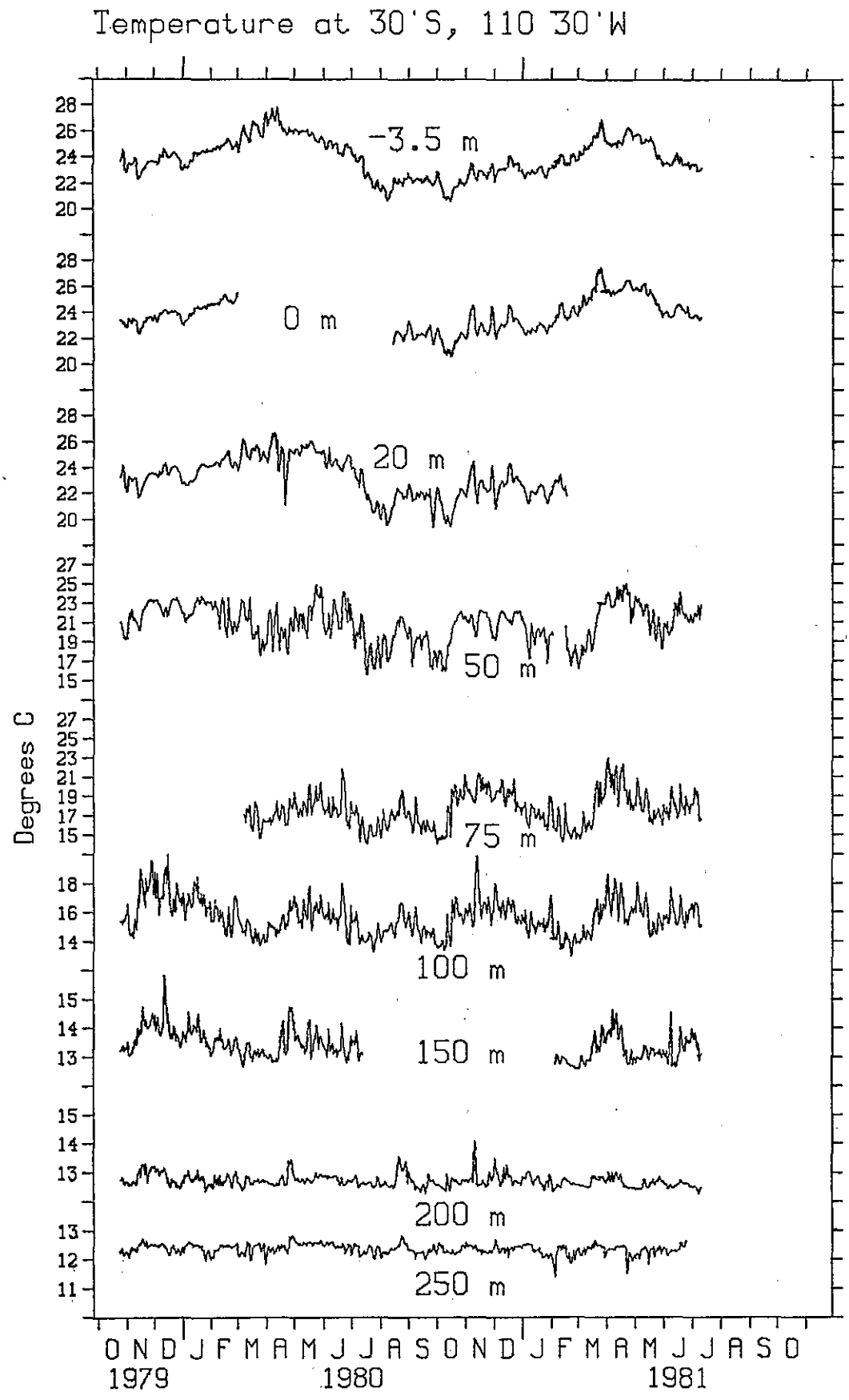

Zonal Velocity at 30°N , 110 30'W
(cm/s)
20 m
50 m
75 m
100 m
150 m
200 m
250 m
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981


Meridional Velocity at 30°N, 110 30°W
20 m
50 m
75 m
100 m
150 m
200 m
250 m
(cm/s)
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981

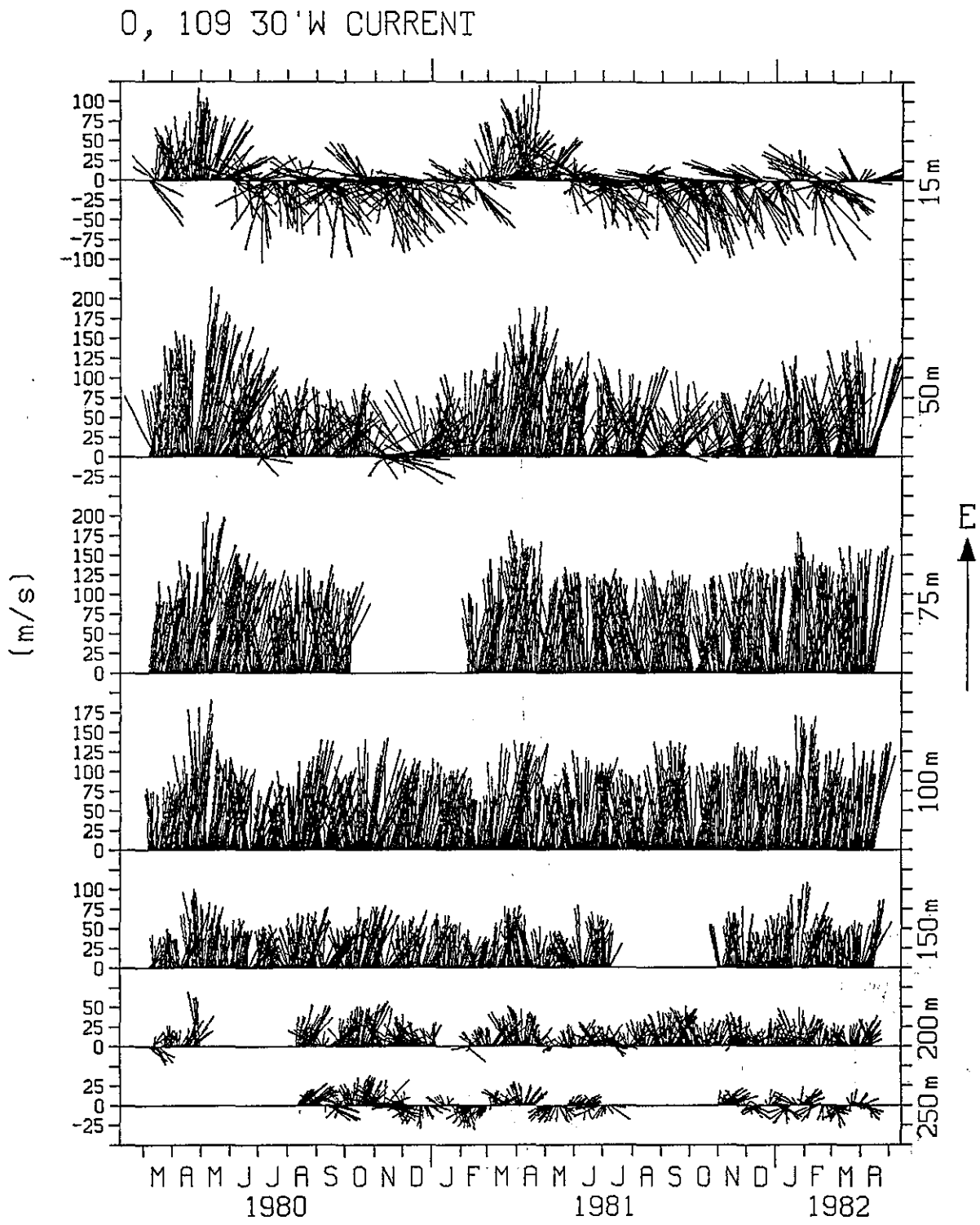

Temperature at 30'N, 110 30'W
-3.5 m
0 m
20 m
50 m
75 m
100 m
150 m
200 m
250 m
Degrees C
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981

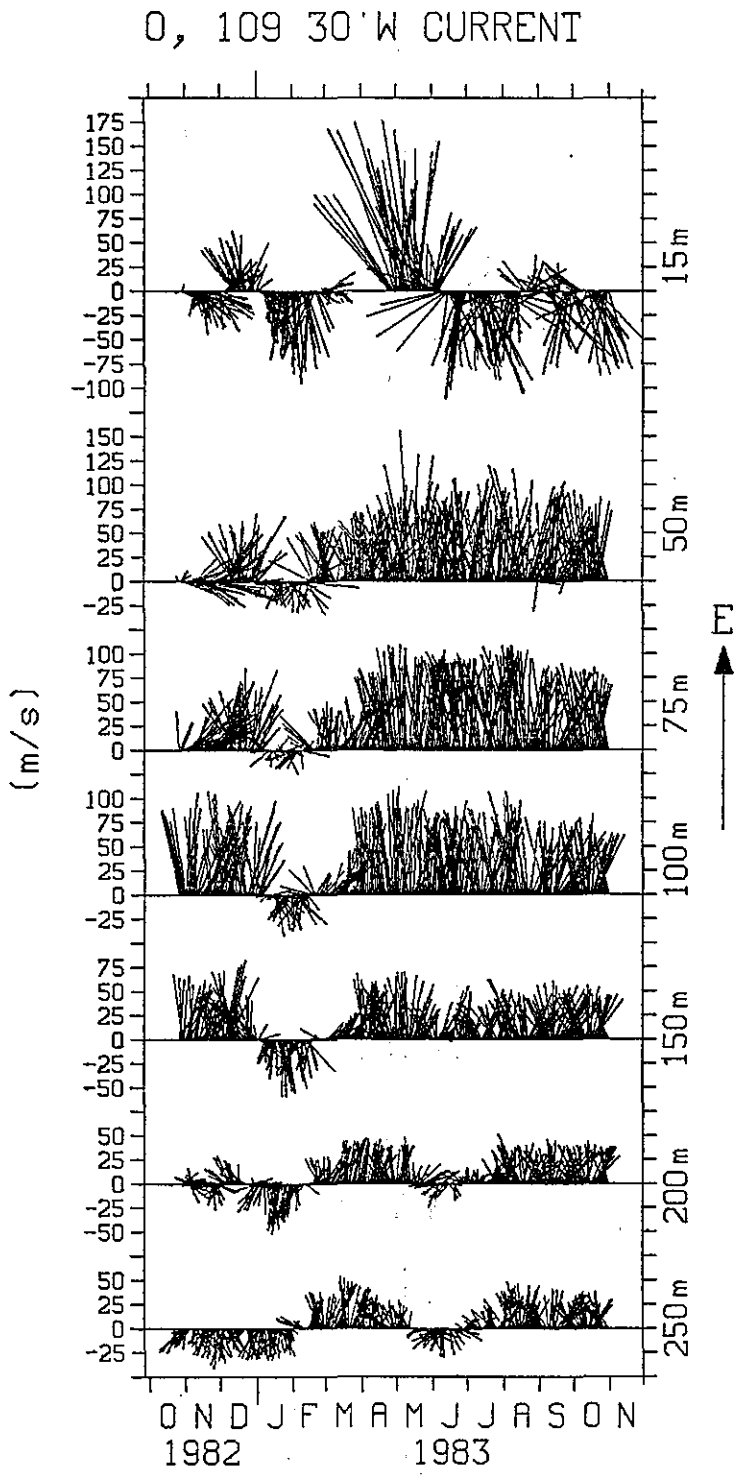

Zonal Velocity at 30'S , 110 30'W
(cm/s)
20 m
50 m
75 m
100 m
150 m
200 m
250 m
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981

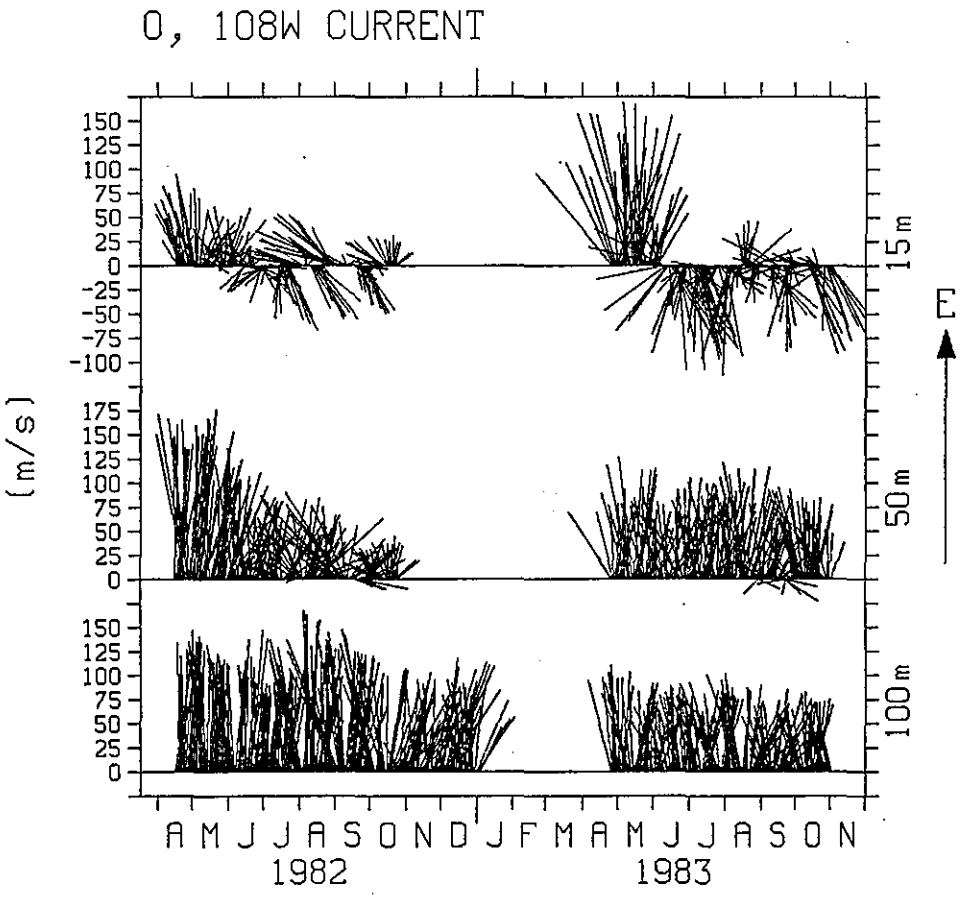

Meridional Velocity at 30°S, 110 30'W
(cm/s)
100
75
50
25
0
-25
-50
-75
-100
20 m
50 m
75 m
100 m
150 m
200 m
250 m
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981

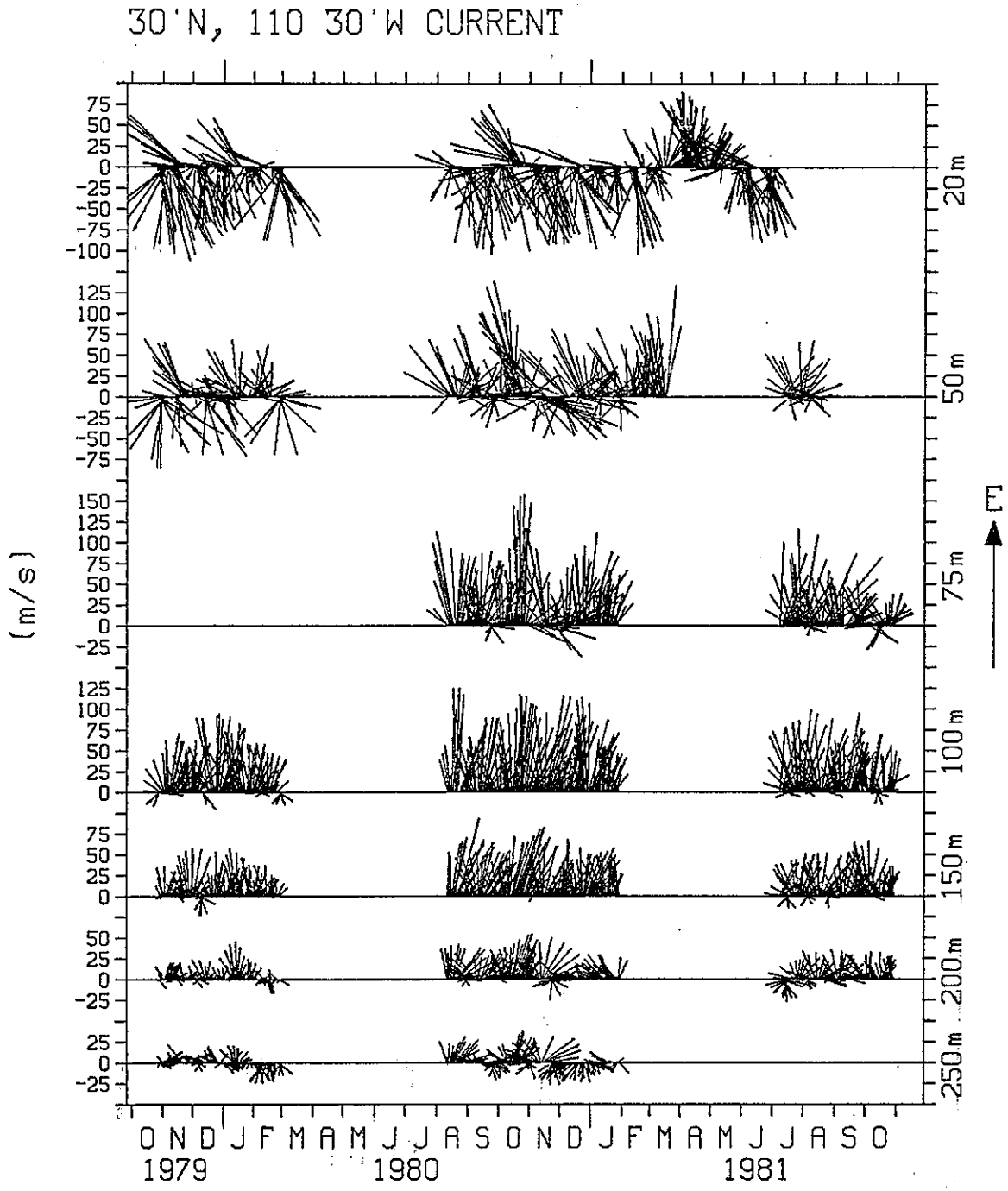

Temperature at 30'S, 110 30'W
-3.5 m
0 m
20 m
50 m
75 m
100 m
150 m
200 m
250 m
Degrees C
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981

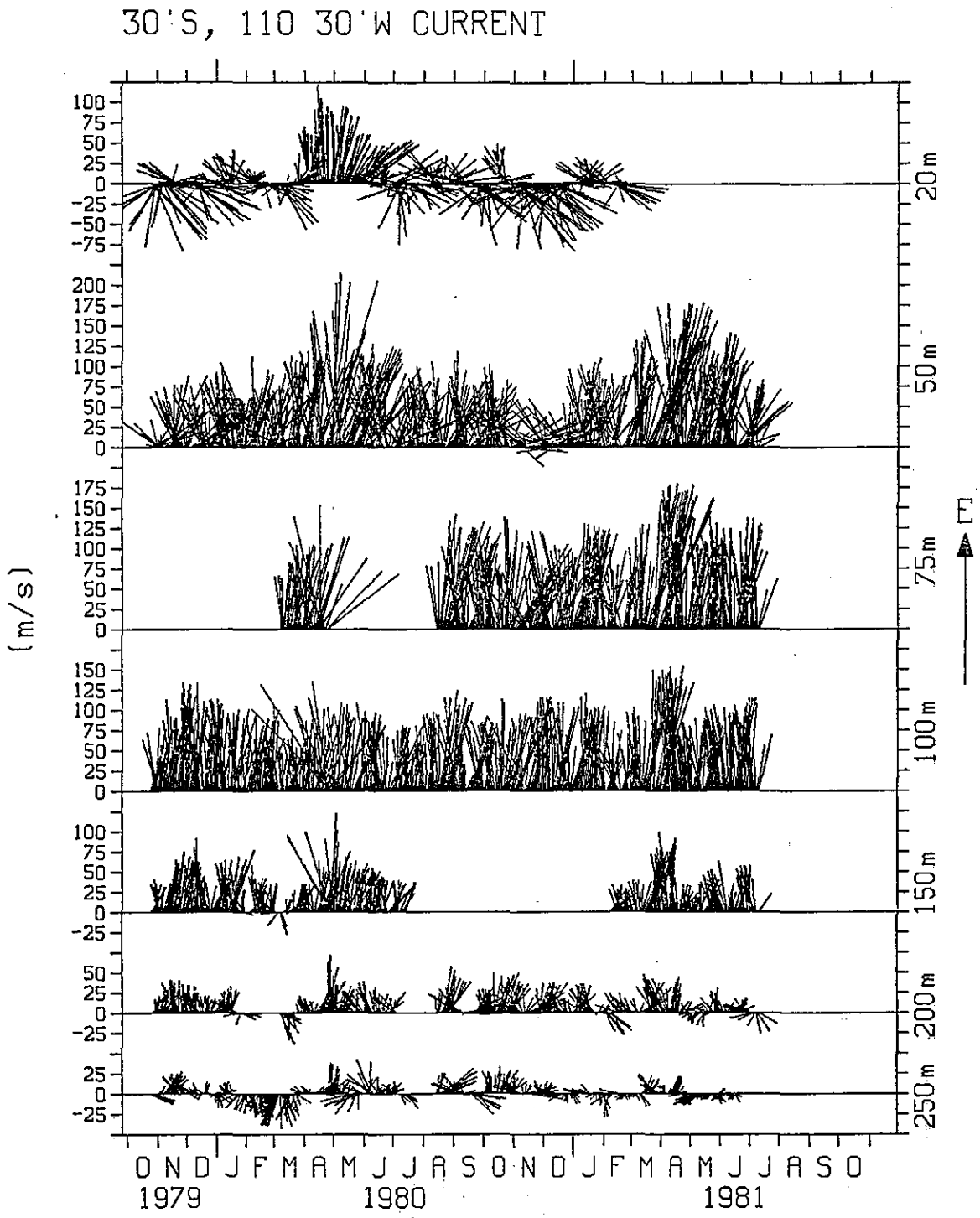
Section IIB: STICK PLOTS


0, 109 30'W CURRENT
(m/s)
15m
50m
75m
100m
150m
200m
250m
E
M A M J J A S O N D J F M A M J J A S O N D J F M A
1980
1981
1982


0, 109 30'W CURRENT
(m/s)
15m
50m
75m
100m
150m
200m
250m
E
O N D J F M A M J J A S O N
1982
1983


0, 108W CURRENT
(m/s)
150
125
100
75
50
25
0
-25
-50
-75
-100
175
150
125
100
75
50
25
0
150
125
100
75
50
25
0
15m
50m
100m
E
A M J J A S O N D J F M A M J J A S O N
1982
1983


30'N, 110 30'W CURRENT
(m/s)
20m
50m
75m
100m
150m
200m
250m
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981


30°S, 110 30°W CURRENT
(m/s)
20m
50m
75m
100m
150m
200m
250m
O N D J F M A M J J A S O N D J F M A M J J A S O
1979
1980
1981

Section IIC: SUMMARY STATISTICS

ZONAL VELOCITY AT 0, 109 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
15 m	11 7 81	14 4 82	278	-19.2	1166.9	-0.37	-103.6	46.5
15 m	27 10 82	16 3 83	141	-18.1	1274.7	0.20	-95.0	61.8
15 m	25 4 83	31 10 83	190	-3.9	4975.2	0.83	-110.4	176.4
20 m	7 3 80	8 7 81	489	6.1	2061.9	0.09	-103.7	121.4
50 m	7 3 80	14 4 82	769	77.4	1717.7	0.16	-34.1	214.2
50 m	27 10 82	31 10 83	370	49.3	1444.9	-0.43	-34.3	156.0
75 m	7 3 80	6 10 80	214	105.8	1005.5	0.54	34.8	204.6
75 m	8 2 81	14 4 82	431	111.4	637.3	-0.03	42.3	180.5
75 m	27 10 82	31 10 83	370	59.0	1072.2	-0.55	-24.2	108.7
100 m	7 3 80	14 4 82	769	92.9	583.7	0.42	30.4	190.2
100 m	27 10 82	31 10 83	370	57.5	1129.1	-1.17	-42.0	112.2
150 m	7 3 80	8 7 81	489	47.3	231.6	0.39	10.0	99.7
150 m	1 11 81	14 4 82	165	53.5	219.5	1.14	30.4	108.5
150 m	27 10 82	31 10 83	370	30.3	832.0	-1.22	-59.5	82.1
200 m	7 3 80	30 4 80	55	17.5	436.0	0.24	-23.1	69.1
200 m	11 8 80	8 1 81	151	28.6	177.2	-0.03	-1.3	57.2
200 m	8 2 81	14 4 82	431	23.3	150.8	-0.30	-19.0	51.6
200 m	27 10 82	31 10 83	370	15.0	551.9	-0.81	-51.8	50.7
250 m	11 8 80	8 7 81	332	2.5	245.6	0.05	-31.2	37.9
250 m	1 11 81	14 4 82	165	-0.9	154.8	0.04	-27.6	23.5
250 m	27 10 82	31 10 83	370	9.1	623.6	-0.27	-41.5	52.9

MERIDIONAL VELOCITY AT 0, 109 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
15 m	11 7 81	14 4 82	278	-0.5	1712.0	0.16	-86.4	94.3
15 m	27 10 82	16 3 83	141	-8.1	332.2	-0.20	-61.4	38.4
15 m	25 4 83	31 10 83	190	5.3	985.1	0.23	-68.9	84.1
20 m	7 3 80	8 7 81	489	-4.6	1156.6	0.34	-76.0	106.8
50 m	7 3 80	14 4 82	769	-8.9	757.8	-0.12	-89.0	82.1
50 m	27 10 82	31 10 83	370	-5.8	518.7	-0.18	-70.6	53.5
75 m	7 3 80	6 10 80	214	-10.1	368.4	0.03	-65.6	50.2
75 m	8 2 81	14 4 82	431	-1.5	291.0	0.04	-47.0	42.4
75 m	27 10 82	31 10 83	370	-3.8	407.7	-0.24	-57.6	51.8
100 m	7 3 80	14 4 82	769	-5.6	239.5	-0.08	-47.3	40.9
100 m	27 10 82	31 10 83	370	-4.8	291.0	-0.25	-51.4	33.0
150 m	7 3 80	8 7 81	489	-4.5	197.9	-0.09	-42.5	43.8
150 m	1 11 81	14 4 82	165	-2.9	119.0	-0.62	-31.9	15.7
150 m	27 10 82	31 10 83	370	-2.1	248.9	0.03	-37.2	38.0
200 m	7 3 80	30 4 80	55	-7.5	105.9	-0.18	-30.4	14.3
200 m	11 8 80	8 1 81	151	-3.0	396.9	-0.10	-48.8	38.5
200 m	8 2 81	14 4 82	431	-0.8	209.6	-0.17	-41.4	35.9
200 m	27 10 82	31 10 83	370	-1.5	213.6	-0.25	-41.7	30.7
250 m	11 8 80	8 7 81	332	-0.8	338.9	0.08	-45.0	37.1
250 m	1 11 81	14 4 82	165	-1.4	270.1	0.08	-43.1	29.2
250 m	27 10 82	31 10 83	370	1.2	181.2	-0.07	-34.1	33.7

CURRENT SPEED AT 0, 109 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
15 m	11 7 81	14 4 82	278	51.8	566.6	0.22	1.3	118.4
15 m	27 10 82	16 3 83	141	39.8	417.3	0.28	3.4	95.3
15 m	25 4 83	31 10 83	190	68.3	1338.7	0.98	11.6	188.3
20 m	7 3 80	8 7 81	489	51.7	602.4	0.24	4.7	121.9
50 m	7 3 80	14 4 82	769	85.2	1289.5	0.57	3.6	214.8
50 m	27 10 82	31 10 83	370	61.2	689.2	0.11	1.3	156.5
75 m	7 3 80	6 10 80	214	107.9	1015.1	0.53	35.9	204.7
75 m	8 2 81	14 4 82	431	112.8	617.0	-0.02	47.6	181.6
75 m	27 10 82	31 10 83	370	65.0	750.2	-0.36	4.2	113.7
100 m	7 3 80	14 4 82	769	94.3	582.5	0.39	31.0	191.3
100 m	27 10 82	31 10 83	370	64.7	561.1	-0.51	1.6	112.3
150 m	7 3 80	8 7 81	489	49.8	213.7	0.46	18.7	99.7
150 m	1 11 81	14 4 82	165	54.7	217.3	1.11	31.8	108.9
150 m	27 10 82	31 10 83	370	42.2	220.3	-0.10	4.5	84.2
200 m	7 3 80	30 4 80	55	26.4	209.1	1.25	3.6	70.5
200 m	11 8 80	8 1 81	151	35.9	111.6	0.12	10.5	63.4
200 m	8 2 81	14 4 82	431	28.2	107.5	0.04	2.8	54.6
200 m	27 10 82	31 10 83	370	29.5	123.3	-0.18	3.2	55.1
250 m	11 8 80	8 7 81	332	22.5	85.9	0.17	0.8	48.8
250 m	1 11 81	14 4 82	165	19.4	53.1	0.13	2.5	44.8
250 m	27 10 82	31 10 83	370	28.1	97.6	-0.16	2.4	53.0

TEMPERATURE AT 0, 109 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-3.5 m	7 3 80	29 3 80	23	25.79	0.414	0.344	24.66	27.28
-3.5 m	11 8 80	15 3 82	582	23.22	2.250	0.294	19.93	27.20
-3.5 m	27 10 82	22 4 83	178	27.15	0.705	0.003	24.95	28.97
0 m	7 3 80	21 3 80	15	25.24	1.325	-0.172	23.19	27.13
0 m	11 8 80	29 3 81	231	23.17	2.374	0.937	20.47	27.71
0 m	12 7 81	19 8 81	39	21.46	1.541	0.462	19.67	23.86
0 m	1 11 81	16 11 81	16	22.37	0.823	0.472	21.30	24.08
0 m	27 10 82	22 4 83	178	28.09	0.940	-0.290	26.26	29.79
15 m	11 7 81	14 4 82	278	22.91	2.646	0.020	18.27	26.91
15 m	27 10 82	31 10 83	370	26.20	8.898	-0.891	19.26	29.50
20 m	7 3 80	8 7 81	489	23.25	3.286	-0.245	18.19	26.88
50 m	7 3 80	14 4 82	769	19.89	3.845	-0.261	14.52	24.59
50 m	27 10 82	31 10 83	370	22.95	16.625	-0.477	14.80	28.56
75 m	7 3 80	6 10 80	214	16.58	2.323	0.696	14.19	21.60
75 m	8 2 81	14 4 82	431	17.24	2.120	0.224	13.91	21.28
75 m	27 10 82	31 10 83	370	20.71	16.870	0.401	13.91	28.06
100 m	7 3 80	14 4 82	769	15.30	0.855	0.399	13.07	18.47
100 m	27 10 82	31 10 83	370	18.92	17.060	1.023	13.53	28.00
150 m	7 3 80	8 7 81	489	13.48	0.149	0.383	12.63	14.96
150 m	1 11 81	14 4 82	165	13.65	0.140	0.637	12.90	14.69
150 m	27 10 82	31 10 83	370	15.32	3.407	2.036	13.11	22.52
200 m	7 3 80	14 4 82	769	12.79	0.038	0.680	12.36	13.72
200 m	27 10 82	31 10 83	370	13.71	0.290	-0.552	12.08	15.18
250 m	7 3 80	8 7 81	489	12.45	0.034	-0.302	11.79	13.00
250 m	1 11 81	14 4 82	165	12.50	0.023	0.188	12.12	12.88
250 m	27 10 82	31 10 83	370	12.50	0.488	-1.161	10.30	13.66

ZONAL VELOCITY AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
15 m	16 4 82	26 10 82	194	8.1	1187.1	0.04	-67.4	94.0
15 m	26 4 83	2 11 83	191	-2.5	4605.2	0.75	-113.4	169.3
50 m	16 4 82	26 10 82	194	67.5	1989.3	0.57	-10.4	176.2
50 m	26 4 83	2 11 83	191	68.8	733.0	-0.94	-22.6	125.9
100 m	16 4 82	4 1 83	264	98.9	722.3	-0.20	13.7	167.1
100 m	26 4 83	2 11 83	191	68.5	343.5	-0.75	15.1	109.9

MERIDIONAL VELOCITY AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
15 m	16 4 82	26 10 82	194	4.5	702.6	0.62	-43.5	83.9
15 m	26 4 83	2 11 83	191	0.9	871.5	0.24	-67.0	78.6
50 m	16 4 82	26 10 82	194	-4.1	673.0	0.37	-68.2	65.3
50 m	26 4 83	2 11 83	191	-0.6	356.2	0.10	-58.5	49.8
100 m	16 4 82	4 1 83	264	-4.1	303.3	0.11	-55.9	52.3
100 m	26 4 83	2 11 83	191	2.1	247.9	-0.21	-35.8	38.0

CURRENT SPEED AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
15 m	16 4 82	26 10 82	194	39.2	436.6	0.51	2.6	96.3
15 m	26 4 83	2 11 83	191	63.6	1444.0	0.68	4.2	169.5
50 m	16 4 82	26 10 82	194	74.9	1631.4	0.69	8.1	177.1
50 m	26 4 83	2 11 83	191	73.0	501.9	-0.16	16.5	126.7
100 m	16 4 82	4 1 83	264	100.7	669.0	-0.08	25.0	167.1
100 m	26 4 83	2 11 83	191	70.4	323.6	-0.74	18.2	110.0

TEMPERATURE AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-3.5 m	16 4 82	26 10 82	194	24.78	0.954	-0.192	22.79	26.83
0 m	16 4 82	22 10 82	190	25.10	1.278	-0.339	22.86	27.49
15 m	16 4 82	26 10 82	194	24.96	1.251	-0.287	22.70	26.93
15 m	26 4 83	2 11 83	191	24.24	12.507	0.095	17.99	29.53
50 m	16 4 82	26 10 82	194	23.05	2.962	-0.049	18.41	26.06
50 m	26 4 83	2 11 83	191	19.57	9.526	0.551	14.91	28.19
100 m	16 4 82	4 1 83	264	20.01	17.913	0.439	14.70	27.71
100 m	26 4 83	2 11 83	191	16.42	2.115	-0.136	13.72	19.79

ZONAL VELOCITY AT 30'N, 110 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
20 m	26 10 79	1 3 80	128	-32.5	1810.4	0.31	-111.0	62.5
20 m	12 8 80	6 7 81	329	-16.6	2194.0	0.17	-104.1	89.8
50 m	26 10 79	1 3 80	128	1.2	1292.5	-0.47	-84.9	69.4
50 m	12 8 80	17 3 81	218	26.2	1606.6	0.19	-51.2	138.3
50 m	9 7 81	20 8 81	43	13.7	552.9	0.57	-26.7	68.6
75 m	12 8 80	30 1 81	172	50.1	1354.0	0.29	-36.8	158.3
75 m	9 7 81	30 10 81	114	30.6	775.5	0.63	-27.6	116.3
100 m	26 10 79	1 3 80	128	36.0	758.9	-0.02	-20.3	94.1
100 m	12 8 80	30 1 81	172	58.9	835.4	0.35	1.8	125.2
100 m	9 7 81	30 10 81	114	40.9	739.1	-0.06	-14.2	99.4
150 m	26 10 79	1 3 80	128	21.1	269.0	-0.09	-22.1	57.4
150 m	12 8 80	30 1 81	172	40.5	332.2	-0.01	-6.4	93.2
150 m	9 7 81	30 10 81	114	26.0	380.5	-0.22	-14.0	65.9
200 m	26 10 79	1 3 80	128	8.1	120.1	0.60	-16.1	44.6
200 m	12 8 80	30 1 81	172	18.8	217.3	-0.03	-23.9	54.2
200 m	9 7 81	30 10 81	114	10.5	216.8	-0.46	-25.9	35.3
250 m	26 10 79	1 3 80	128	-0.4	125.3	-0.22	-24.2	20.5
250 m	12 8 80	30 1 81	172	1.3	227.4	0.37	-25.5	37.5

MERIDIONAL VELOCITY AT 30'N, 110 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
20 m	26 10 79	1 3 80	128	7.7	962.7	0.21	-57.8	73.1
20 m	12 8 80	6 7 81	329	3.4	955.5	0.72	-54.8	112.7
50 m	26 10 79	1 3 80	128	-1.1	951.6	-0.37	-78.2	56.0
50 m	12 8 80	17 3 81	218	-2.1	1026.5	-0.22	-97.8	78.2
50 m	9 7 81	20 8 81	43	-2.8	659.4	0.12	-46.3	43.2
75 m	12 8 80	30 1 81	172	-7.6	427.9	-0.10	-55.7	53.3
75 m	9 7 81	30 10 81	114	-5.5	501.9	-0.42	-68.2	31.1
100 m	26 10 79	1 3 80	128	-1.9	211.5	-0.01	-37.0	26.9
100 m	12 8 80	30 1 81	172	-7.2	244.7	-0.14	-40.7	30.6
100 m	9 7 81	30 10 81	114	-2.2	307.9	-0.20	-47.1	31.9
150 m	26 10 79	1 3 80	128	-2.0	92.1	-0.11	-24.2	19.4
150 m	12 8 80	30 1 81	172	-7.9	239.0	0.00	-39.3	26.3
150 m	9 7 81	30 10 81	114	-1.8	227.2	-0.17	-40.7	29.6
200 m	26 10 79	1 3 80	128	-0.7	83.0	0.14	-21.9	18.4
200 m	12 8 80	30 1 81	172	-1.3	336.7	-0.09	-40.5	33.7
200 m	9 7 81	30 10 81	114	-0.8	240.9	-0.13	-35.1	29.7
250 m	26 10 79	1 3 80	128	0.4	104.8	-0.16	-28.1	22.6
250 m	12 8 80	30 1 81	172	-2.3	352.5	-0.24	-44.1	37.0

CURRENT SPEED AT 30'N, 110 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
20 m	26 10 79	1 3 80	128	56.2	733.9	0.11	10.4	115.9
20 m	12 8 80	6 7 81	329	53.0	627.1	0.25	2.8	116.0
50 m	26 10 79	1 3 80	128	42.4	446.2	0.27	2.7	89.6
50 m	12 8 80	17 3 81	218	51.2	707.3	0.85	5.6	142.5
50 m	9 7 81	20 8 81	43	33.8	262.4	0.46	6.3	69.9
75 m	12 8 80	30 1 81	172	59.2	851.7	0.89	5.3	158.4
75 m	9 7 81	30 10 81	114	41.2	548.1	0.99	4.0	116.3
100 m	26 10 79	1 3 80	128	42.2	489.8	0.44	1.4	94.1
100 m	12 8 80	30 1 81	172	62.0	756.6	0.39	11.8	125.3
100 m	9 7 81	30 10 81	114	46.7	544.8	0.21	4.4	100.1
150 m	26 10 79	1 3 80	128	25.5	157.3	0.57	2.2	57.8
150 m	12 8 80	30 1 81	172	44.3	309.6	0.14	5.1	96.3
150 m	9 7 81	30 10 81	114	32.5	230.0	0.20	1.5	66.2
200 m	26 10 79	1 3 80	128	14.4	62.3	1.10	0.6	44.6
200 m	12 8 80	30 1 81	172	27.8	136.1	0.16	2.6	57.6
200 m	9 7 81	30 10 81	114	22.6	55.4	-0.15	6.1	38.1
250 m	26 10 79	1 3 80	128	13.9	36.1	0.19	1.9	28.4
250 m	12 8 80	30 1 81	172	22.2	96.0	0.30	4.8	48.7

TEMPERATURE AT 30'N, 110 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-3.5 m	26 10 79	1 3 80	128	24.01	0.620	-0.124	22.31	26.02
-3.5 m	12 8 80	27 8 80	16	22.06	0.126	0.303	21.30	22.80
-3.5 m	3 2 81	30 10 81	270	23.81	2.805	-0.228	19.93	27.16
0 m	26 10 79	1 3 80	128	24.29	0.897	-0.118	21.95	27.04
0 m	12 8 80	30 10 81	445	23.74	2.812	0.118	19.56	27.63
20 m	26 10 79	1 3 80	128	24.01	0.893	-0.173	21.83	26.02
20 m	12 8 80	6 7 81	329	23.43	2.953	-0.051	18.38	26.58
50 m	26 10 79	1 3 80	128	22.02	2.101	-0.223	18.50	25.60
50 m	12 8 80	30 10 81	445	19.53	3.940	-0.604	14.53	23.03
75 m	12 8 80	30 1 81	172	17.15	4.313	0.540	14.31	21.60
100 m	26 10 79	1 3 80	128	15.72	1.671	1.483	14.06	19.94
100 m	9 7 81	30 10 81	114	14.69	0.743	0.963	12.96	18.39
150 m	26 10 79	1 3 80	128	13.68	0.184	0.351	12.86	14.61
150 m	12 8 80	30 1 81	172	13.53	0.212	0.338	12.67	14.74
150 m	9 7 81	30 10 81	114	13.19	0.169	0.707	12.61	14.41
200 m	26 10 79	1 3 80	128	12.83	0.043	0.358	12.42	13.43
200 m	12 8 80	30 1 81	172	12.74	0.044	1.182	12.25	13.63
200 m	9 7 81	30 10 81	114	12.70	0.033	1.322	12.48	13.31
250 m	26 10 79	1 3 80	128	12.34	0.017	0.239	12.09	12.68
250 m	12 8 80	30 1 81	172	12.29	0.028	0.430	11.91	12.82

ZONAL VELOCITY AT 30'S, 110 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
20 m	26 10 79	17 2 81	481	3.6	1312.9	0.22	-82.2	121.7
50 m	26 10 79	10 7 81	624	76.9	1429.0	0.57	-23.1	215.2
75 m	7 3 80	24 4 80	49	84.6	466.0	0.75	41.6	152.9
75 m	14 8 80	10 7 81	331	100.6	853.3	0.31	27.3	179.8
100 m	26 10 79	10 7 81	624	82.2	552.5	0.20	22.9	155.3
150 m	26 10 79	13 7 80	262	40.7	407.8	0.18	-27.3	122.5
150 m	5 2 81	10 7 81	156	39.6	390.0	0.71	3.8	98.0
200 m	26 10 79	6 2 80	104	19.6	136.9	-0.66	-12.9	40.8
200 m	7 3 80	5 7 80	121	17.6	313.3	-0.24	-37.9	70.7
200 m	14 8 80	10 7 81	331	18.5	250.4	-0.55	-26.5	57.0
250 m	26 10 79	15 7 80	264	-0.5	293.2	-0.23	-41.7	42.3
250 m	14 8 80	24 6 81	315	3.8	139.4	0.23	-28.8	32.7

MERIDIONAL VELOCITY AT 30'S, 110 30'W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
20 m	26 10 79	17 2 81	481	-7.8	1251.8	0.04	-86.8	75.7
50 m	26 10 79	10 7 81	624	-11.6	895.2	-0.20	-100.8	69.1
75 m	7 3 80	24 4 80	49	-9.2	589.4	-0.80	-87.9	40.5
75 m	14 8 80	10 7 81	331	-8.1	472.0	-0.46	-74.8	61.5
100 m	26 10 79	10 7 81	624	-2.4	234.5	0.65	-60.3	100.0
150 m	26 10 79	13 7 80	262	-3.9	139.3	1.05	-29.5	55.0
150 m	5 2 81	10 7 81	156	-1.9	127.8	-0.61	-35.4	19.6
200 m	26 10 79	6 2 80	104	-2.3	114.9	0.87	-22.6	31.5
200 m	7 3 80	5 7 80	121	-0.3	131.9	0.02	-23.8	28.1
200 m	14 8 80	10 7 81	331	-1.7	251.3	-0.24	-45.8	35.5
250 m	26 10 79	15 7 80	264	-0.3	159.2	0.25	-33.1	41.1
250 m	14 8 80	24 6 81	315	0.3	227.7	-0.41	-40.2	41.0

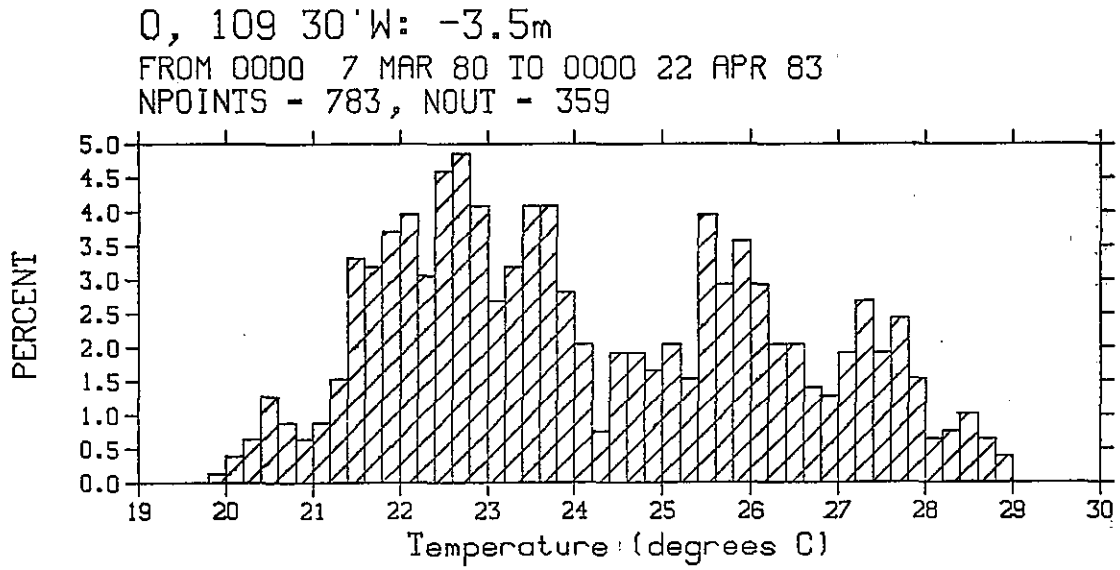
CURRENT SPEED AT 30'S, 110 30'W

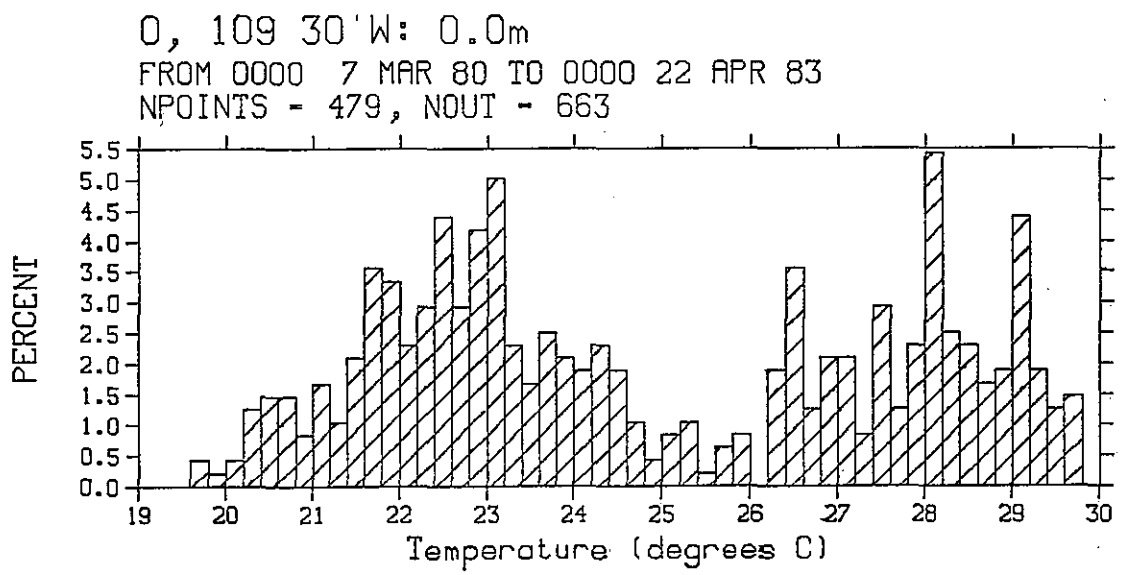
Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
20 m	26 10 79	17 2 81	481	45.7	554.8	0.37	0.8	122.0
50 m	26 10 79	10 7 81	624	85.0	1156.5	0.87	7.5	215.4
75 m	7 3 80	24 4 80	49	88.2	513.1	0.49	42.5	152.9
75 m	14 8 80	10 7 81	331	103.3	840.4	0.37	27.8	182.6
100 m	26 10 79	10 7 81	624	83.6	560.0	0.23	25.0	157.4
150 m	26 10 79	13 7 80	262	43.4	332.6	0.97	3.8	122.7
150 m	5 2 81	10 7 81	156	41.6	358.9	0.80	6.8	98.6
200 m	26 10 79	6 2 80	104	24.2	55.9	0.12	6.0	41.0
200 m	7 3 80	5 7 80	121	24.8	141.5	1.22	2.2	70.7
200 m	14 8 80	10 7 81	331	26.8	126.6	0.05	1.6	57.8
250 m	26 10 79	15 7 80	264	19.1	88.0	0.52	1.2	45.2
250 m	14 8 80	24 6 81	315	16.9	96.5	0.63	1.4	48.0

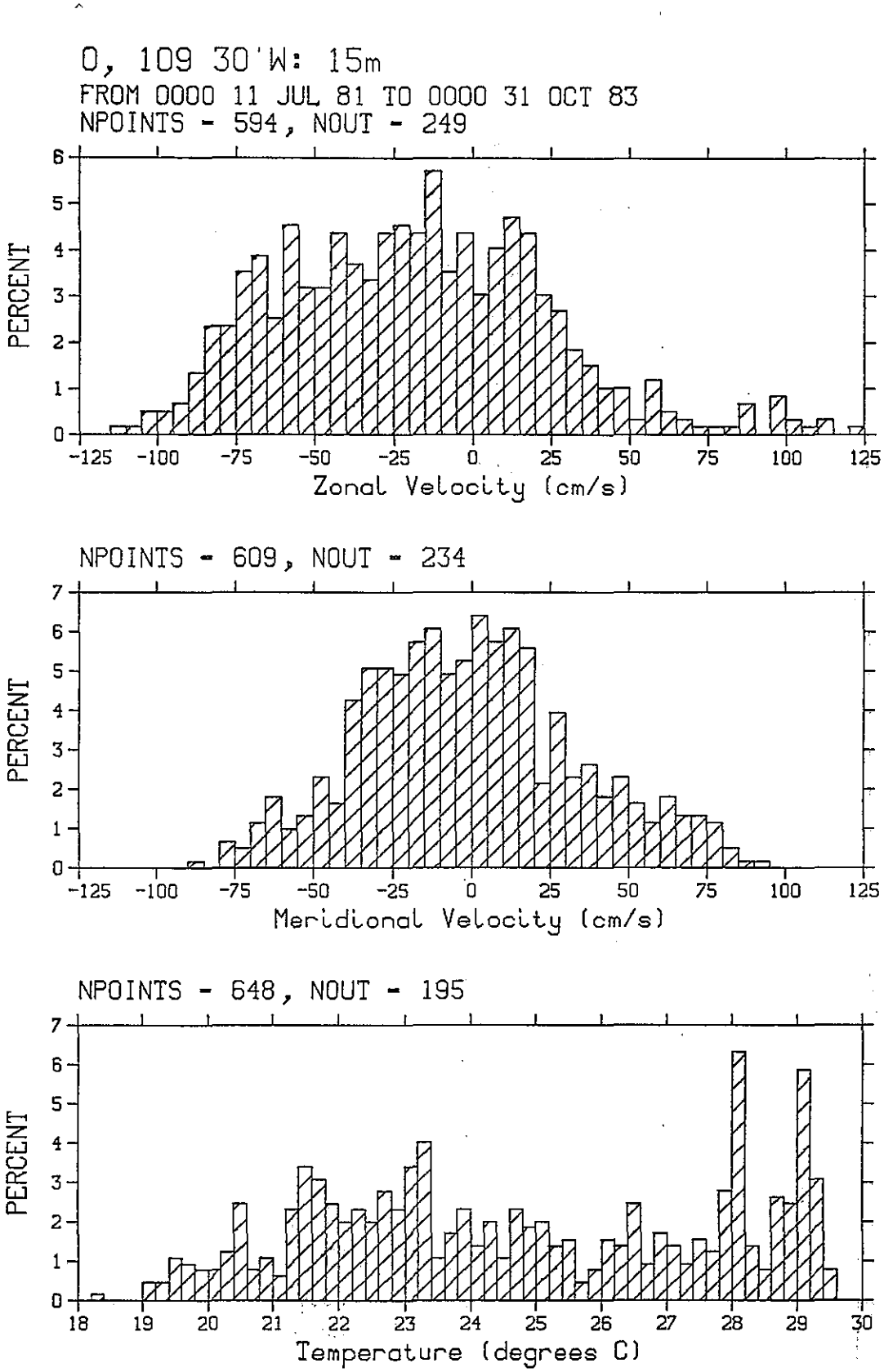
TEMPERATURE AT 30'S, 110 30'W

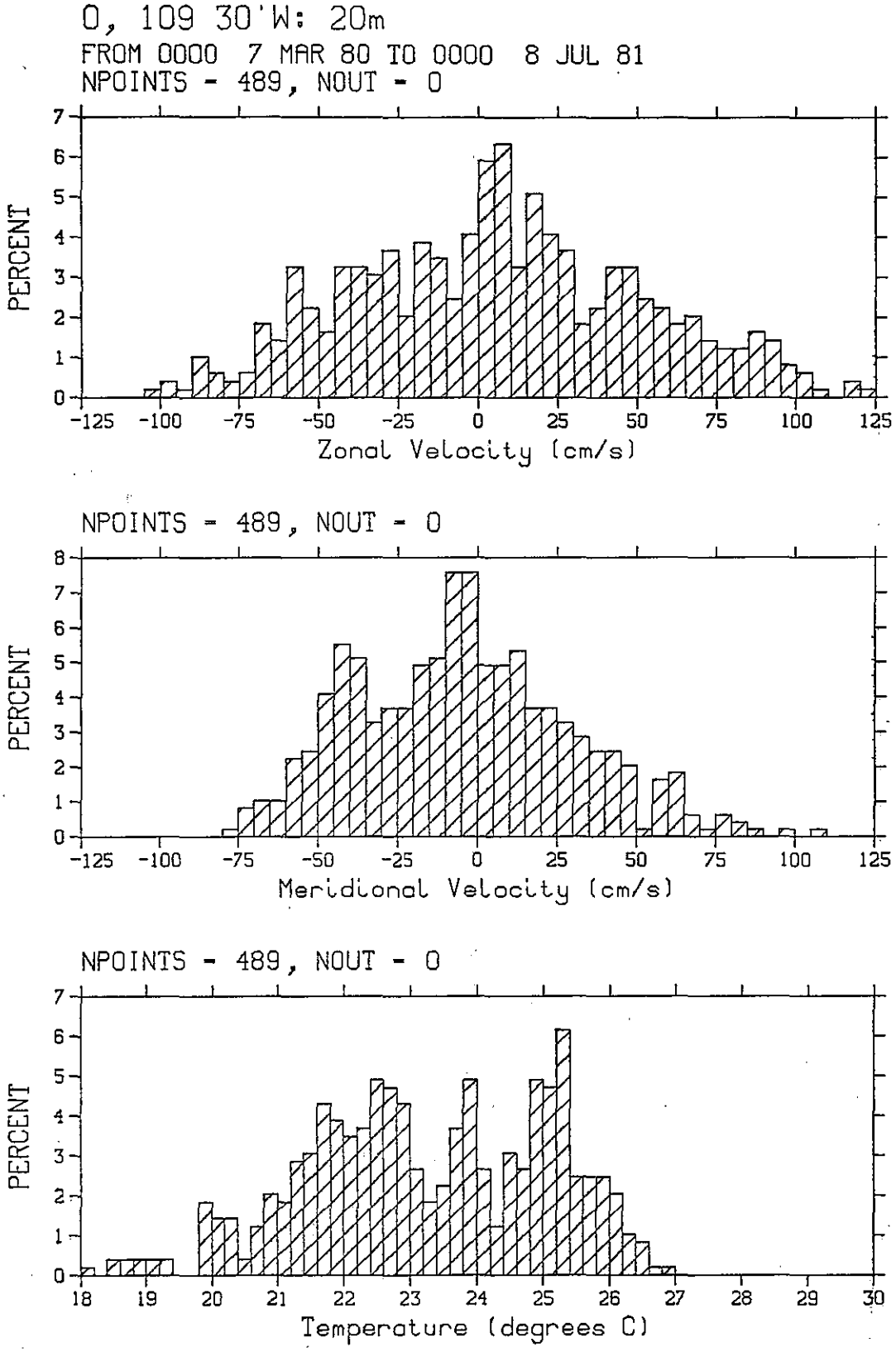
Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-3.5 m	26 10 79	10 7 81	624	23.97	2.125	0.115	20.63	27.77
0 m	26 10 79	1 3 80	128	23.98	0.485	0.057	22.36	25.52
0 m	14 8 80	10 7 81	331	23.69	2.143	0.376	20.57	27.48
20 m	26 10 79	17 2 81	481	23.20	2.385	-0.125	19.37	26.63
50 m	26 10 79	2 2 81	466	20.77	3.565	-0.479	15.61	24.80
50 m	15 2 81	10 7 81	146	21.25	4.496	-0.526	16.23	24.95
75 m	7 3 80	10 7 81	491	17.56	3.068	0.302	14.12	22.87
100 m	26 10 79	10 7 81	624	15.65	1.454	0.561	12.99	19.99
150 m	26 10 79	13 7 80	262	13.55	0.230	0.930	12.67	15.81
150 m	5 2 81	10 7 81	156	13.20	0.196	0.823	12.56	14.62
200 m	26 10 79	10 7 81	624	12.71	0.045	1.313	12.27	14.06
250 m	26 10 79	24 6 81	608	12.35	0.031	-0.752	11.42	12.80

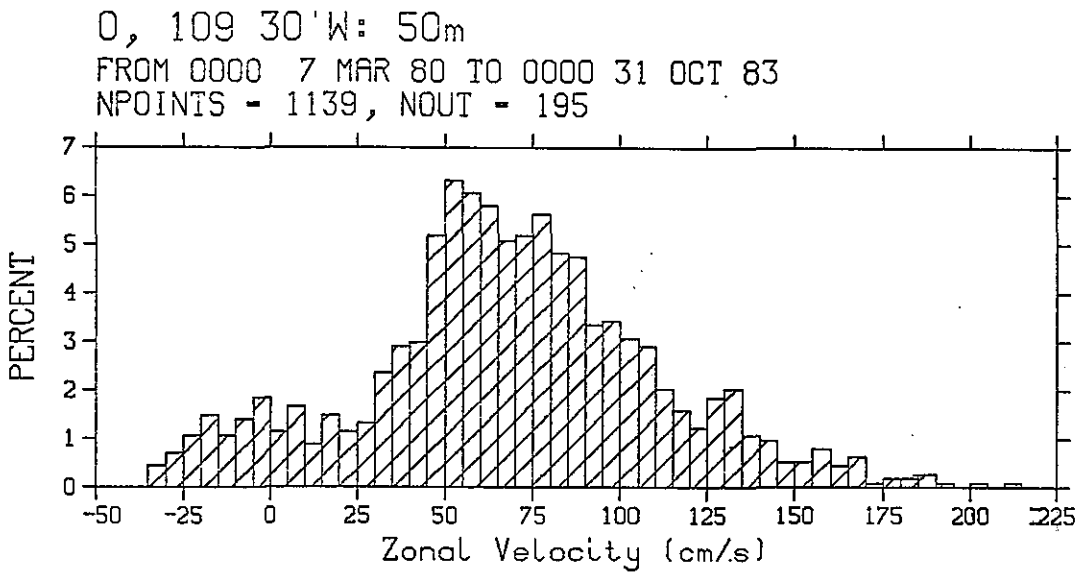
Section IID: HISTOGRAMS

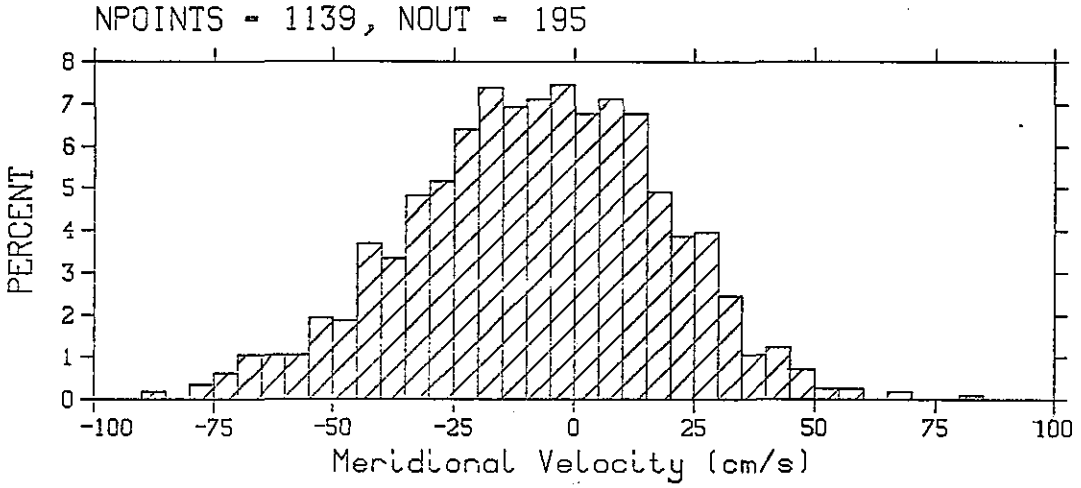

0, 109 30'W: -3.5m
FROM 0000 7 MAR 80 TO 0000 22 APR 83
NPOINTS = 783, NOUT = 359
PERCENT
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
19
20
21
22
23
24
25
26
27
28
29
30
Temperature (degrees C)

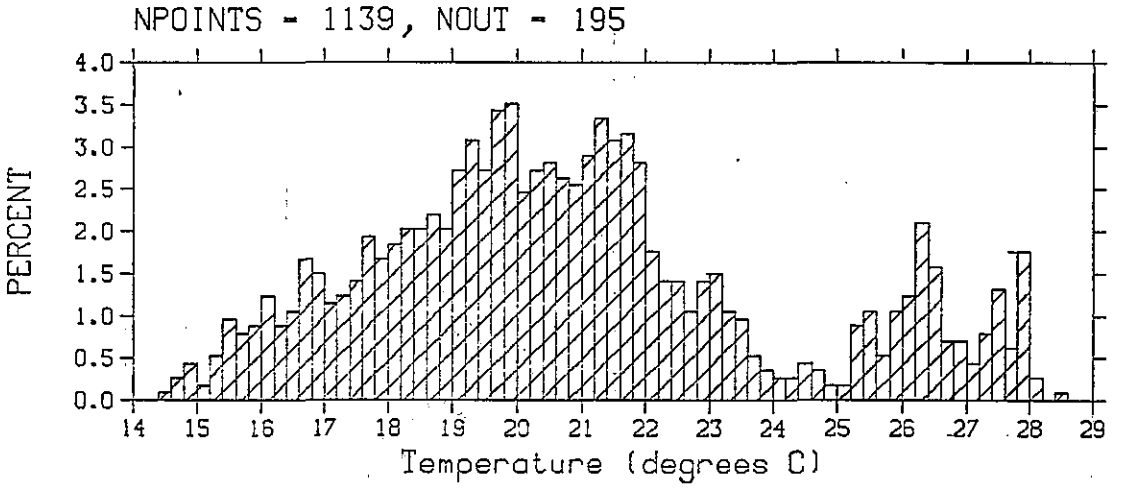

0, 109 30'W: 0.0m
FROM 0000 7 MAR 80 TO 0000 22 APR 83
NPOINTS = 479, NOUT = 663
PERCENT
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
19
20
21
22
23
24
25
26
27
28
29
30
Temperature (degrees C)

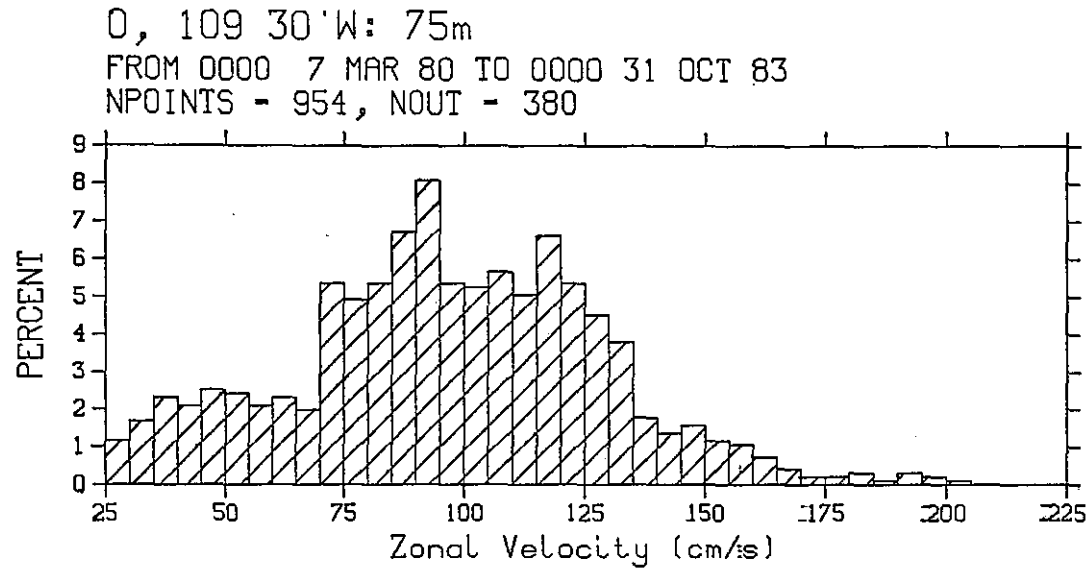

0, 109 30'W: 15m
FROM 0000 11 JUL 81 TO 0000 31 OCT 83
NPOINTS = 594, NOUT = 249
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 609, NOUT = 234
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 648, NOUT = 195
PERCENT
Temperature (degrees C)

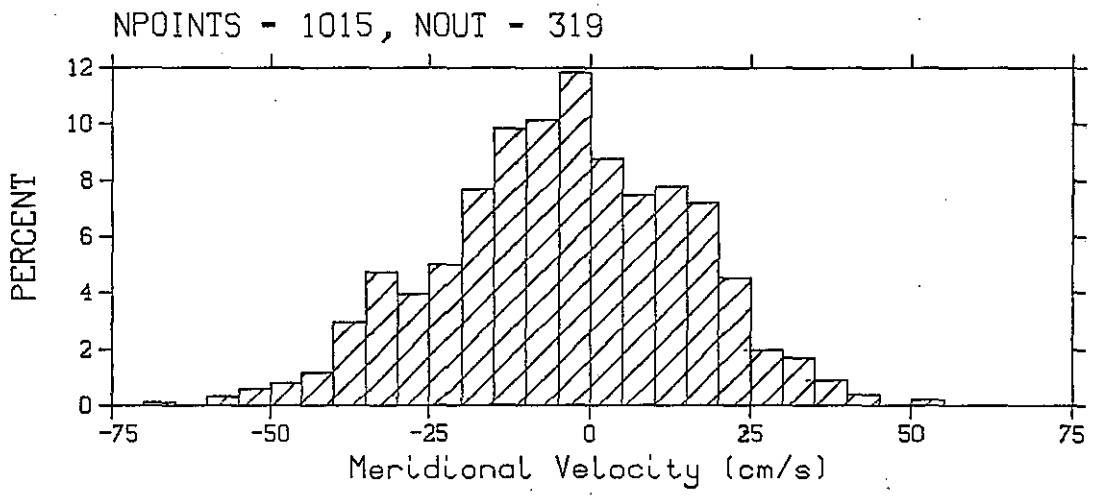

0, 109 30'W: 20m
FROM 0000 7 MAR 80 TO 0000 8 JUL 81
NPOINTS = 489, NOUT = 0
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 489, NOUT = 0
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 489, NOUT = 0
PERCENT
Temperature (degrees C)

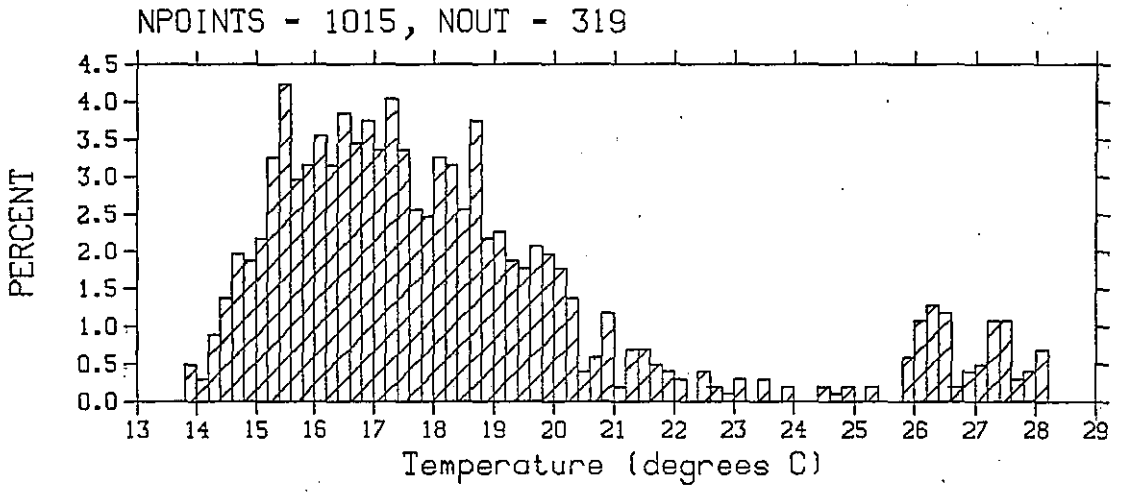

0, 109 30'W: 50m
FROM 0000 7 MAR 80 TO 0000 31 OCT 83
NPOINTS = 1139, NOUT = 195
PERCENT
Zonal Velocity (cm/s)

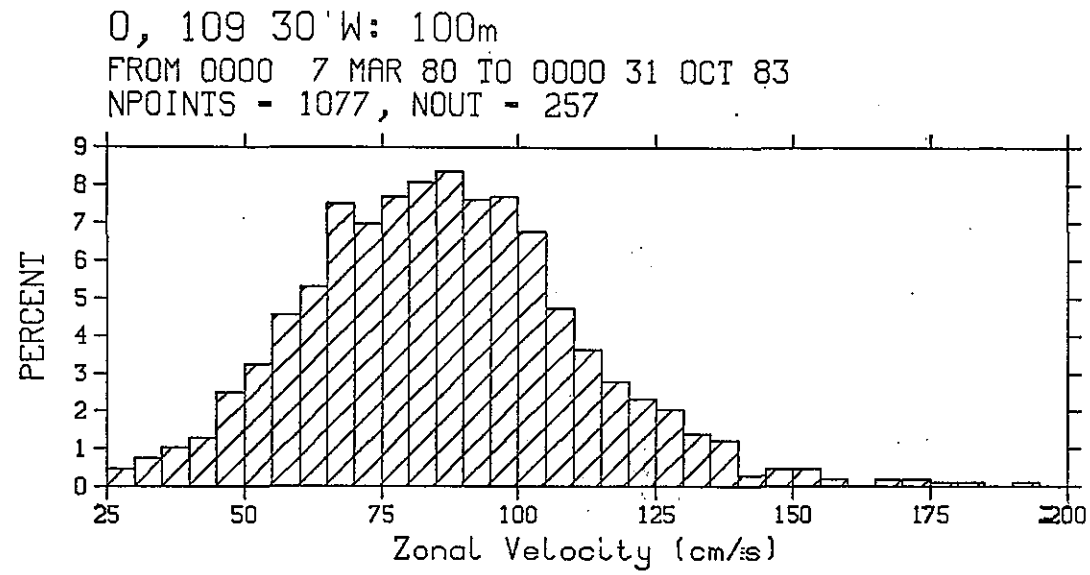

NPOINTS = 1139, NOUT = 195
PERCENT
Meridional Velocity (cm/s)

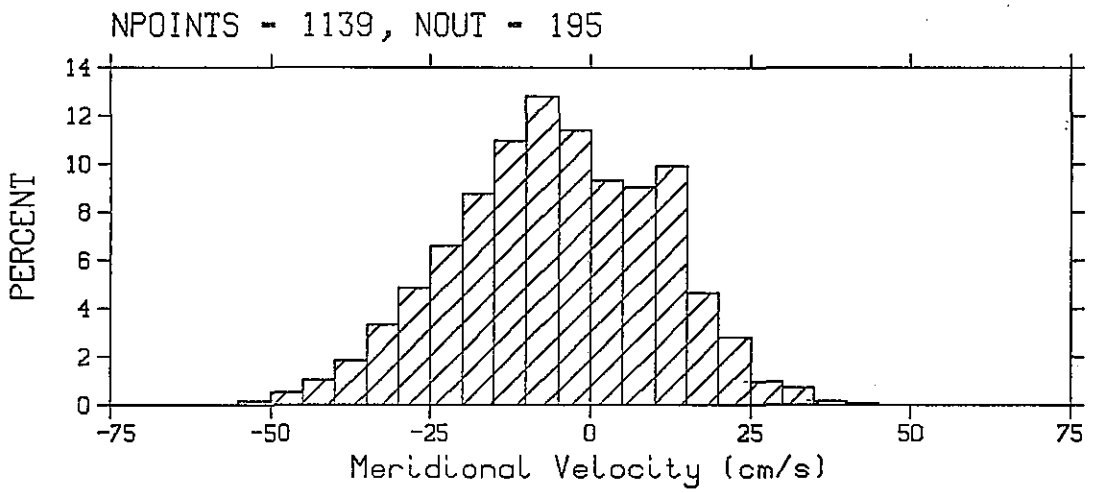

NPOINTS = 1139, NOUT = 195
PERCENT
Temperature (degrees C)

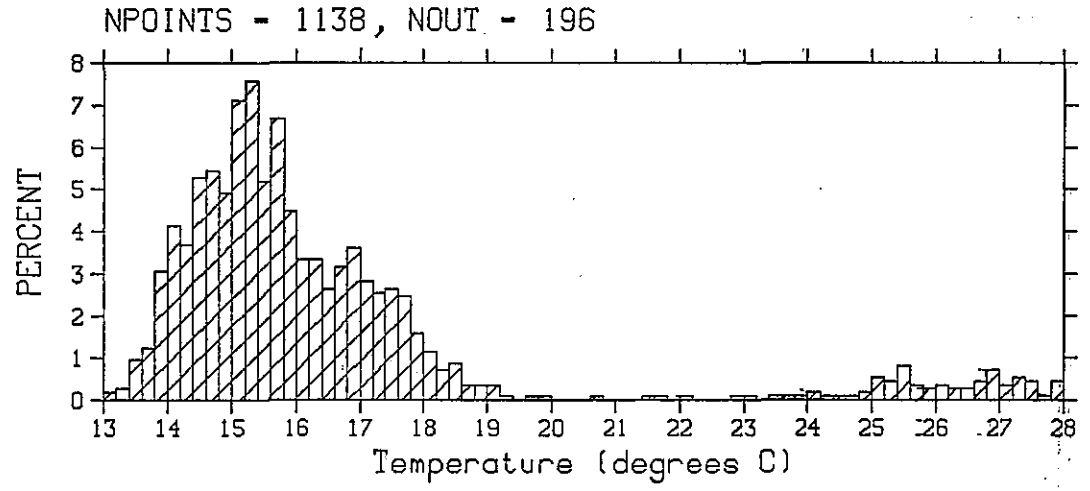

0, 109 30'W: 75m
FROM 0000 7 MAR 80 TO 0000 31 OCT 83
NPOINTS - 954, NOUT - 380
PERCENT
Zonal Velocity (cm/s)

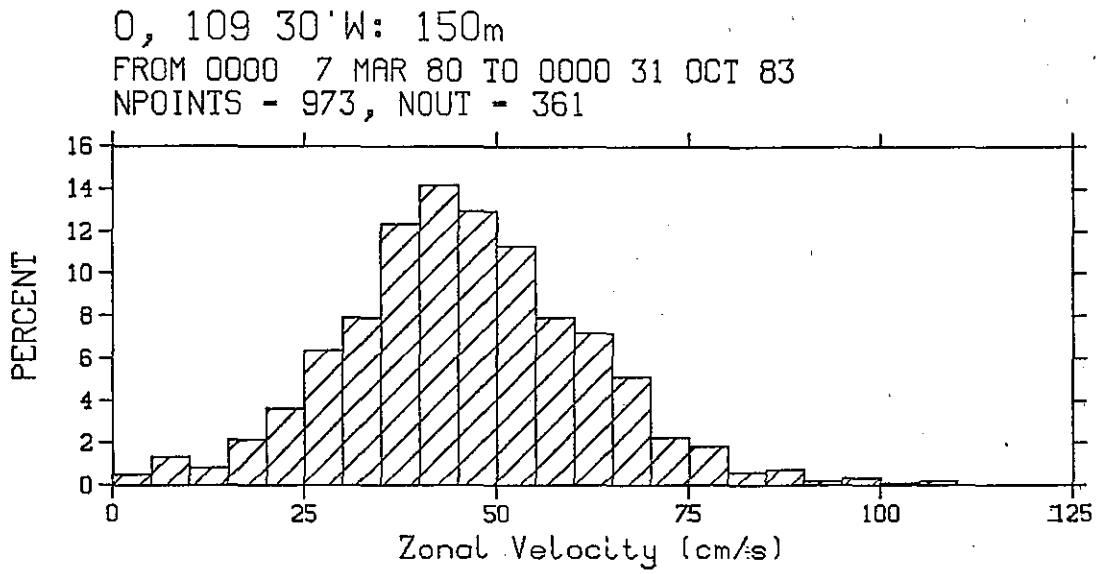

NPOINTS - 1015, NOUT - 319
PERCENT
Meridional Velocity (cm/s)

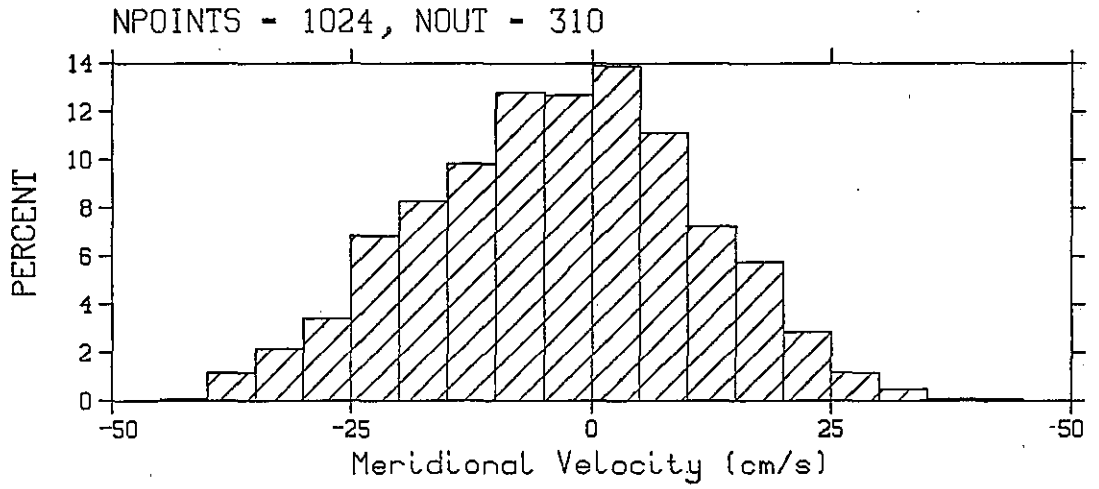

NPOINTS - 1015, NOUT - 319
PERCENT
Temperature (degrees C)

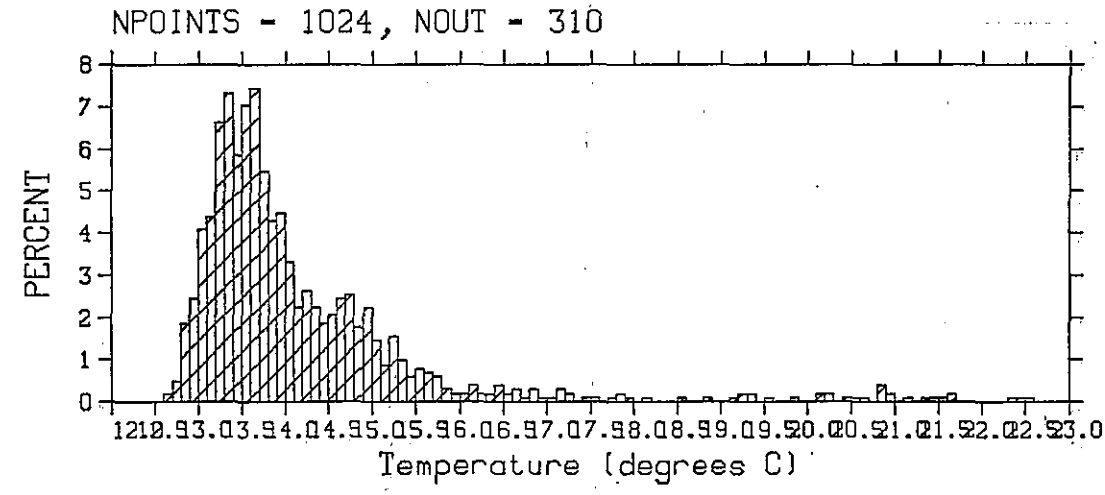

0, 109 30'W: 100m
FROM 0000 7 MAR 80 TO 0000 31 OCT 83
NPOINTS = 1077, NOUT = 257
PERCENT
Zonal Velocity (cm/s)

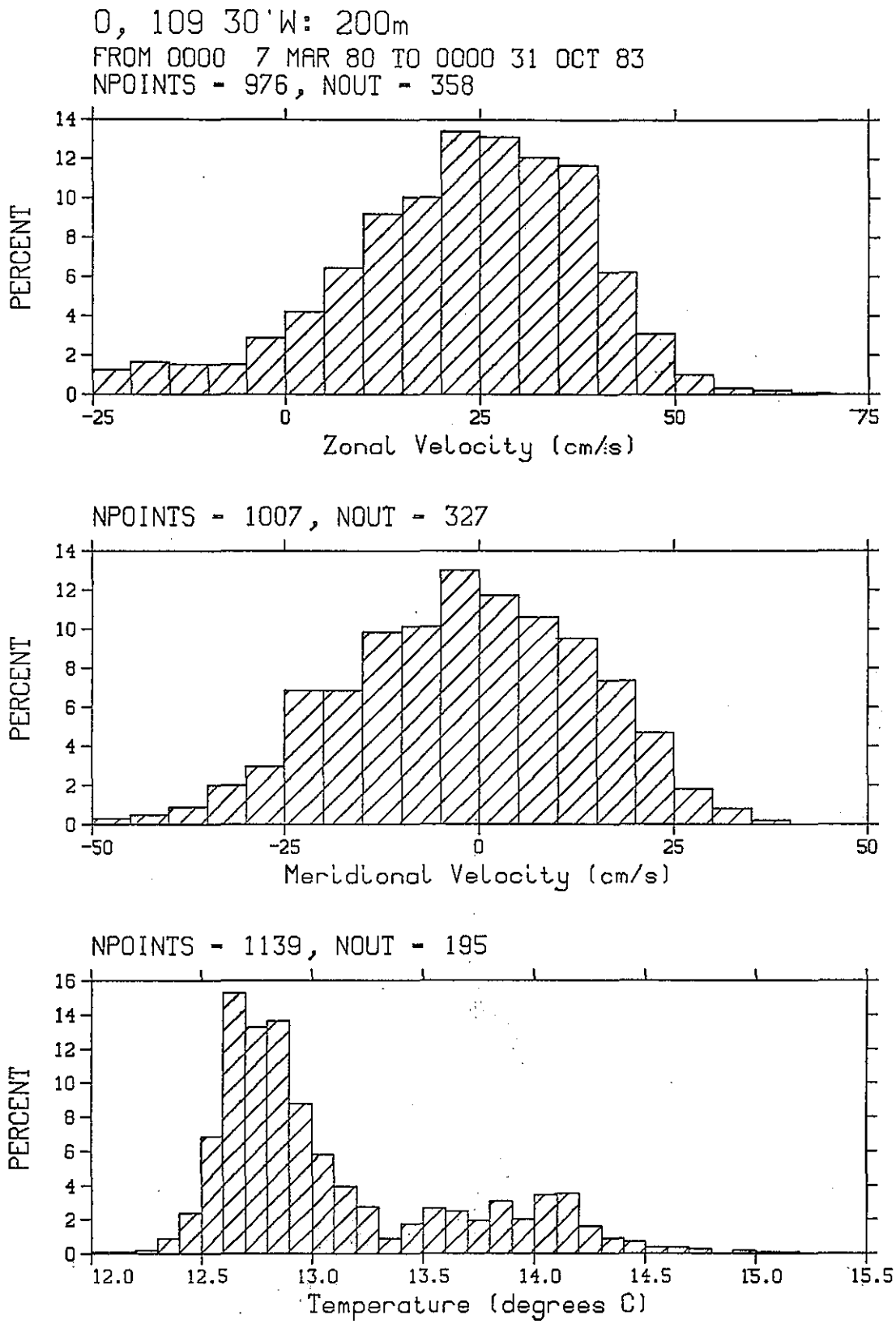

NPOINTS = 1139, NOUT = 195
PERCENT
Meridional Velocity (cm/s)

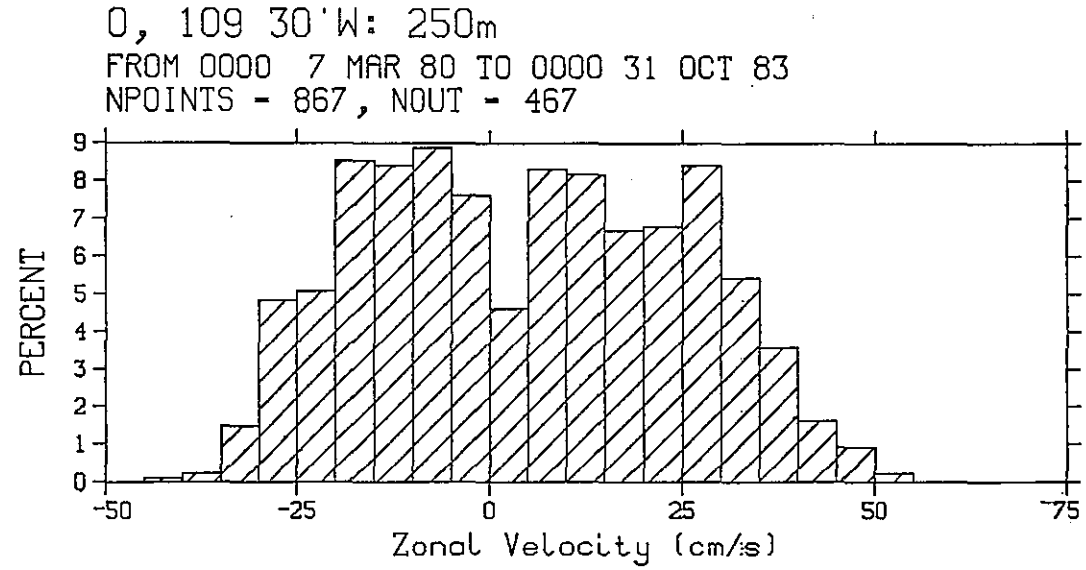

NPOINTS = 1138, NOUT = 196
PERCENT
Temperature (degrees C)

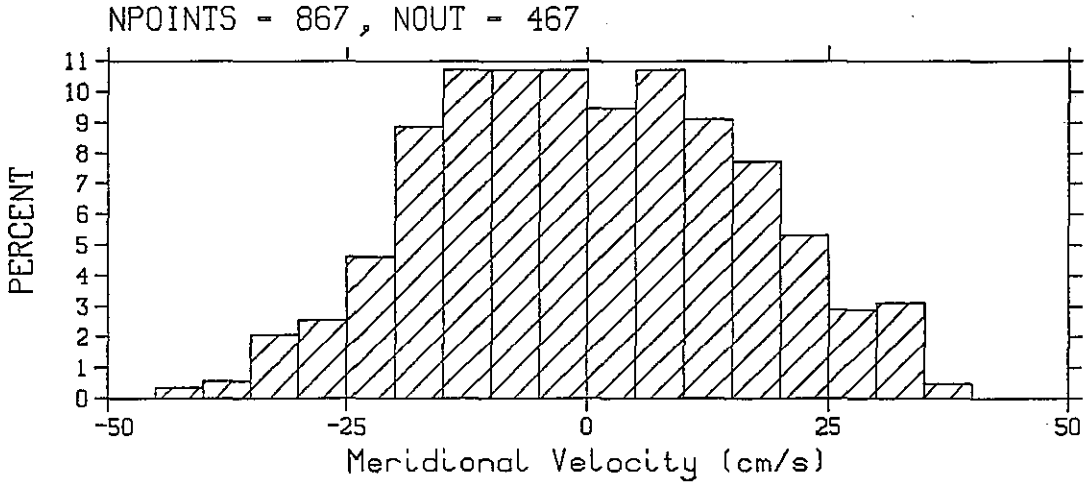

0, 109 30'W: 150m
FROM 0000 7 MAR 80 TO 0000 31 OCT 83
NPOINTS - 973, NOUT - 361
PERCENT
0
2
4
6
8
10
12
14
16
0
25
50
75
100
125
Zonal Velocity (cm/s)

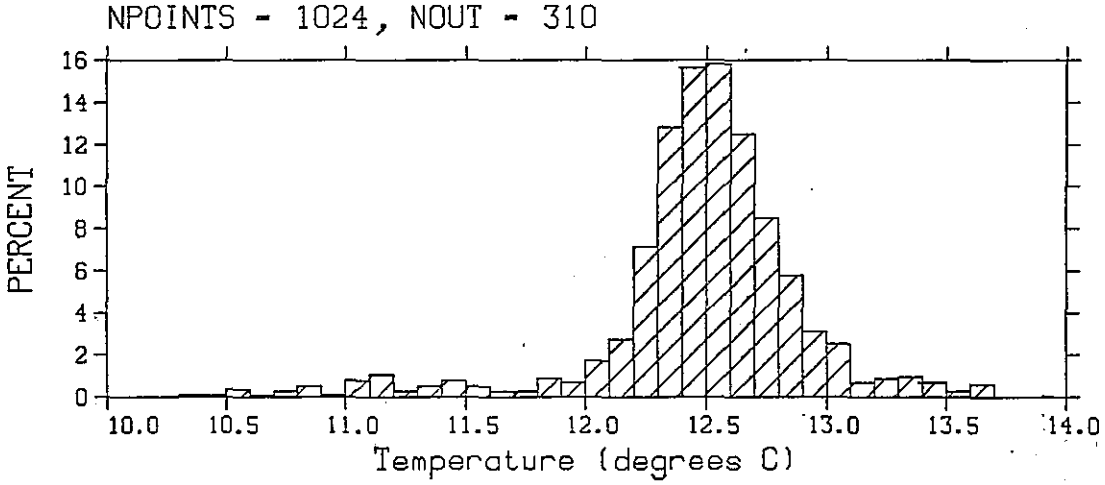

NPOINTS - 1024, NOUT - 310
PERCENT
0
2
4
6
8
10
12
14
-50
-25
0
25
-50
Meridional Velocity (cm/s)

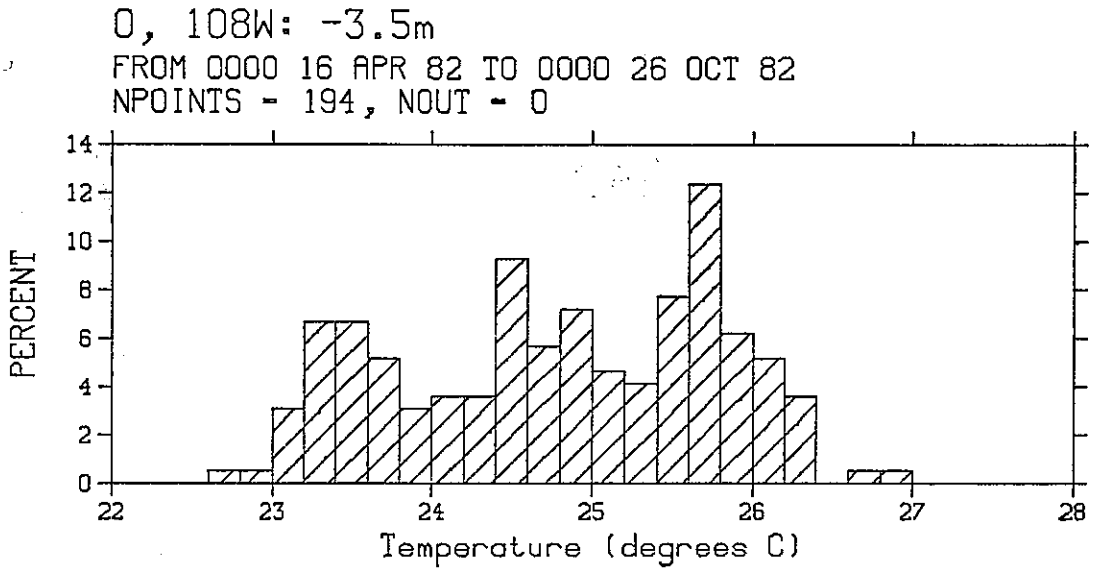

NPOINTS - 1024, NOUT - 310
PERCENT
0
1
2
3
4
5
6
7
8
Temperature (degrees C)

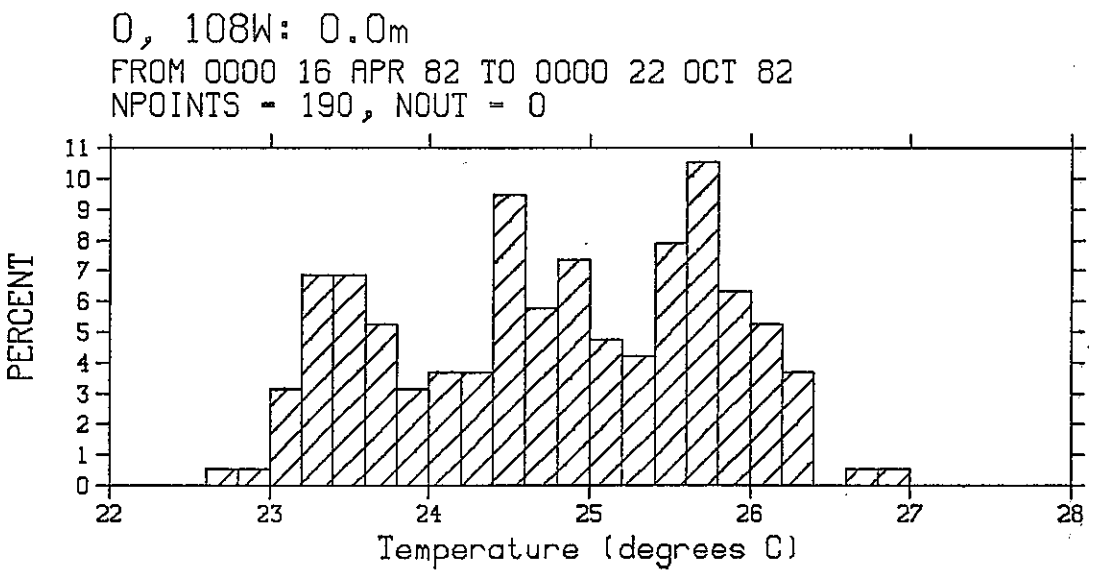

0, 109 30'W: 200m
FROM 0000 7 MAR 80 TO 0000 31 OCT 83
NPOINTS = 976, NOUT = 358
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 1007, NOUT = 327
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 1139, NOUT = 195
PERCENT
Temperature (degrees C)

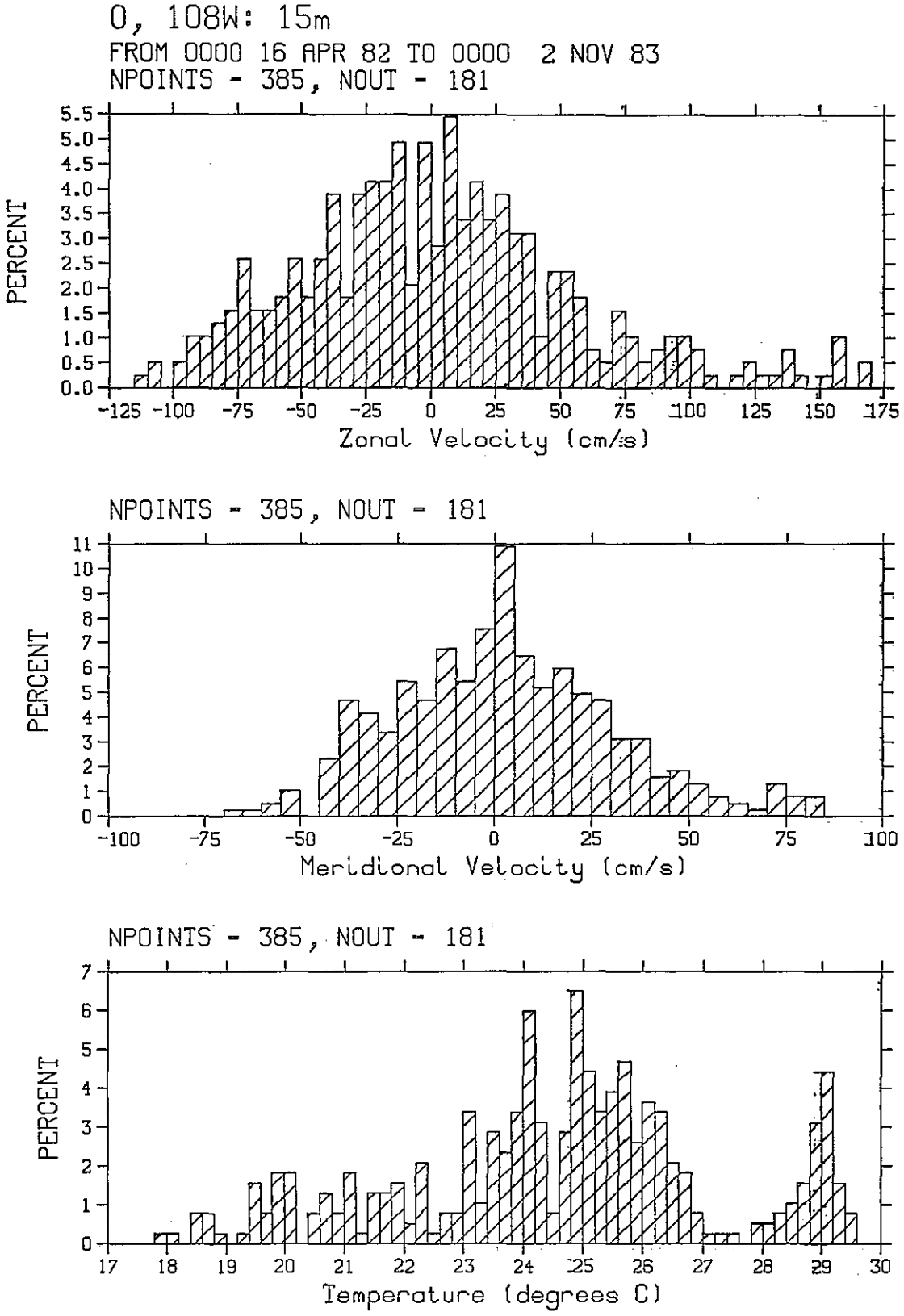

0, 109 30'W: 250m
FROM 0000 7 MAR 80 TO 0000 31 OCT 83
NPOINTS = 867, NOUT = 467
PERCENT
Zonal Velocity (cm/s)

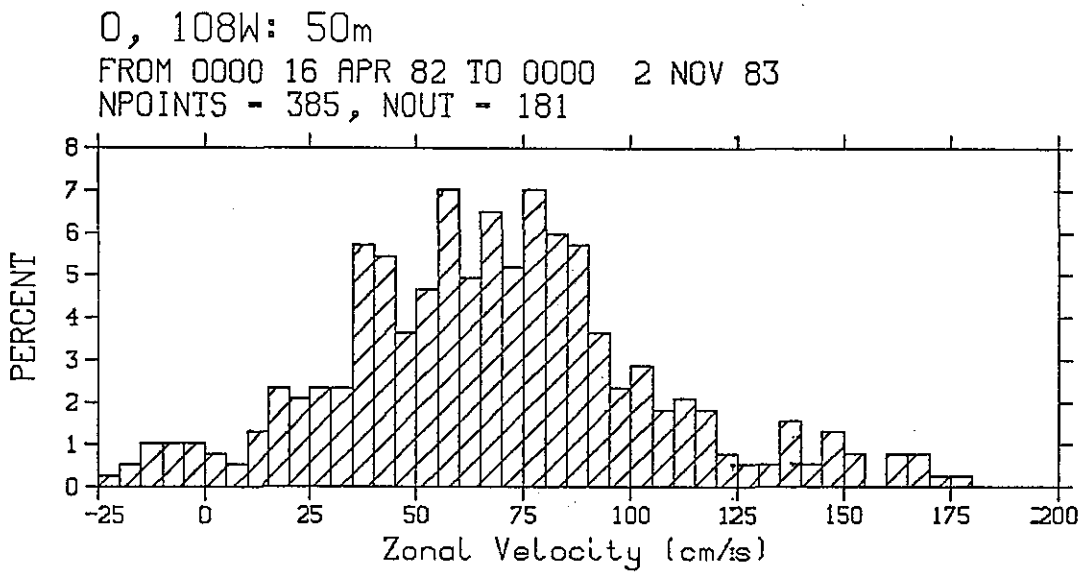

NPOINTS = 867, NOUT = 467
PERCENT
Meridional Velocity (cm/s)

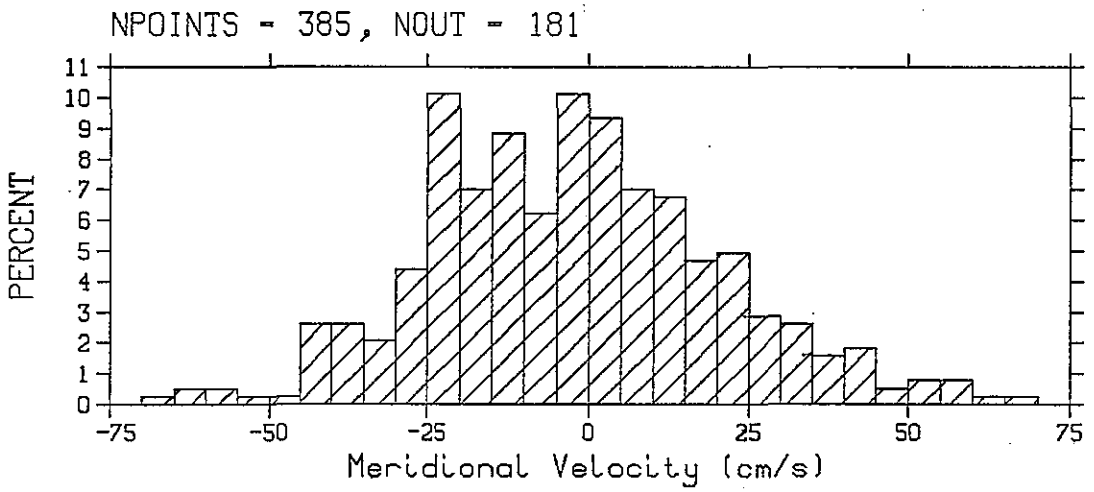

NPOINTS = 1024, NOUT = 310
PERCENT
Temperature (degrees C)

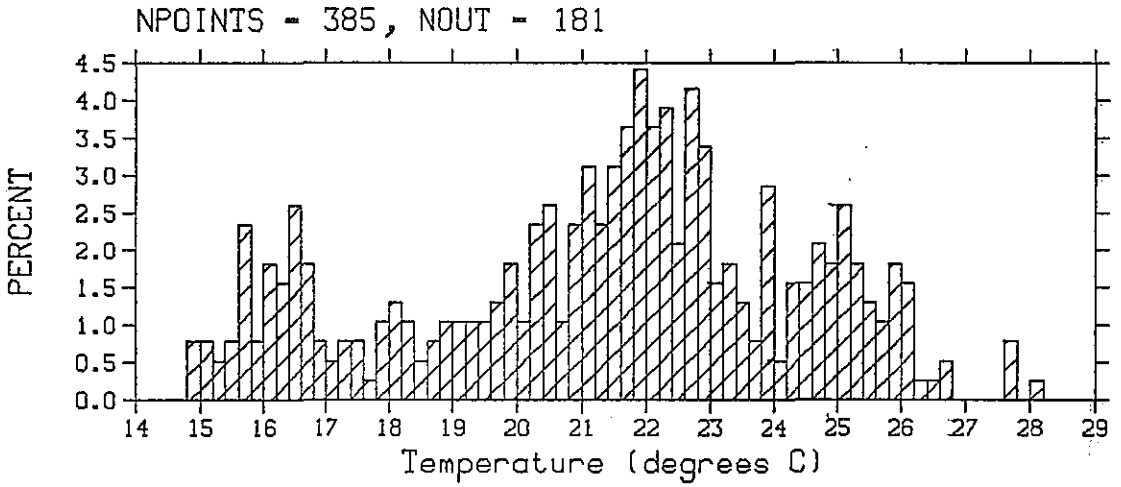

0, 108W: -3.5m
FROM 0000 16 APR 82 TO 0000 26 OCT 82
NPOINTS = 194, NOUT = 0
PERCENT
Temperature (degrees C)

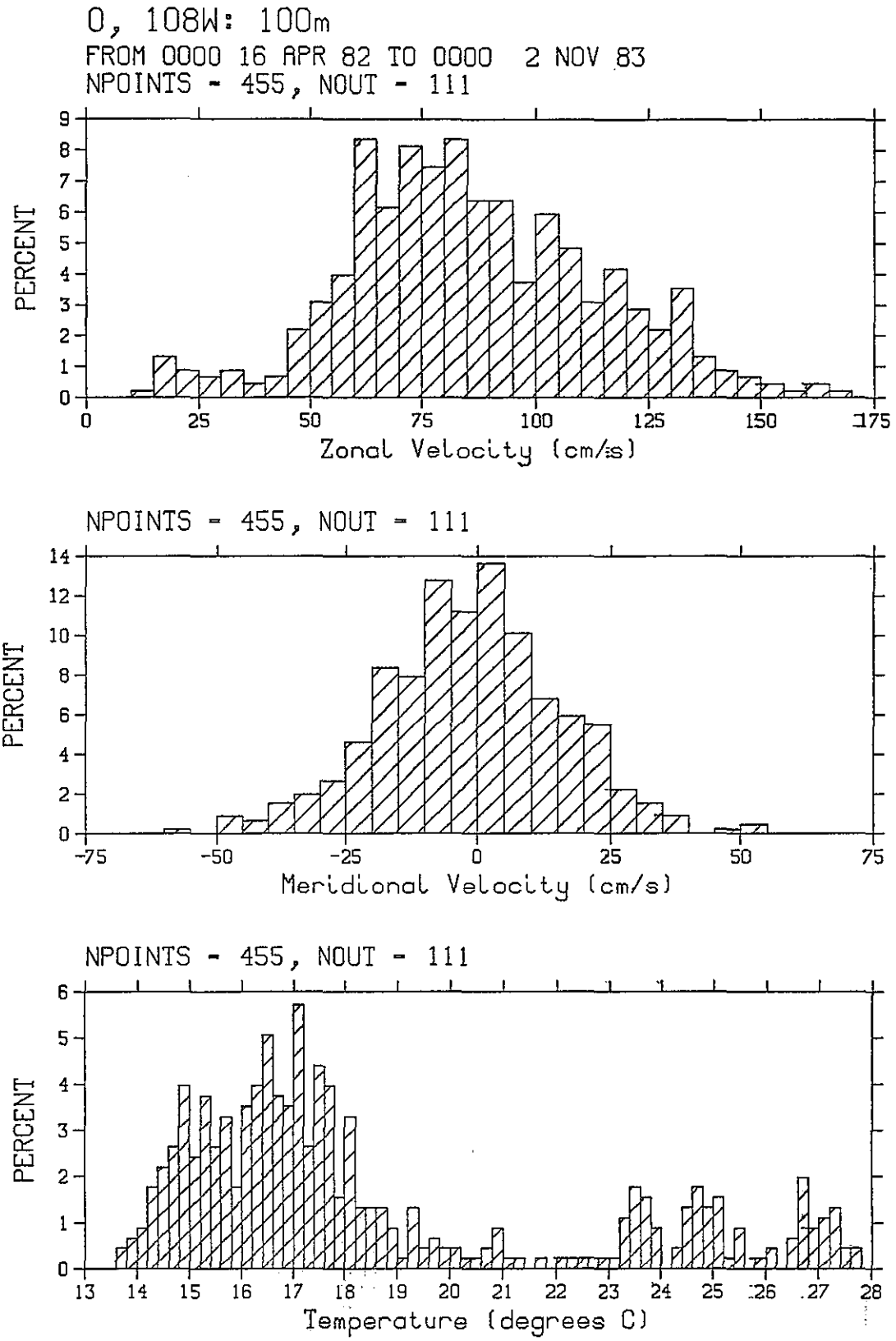

0, 108W: 0.0m
FROM 0000 16 APR 82 TO 0000 22 OCT 82
NPOINTS = 190, NOUT = 0
PERCENT
Temperature (degrees C)

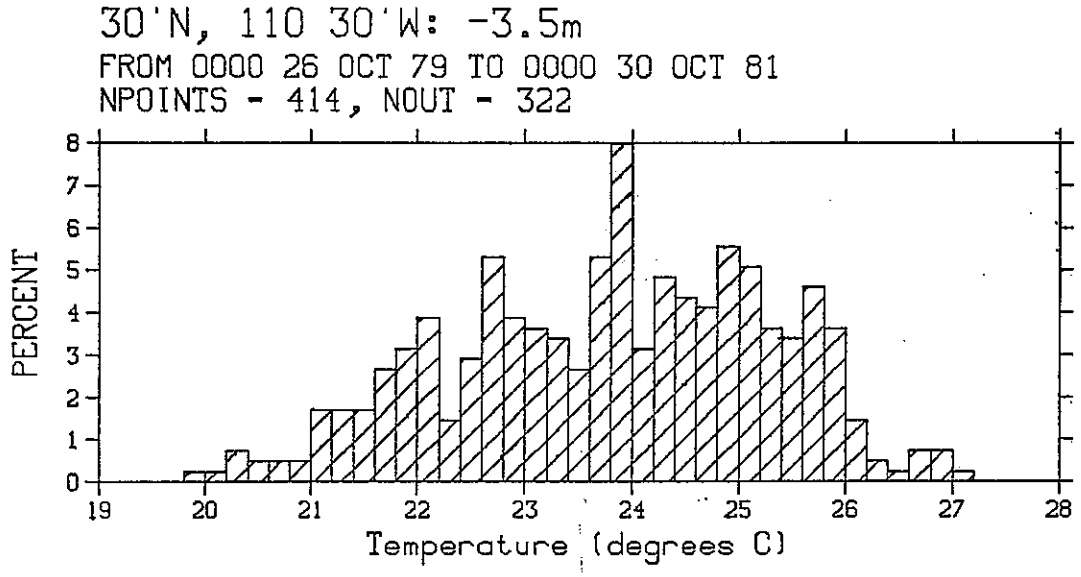

0, 108W: 15m
FROM 0000 16 APR 82 TO 0000 2 NOV 83
NPOINTS - 385, NOUT - 181
PERCENT
Zonal Velocity (cm/s)
NPOINTS - 385, NOUT - 181
PERCENT
Meridional Velocity (cm/s)
NPOINTS - 385, NOUT - 181
PERCENT
Temperature (degrees C)

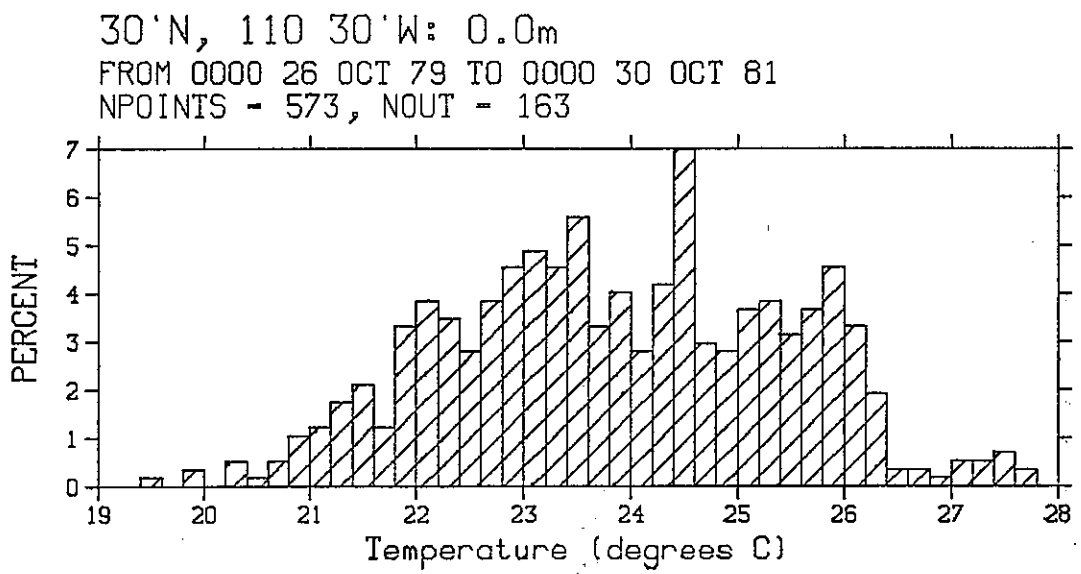

0, 108W: 50m
FROM 0000 16 APR 82 TO 0000 2 NOV 83
NPOINTS = 385, NOUT = 181
PERCENT
Zonal Velocity (cm/s)

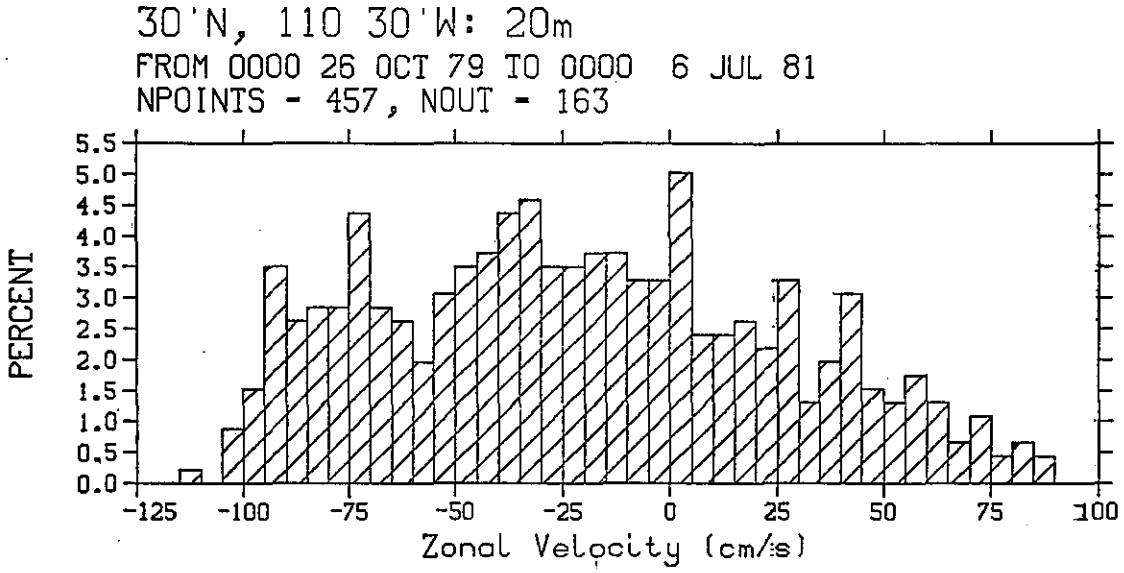

NPOINTS = 385, NOUT = 181
PERCENT
Meridional Velocity (cm/s)

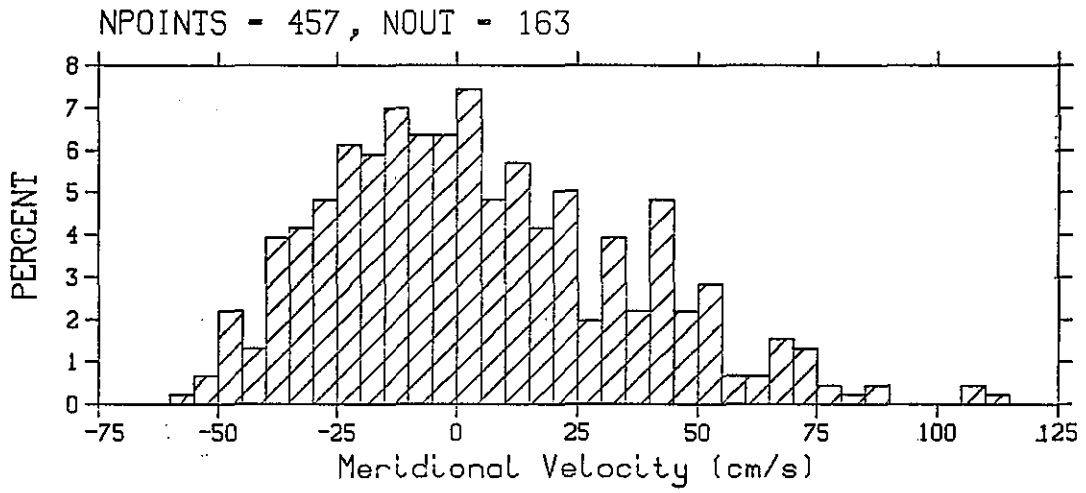

NPOINTS = 385, NOUT = 181
PERCENT
Temperature (degrees C)

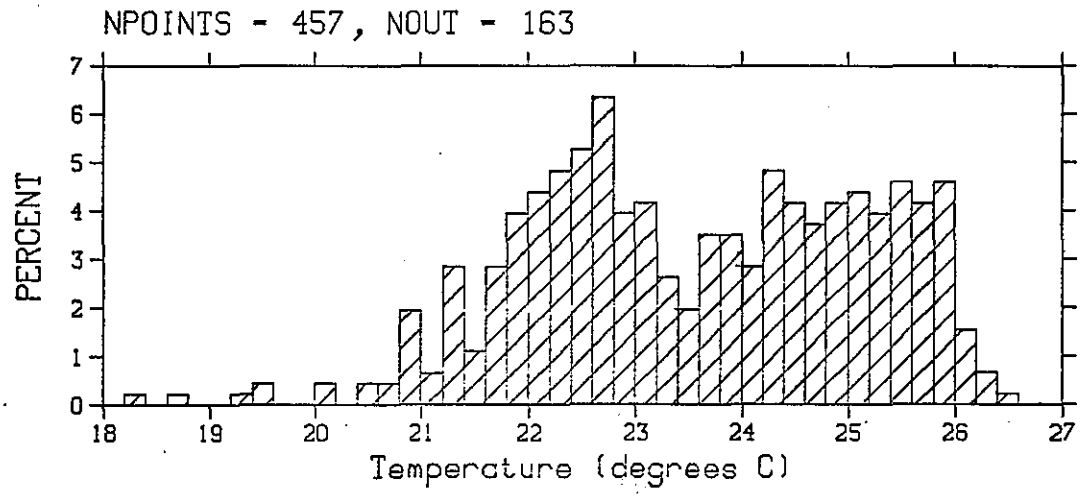

0, 108W: 100m
FROM 0000 16 APR 82 TO 0000 2 NOV 83
NPOINTS = 455, NOUT = 111
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 455, NOUT = 111
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 455, NOUT = 111
PERCENT
Temperature (degrees C)

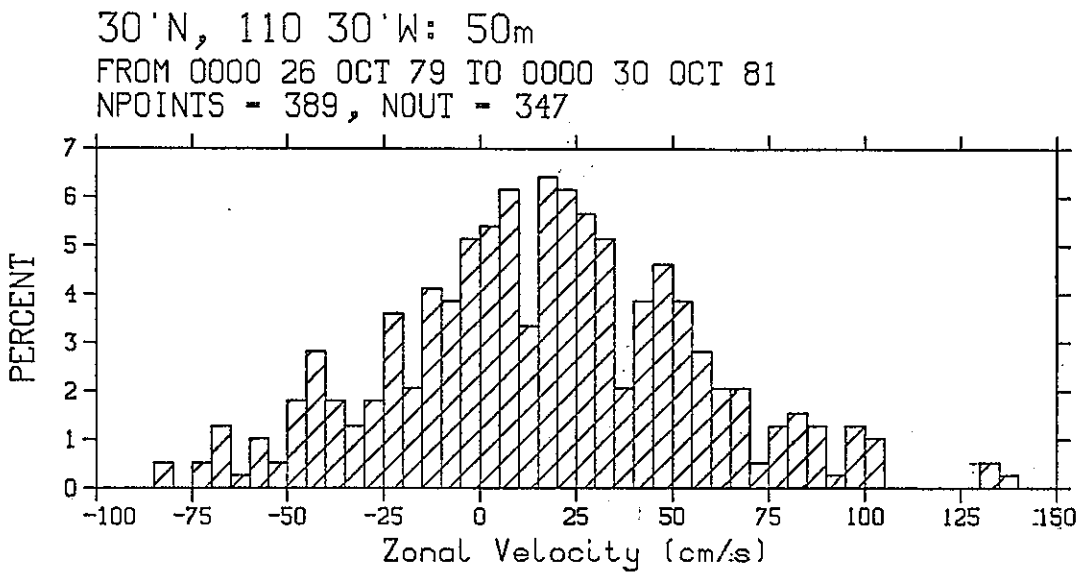

30'N, 110 30'W: -3.5m
FROM 0000 26 OCT 79 TO 0000 30 OCT 81
NPOINTS = 414, NOUT = 322
PERCENT
0
1
2
3
4
5
6
7
8
19
20
21
22
23
24
25
26
27
28
Temperature (degrees C)

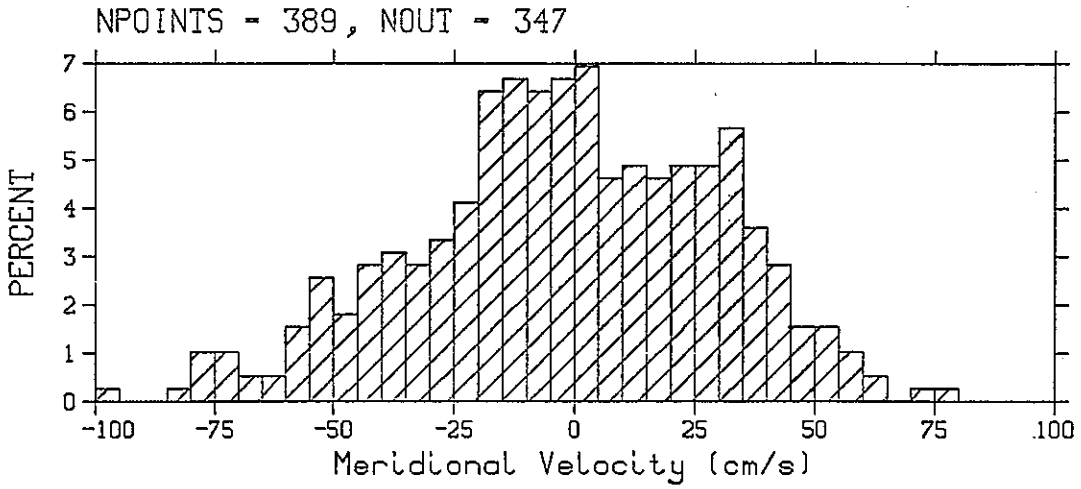

30'N, 110 30'W: 0.0m
FROM 0000 26 OCT 79 TO 0000 30 OCT 81
NPOINTS = 573, NOUT = 163
PERCENT
0
1
2
3
4
5
6
7
19
20
21
22
23
24
25
26
27
28
Temperature (degrees C)

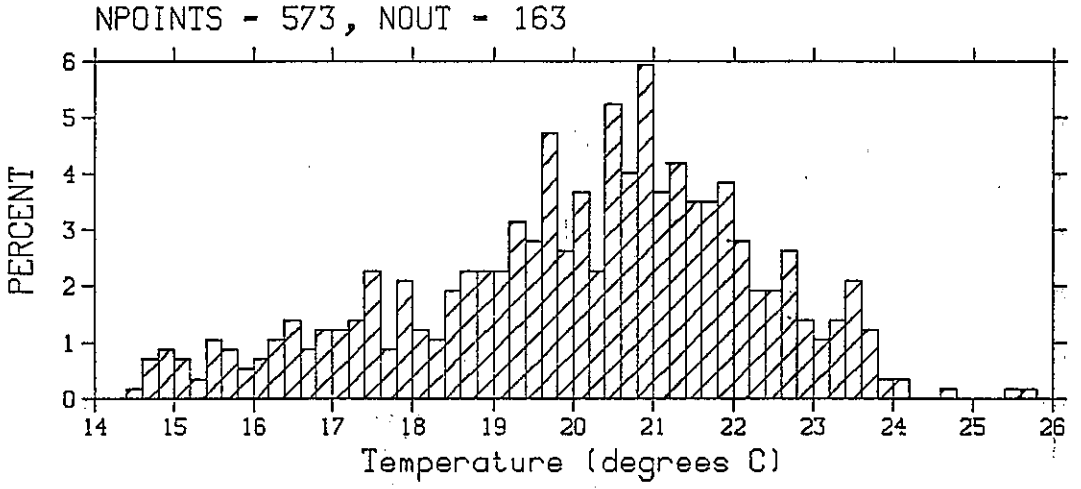

30'N, 110 30'W: 20m
FROM 0000 26 OCT 79 TO 0000 6 JUL 81
NPOINTS = 457, NOUT = 163
PERCENT
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-125 -100 -75 -50 -25 0 25 50 75 100
Zonal Velocity (cm/s)

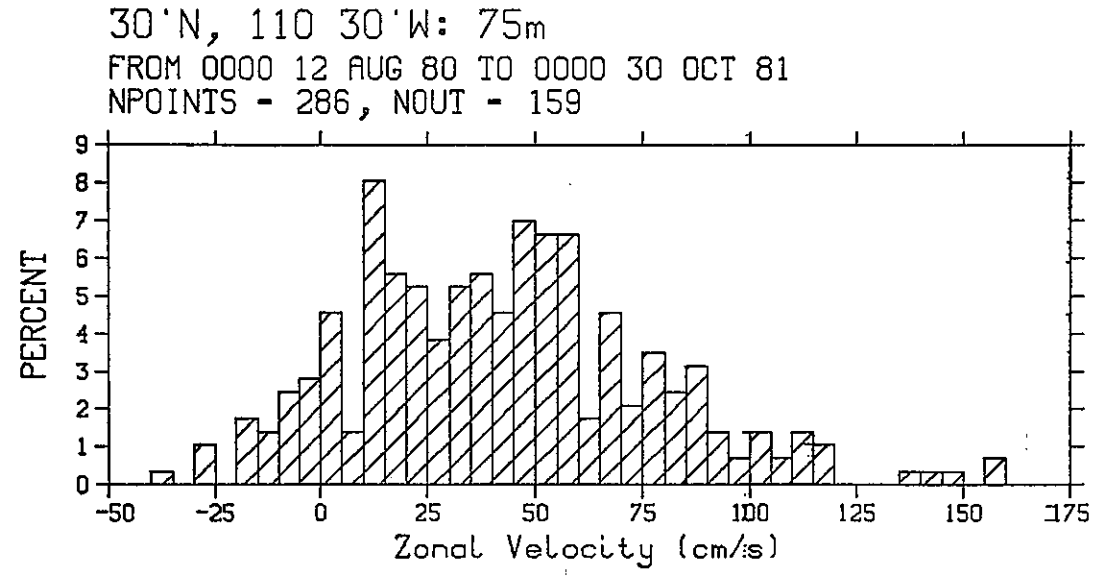

NPOINTS = 457, NOUT = 163
PERCENT
8
7
6
5
4
3
2
1
0
-75 -50 -25 0 25 50 75 100 125
Meridional Velocity (cm/s)

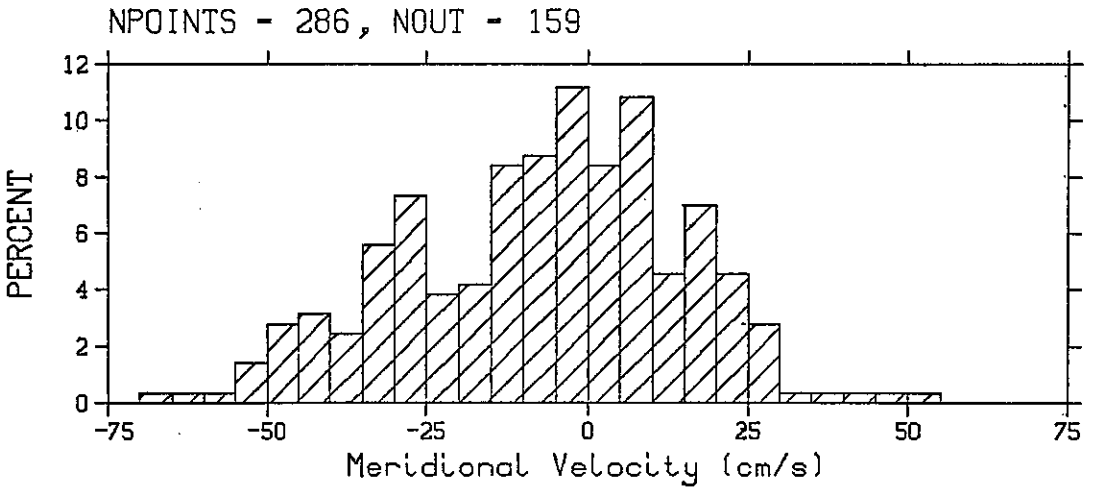

NPOINTS = 457, NOUT = 163
PERCENT
7
6
5
4
3
2
1
0
18 19 20 21 22 23 24 25 26 27
Temperature (degrees C)

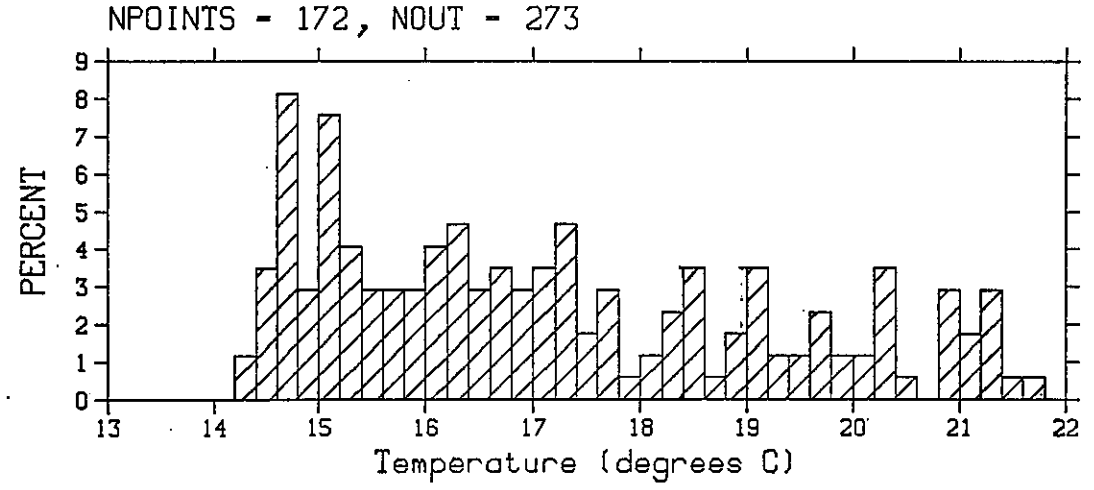

30°N, 110 30°W: 50m
FROM 0000 26 OCT 79 TO 0000 30 OCT 81
NPOINTS = 389, NOUT = 347
PERCENT
Zonal Velocity (cm/s)

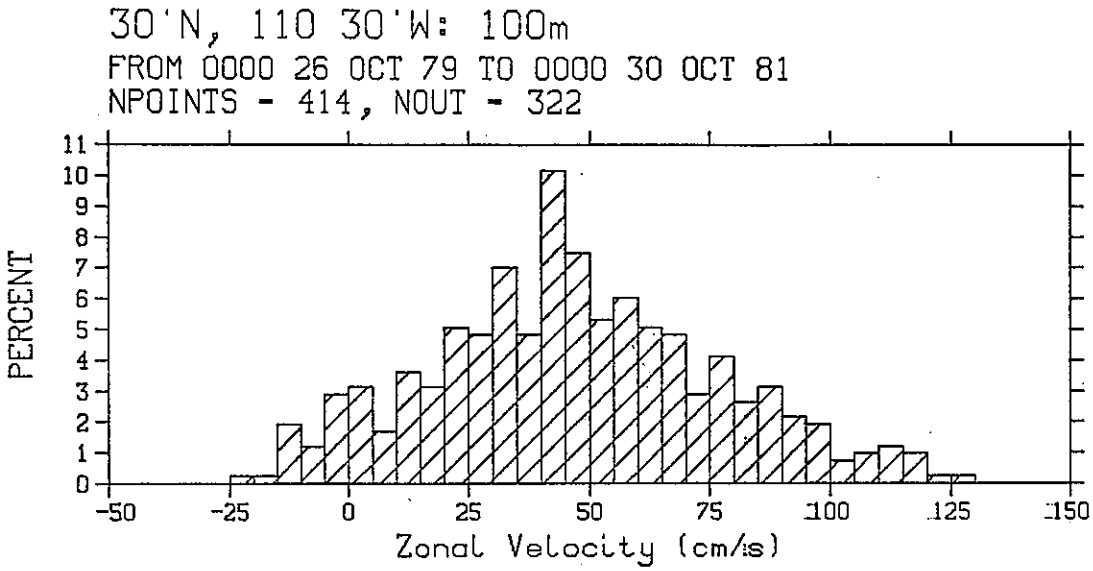

NPOINTS = 389, NOUT = 347
PERCENT
Meridional Velocity (cm/s)

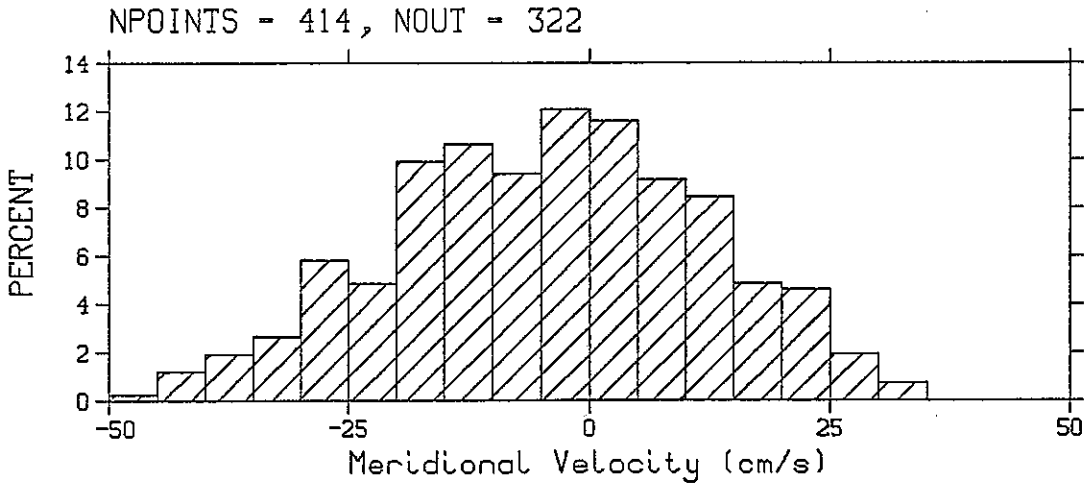

NPOINTS = 573, NOUT = 163
PERCENT
Temperature (degrees C)

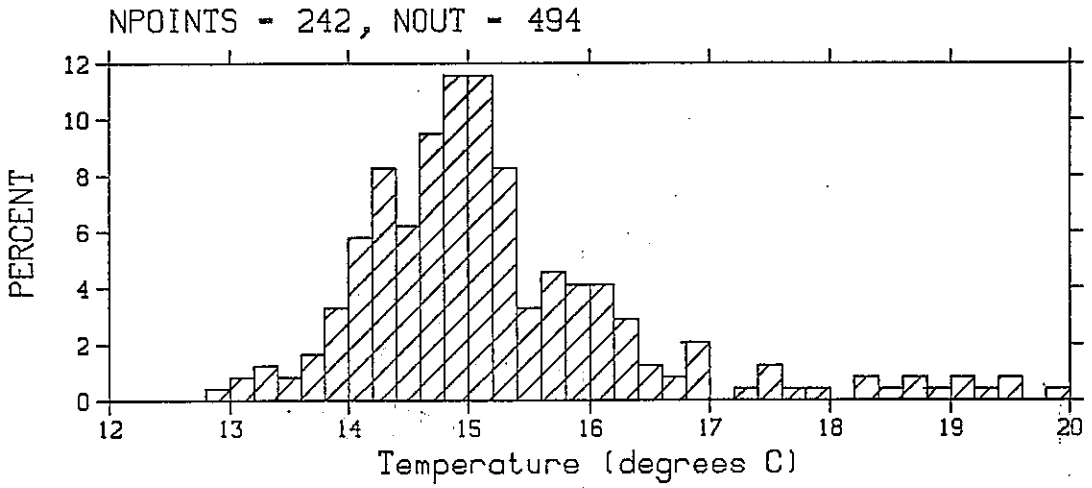

30'N, 110 30'W: 75m
FROM 0000 12 AUG 80 TO 0000 30 OCT 81
NPOINTS - 286, NOUT - 159
PERCENT
Zonal Velocity (cm/s)

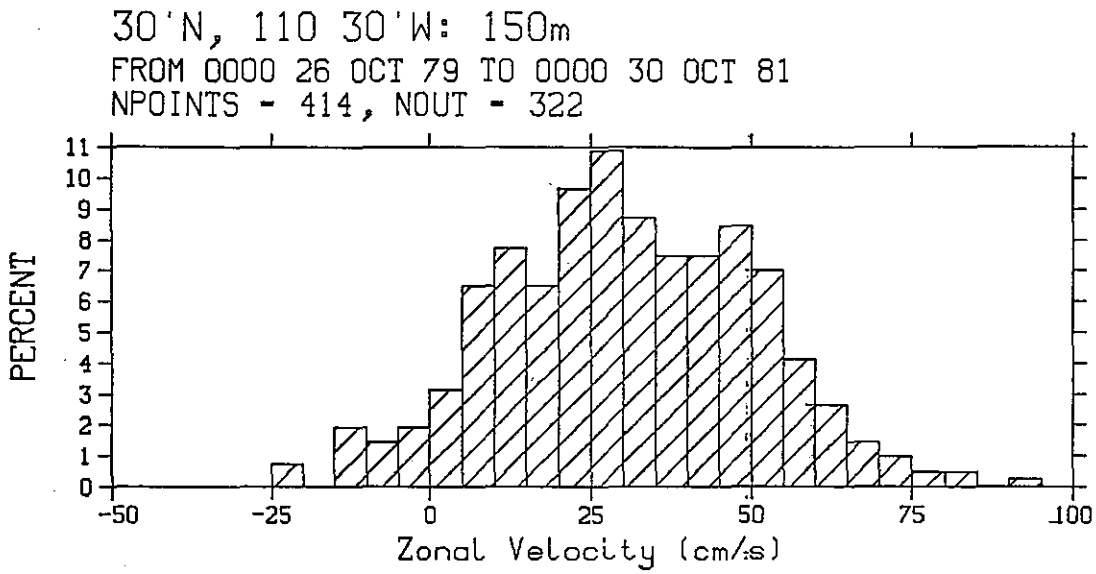

NPOINTS - 286, NOUT - 159
PERCENT
Meridional Velocity (cm/s)

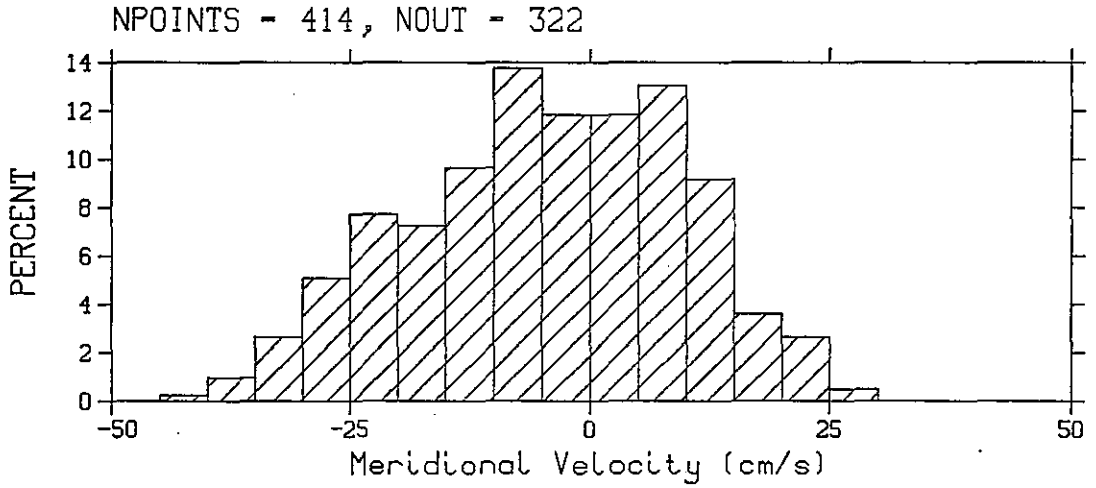

NPOINTS - 172, NOUT - 273
PERCENT
Temperature (degrees C)

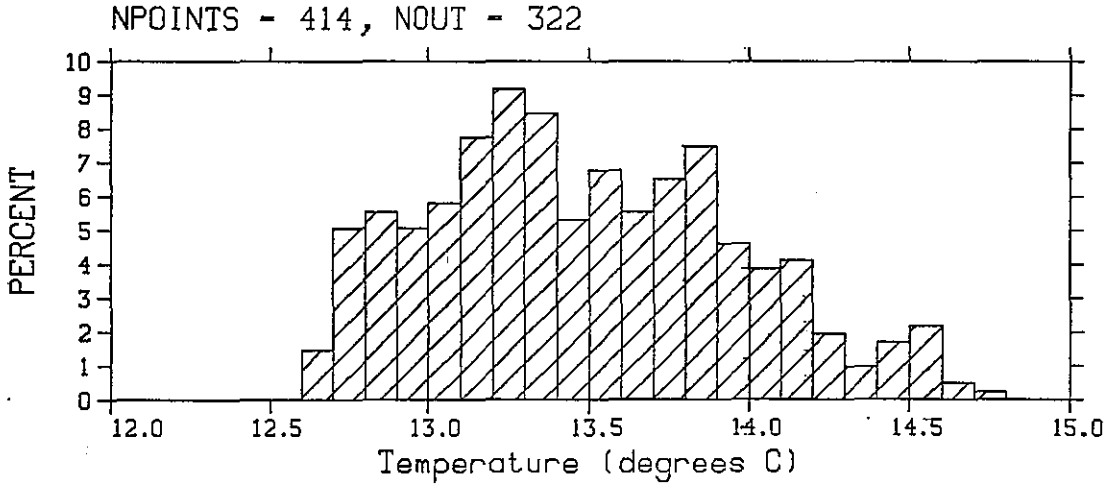

30'N, 110 30'W: 100m
FROM 0000 26 OCT 79 TO 0000 30 OCT 81
NPOINTS = 414, NOUT = 322
PERCENT
Zonal Velocity (cm/s)

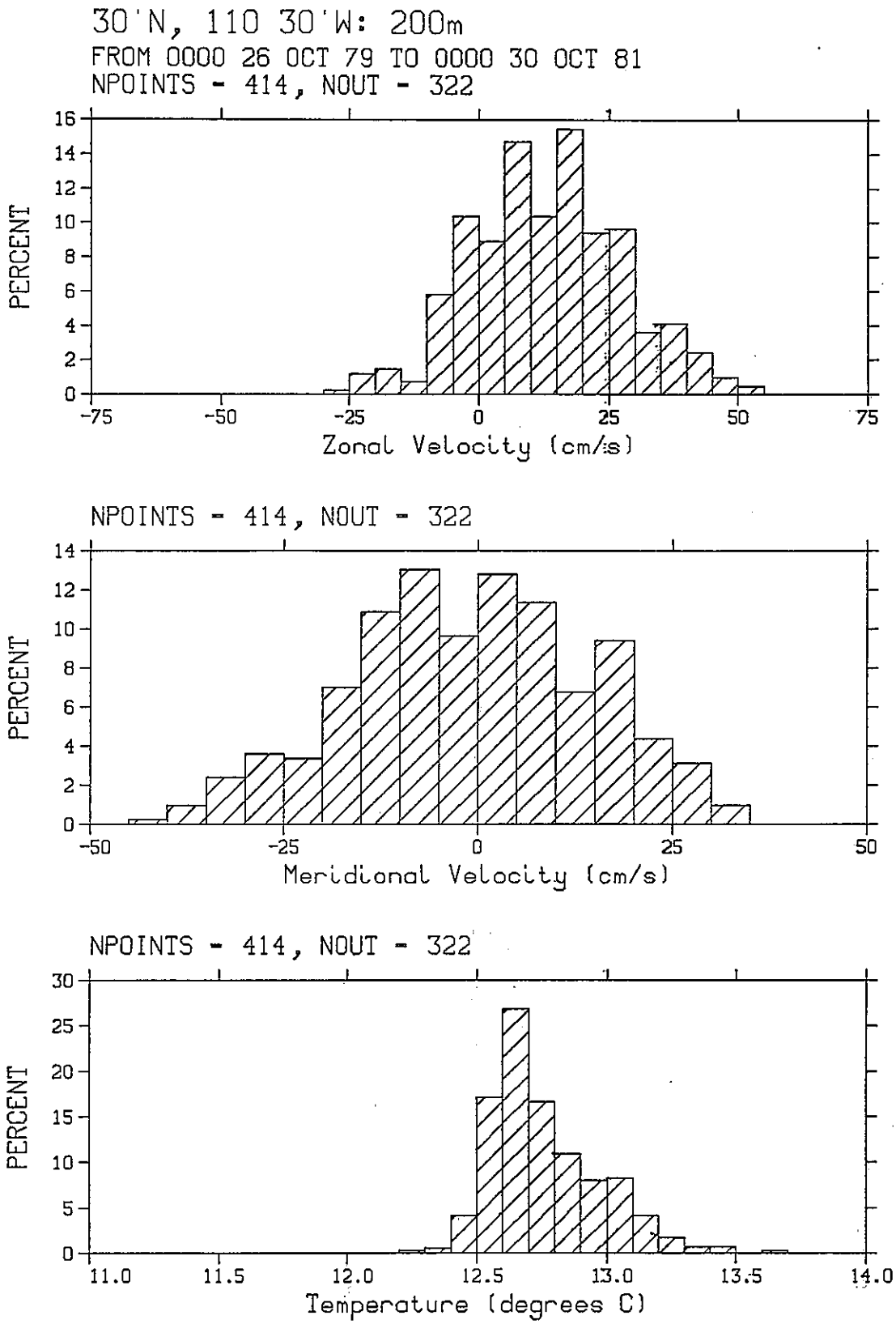

NPOINTS = 414, NOUT = 322
PERCENT
Meridional Velocity (cm/s)

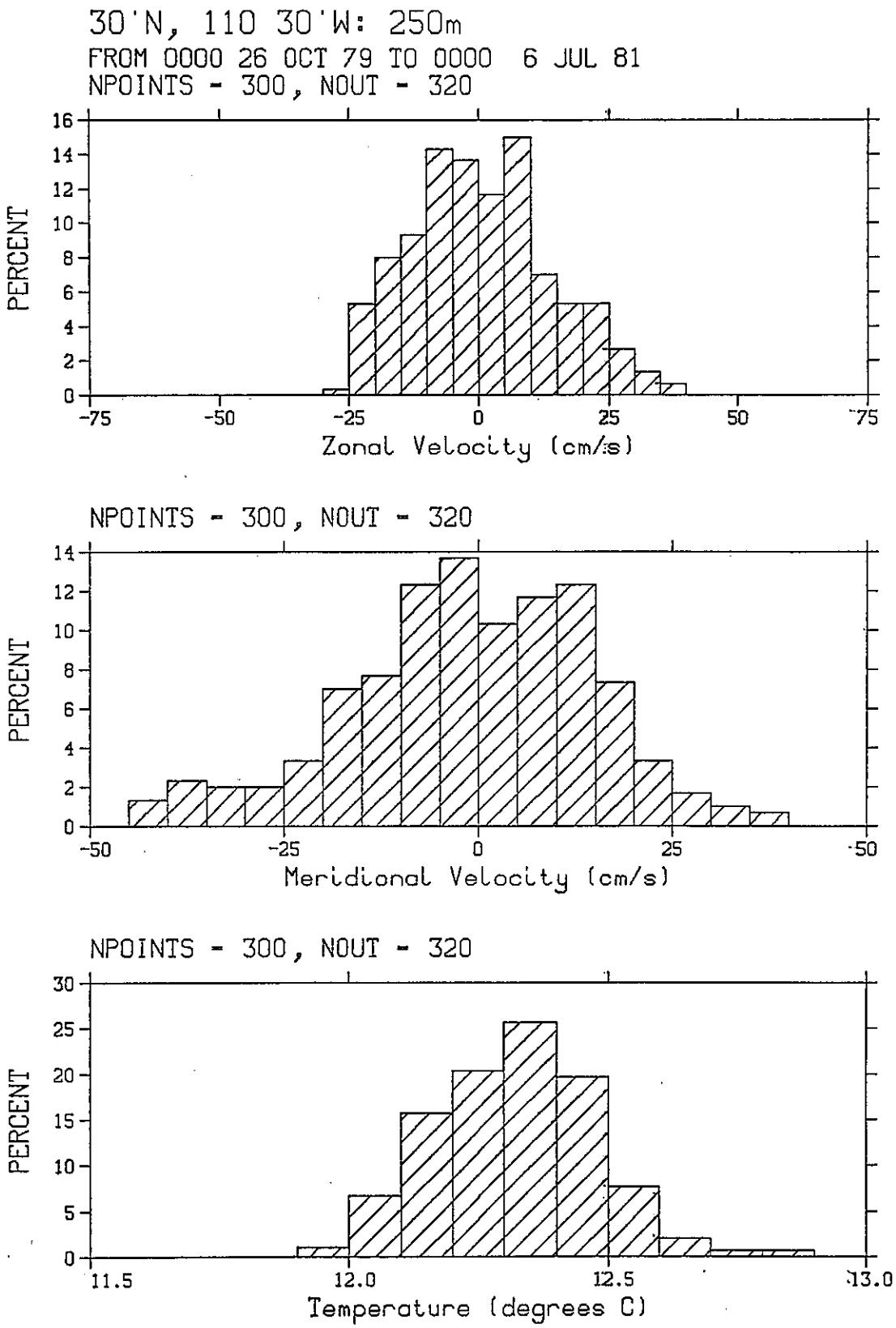

NPOINTS = 242, NOUT = 494
PERCENT
Temperature (degrees C)

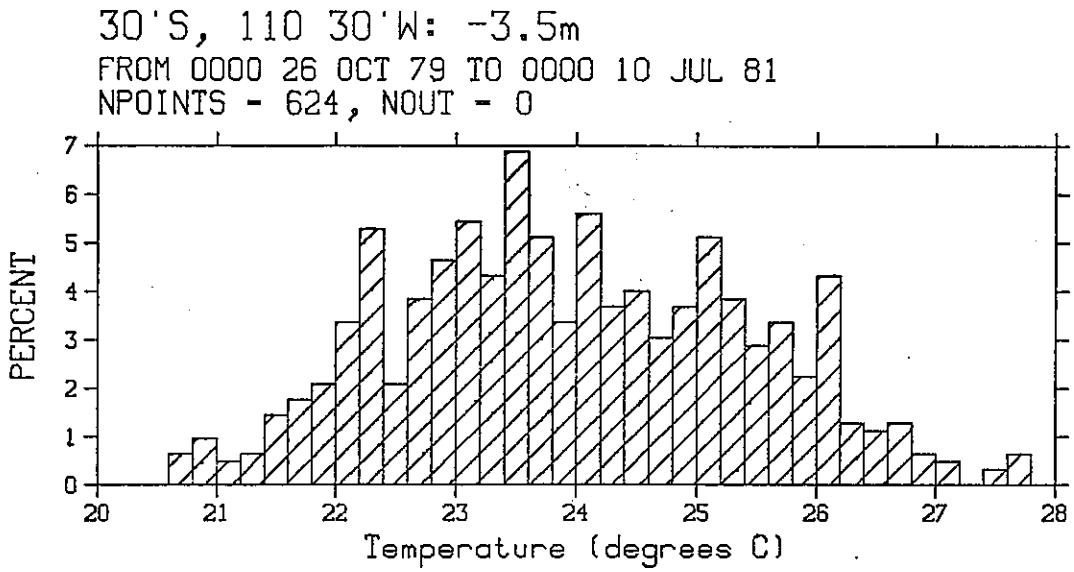

30'N, 110 30'W: 150m
FROM 0000 26 OCT 79 TO 0000 30 OCT 81
NPOINTS = 414, NOUT = 322
PERCENT
0
1
2
3
4
5
6
7
8
9
10
11
-50
-25
0
25
50
75
100
Zonal Velocity (cm/s)

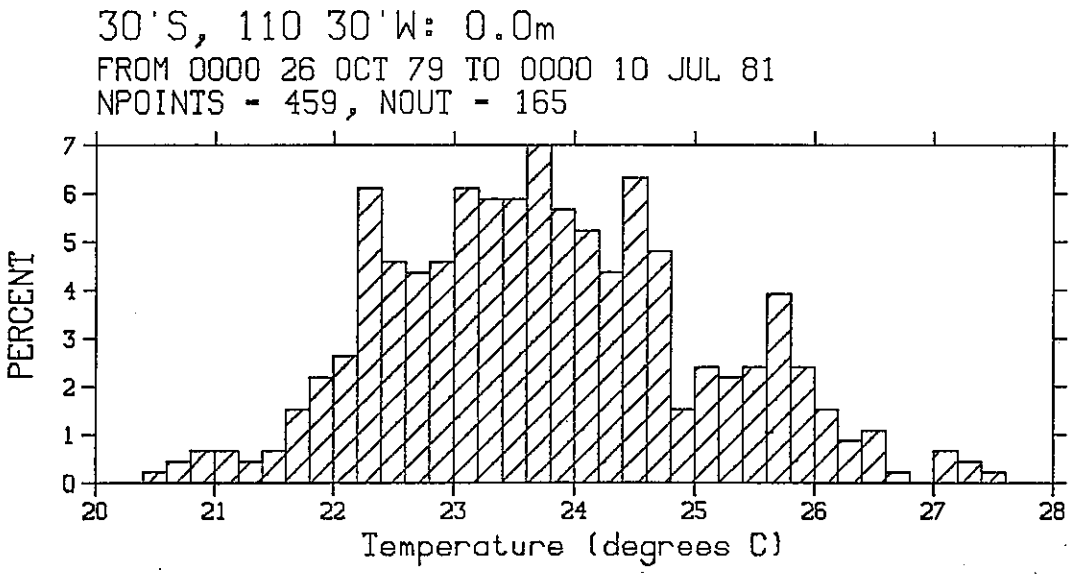

NPOINTS = 414, NOUT = 322
PERCENT
0
2
4
6
8
10
12
14
-50
-25
0
25
50
Meridional Velocity (cm/s)

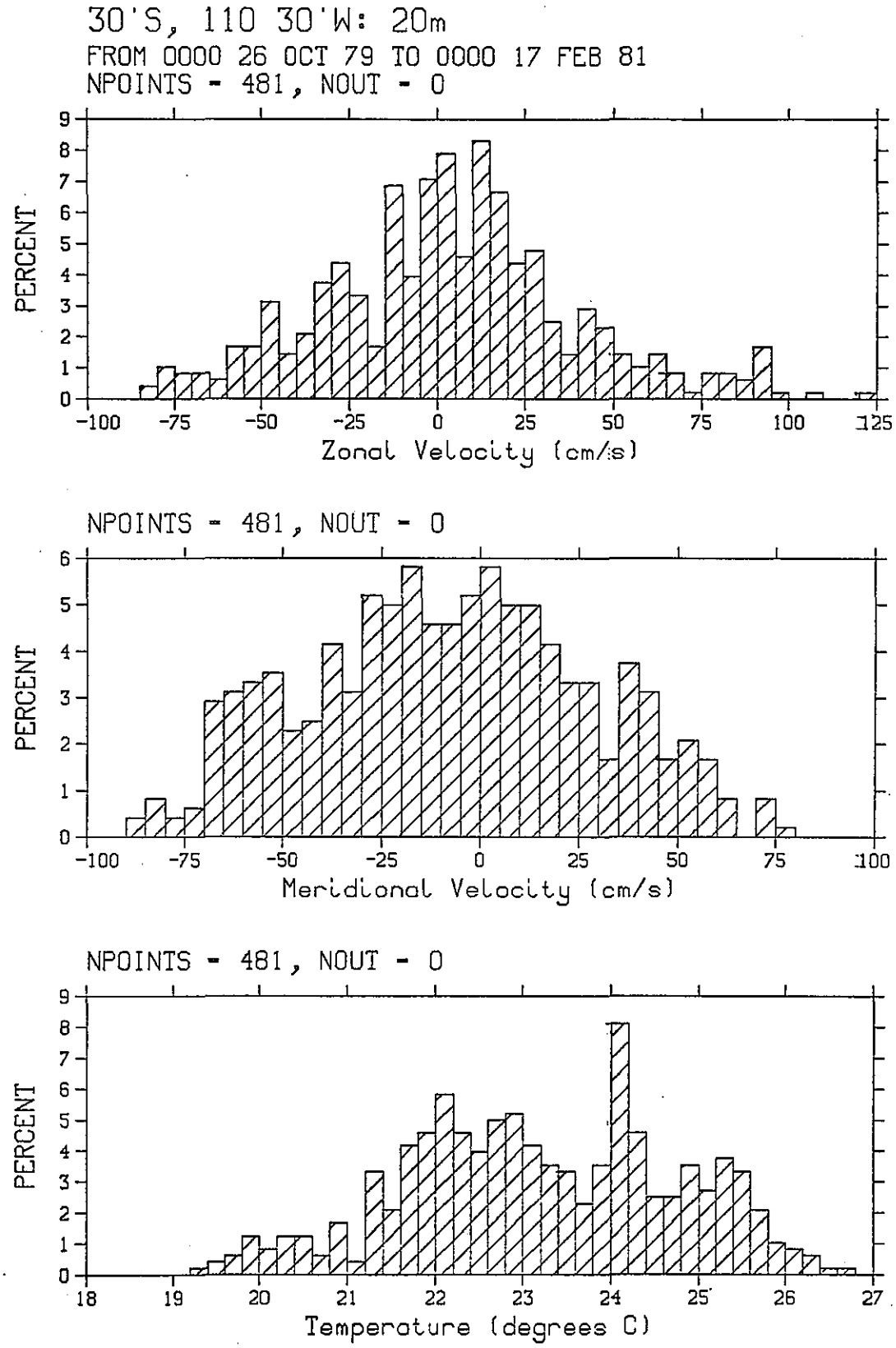

NPOINTS = 414, NOUT = 322
PERCENT
0
1
2
3
4
5
6
7
8
9
10
12.0
12.5
13.0
13.5
14.0
14.5
15.0
Temperature (degrees C)

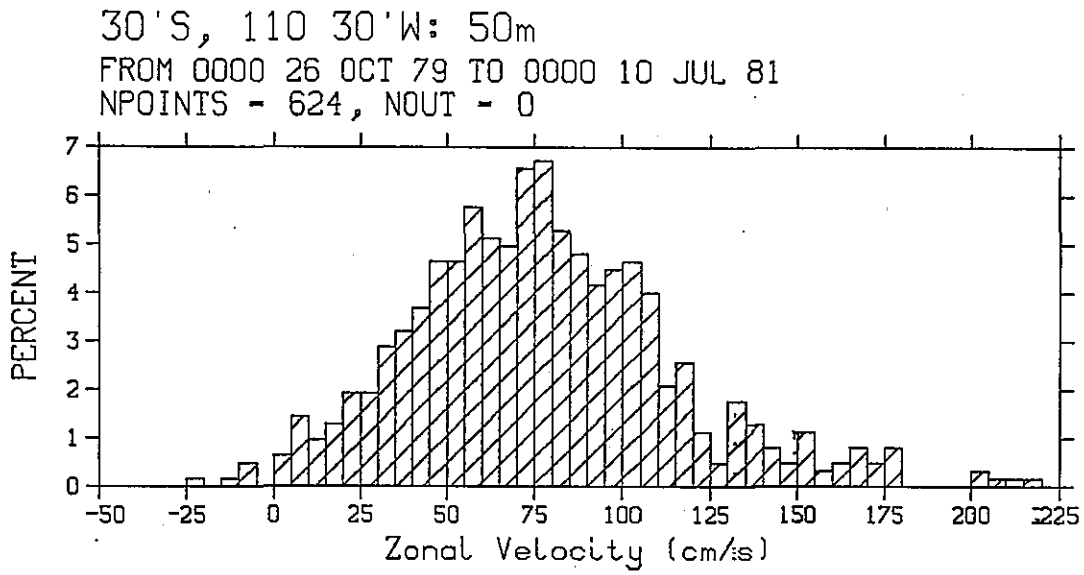

30'N, 110 30'W: 200m
FROM 0000 26 OCT 79 TO 0000 30 OCT 81
NPOINTS = 414, NOUT = 322
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 414, NOUT = 322
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 414, NOUT = 322
PERCENT
Temperature (degrees C)

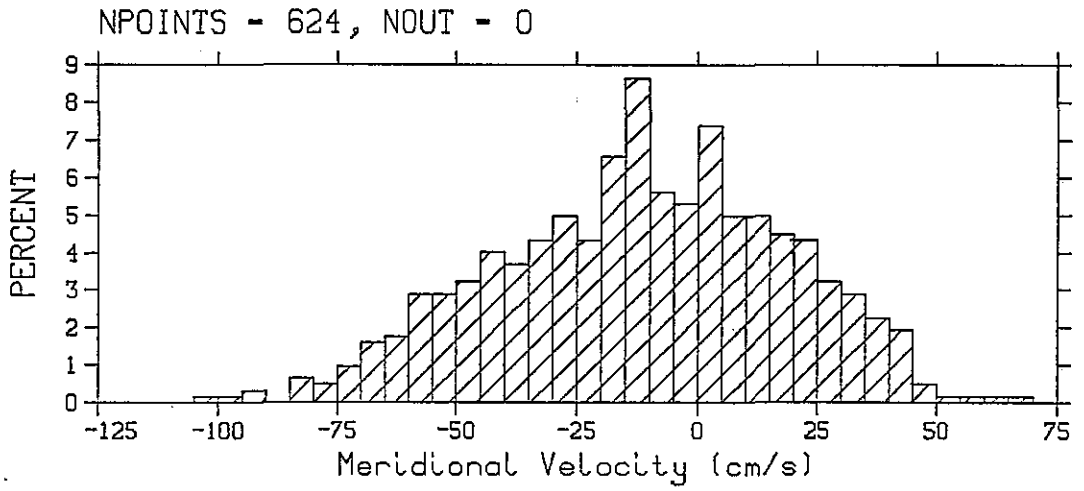

30'N, 110 30'W: 250m
FROM 0000 26 OCT 79 TO 0000 6 JUL 81
NPOINTS - 300, NOUT - 320
PERCENT
Zonal Velocity (cm/s)
NPOINTS - 300, NOUT - 320
PERCENT
Meridional Velocity (cm/s)
NPOINTS - 300, NOUT - 320
PERCENT
Temperature (degrees C)

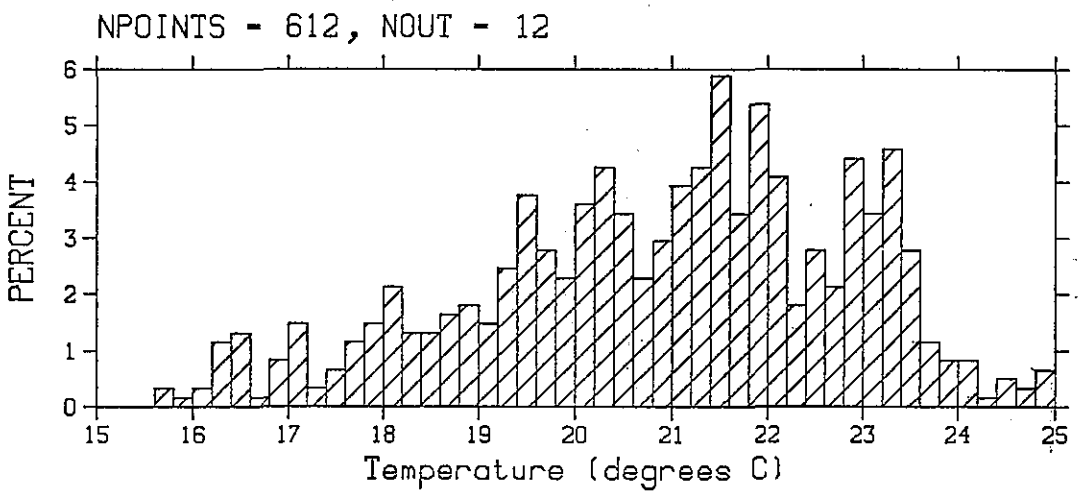

30'S, 110 30'W: -3.5m
FROM 0000 26 OCT 79 TO 0000 10 JUL 81
NPOINTS = 624, NOUT = 0
PERCENT
0
1
2
3
4
5
6
7
20
21
22
23
24
25
26
27
28
Temperature (degrees C)

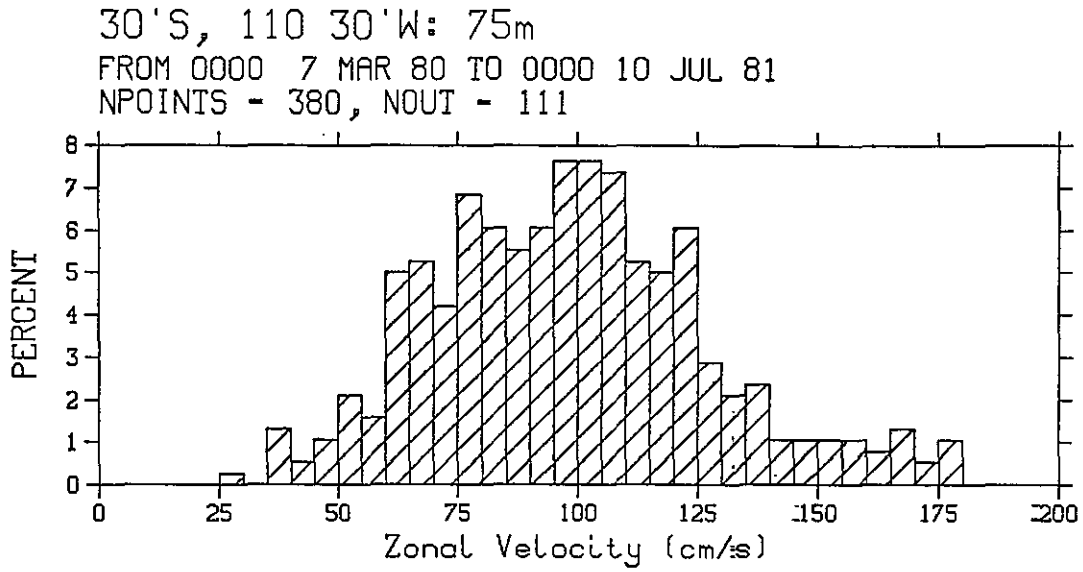

30'S, 110 30'W: 0.0m
FROM 0000 26 OCT 79 TO 0000 10 JUL 81
NPOINTS = 459, NOUT = 165
PERCENT
0
1
2
3
4
5
6
7
20
21
22
23
24
25
26
27
28
Temperature (degrees C)

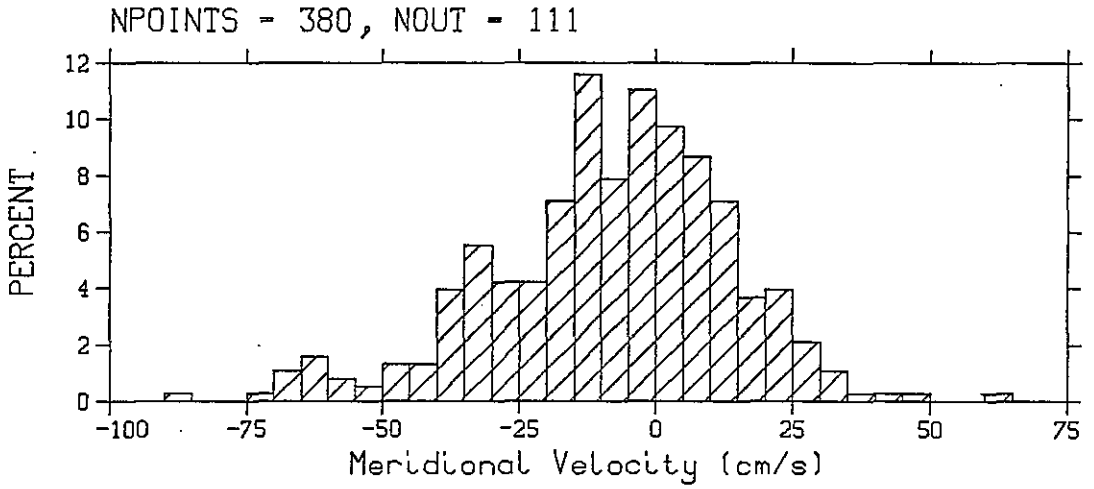

30'S, 110 30'W: 20m
FROM 0000 26 OCT 79 TO 0000 17 FEB 81
NPOINTS = 481, NOUT = 0
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 481, NOUT = 0
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 481, NOUT = 0
PERCENT
Temperature (degrees C)

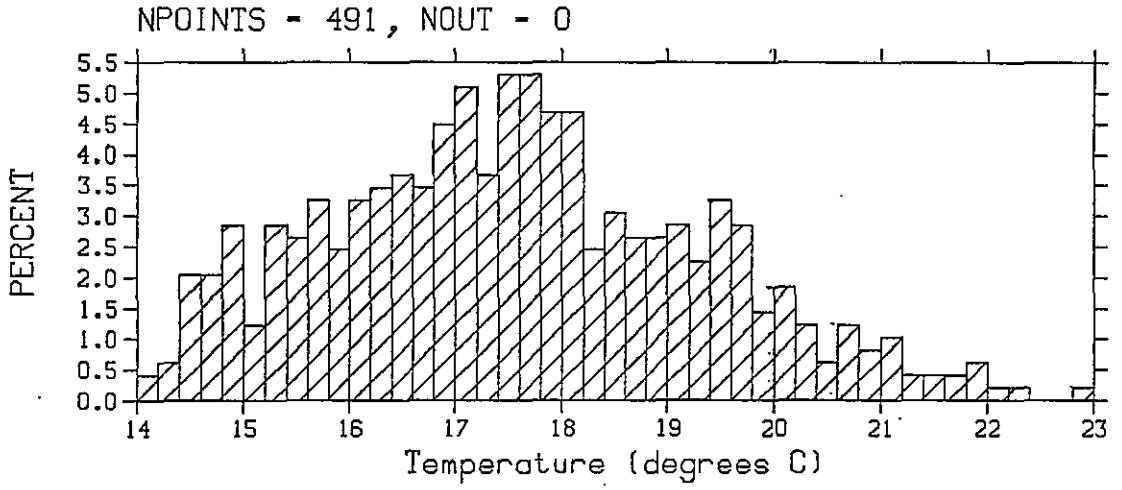

30'S, 110 30'W: 50m
FROM 0000 26 OCT 79 TO 0000 10 JUL 81
NPOINTS = 624, NOUT = 0
PERCENT
Zonal Velocity (cm/s)

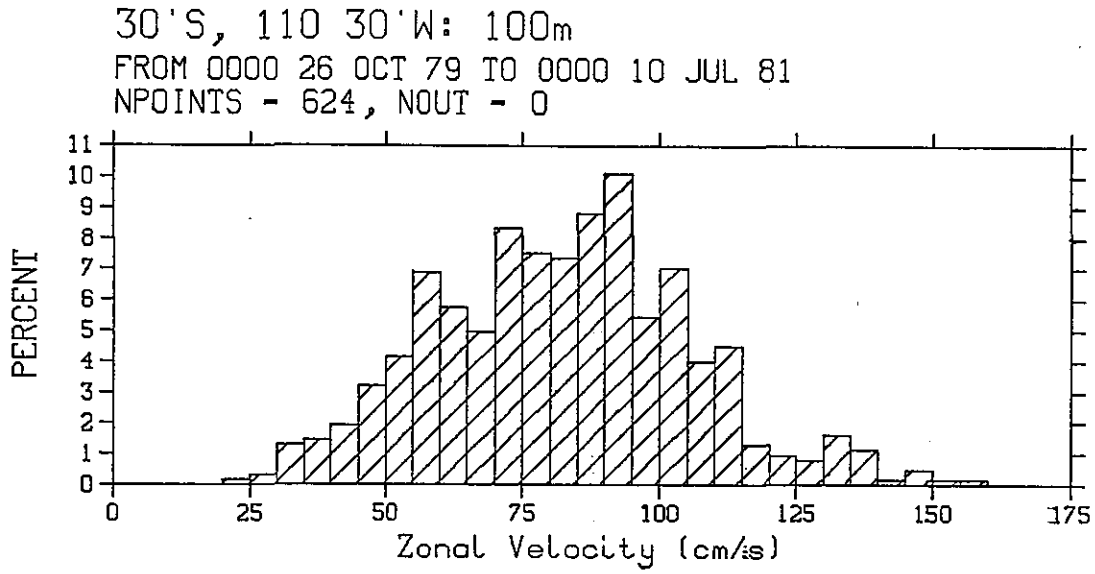

NPOINTS = 624, NOUT = 0
PERCENT
Meridional Velocity (cm/s)

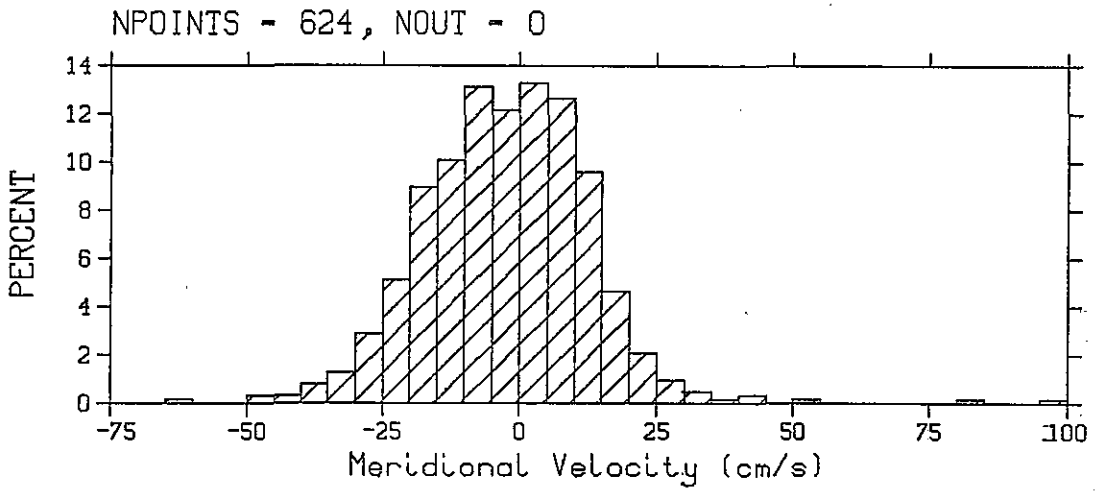

NPOINTS = 612, NOUT = 12
PERCENT
Temperature (degrees C)

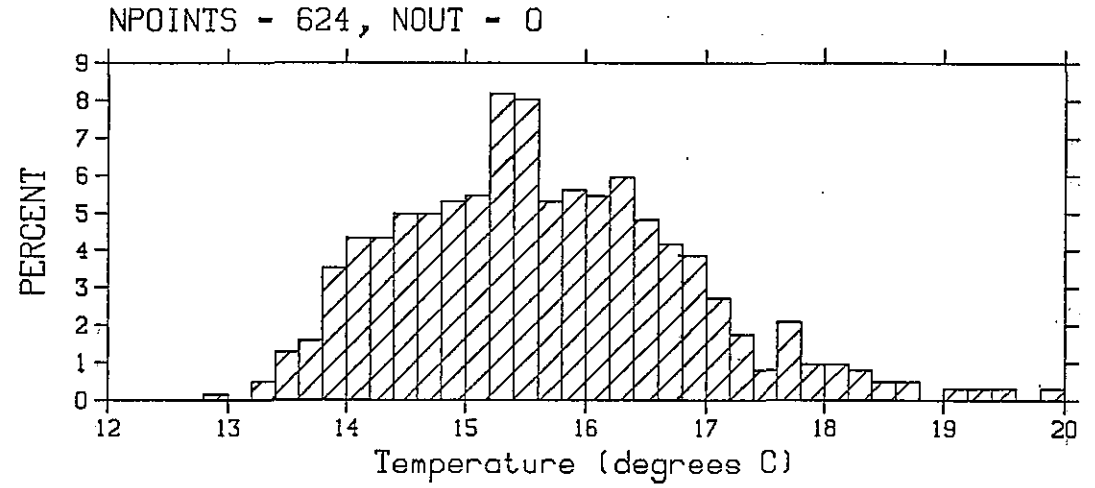

30'S, 110 30'W: 75m
FROM 0000 7 MAR 80 TO 0000 10 JUL 81
NPOINTS = 380, NOUT = 111
PERCENT
Zonal Velocity (cm/s)

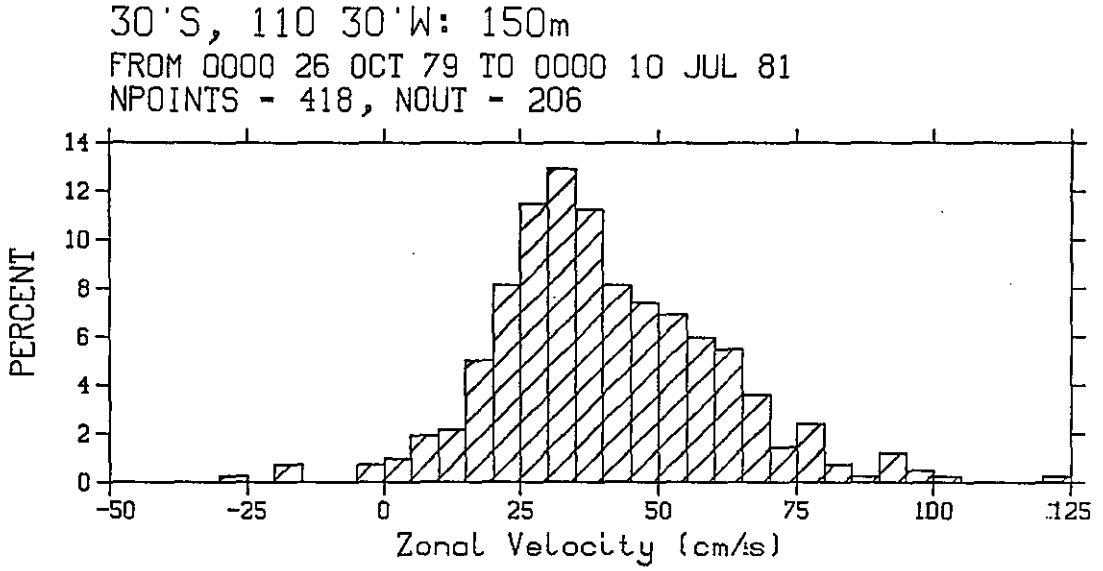

NPOINTS = 380, NOUT = 111
PERCENT
Meridional Velocity (cm/s)

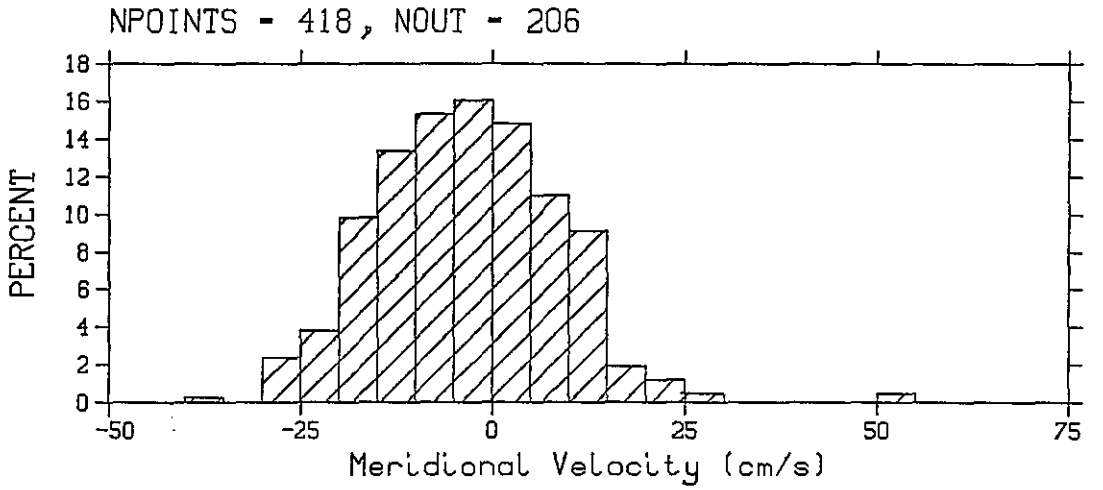

NPOINTS = 491, NOUT = 0
PERCENT
Temperature (degrees C)

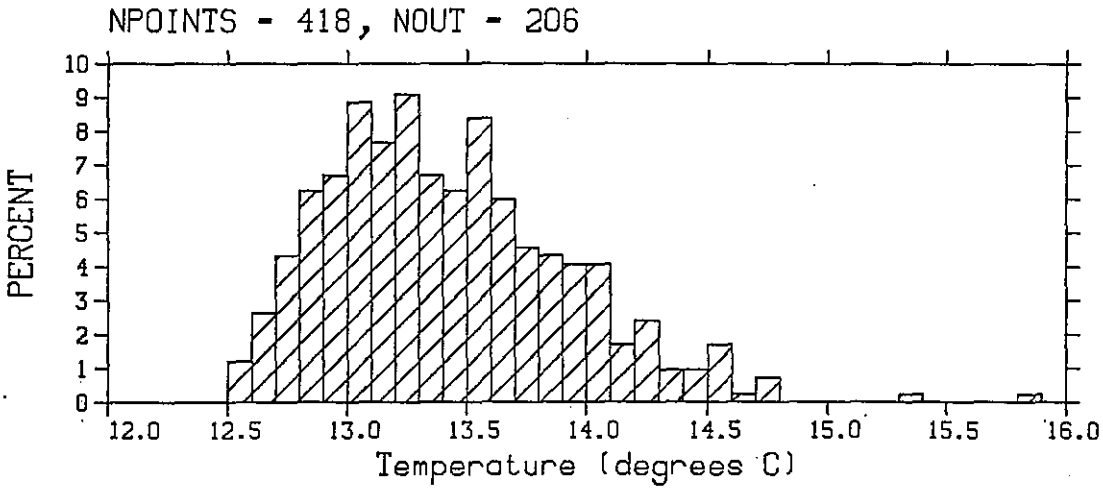

30'S, 110 30'W: 100m
FROM 0000 26 OCT 79 TO 0000 10 JUL 81
NPOINTS = 624, NOUT = 0
PERCENT
0 1 2 3 4 5 6 7 8 9 10 11
0 25 50 75 100 125 150 175
Zonal Velocity (cm/s)

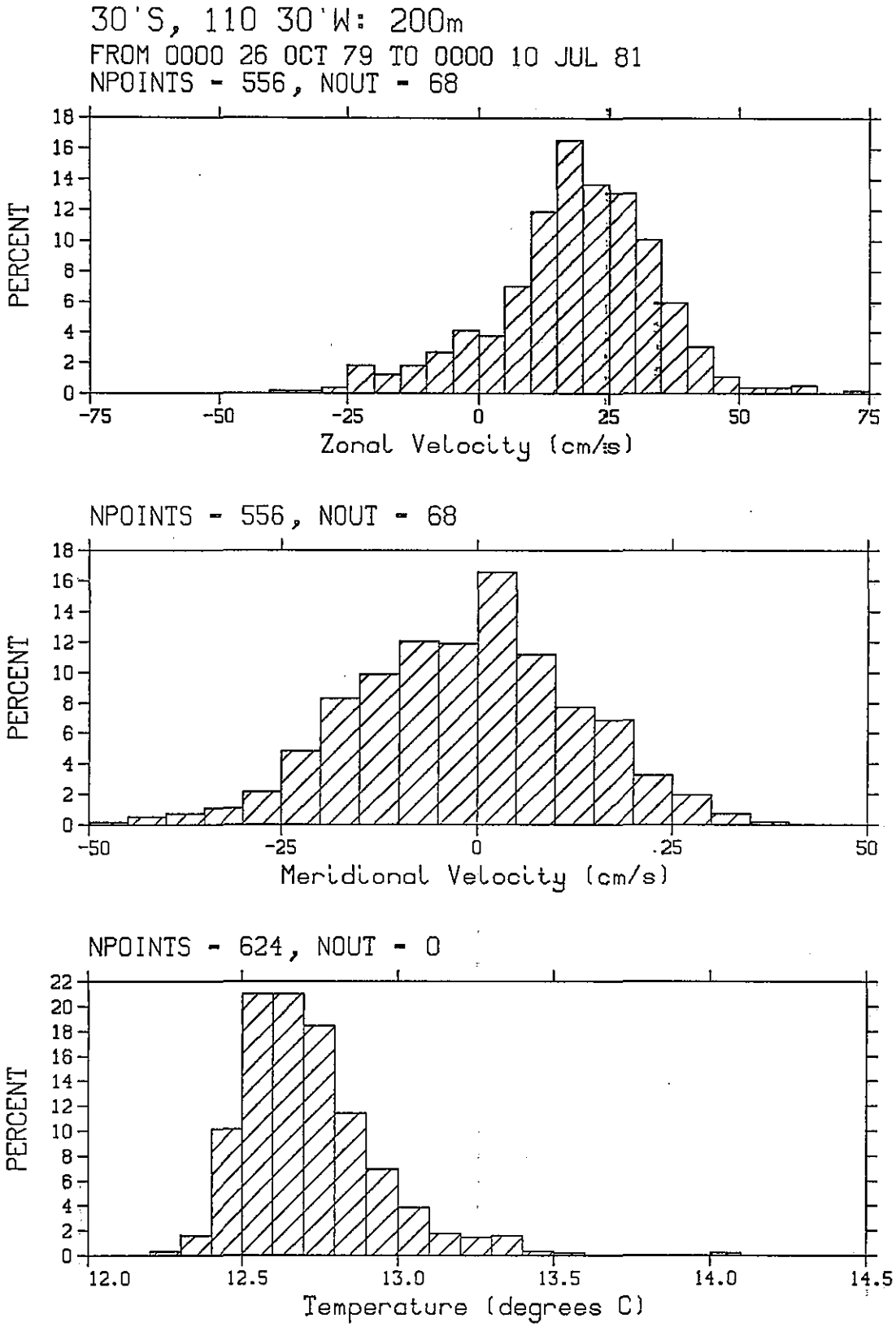

NPOINTS = 624, NOUT = 0
PERCENT
0 2 4 6 8 10 12 14
-75 -50 -25 0 25 50 75 100
Meridional Velocity (cm/s)

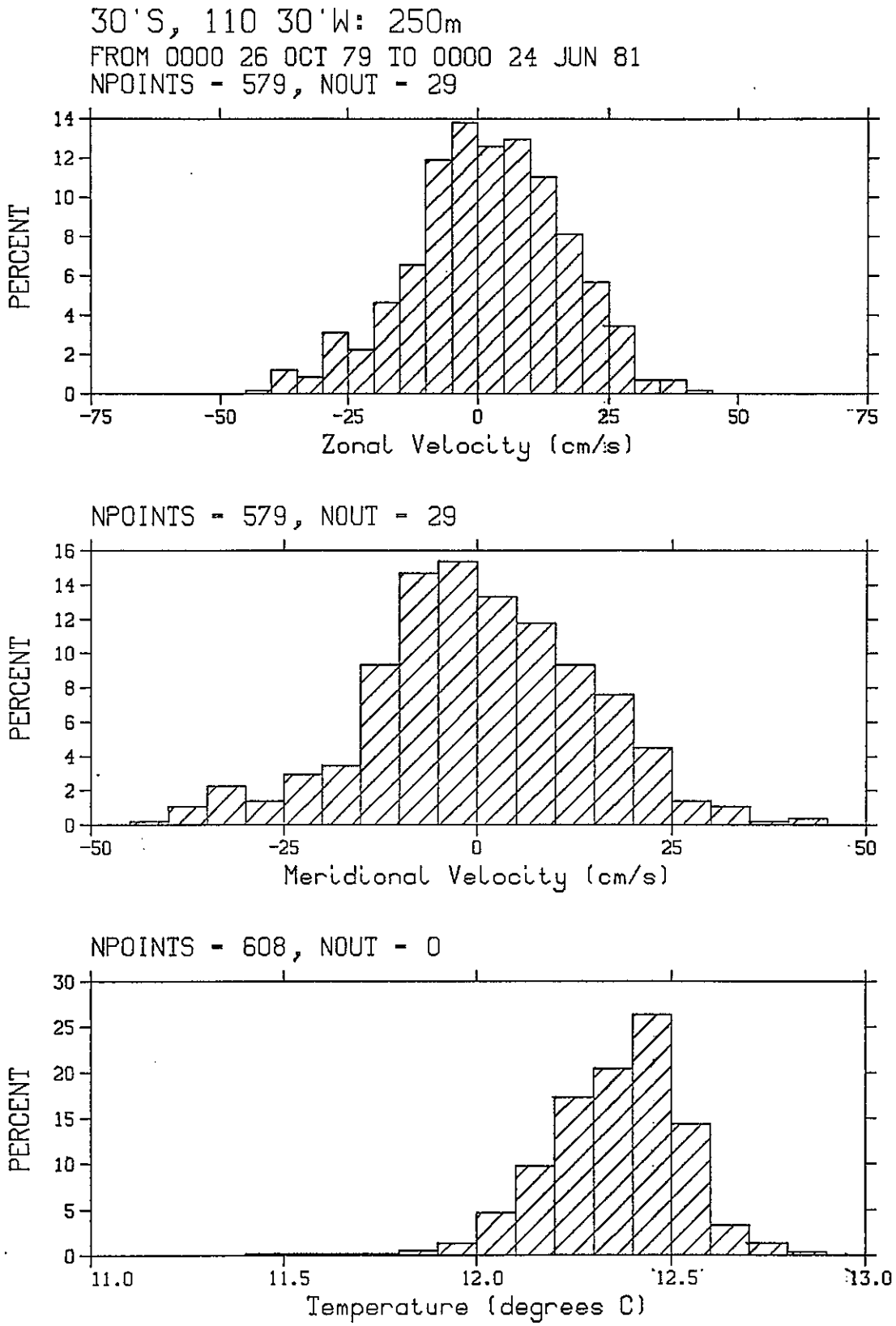

NPOINTS = 624, NOUT = 0
PERCENT
0 1 2 3 4 5 6 7 8 9
12 13 14 15 16 17 18 19 20
Temperature (degrees C)


30'S, 110 30'W: 150m
FROM 0000 26 OCT 79 TO 0000 10 JUL 81
NPOINTS - 418, NOUT - 206
PERCENT
Zonal Velocity (cm/s)


NPOINTS - 418, NOUT - 206
PERCENT
Meridional Velocity (cm/s)

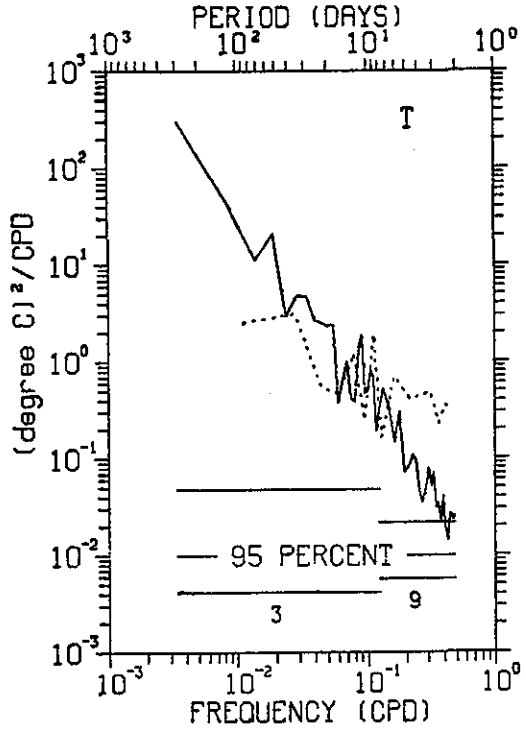

NPOINTS - 418, NOUT - 206
PERCENT
Temperature (degrees C)


30'S, 110 30'W: 200m
FROM 0000 26 OCT 79 TO 0000 10 JUL 81
NPOINTS = 556, NOUT = 68
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 556, NOUT = 68
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 624, NOUT = 0
PERCENT
Temperature (degrees C)

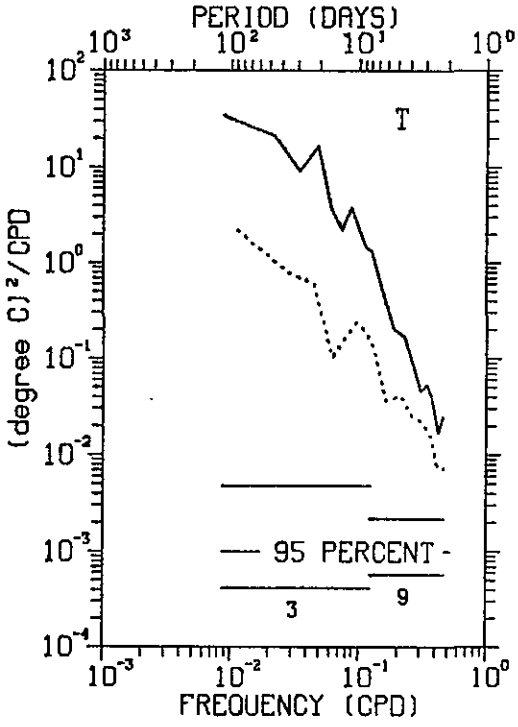

30'S, 110 30'W: 250m
FROM 0000 26 OCT 79 TO 0000 24 JUN 81
NPOINTS = 579, NOUT = 29
PERCENT
Zonal Velocity (cm/s)
NPOINTS = 579, NOUT = 29
PERCENT
Meridional Velocity (cm/s)
NPOINTS = 608, NOUT = 0
PERCENT
Temperature (degrees C)

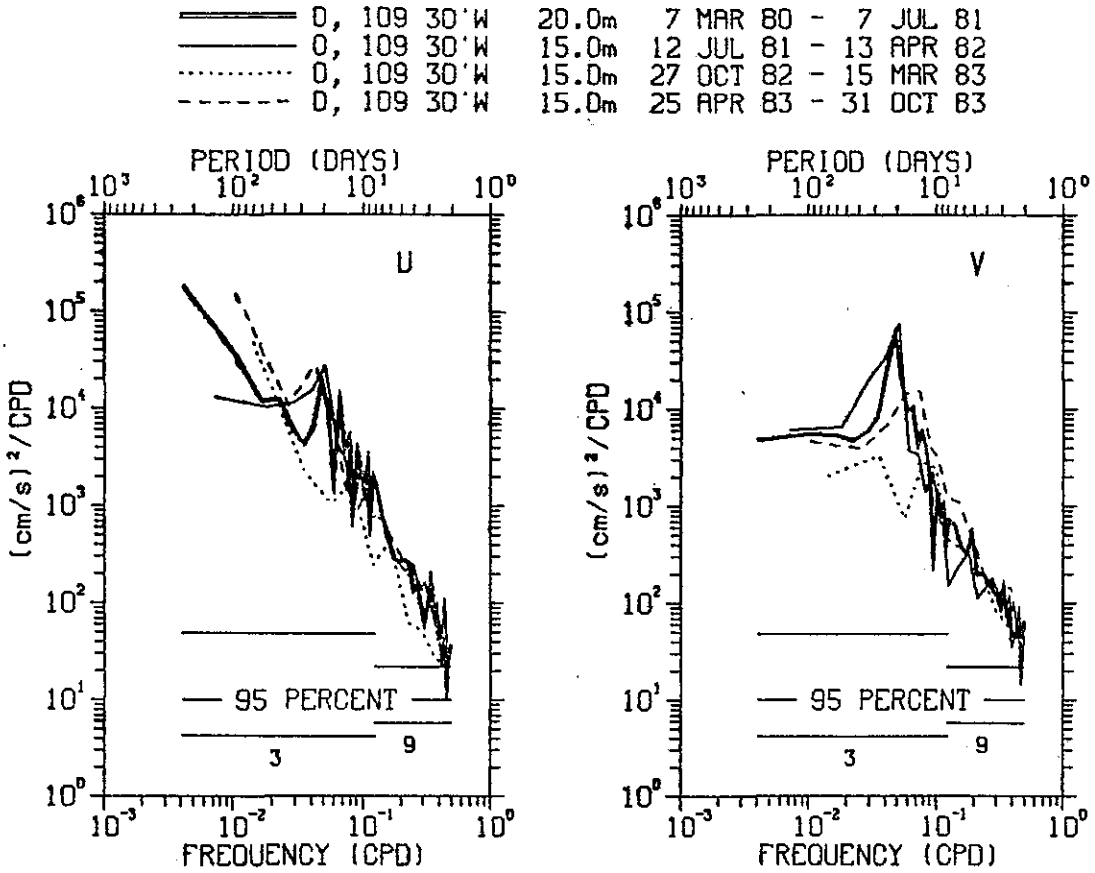
Section IIE: SPECTRA

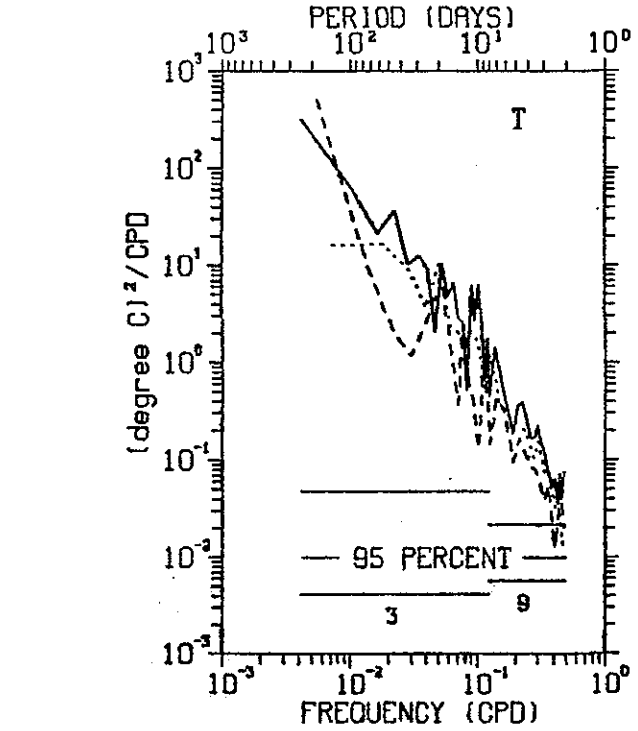
——— 0, 109 30'W -3.5m 11 AUG 80 - 15 MAR 82
····· 0, 109 30'W -3.5m 27 OCT 82 - 22 APR 83

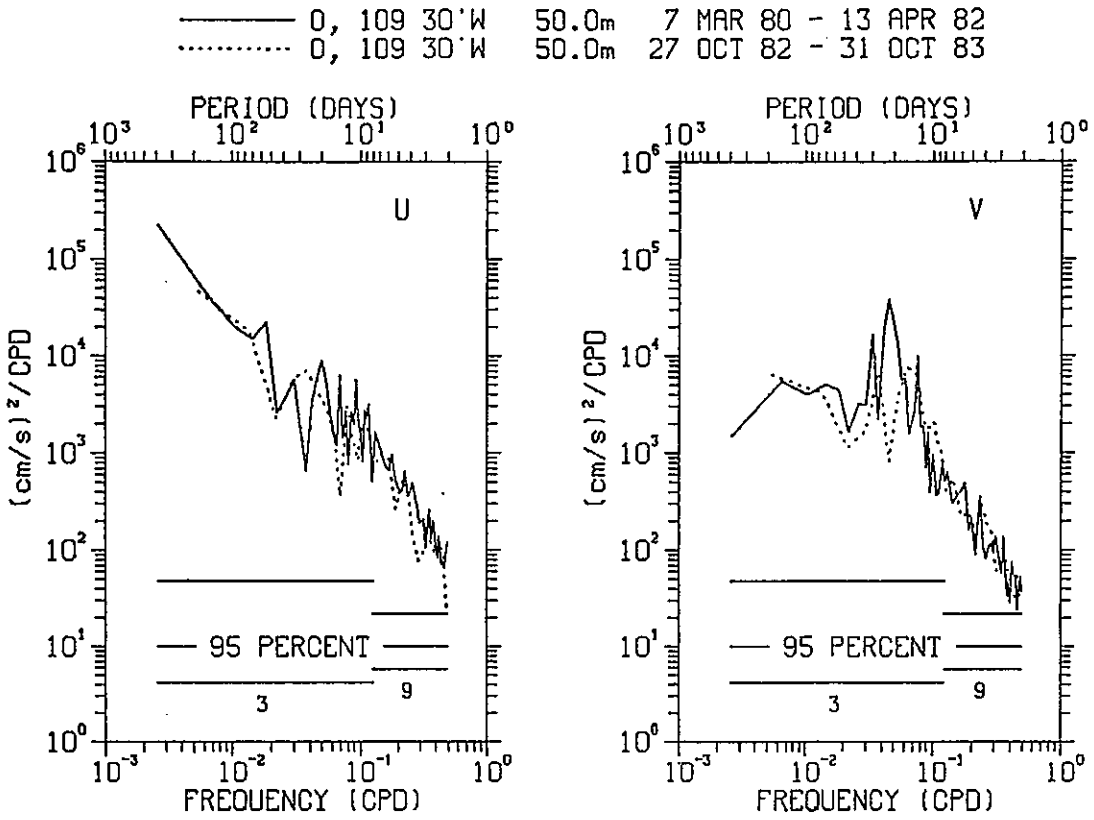


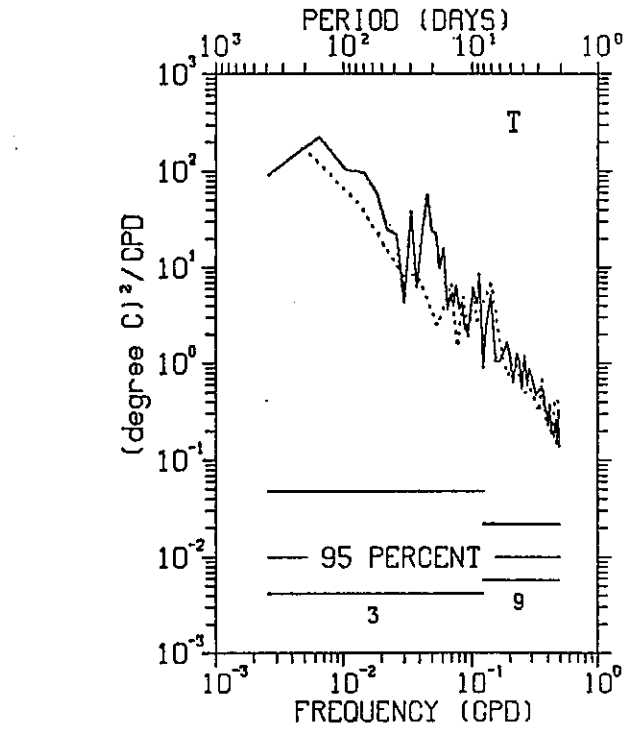
——— 0, 109 30'W 0.0m 11 AUG 80 - 28 MAR 81
····· 0, 109 30'W 0.0m 27 OCT 82 - 22 APR 83

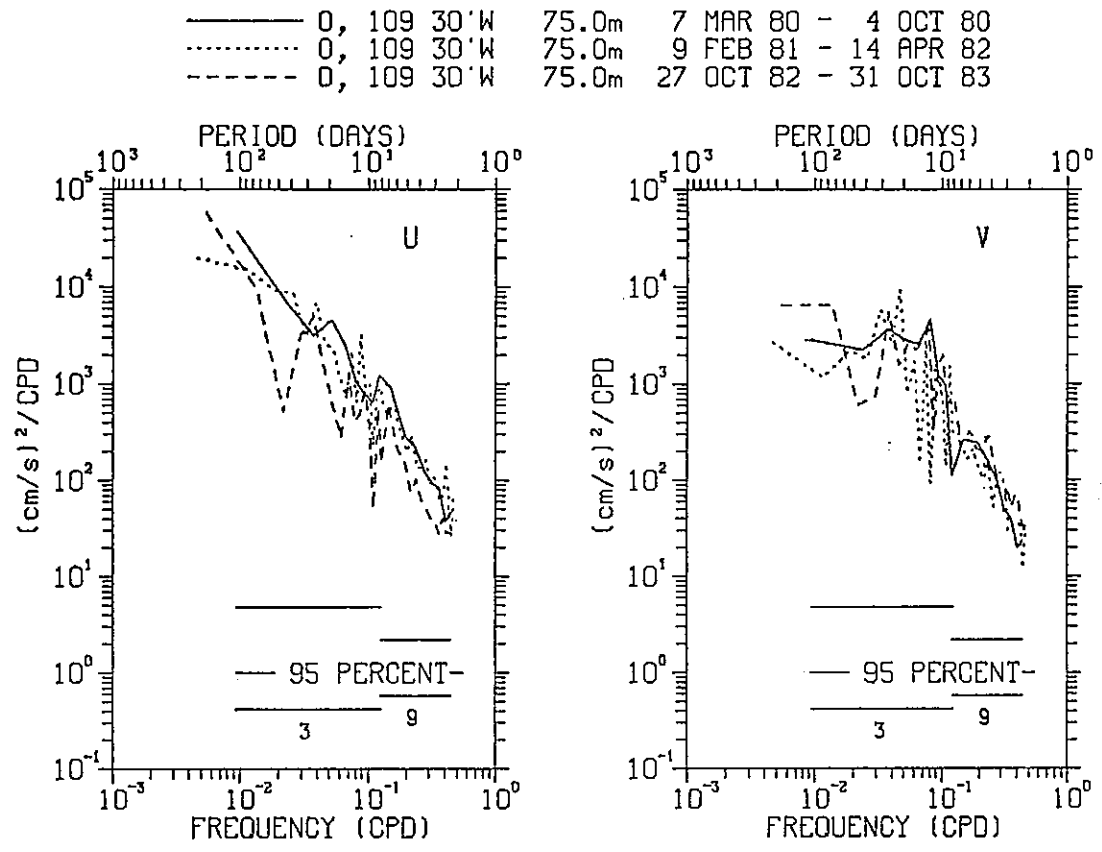


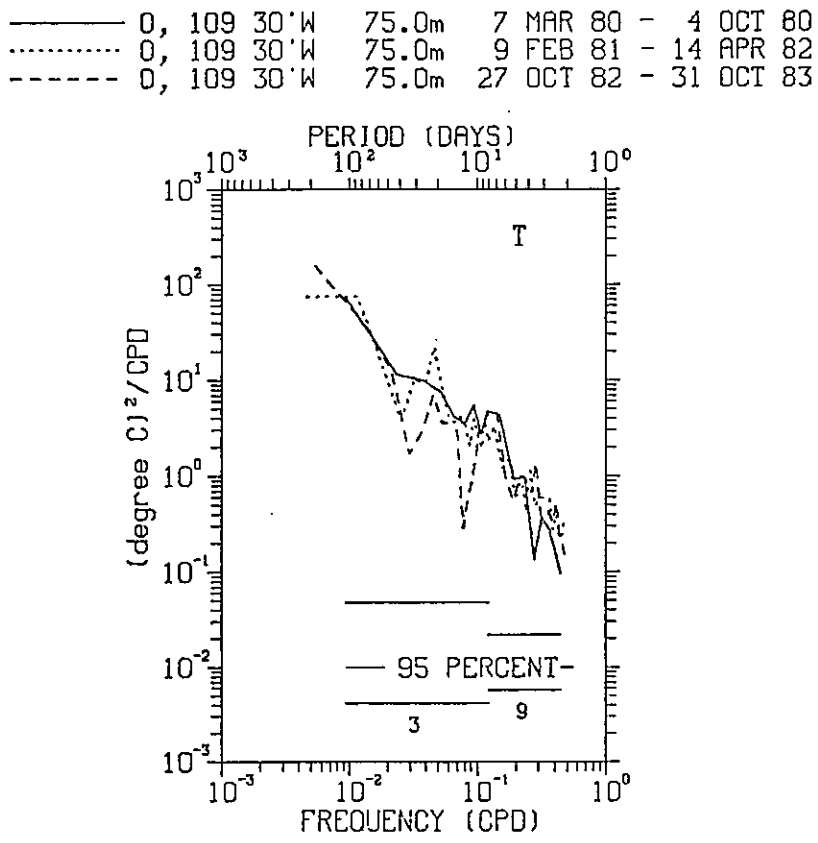

0, 109 30'W 20.0m 7 MAR 80 - 7 JUL 81
0, 109 30'W 15.0m 12 JUL 81 - 13 APR 82
0, 109 30'W 15.0m 27 OCT 82 - 15 MAR 83
0, 109 30'W 15.0m 25 APR 83 - 31 OCT 83
PERIOD (DAYS)
U
V
95 PERCENT
3
9
(cm/s)²/CPD
FREQUENCY (CPD)

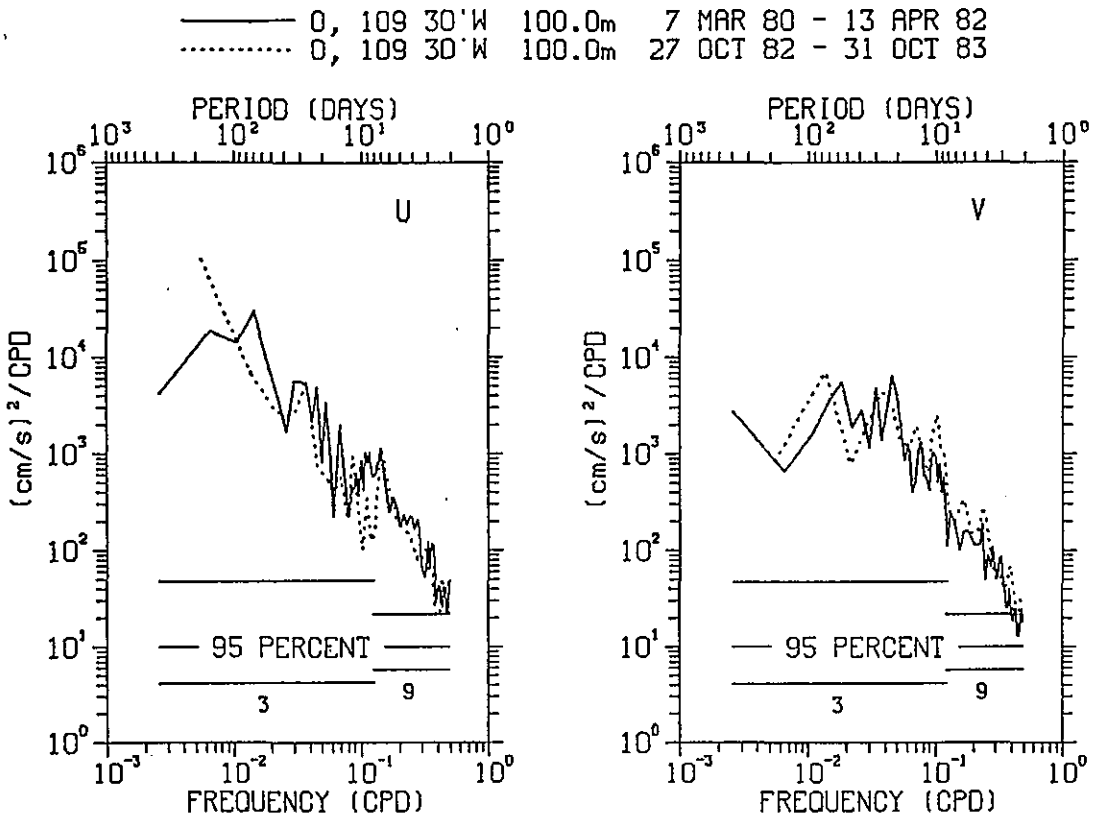

0, 109 30'W 20.0m 7 MAR 80 - 7 JUL 81
0, 109 30'W 15.0m 12 JUL 81 - 13 APR 82
0, 109 30'W 15.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
T
95 PERCENT
3
9
(degree C)²/CPD
FREQUENCY (CPD)

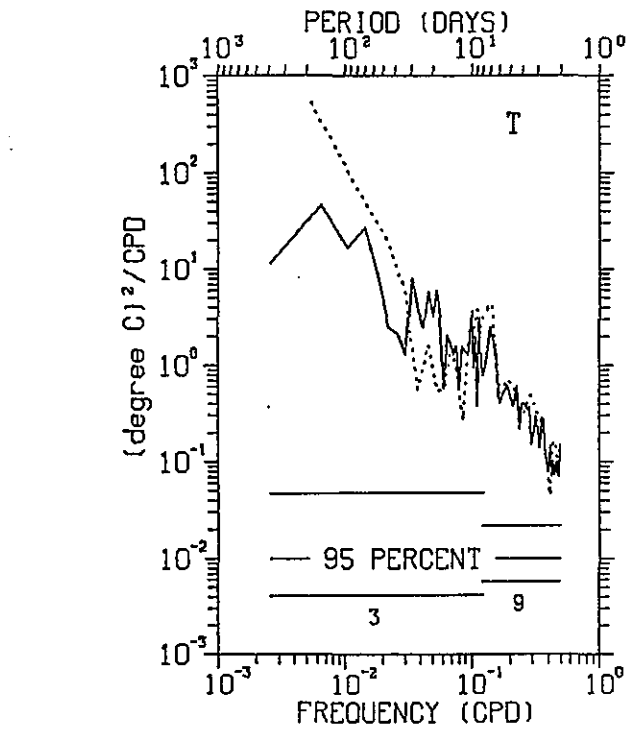

0, 109 30'W 50.0m 7 MAR 80 - 13 APR 82
0, 109 30'W 50.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

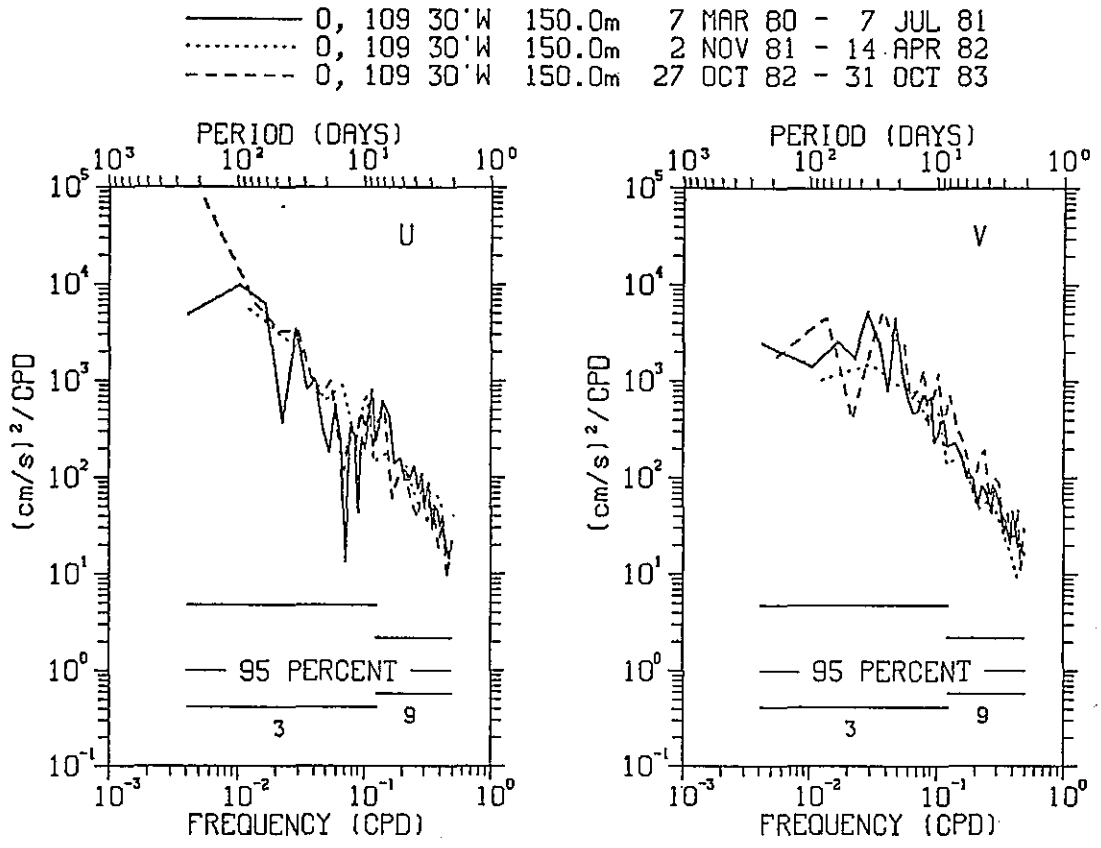

0, 109 30'W 50.0m 7 MAR 80 - 13 APR 82
0, 109 30'W 50.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

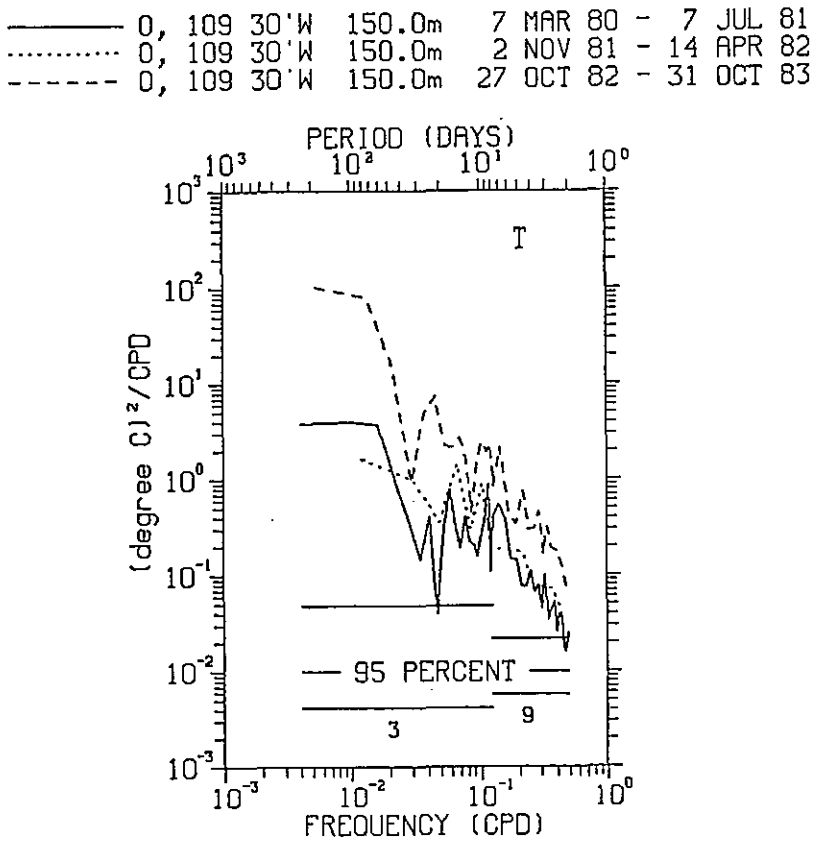

0, 109 30'W 75.0m 7 MAR 80 - 4 OCT 80
0, 109 30'W 75.0m 9 FEB 81 - 14 APR 82
0, 109 30'W 75.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

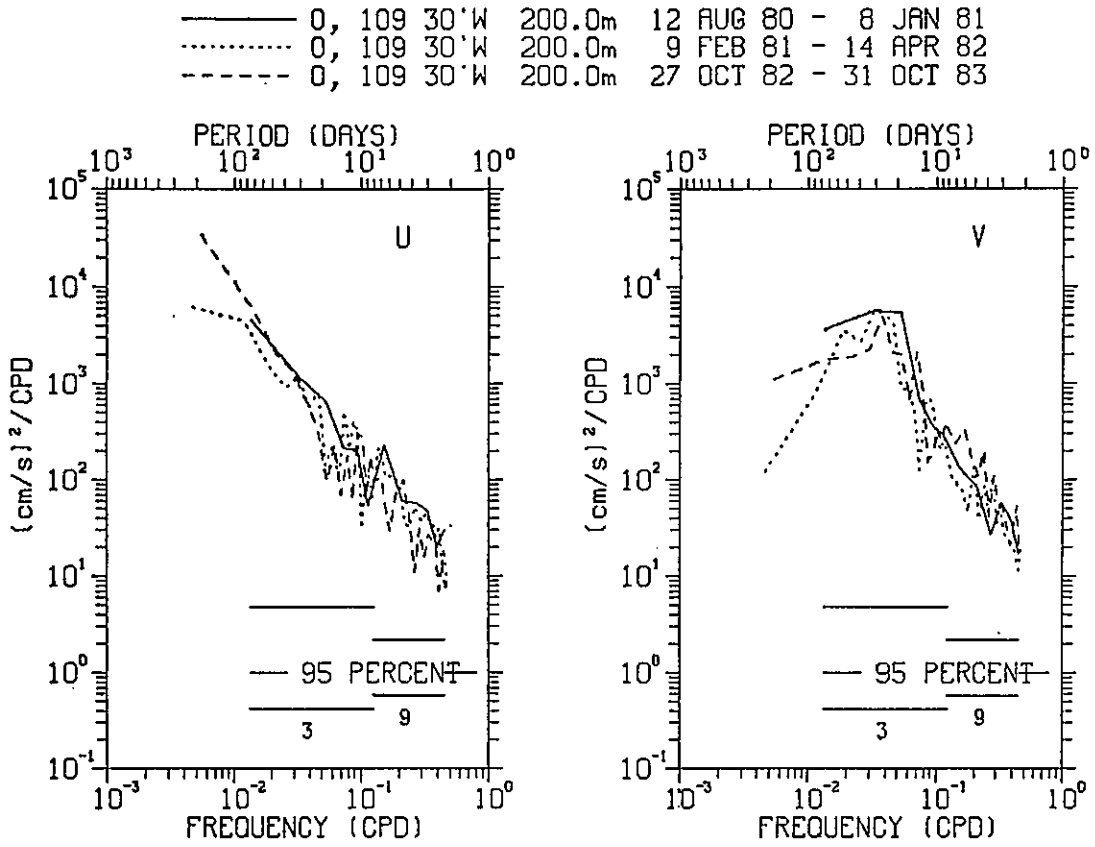

0, 109 30'W 75.0m 7 MAR 80 - 4 OCT 80
0, 109 30'W 75.0m 9 FEB 81 - 14 APR 82
0, 109 30'W 75.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

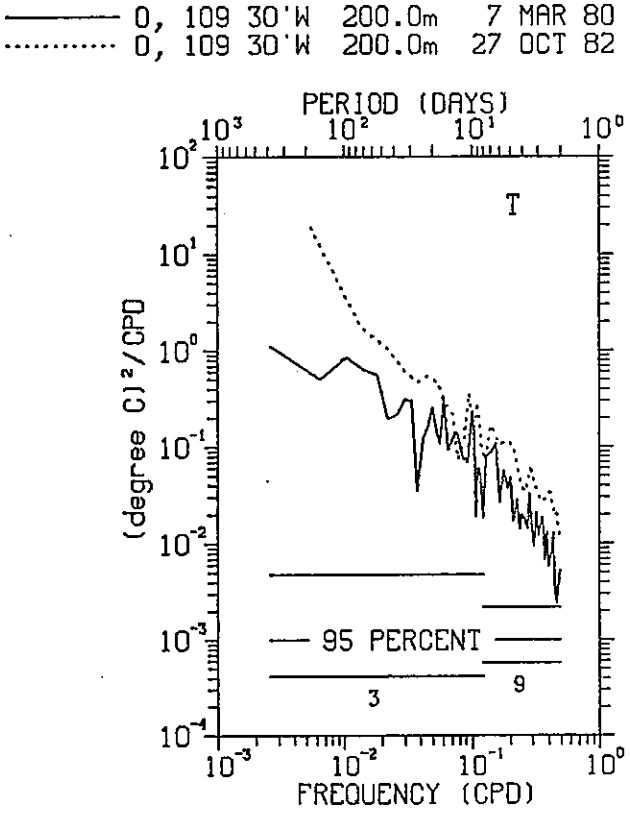

0, 109 30'W 100.0m 7 MAR 80 - 13 APR 82
0, 109 30'W 100.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

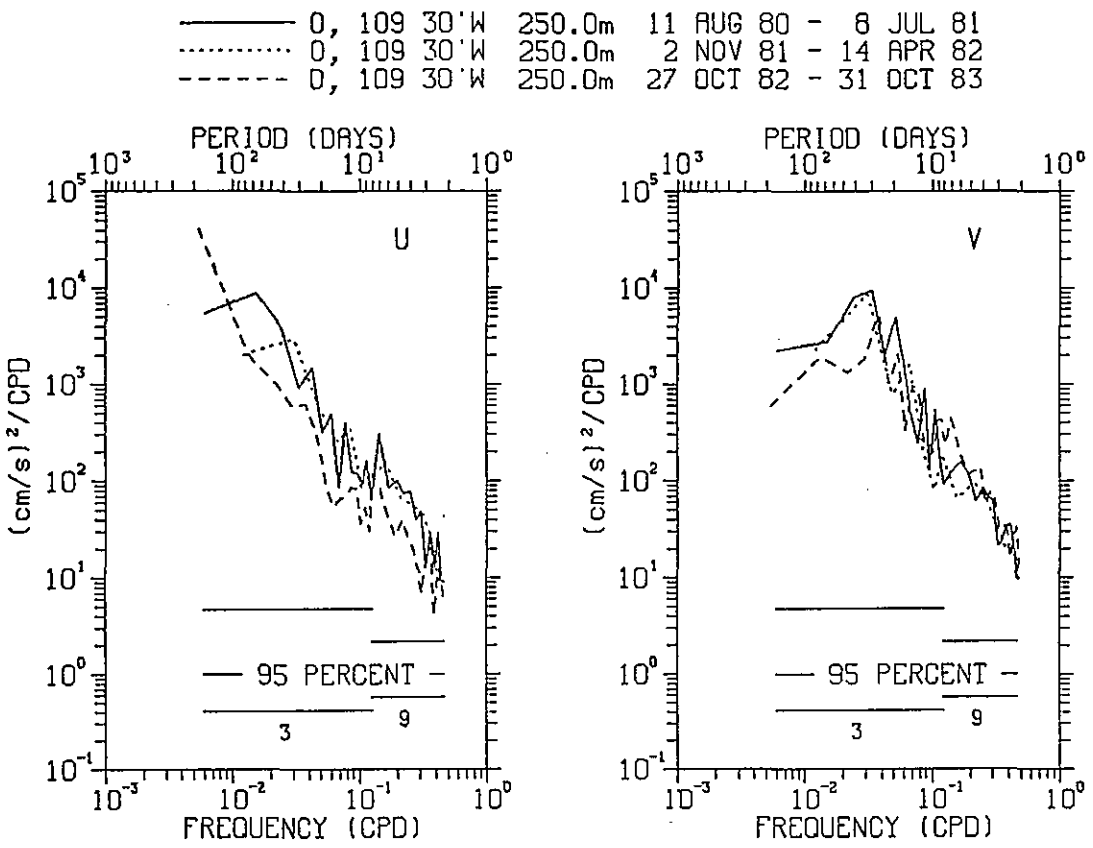

0, 109 30'W 100.0m 7 MAR 80 - 13 APR 82
0, 109 30'W 100.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

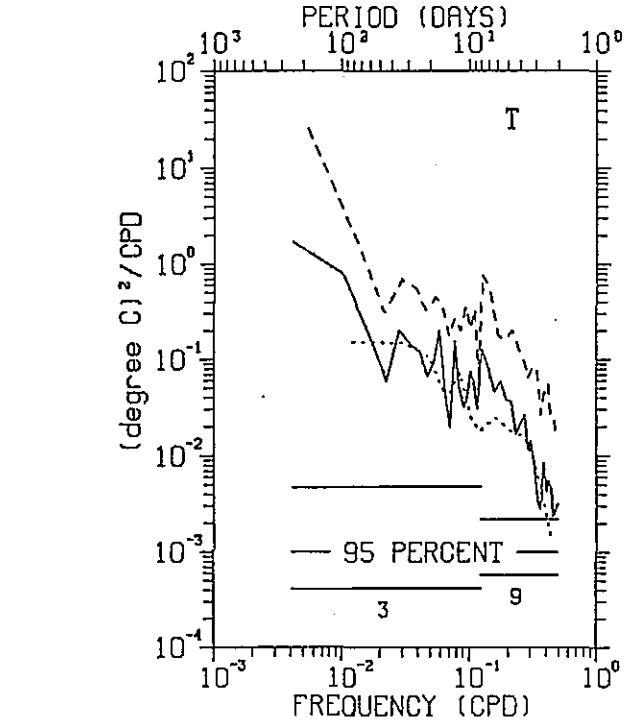

0, 109 30'W 150.0m 7 MAR 80 - 7 JUL 81
0, 109 30'W 150.0m 2 NOV 81 - 14 APR 82
0, 109 30'W 150.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


0, 109 30'W 150.0m 7 MAR 80 - 7 JUL 81
0, 109 30'W 150.0m 2 NOV 81 - 14 APR 82
0, 109 30'W 150.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

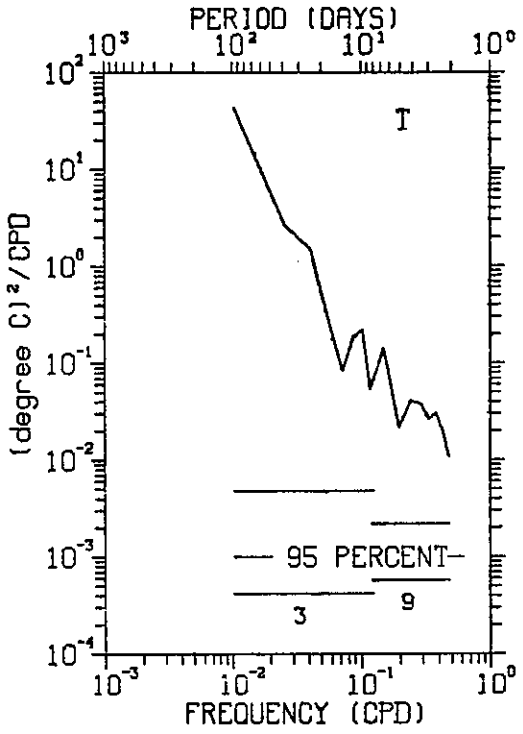

0, 109 30'W 200.0m 12 AUG 80 - 8 JAN 81
0, 109 30'W 200.0m 9 FEB 81 - 14 APR 82
0, 109 30'W 200.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


0, 109 30'W 200.0m 7 MAR 80 - 13 APR 82
0, 109 30'W 200.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

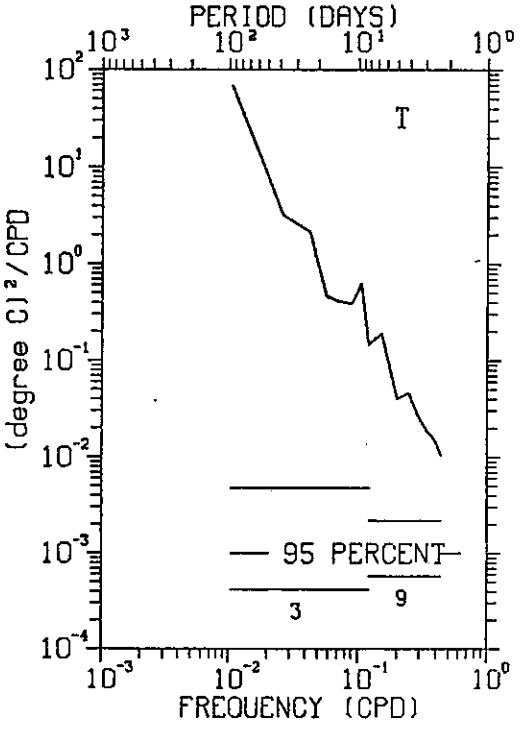

0, 109 30'W 250.0m 11 AUG 80 - 8 JUL 81
0, 109 30'W 250.0m 2 NOV 81 - 14 APR 82
0, 109 30'W 250.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

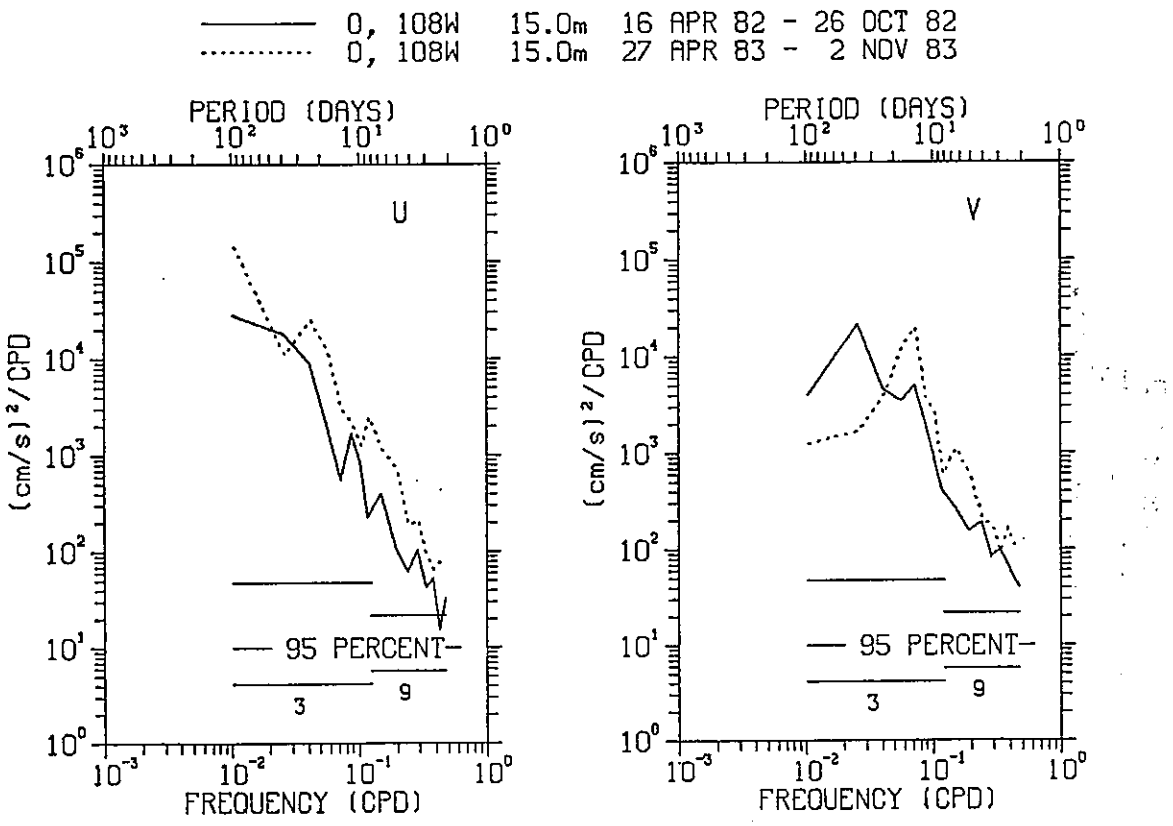

0, 109 30'W 250.0m 7 MAR 80 - 7 JUL 81
0, 109 30'W 250.0m 2 NOV 81 - 14 APR 82
0, 109 30'W 250.0m 27 OCT 82 - 31 OCT 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

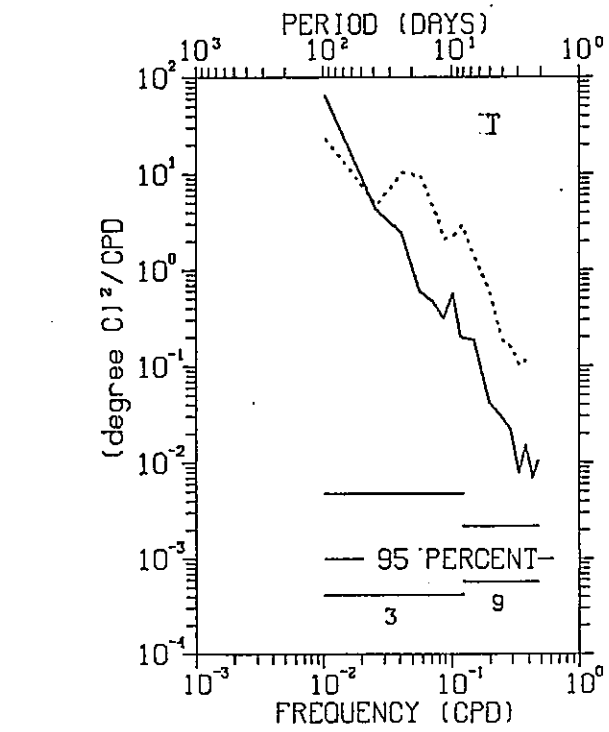
0, 108W -3.5m 16 APR 82 - 26 OCT 82

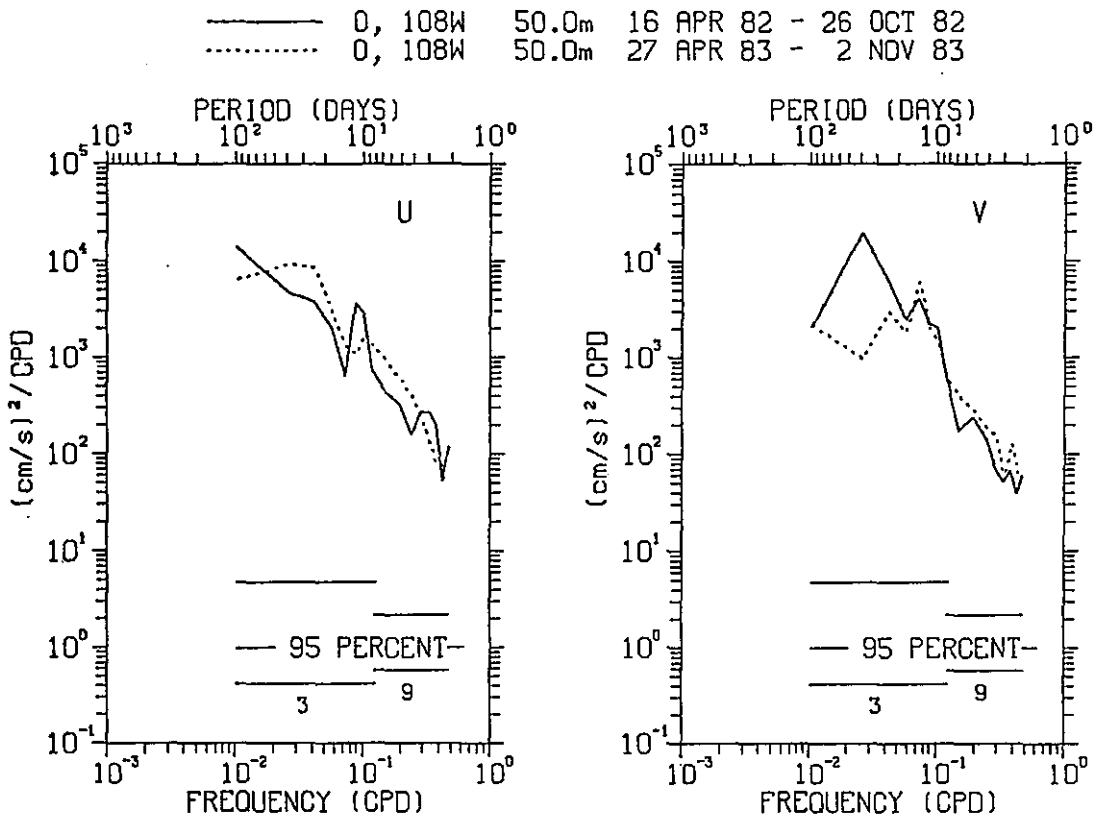


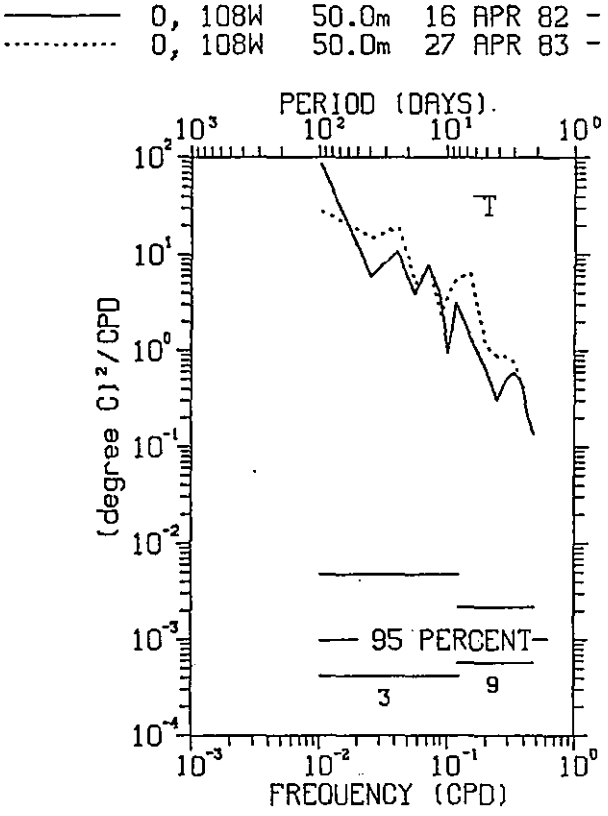
0, 108W 0.0m 16 APR 82 - 22 OCT 82

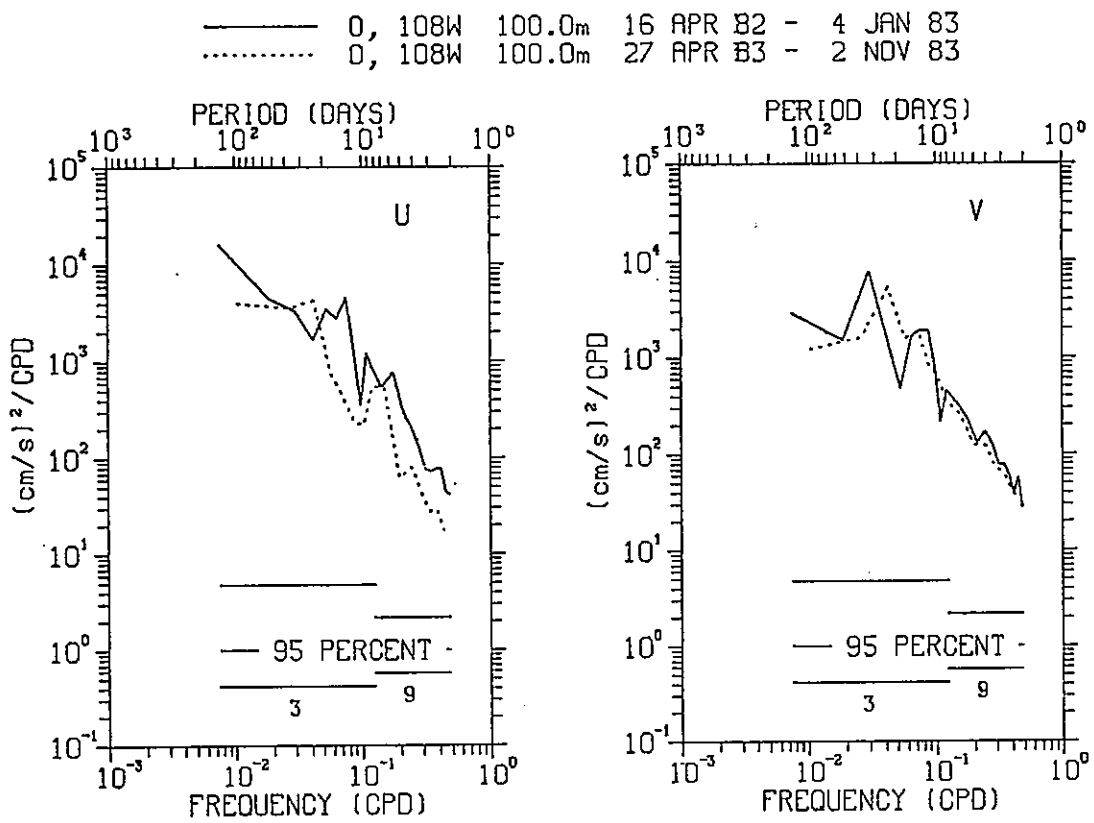


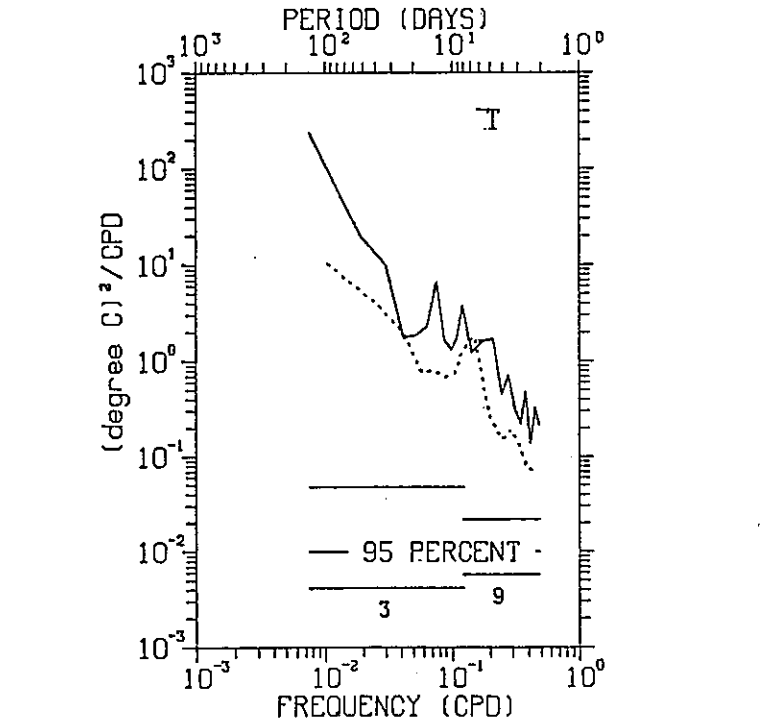

0, 108W 15.0m 16 APR 82 - 26 OCT 82
0, 108W 15.0m 27 APR 83 - 2 NOV 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


0, 108W 15.0m 16 APR 82 - 26 OCT 82
0, 108W 15.0m 27 APR 83 - 2 NOV 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

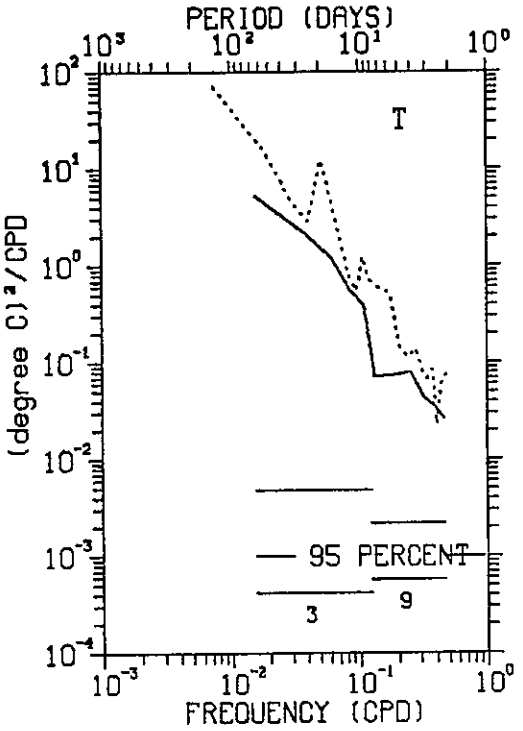

0, 108W 50.0m 16 APR 82 - 26 OCT 82
0, 108W 50.0m 27 APR 83 - 2 NOV 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


0, 108W 50.0m 16 APR 82 - 26 OCT 82
0, 108W 50.0m 27 APR 83 - 2 NOV 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

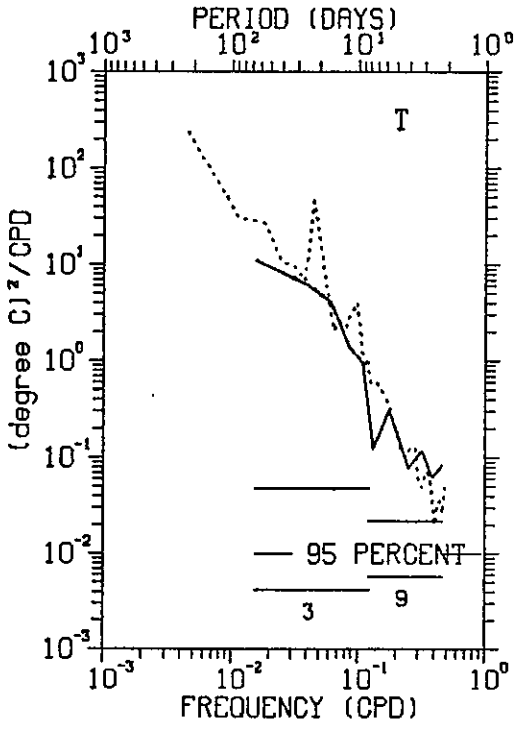

0, 108W 100.0m 16 APR 82 - 4 JAN 83
0, 108W 100.0m 27 APR 83 - 2 NOV 83
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

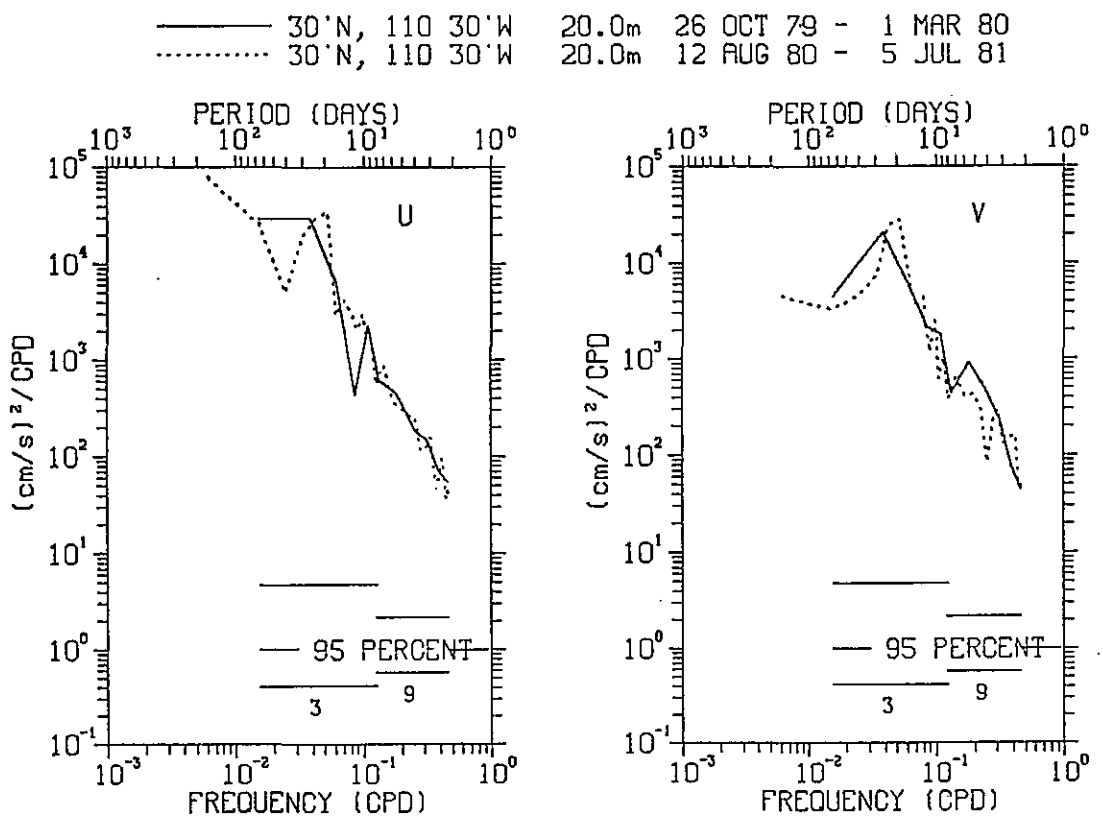

0, 108W 100.0m 16 APR 82 - 4 JAN 83
0, 108W 100.0m 27 APR 83 - 2 NOV 83
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

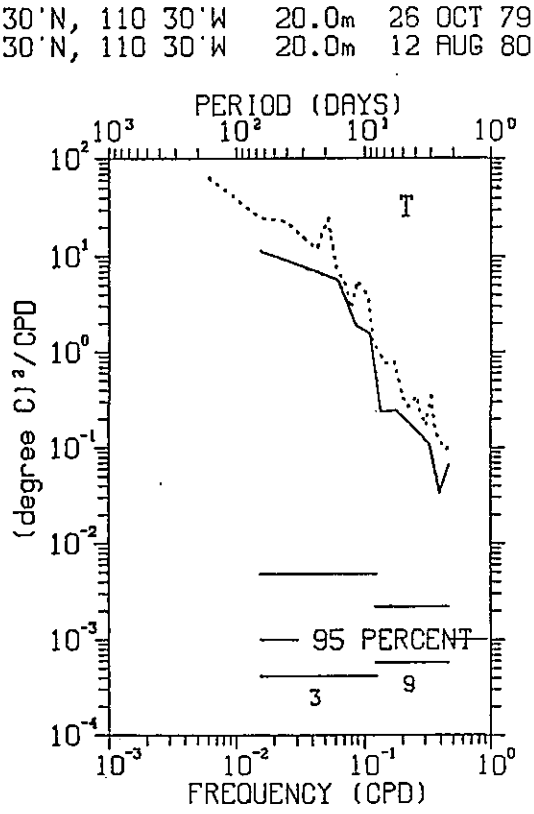
——— 30°N, 110 30°W -3.5m 26 OCT 79 - 1 MAR 80
····· 30°N, 110 30°W -3.5m 3 FEB 81 - 30 OCT 81

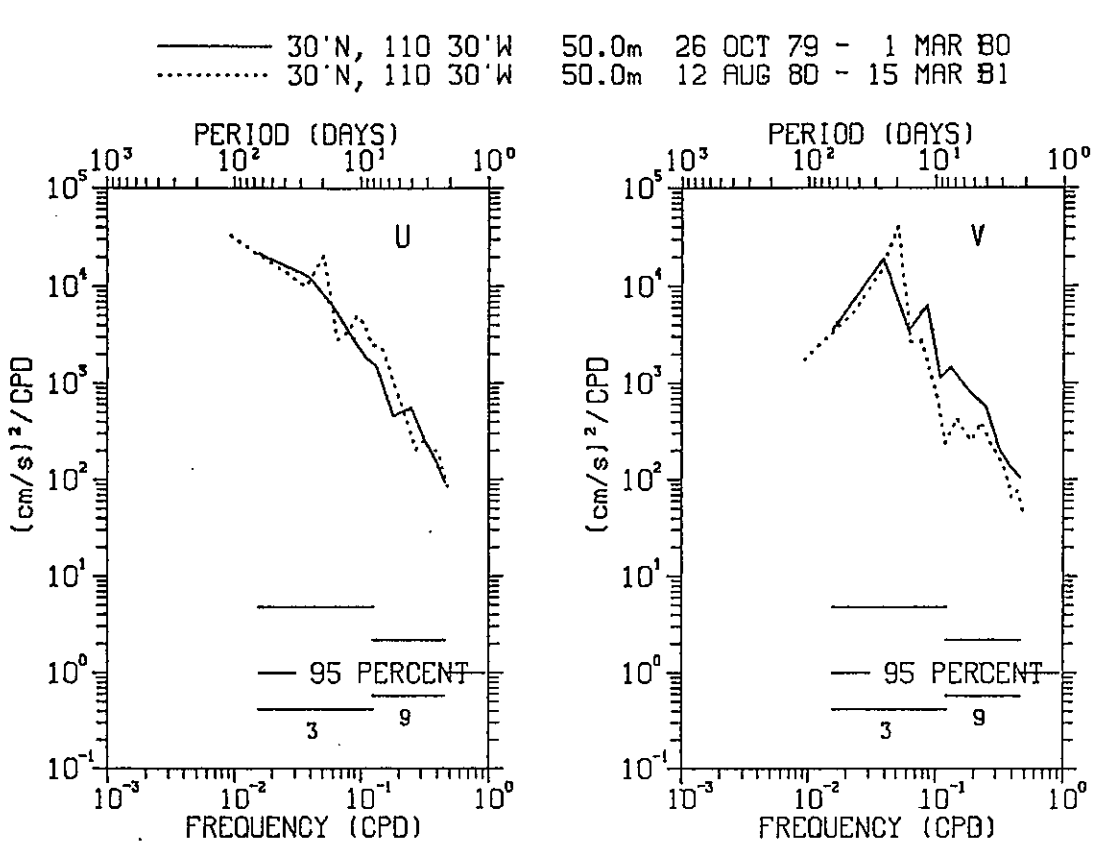


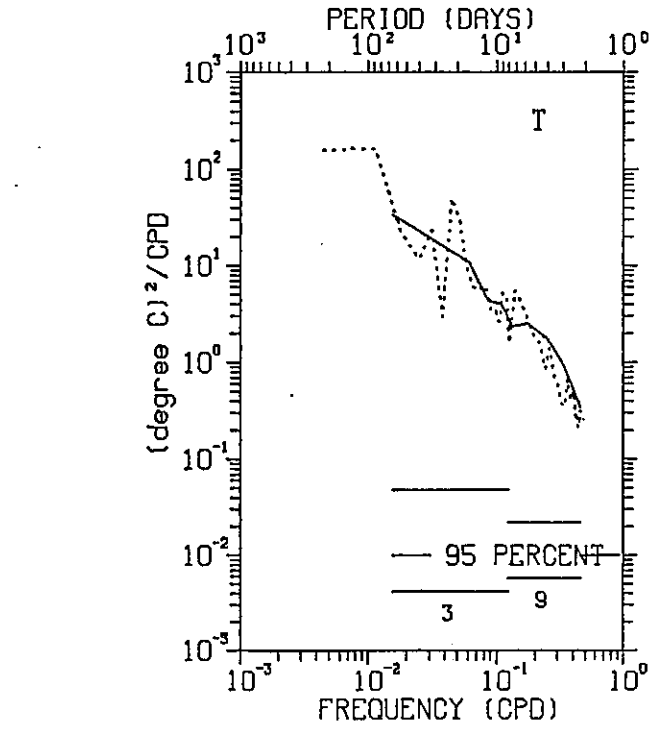
——— 30°N, 110 30°W 0.0m 26 OCT 79 - 1 MAR 80
····· 30°N, 110 30°W 0.0m 13 AUG 80 - 30 OCT 81

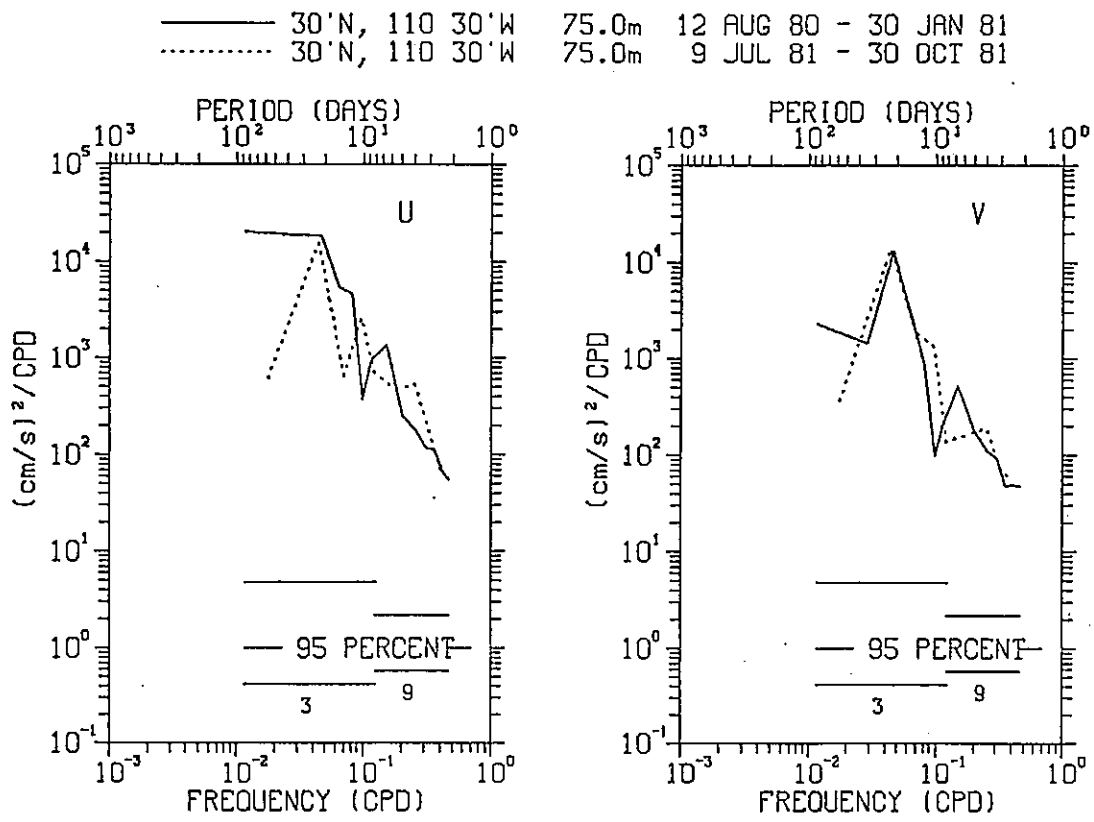


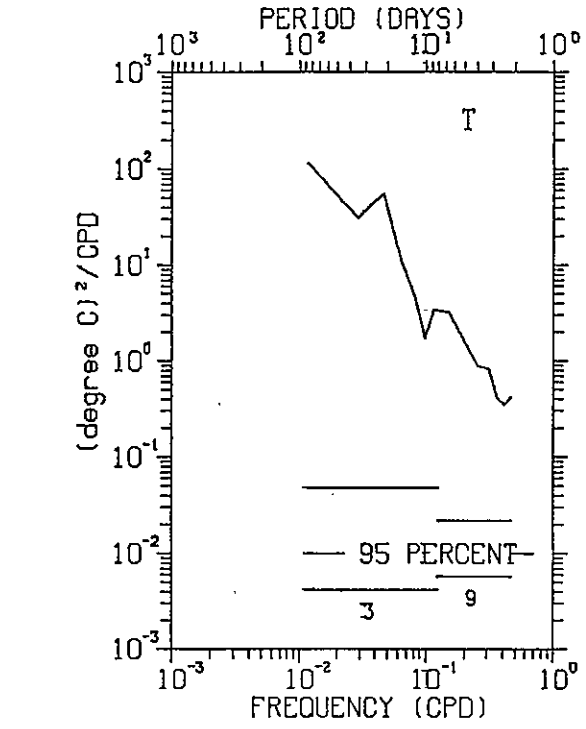

30°N, 110 30°W 20.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30°W 20.0m 12 AUG 80 - 5 JUL 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

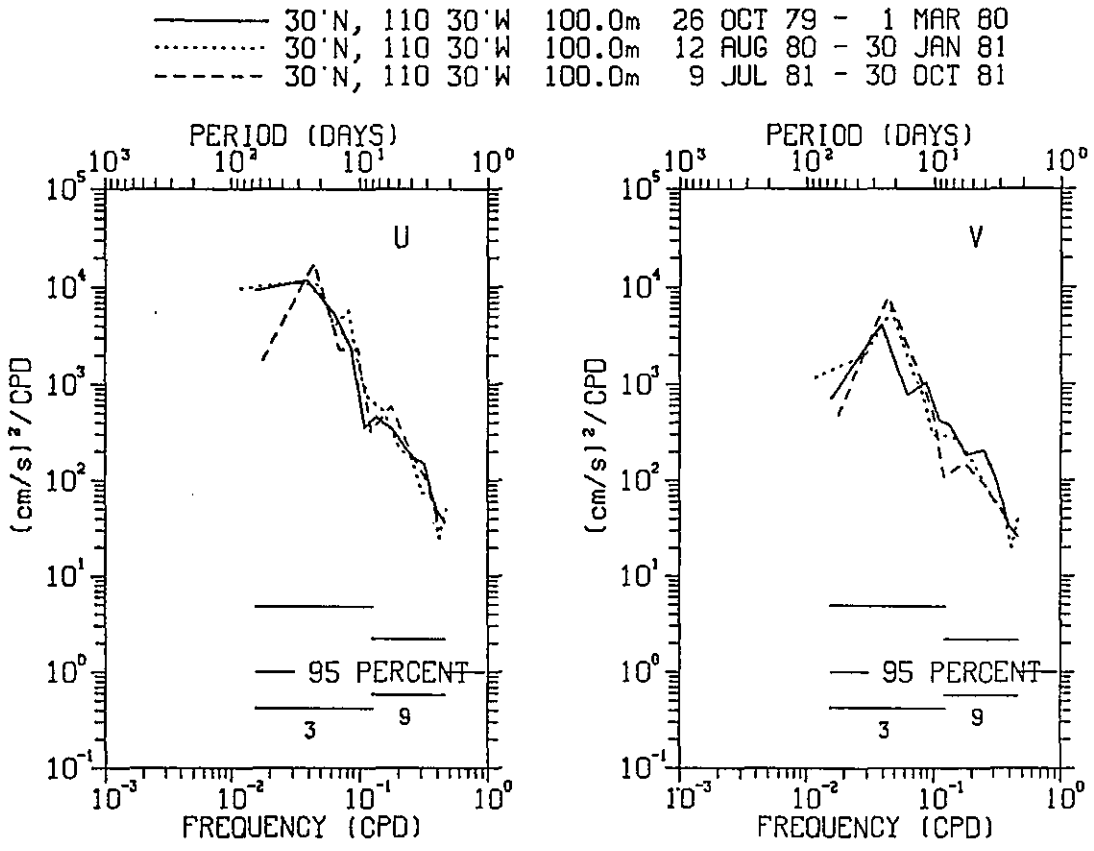

30°N, 110 30°W 20.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30°W 20.0m 12 AUG 80 - 5 JUL 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

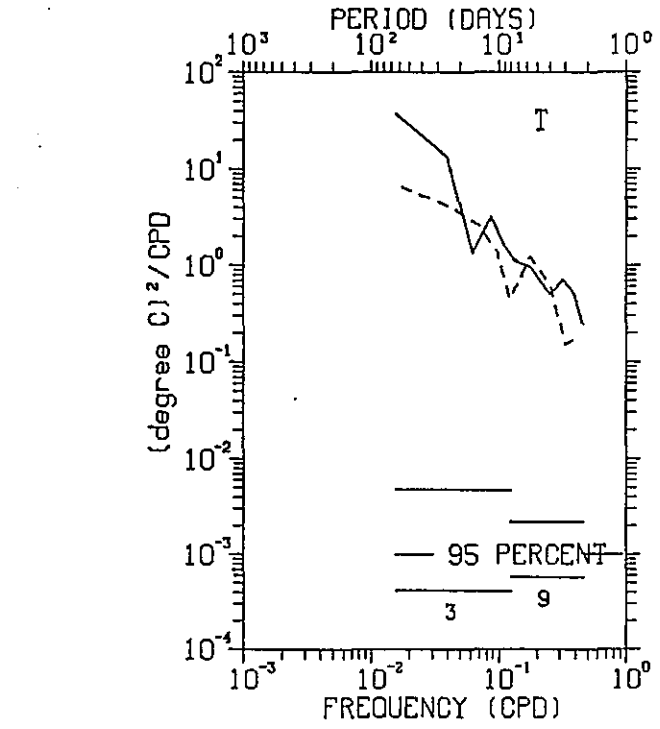

30°N, 110 30'W 50.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 50.0m 12 AUG 80 - 15 MAR 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

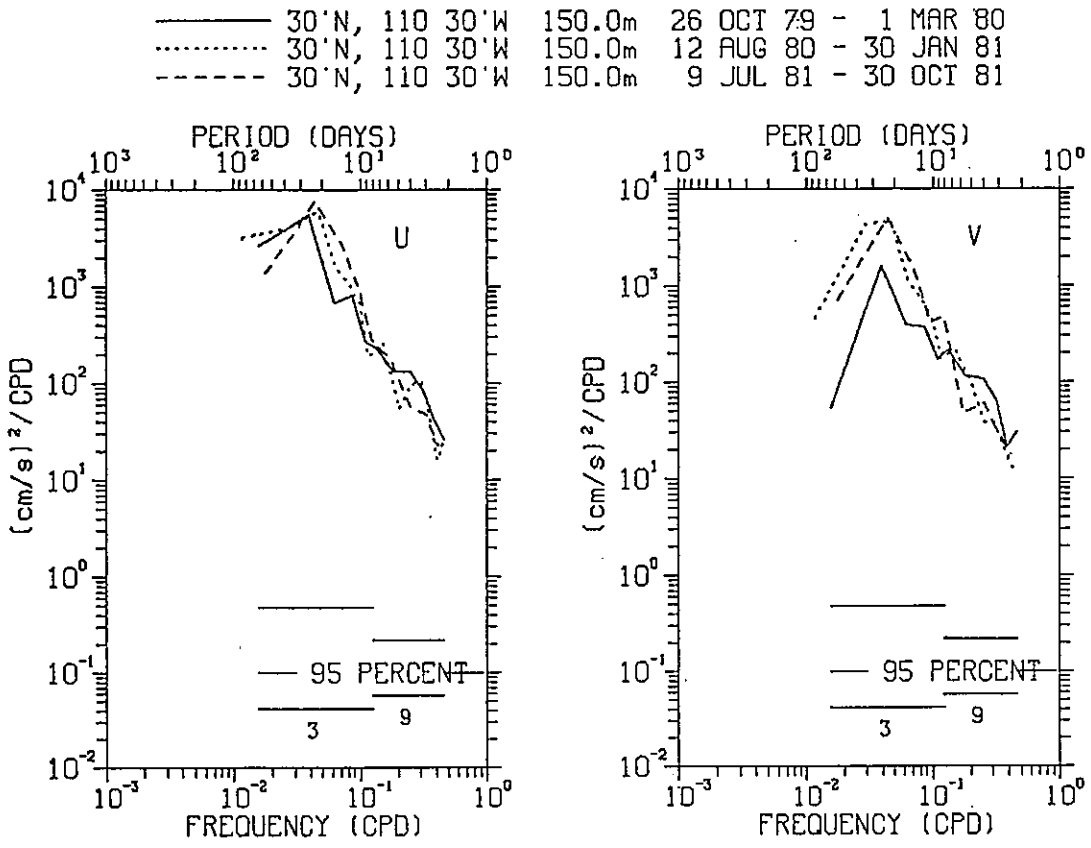

30°N, 110 30'W 50.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 50.0m 13 AUG 80 - 30 OCT 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

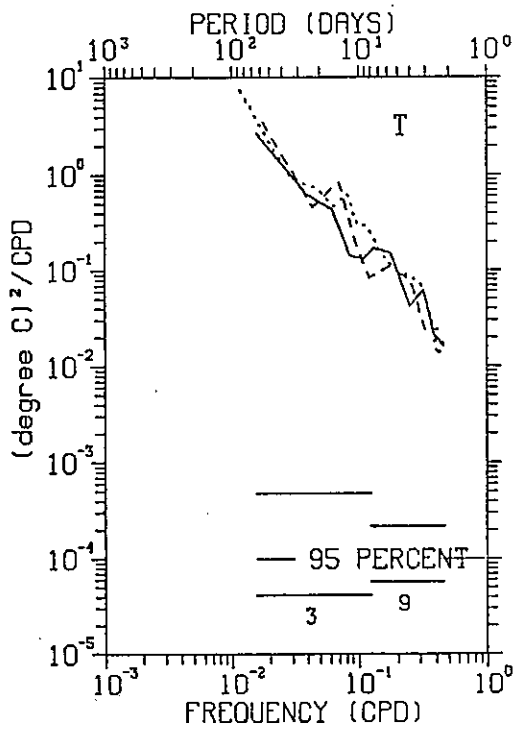

30'N, 110 30'W 75.0m 12 AUG 80 - 30 JAN 81
30'N, 110 30'W 75.0m 9 JUL 81 - 30 OCT 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

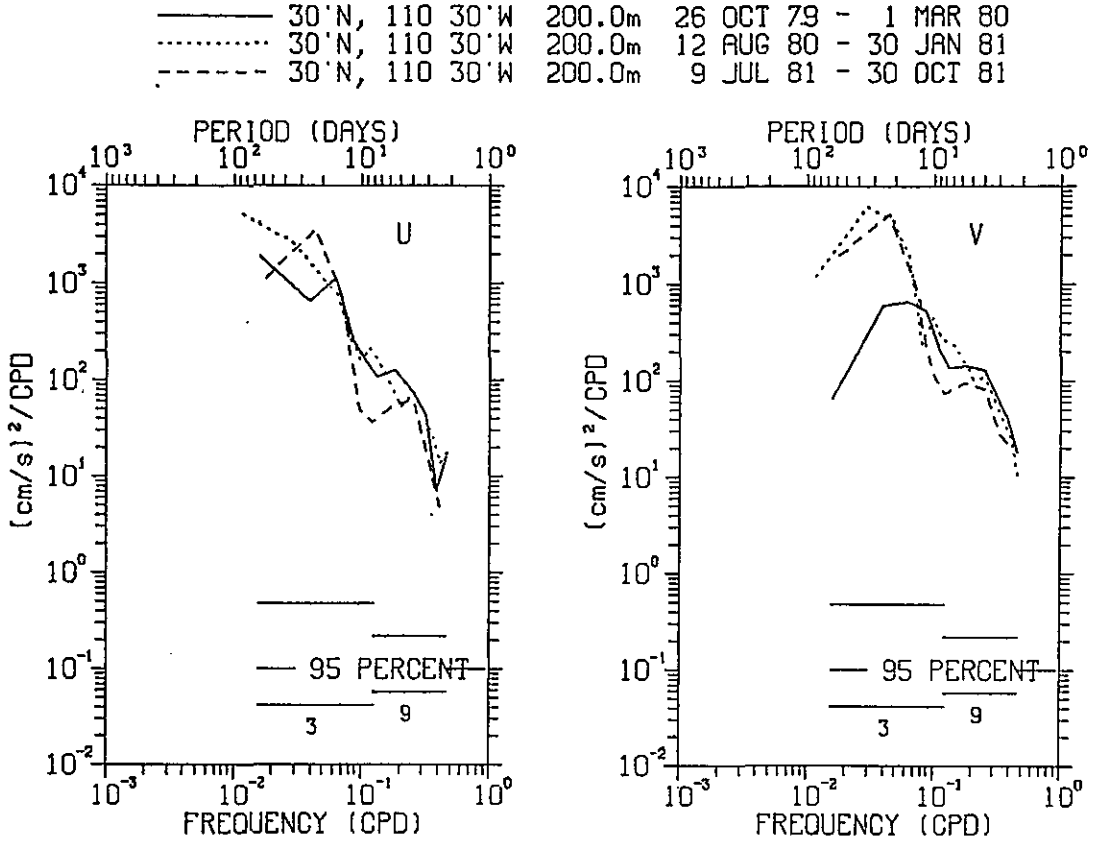

30'N, 110 30'W 75.0m 12 AUG 80 - 30 JAN 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

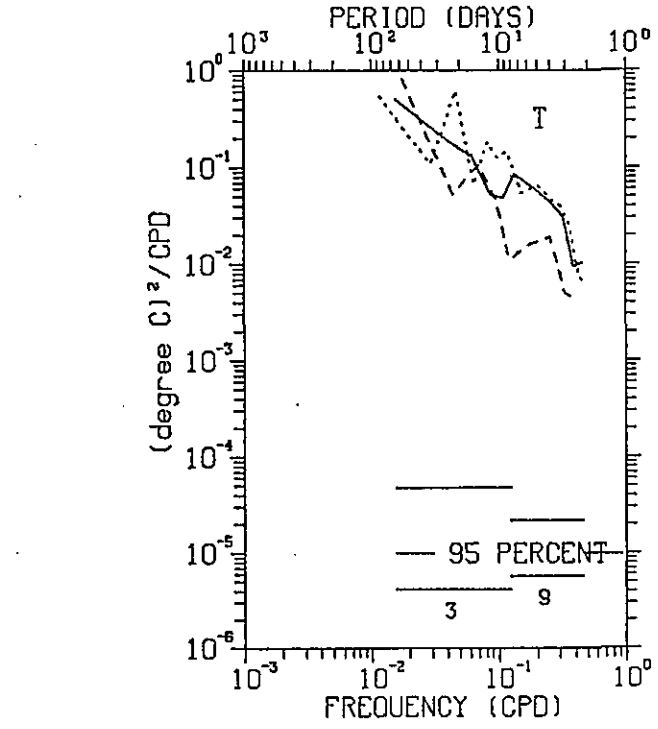

30°N, 110 30'W 100.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 100.0m 12 AUG 80 - 30 JAN 81
30°N, 110 30'W 100.0m 9 JUL 81 - 30 OCT 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

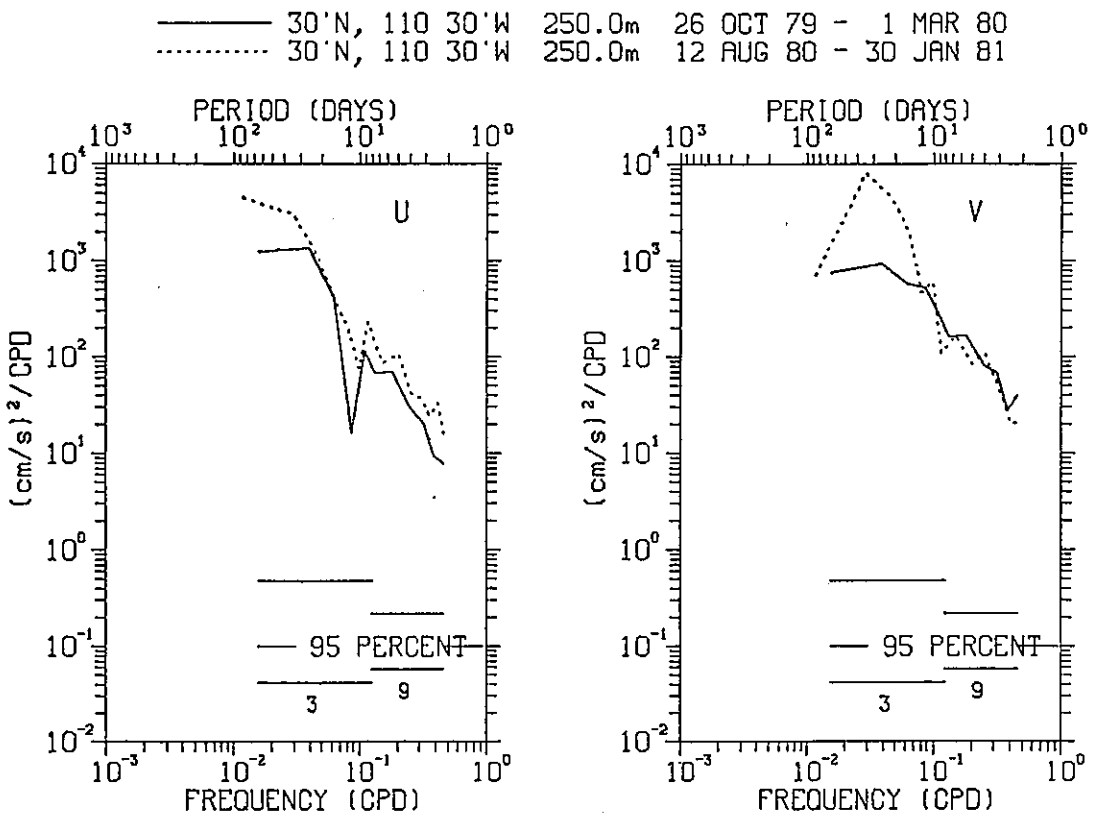

30°N, 110 30'W 100.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 100.0m 9 JUL 81 - 30 OCT 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

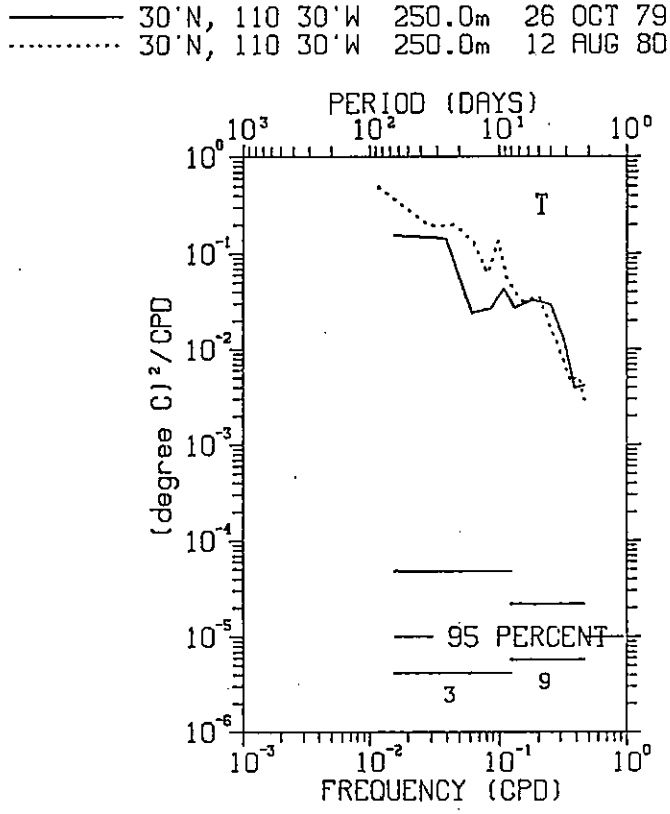

30°N, 110 30'W 150.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 150.0m 12 AUG 80 - 30 JAN 81
30°N, 110 30'W 150.0m 9 JUL 81 - 30 OCT 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


30°N, 110 30'W 150.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 150.0m 12 AUG 80 - 30 JAN 81
30°N, 110 30'W 150.0m 9 JUL 81 - 30 OCT 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

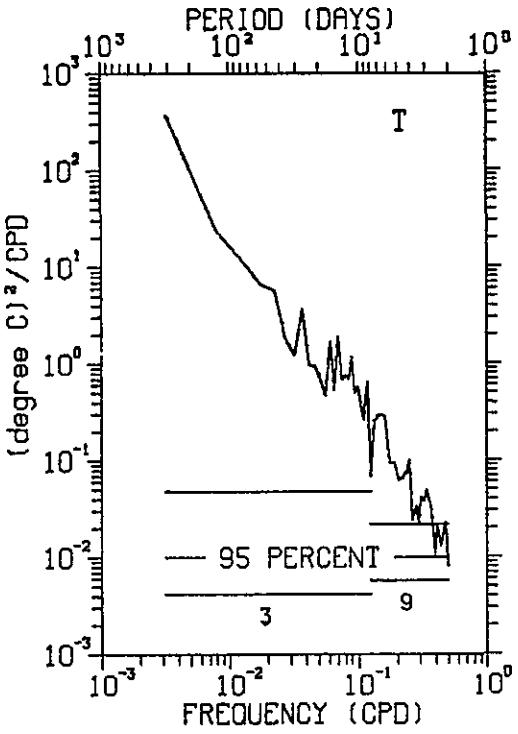

30°N, 110 30°W 200.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30°W 200.0m 12 AUG 80 - 30 JAN 81
30°N, 110 30°W 200.0m 9 JUL 81 - 30 OCT 81
PERIOD (DAYS)
U
V
95 PERCENT
3
9
(cm/s)²/CPD
FREQUENCY (CPD)


30°N, 110 30°W 200.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30°W 200.0m 12 AUG 80 - 30 JAN 81
30°N, 110 30°W 200.0m 9 JUL 81 - 30 OCT 81
PERIOD (DAYS)
T
95 PERCENT
3
9
(degree C)²/CPD
FREQUENCY (CPD)

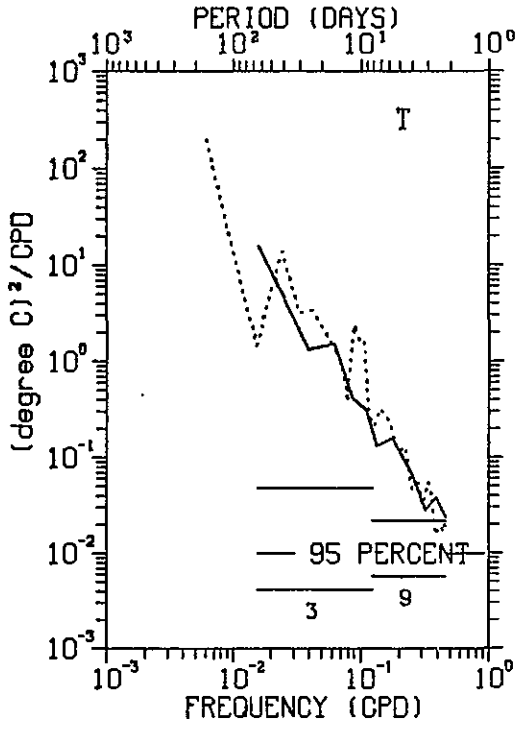

30°N, 110 30'W 250.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 250.0m 12 AUG 80 - 30 JAN 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


30°N, 110 30'W 250.0m 26 OCT 79 - 1 MAR 80
30°N, 110 30'W 250.0m 12 AUG 80 - 30 JAN 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

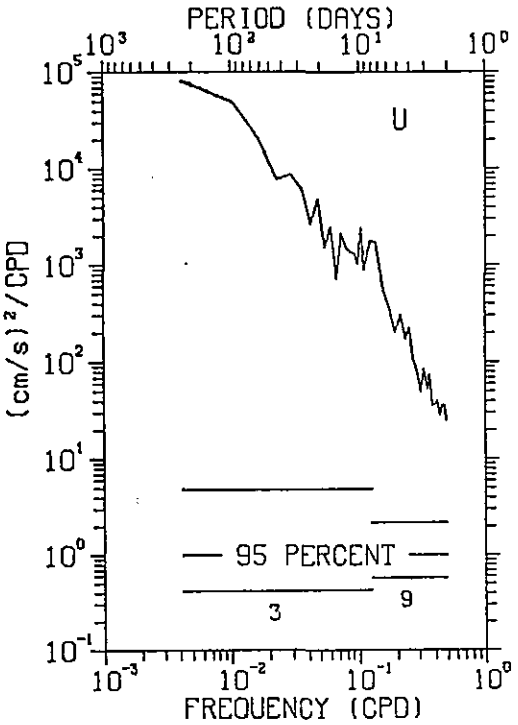
30°S, 110 30'W -3.5m 26 OCT 79 - 10 JUL 81

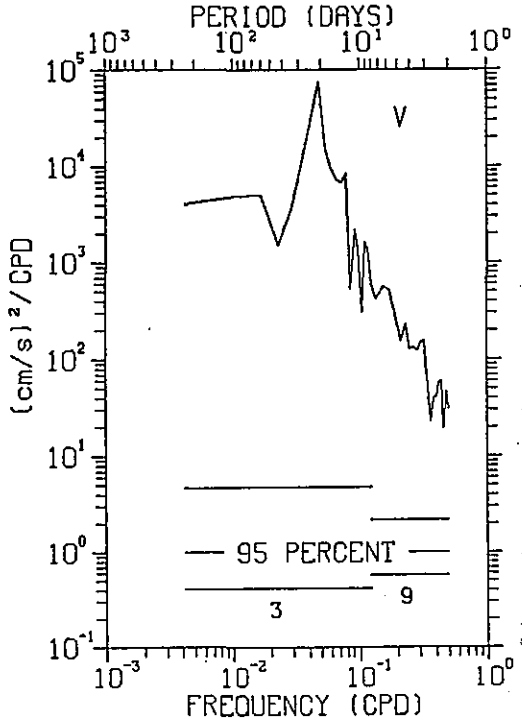


——— 30°S, 110 30'W 0.0m 26 OCT 79 - 1 MAR 80
..... 30°S, 110 30'W 0.0m 15 AUG 80 - 10 JUL 81

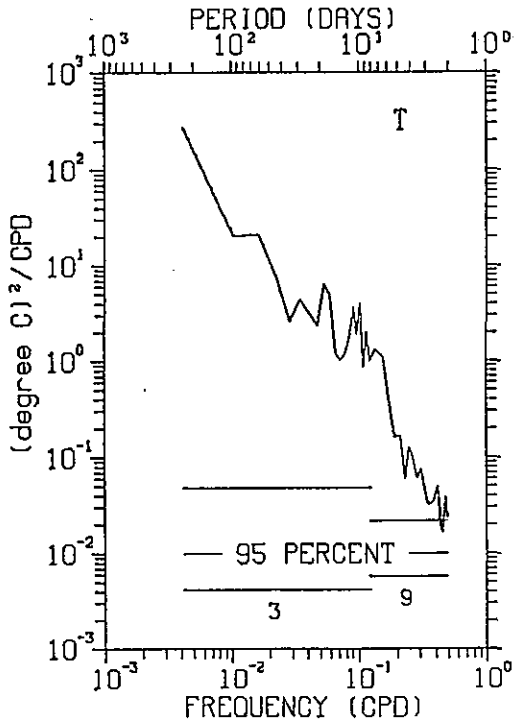


30'S, 110 30'W 20.0m 26 OCT 79 - 16 FEB 81

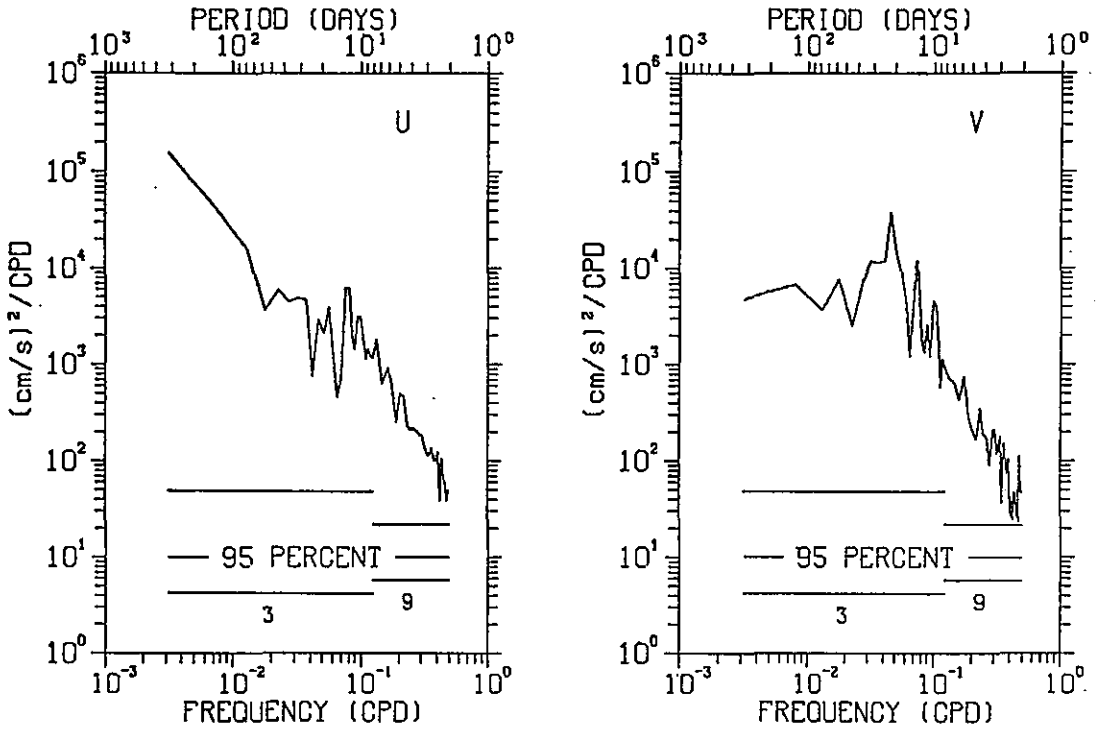




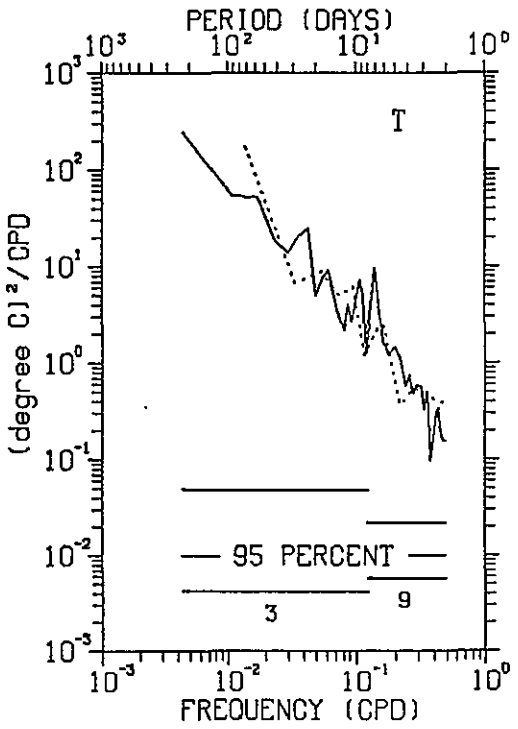
30'S, 110 30'W 20.0m 26 OCT 79 - 16 FEB 81



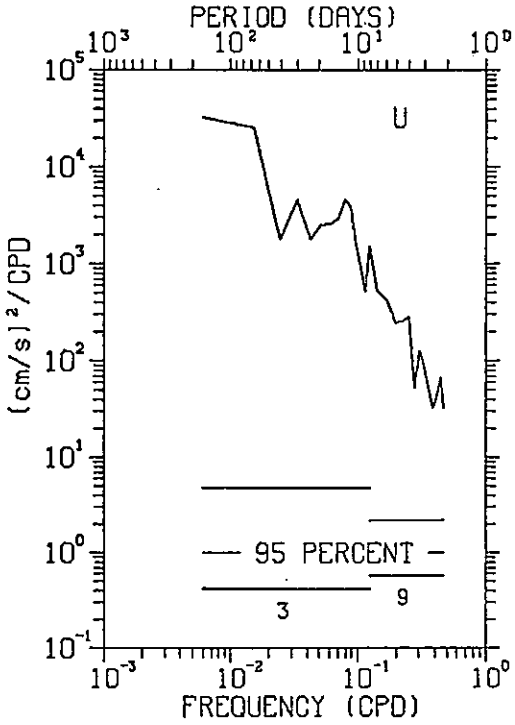
30°S, 110 30'W 50.0m 26 OCT 79 - 10 JUL 81

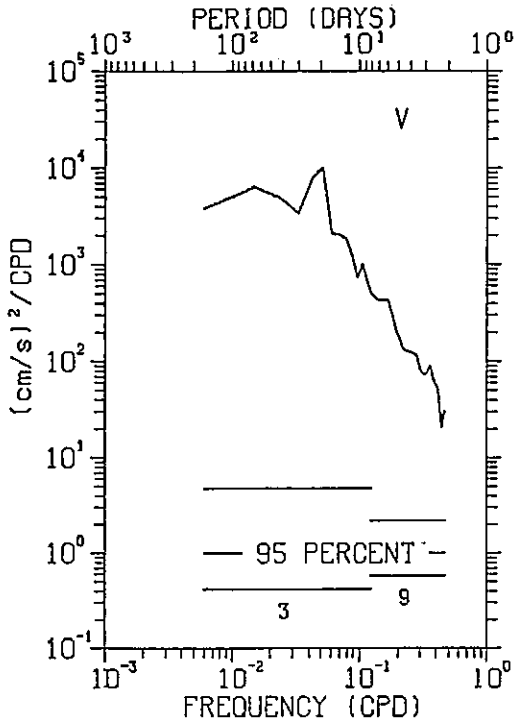


——— 30°S, 110 30'W 50.0m 26 OCT 79 - 31 JAN 81
..... 30°S, 110 30'W 50.0m 15 FEB 81 - 10 JUL 81

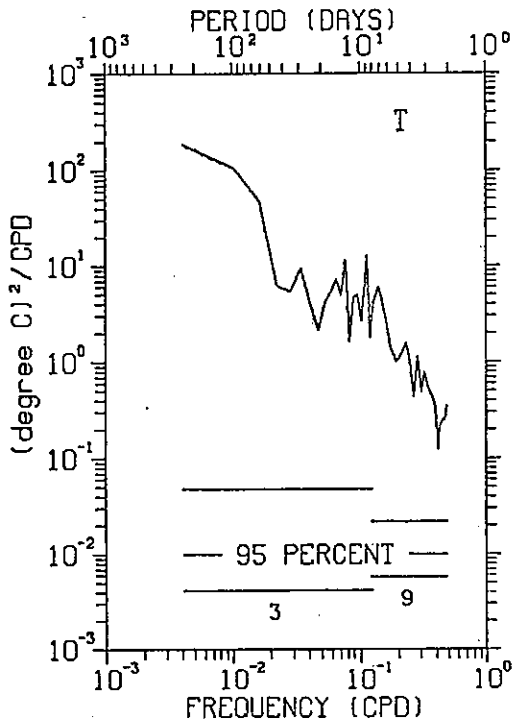


30°S, 110 30'W 75.0m 14 AUG 80 - 9 JUL 81

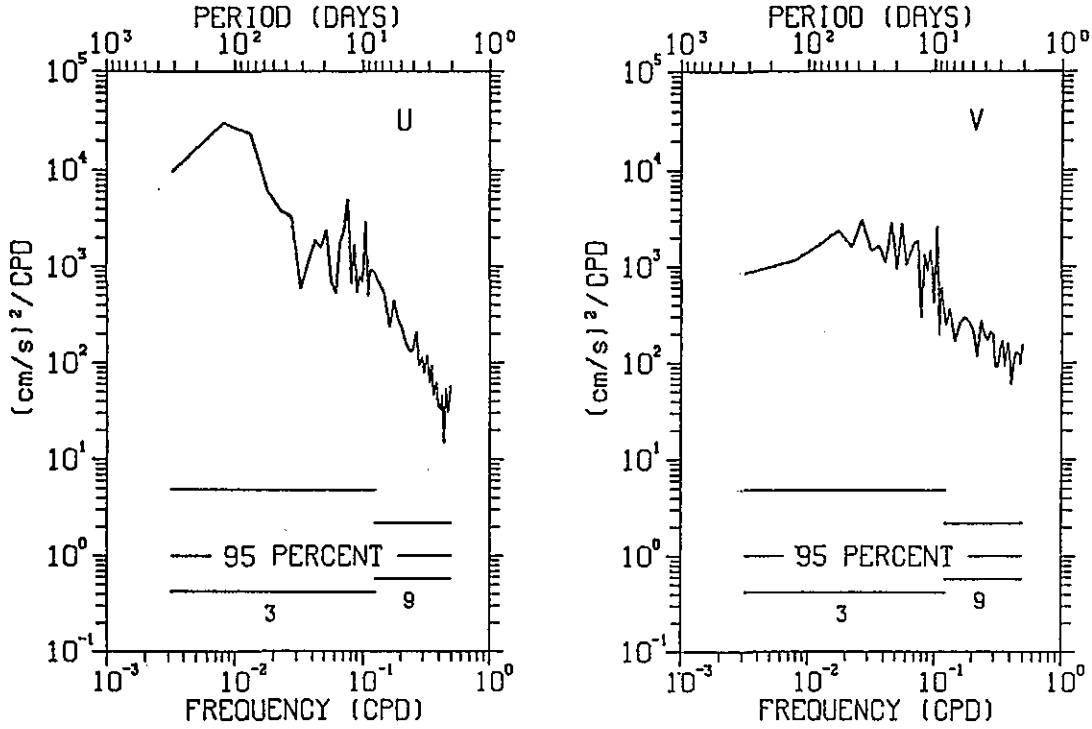




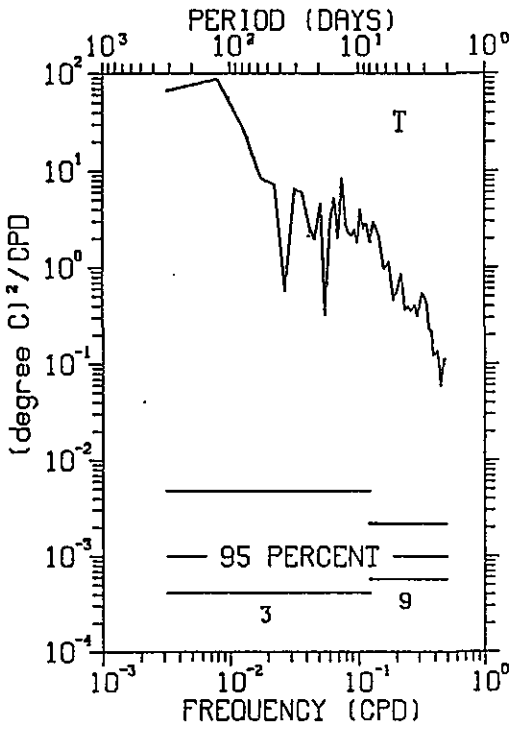
30°S, 110 30'W 75.0m 7 MAR 80 - 9 JUL 81

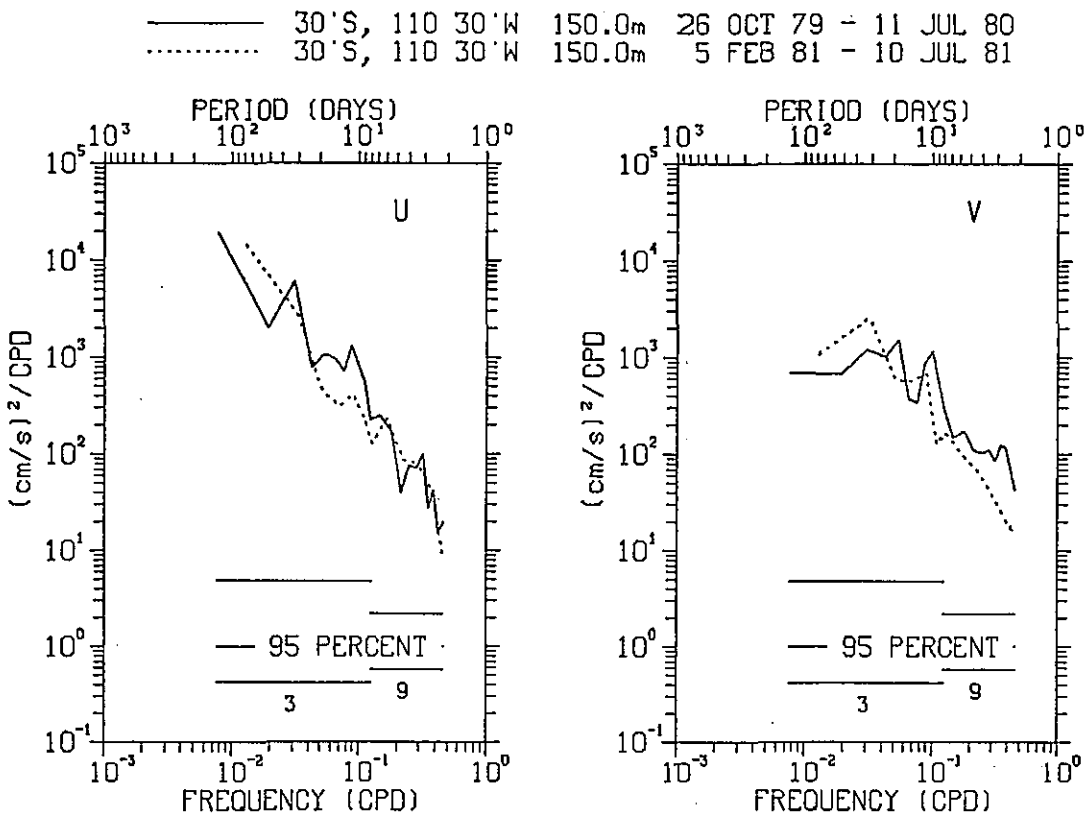


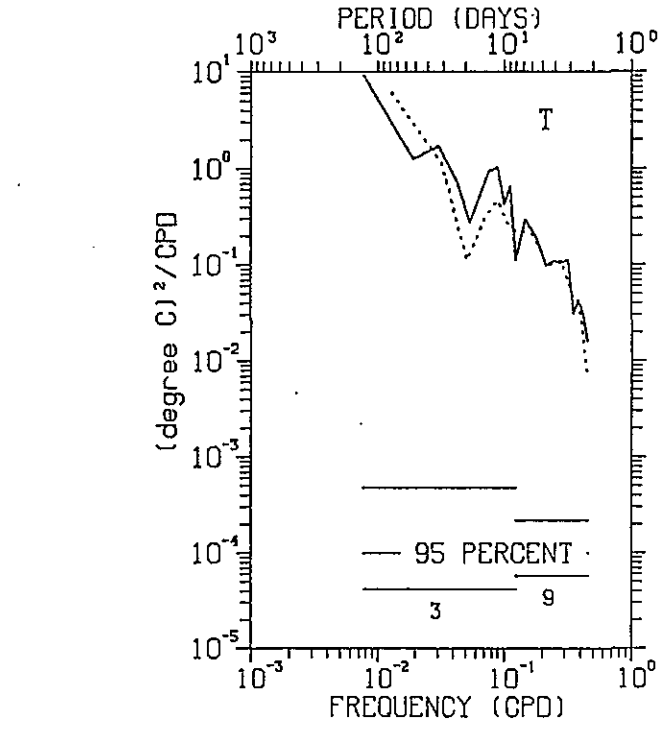
30°S, 110 30°W 100.0m 26 OCT 79 - 10 JUL 81



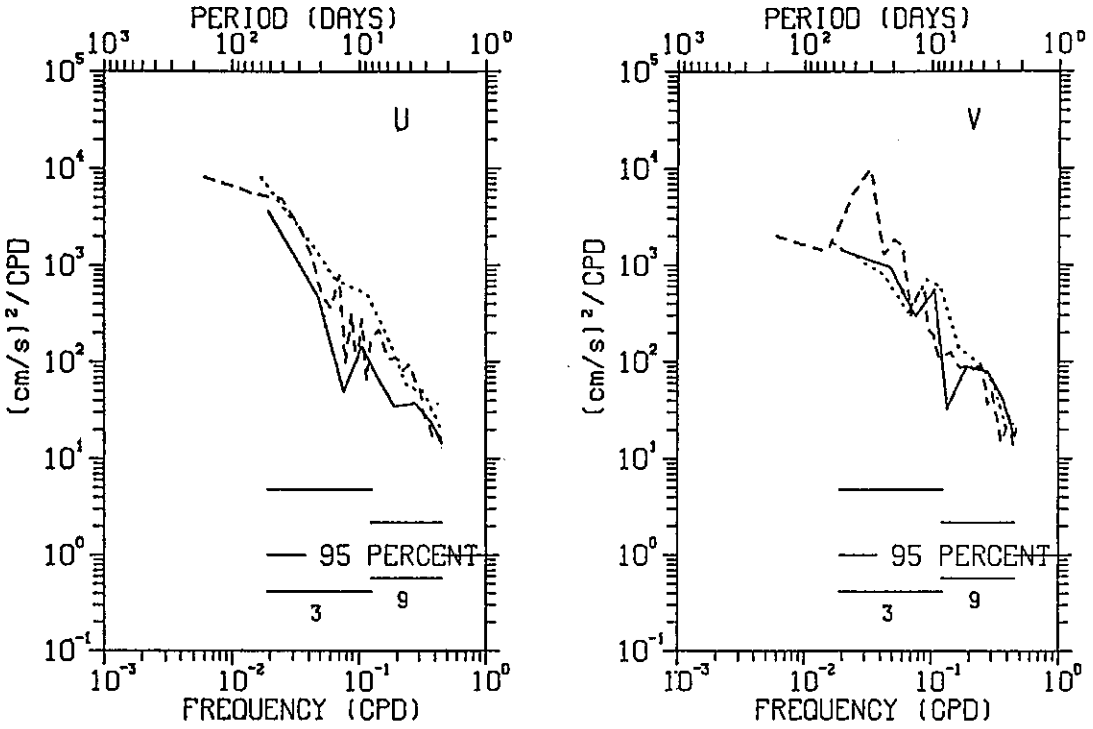
30°S, 110 30°W 100.0m 26 OCT 79 - 10 JUL 81



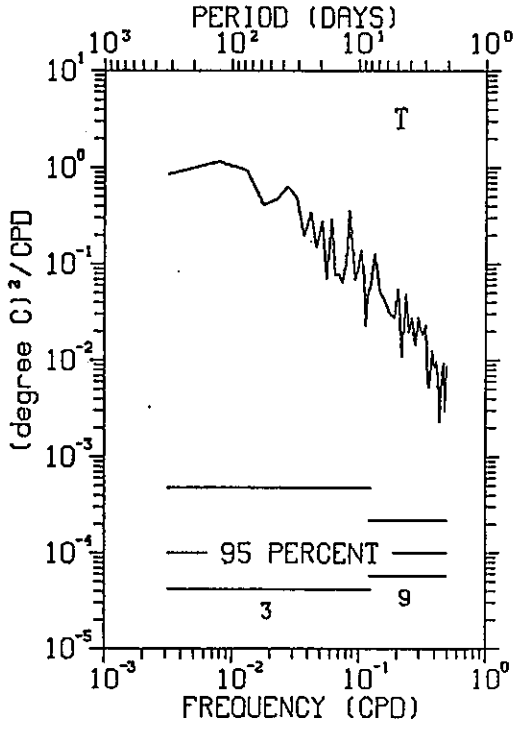

30'S, 110 30'W 150.0m 26 OCT 79 - 11 JUL 80
30'S, 110 30'W 150.0m 5 FEB 81 - 10 JUL 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

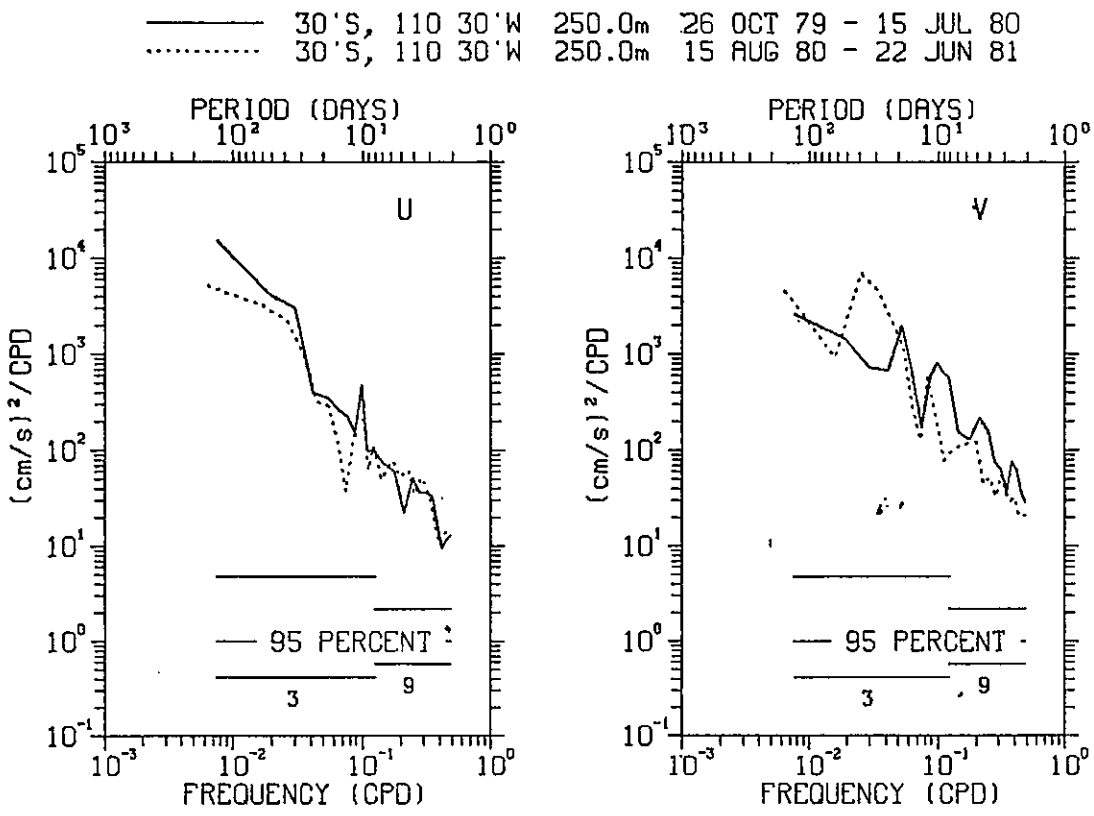

30'S, 110 30'W 150.0m 26 OCT 79 - 11 JUL 80
30'S, 110 30'W 150.0m 5 FEB 81 - 10 JUL 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

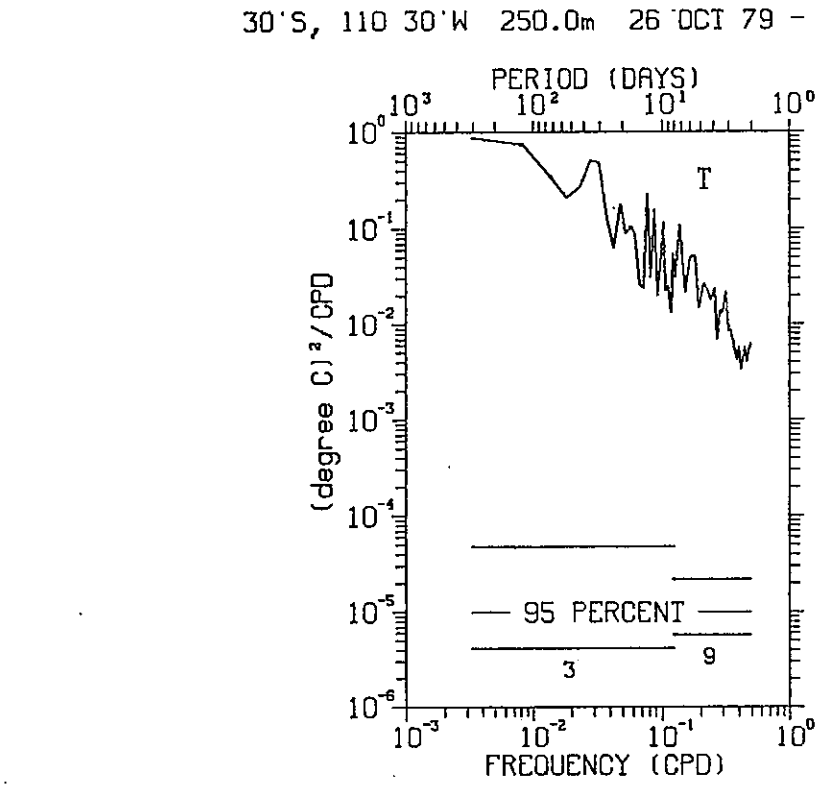
30'S, 110 30'W 200.0m 26 OCT 79 - 6 FEB 80
30'S, 110 30'W 200.0m 7 MAR 80 - 4 JUL 80
30'S, 110 30'W 200.0m 15 AUG 80 - 10 JUL 81



30'S, 110 30'W 200.0m 26 OCT 79 - 10 JUL 81




30'S, 110 30'W 250.0m 26 OCT 79 - 15 JUL 80
30'S, 110 30'W 250.0m 15 AUG 80 - 22 JUN 81
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


30'S, 110 30'W 250.0m 26 OCT 79 - 24 JUN 81
PERIOD (DAYS)
T
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)