NOAA Data Report ERL PMEL-35

EQUATORIAL WIND, CURRENT AND TEMPERATURE DATA: 108°W TO 140°W; APRIL 1983 TO OCTOBER 1987

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NOTICE

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I. DATA COLLECTION AND PROCESSING

A. INTRODUCTION

Since January of 1979 surface moored arrays have been measuring surface winds, air temperatures, sea surface temperatures 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) Program. The purpose of these arrays is to provide information on the circulation of the equatorial Pacific and its relation to short term climate variability associated with the El Niño/Southern Oscillation phenomenon (Halpern, 1987a; McPhaden and Hayes, 1990). This report covers wind, current and temperature measurements made between 108°W and 140°W from April of 1983 through October of 1987. Data from 1979 to 1983 have been presented by Freitag *et al.* (1987). Mooring positions are listed in Table 1 and plotted in Fig. 1. Deployment dates and recovery dates for these moorings are listed in Table 1. Data return by location and instrument are shown in Fig. 2.

B. INSTRUMENTATION

Current velocity and temperature were measured primarily by EG&G Model 610 Vector Averaging Current Meters (VACM) and also by a few EG&G Model 630 Vector Measuring Current Meters (VMCM). The instruments recorded zonal and meridional velocity components at 15-minute intervals. Both instruments sample at high rates and compute vector means which limits the amount of high frequency noise induced by mooring motion and surface waves. The VMCM is relatively more effective at high frequency noise reduction because of the response characteristics of its orthogonal propellers as compared to the VACM's rotor and vane (Halpern *et al.*, 1981). Both instruments, however, give similar results when closely spaced on toroidal moorings. For example, from VACM/VMCM pairs separated by 1 m on taut-line equatorial moorings, Halpern (1987b) 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).

VACM velocity calibration coefficients used 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. VMCM velocity calibration coefficients used are given by the manufacturer.

Wind velocity was measured primarily by Vector Averaging Wind Recorders (VAWR) and on occasion by an Argos Meteorological Package (AMP), both of which were constructed at PMEL. The VAWR was constructed by inverting an EG&G VACM and replacing the Savonius rotor and vane with a Climet model 011-2B three-cup anemometer and a 9 cm by 17 cm balanced wind vane. The AMP, which was designed and built at PMEL, uses a R.M. Young model 05103 propeller-vane wind monitor which consists of a four-blade, 18 cm diameter propeller and 12 cm by 24 cm vane. VAWRs were set to record vector average wind components, air temperature and sea-surface temperature at 15-minute intervals. AMPs recorded the same parameters at 2-hour intervals. Nominal height of the wind sensors above the sea surface was 4 m, but the center of the VAWR vane is 0.5 m below the cups while the propeller and vane of the AMP are at the same height.

Both types of wind sensors were calibrated in PMEL's wind tunnel before each deployment. The maximum residuals of the resultant calibration equations were 0.2 m/s or less for any individual sensor. Speed differences between time series from a closely spaced VAWR and AMP pair were found to be less than the residuals of the calibrations (Freitag *et al.*, 1989).

The AMP and VMCM use a flux gate compass which is specified to have an accuracy of ±5°. Each AMP and VMCM was checked at a USGS magnetic benchmark to confirm that its compass met this criteria. The absolute accuracy of the VACM/VAWR compasses was not checked, but they did pass the standard VACM compass check which requires linearity and drag to be within 2 bitps (5.6°). The VACM compass resolution is 2.8°.

Air and water temperatures were measured by Yellow Springs model 43032 thermistors and averaged over the same time period as currents. VACM, VAWR and AMP temperature circuitry were calibrated at PMEL and thermistors at either PMEL or Northwest Regional Calibration Center (NRCC) in Bellevue, Washington, with the exception of VAWR air temperature sensors which are not calibrated, but are interchangeable to within ±0.1°C. Combined temperature accuracy of calibrated sensors is 0.01°C or better; response time for VACM thermistors is 100 s (Levine, 1981). Air temperature sensors were situated on the buoys at a height of 3 m above the sea surface and were in multiplated, self-aspirated radiation shields to reduce the effects of wind and solar radiation. Sea-surface temperature is measured by a thermistor at 1 m depth and cabled to a VAWR or AMP.

Temperature was also measured using a Yellow Springs Instruments model 44032 thermistor in a Sea Data Temperature Recorder model TDR-2. The sample rate was set at 30 minutes and the data were recorded in blocks of 96 samples (48 hours). Measurements from TDR-2s differ from the other temperature measurements in that they are "spot" samples rather than means over the sample period. The TDR-2s were calibrated in a salt-water bath at NRCC with maximum calibration residuals limited to ±0.05°C or less.

C. DATA PROCESSING

Data recorded internally on cassettes were transferred to a Digital Equipment Corporation (DEC) LSI 11/23 microcomputer. The raw data were converted to engineering units using calibration coefficients obtained as described above. Internal quality checks were performed as well as windowing to remove obviously bad data points which were replaced with linearly interpolated values.

The data were then transferred to a DEC VAX Cluster for plotting and further processing. The data were averaged to hourly and daily values and a composite daily mean data set was generated for presentation here. Because the wind recorder on mooring EC65 failed to return good data, wind data from mooring EW62 (instrumented with only a wind recorder) have been included in the 0°, 140°W composite time series. Gaps due to mooring replacement (generally of 1 to 2 days duration) as well as by instrumental failure (up to 30 days in length) were filled by linear interpolation. Interpolation was performed in order to provide time series of maximum length for analysis (e.g., spectra) without significantly modifying the content at sub-monthly frequencies. Gaps of greater than 30-day duration were flagged as missing data.

D. DATA PRESENTATION

These data have been grouped into four geographical areas: 0°, 108°W; 0°, 110°W; 0°, 124.5°W, 0°, 140°W (Fig. 1). Moorings within these groups are generally within 20 km meridionally and 40 km zonally of each other. The only exception to this is the first mooring location near 110°W which was about 80 km to the east of the rest.

Individual velocity components and temperature have been plotted against time and depth for each site (Section II.A). Velocity components have been combined and plotted as vectors (stick diagrams) on the same time scale (Section II.B). The vectors have been rotated such 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 II.C. Where gaps in the records occur statistics have been computed for each section separately.

Histograms of velocity components and temperature are in section II.D. 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 II.E. The number of periodogram points per spectral estimate along with the 95% 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 150 days were omitted.

E. ACKNOWLEDGMENTS

These data were gathered as a contribution to NOAA's Equatorial Pacific Ocean Climate Studies program. We are very grateful to Doug Fenton for instrument and mooring hardware preparation and field operations and to Margie McCarty for data processing assistance.

F. REFERENCES

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TABLE 1. Mooring locations, deployment date and recovery date.

Mooring	Latitude	Longitude	Deployment	Recovery
T35	0°0.6′N	140° 6.6′W	15 Apr 83	19 Oct 83
T36	0° 5.1′S	140° 12.8′W	20 Oct 83	26 Apr 84
T37	0° 2.1′S	124° 32.7′W	29 Oct 83	21 Apr 84
T38	0° 0.3′S	109° 12.5′W	2 Nov 83	17 Apr 84
T39	0° 1.0′S	108° 4.1′W	3 Nov 83	15 Apr 84
T40	0° 2.0′S	124° 32.6′W	22 Apr 84	19 Oct 84
T41	0°3.0′N	107° 54.8′W	16 Apr 84	15 Oct 84
T42	0°2.5′N	109° 51.1′W	18 Apr 84	16 Oct 84
T43	0° 5.3′S	140° 15.3′W	27 Apr 84	24 Oct 84
T44	0° 2.0′S	140° 8.8′W	26 Oct 84	28 Apr 85
T46	0° 0.6′S	124° 34.3′W	20 Oct 84	5 May 85
T47	0°3.6′N	110° 3.9′W	17 Oct 84	8 May 85
T48	0°0.8′N	107° 58.7′W	16 Oct 84	9 May 85
T49	0°3.3′N	139° 56.1′W	29 Apr 85	10 Oct 85
T50	0° 0.9′S	124° 34.5′W	5 May 85	5 Oct 85
T51	0°5.8′N	110° 0.9′W	9 May 85	30 Sep 85
T52	0° 0.6′S	108° 0.1′W	10 May 85	28 Sep 85
T54	0° 1.0′S	140° 2.4′W	11 Oct 85	13 Jun 86
T56	0° 0.6′S	110° 1.6′W	1 Oct 85	30 May 86
T57	0° 1.0′S	108° 3.1′W	29 Sep 85	27 May 86
T58	0° 1.3′S	140° 1.0′W	14 Jun 86	28 Oct 86
T59	0° 0.5′S	110° 1.6′W	31 May 86	5 Nov 86
T60	0° 0.0′	107° 57.3′W	28 May 86	6 Nov 86
T61	0°0.5′N	140° 0.2′W	29 Oct 86	11 May 87
T63	0° 0.9′S	109° 56.5′W	6 Nov 86	30 Apr 87
T64	0°0.5′N	107° 57.0′W	7 Nov 86	26 Apr 87
EW62	0° 0.9′S	140° 6.7′W	11 May 87	12 Oct 87
EC65	0°0.2′N	139° 55.4′W	12 May 87	13 Oct 87
EC66	0°1.2′N	109° 52.2′W	1 May 87	27 Oct 87

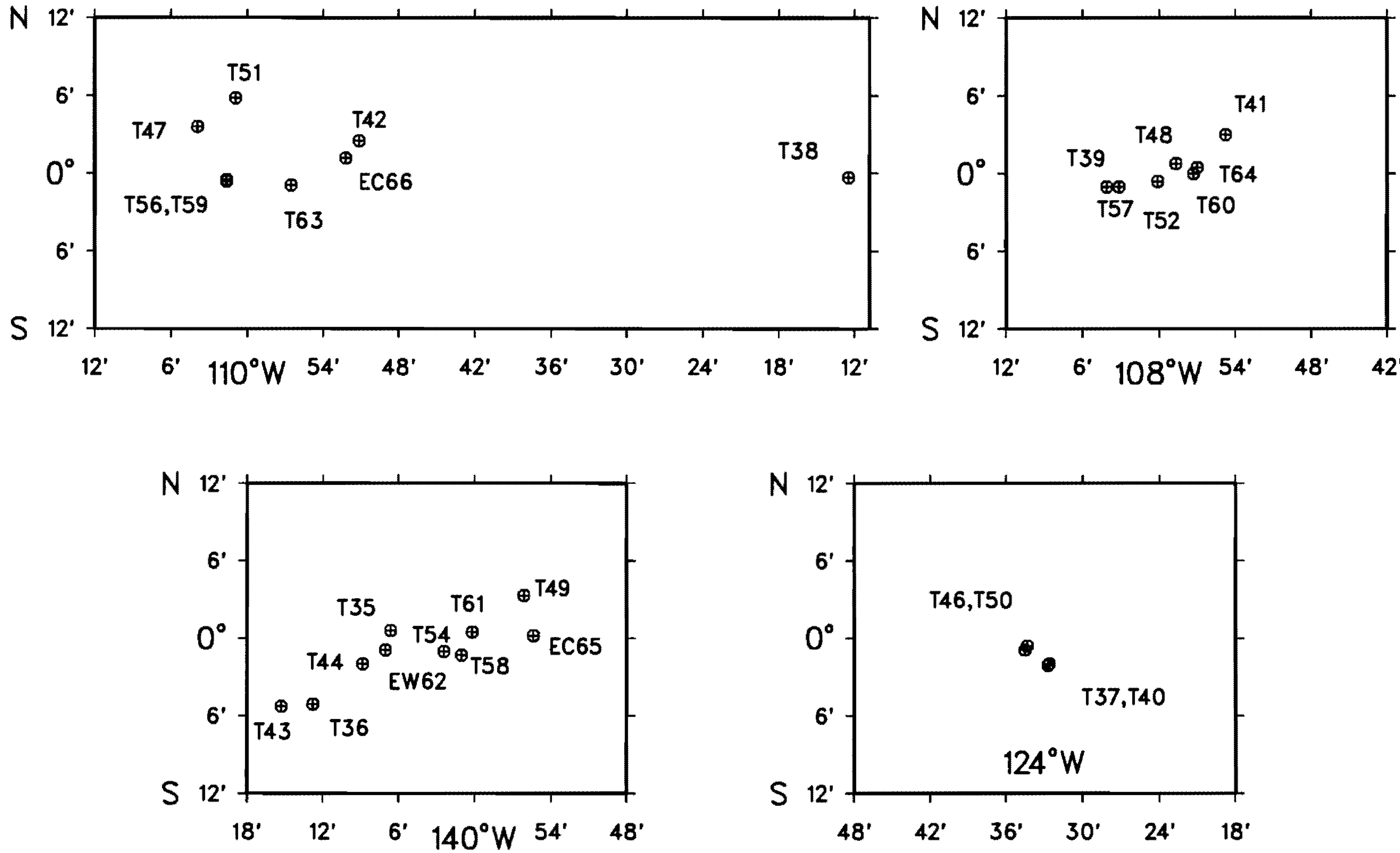


Fig. 1. Mooring positions.

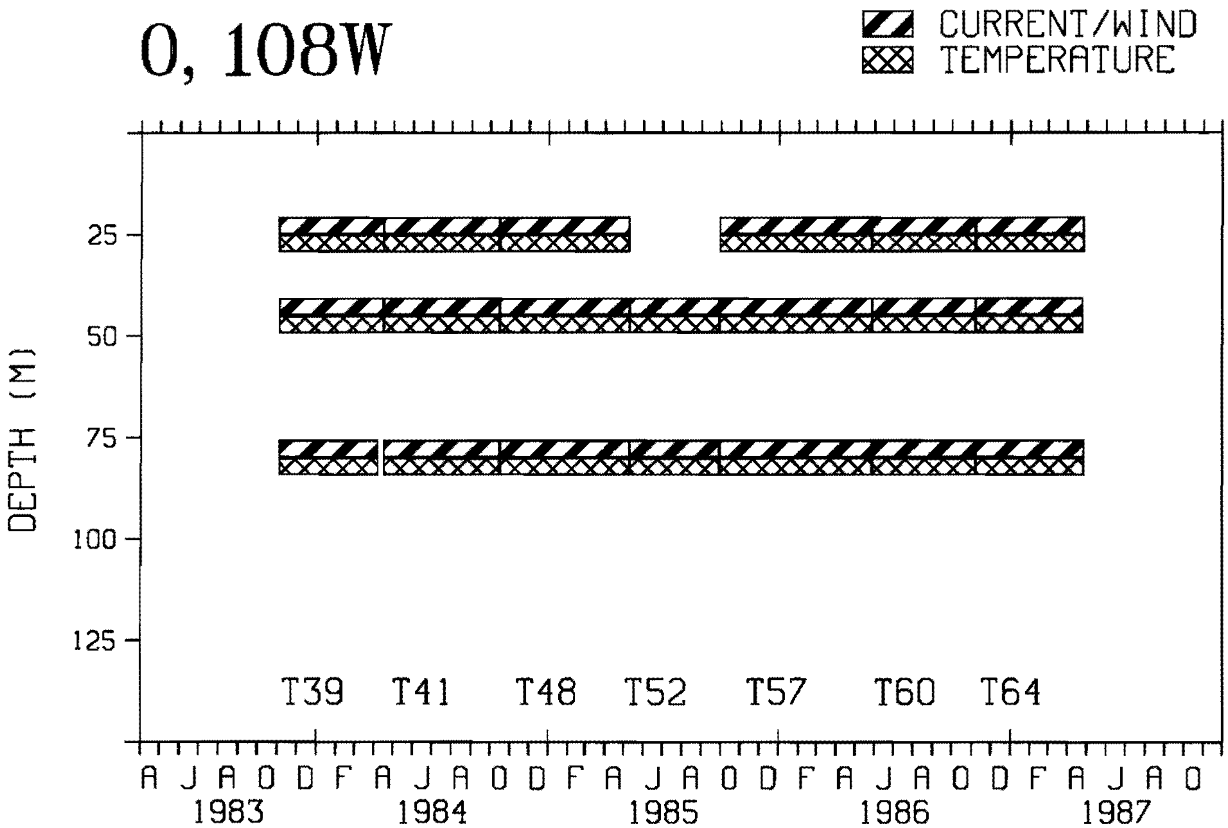


Fig. 2a. Data distribution for moorings near 0°, 108°W.

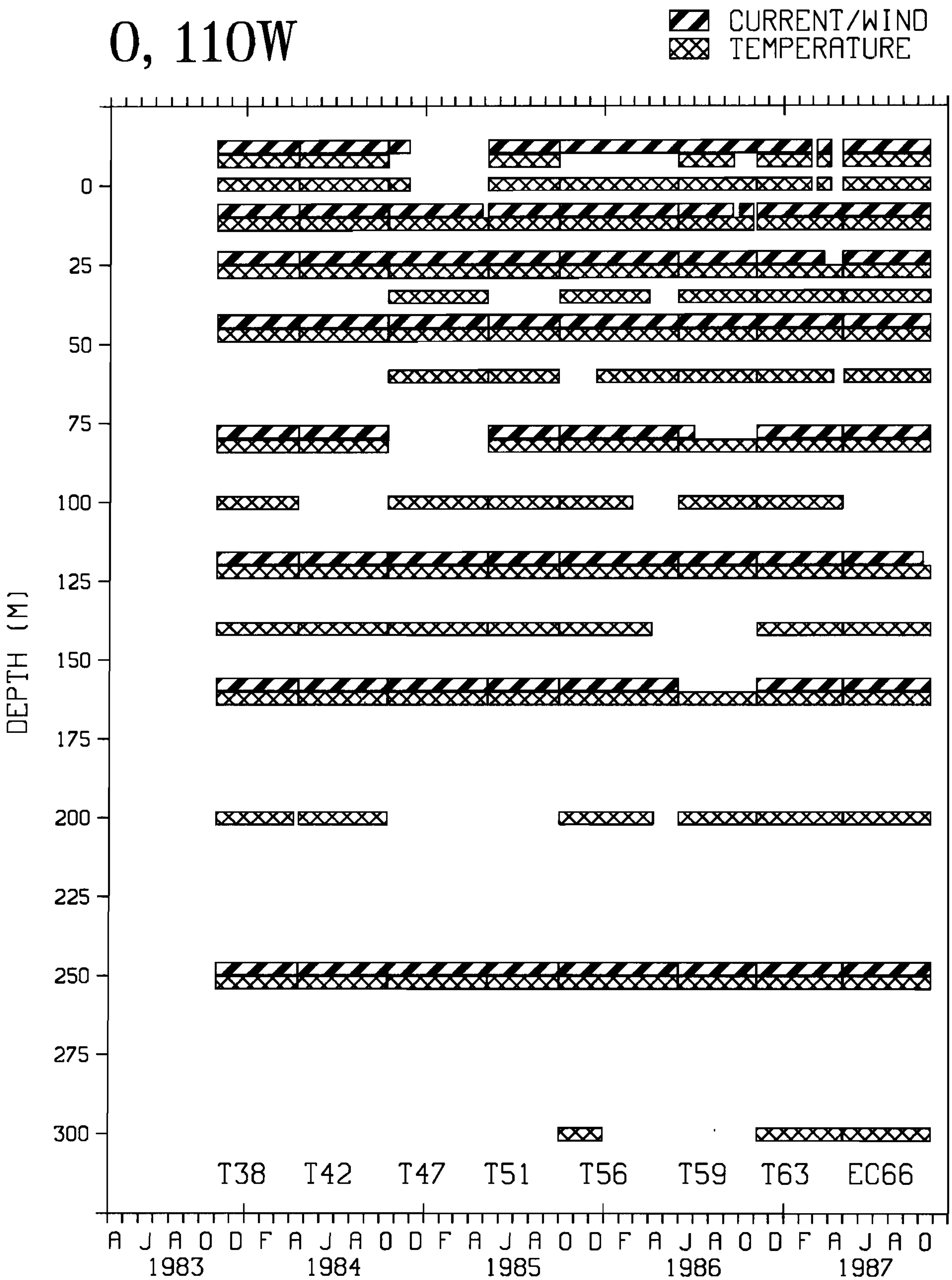


Fig. 2b. Data distribution for moorings near 0°, 110°W.

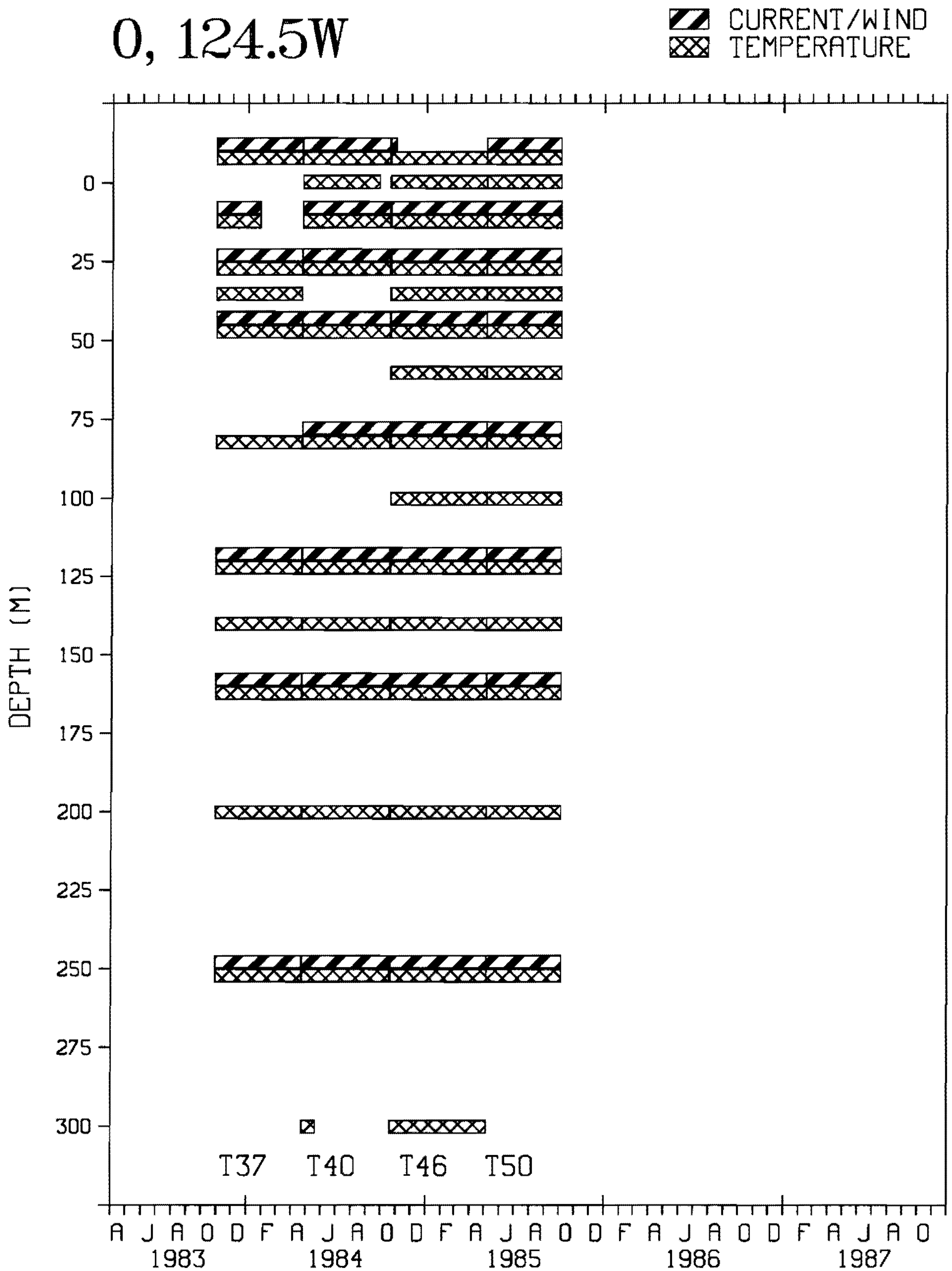


Fig. 2c. Data distributions for moorings near 0°, 124°30'W.

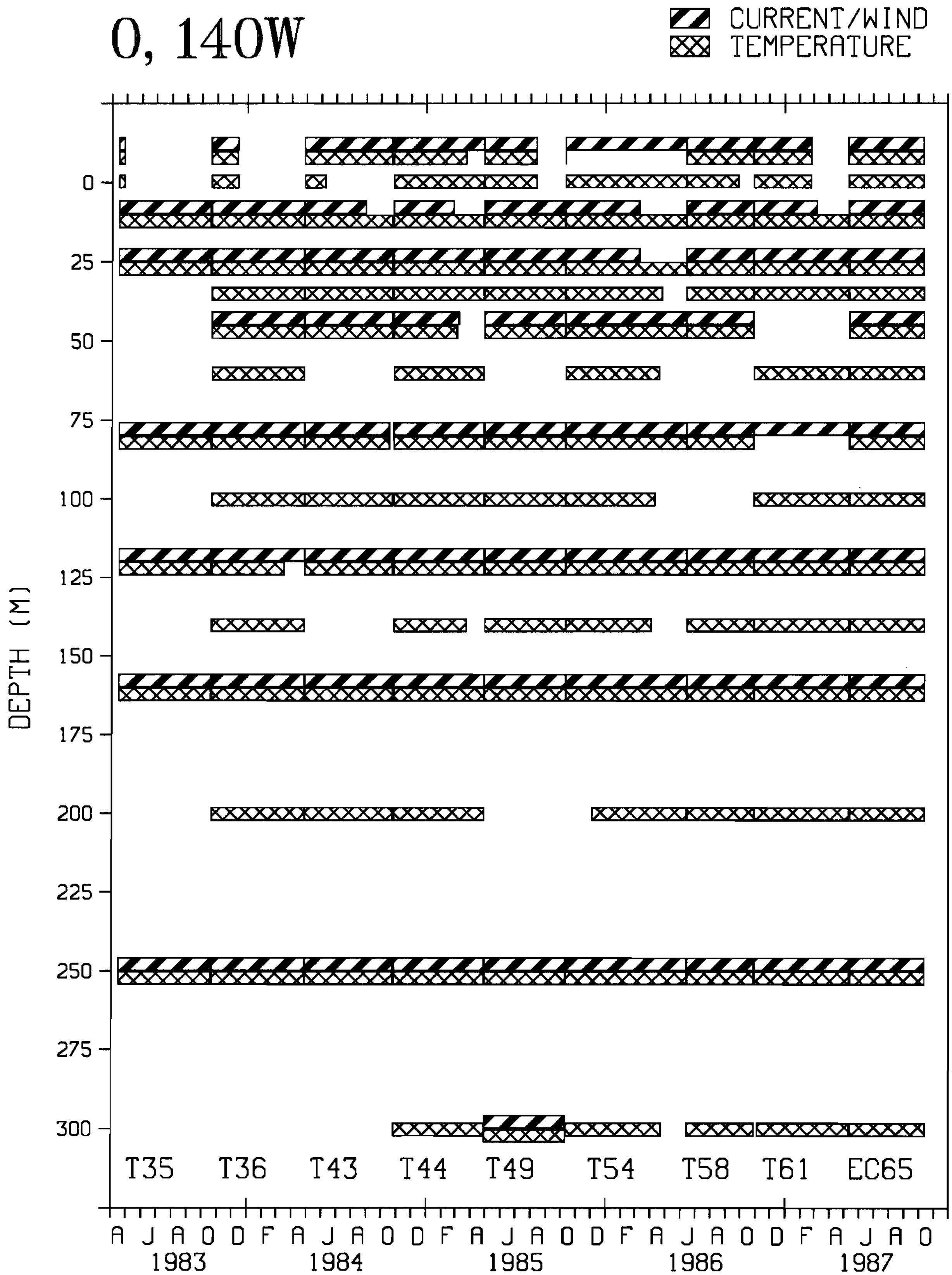
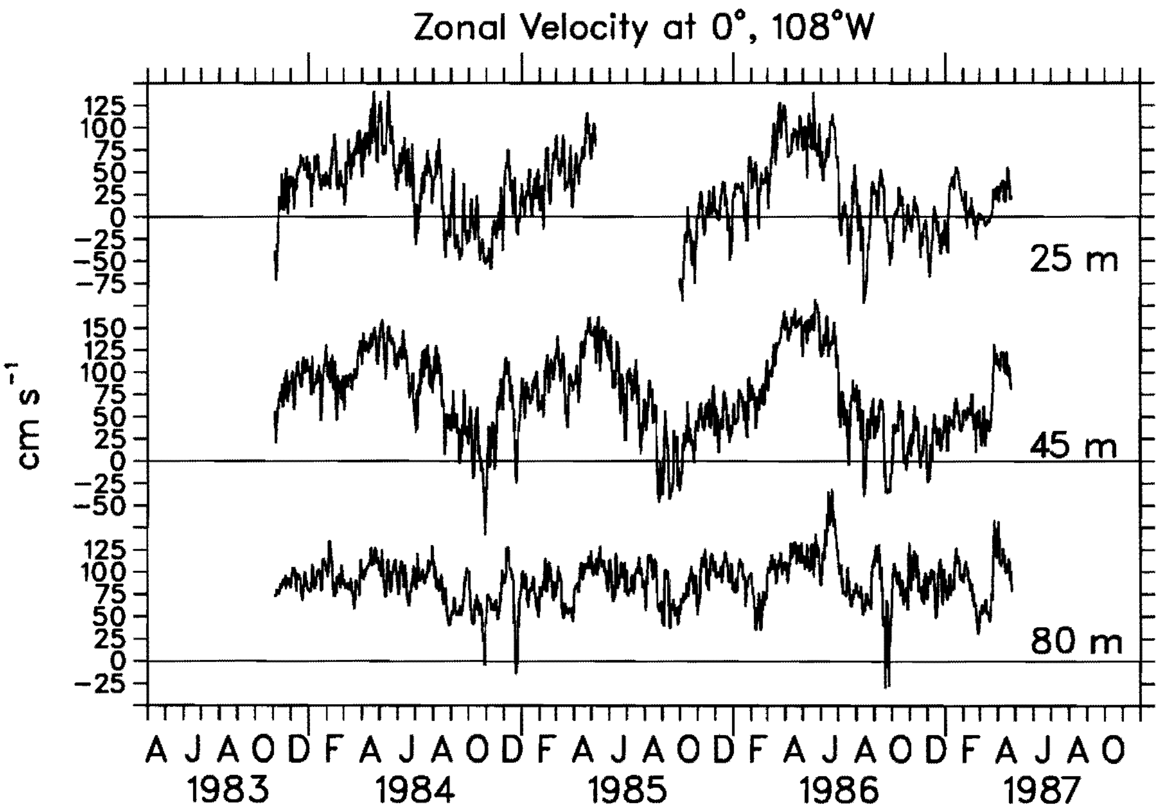
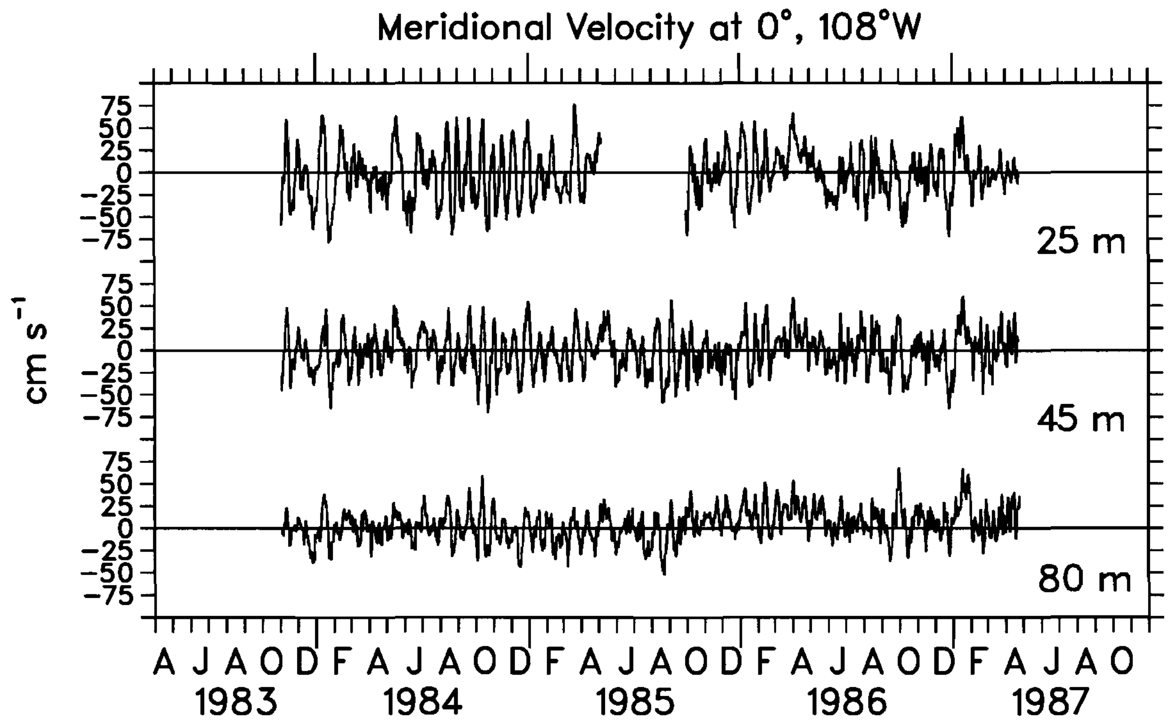


Fig. 2d. Data distributions for moorings near 0°, 140°W.

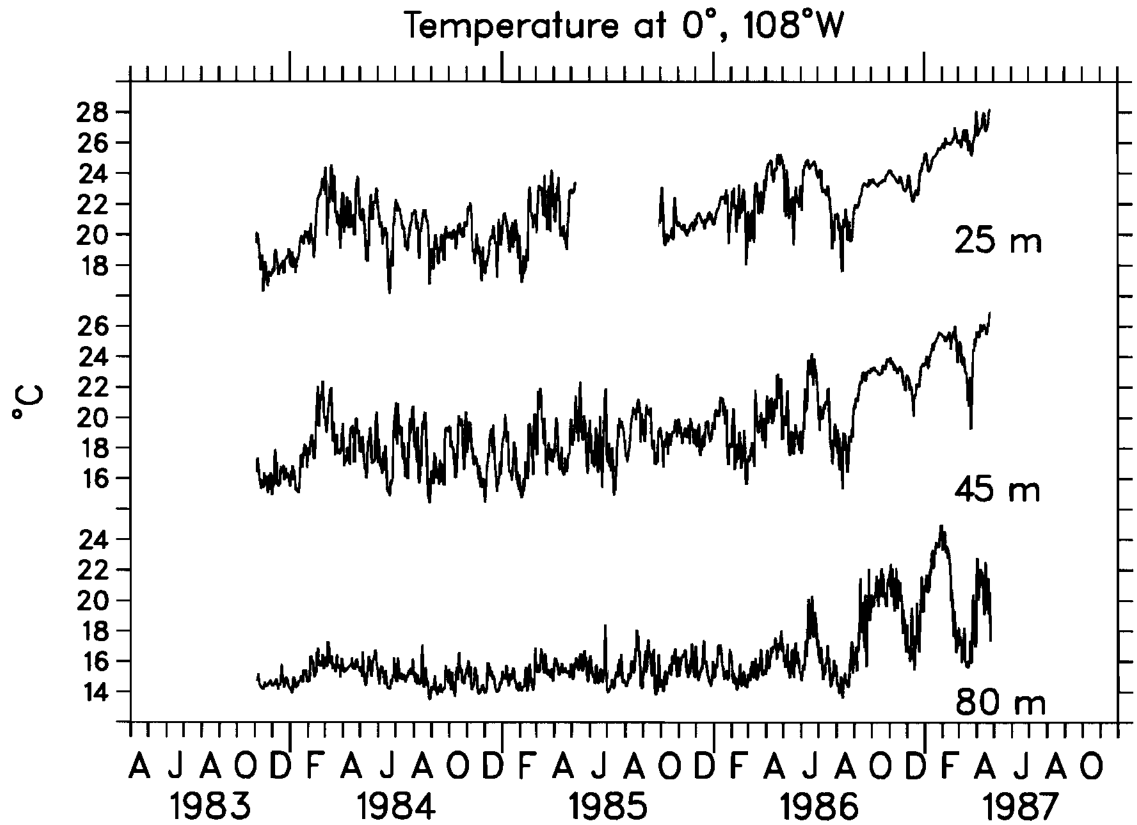
Section II.A: TIME SERIES



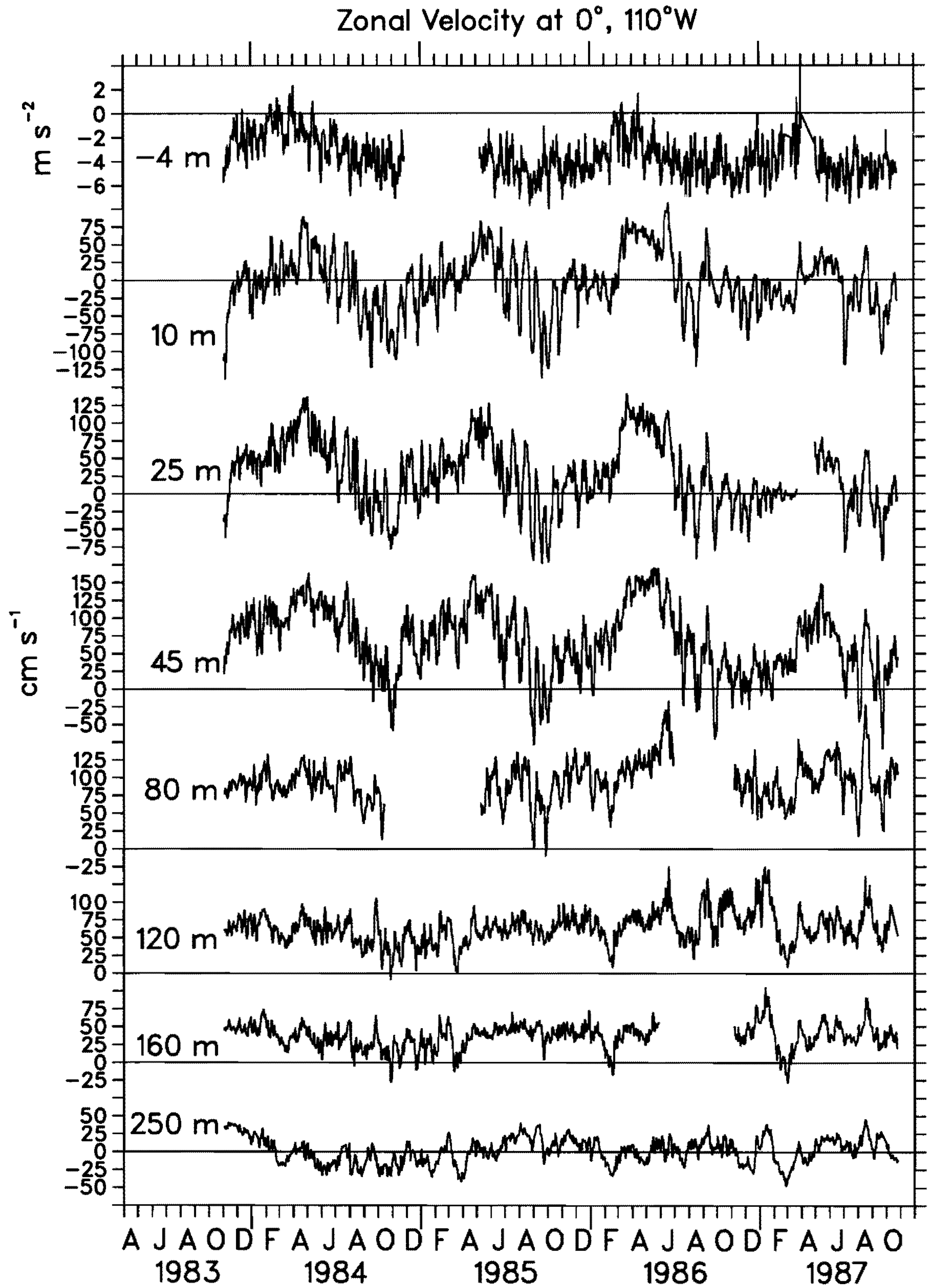
Zonal Velocity at 0°, 108°W
cm s⁻¹
125
100
75
50
25
0
−25
−50
−75
25 m
150
125
100
75
50
25
0
−25
−50
45 m
125
100
75
50
25
0
−25
80 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987



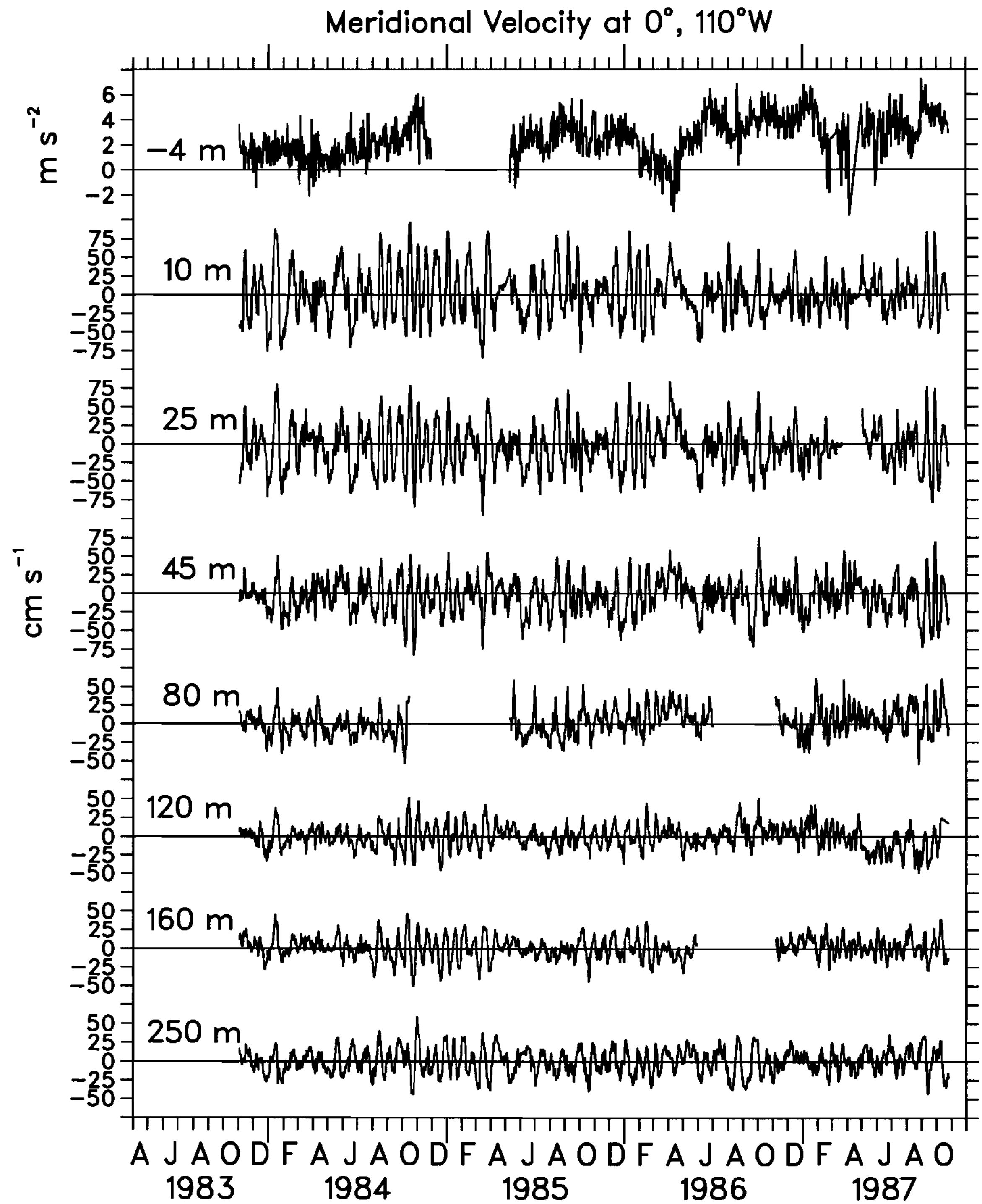
Meridional Velocity at 0°, 108°W
cm s⁻¹
75
50
25
0
−25
−50
−75
25 m
45 m
80 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987



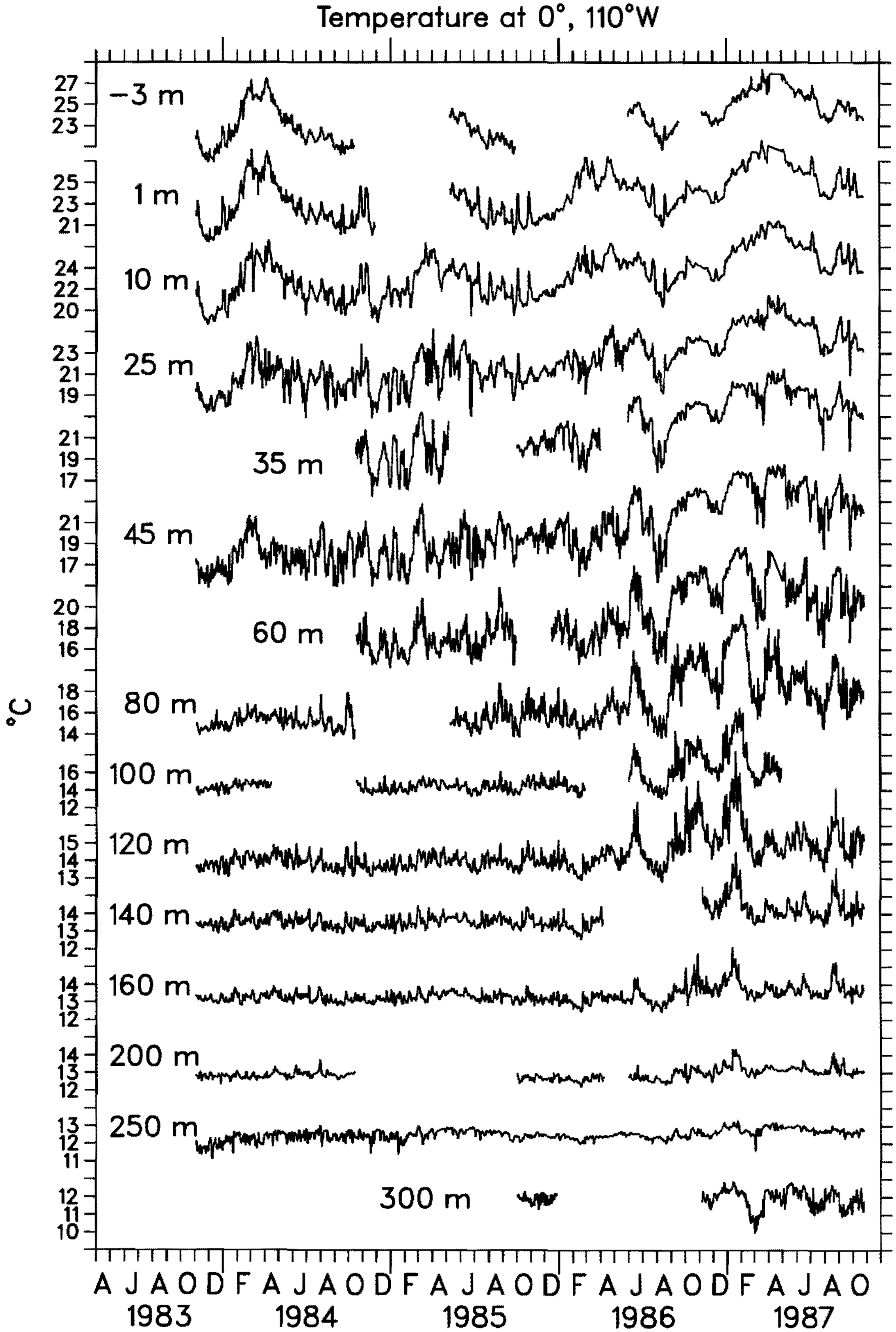
Temperature at 0°, 108°W
°C
28
26
24
22
20
18
26
24
22
20
18
16
24
22
20
18
16
14
25 m
45 m
80 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

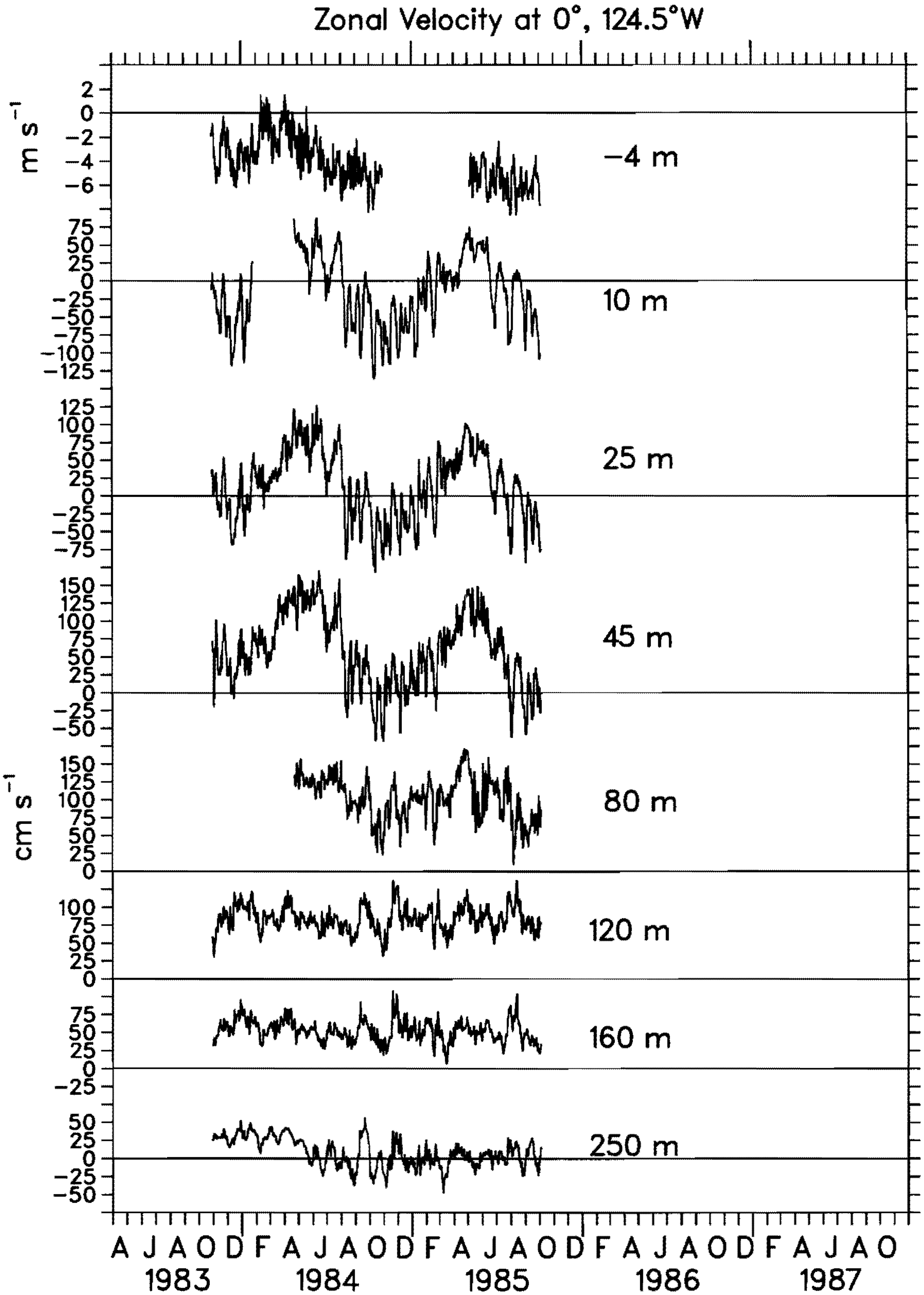


Zonal Velocity at 0°, 110°W
m s⁻²
cm s⁻¹
−4 m
10 m
25 m
45 m
80 m
120 m
160 m
250 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

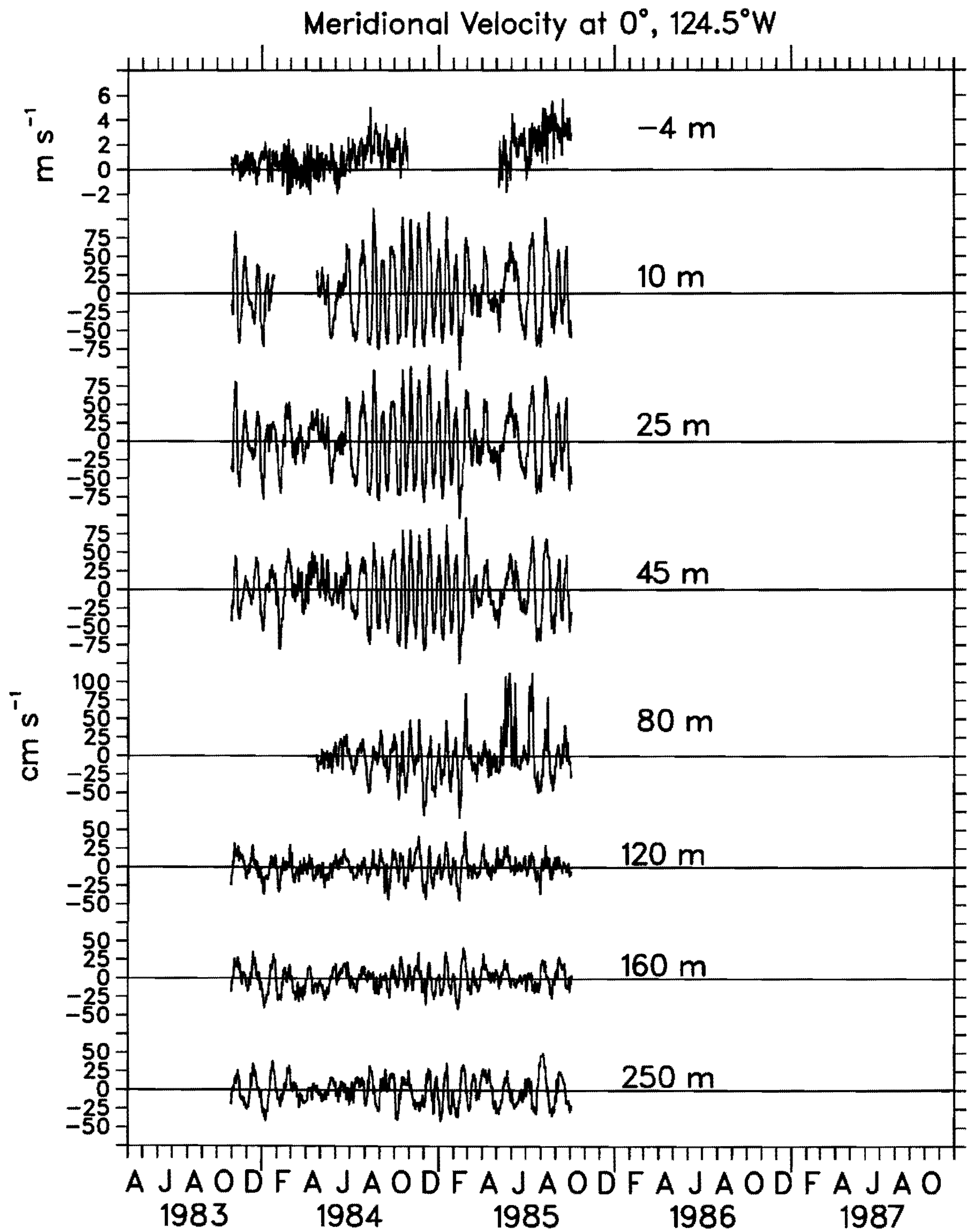


Meridional Velocity at 0°, 110°W
m s⁻²
cm s⁻¹
−4 m
10 m
25 m
45 m
80 m
120 m
160 m
250 m
6
4
2
0
−2
75
50
25
0
−25
−50
−75
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

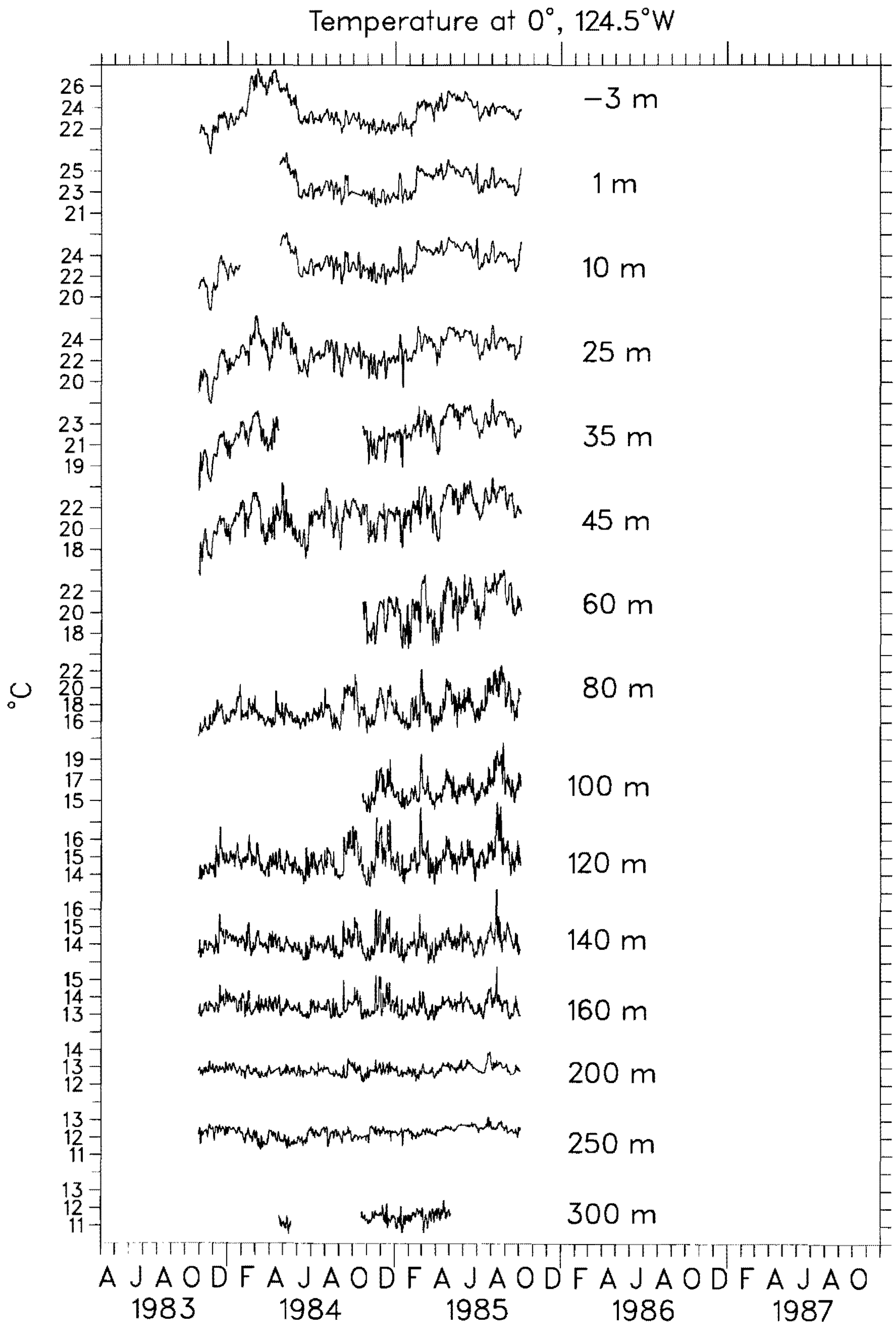

Temperature at 0°, 110°W
°C
−3 m
1 m
10 m
25 m
35 m
45 m
60 m
80 m
100 m
120 m
140 m
160 m
200 m
250 m
300 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

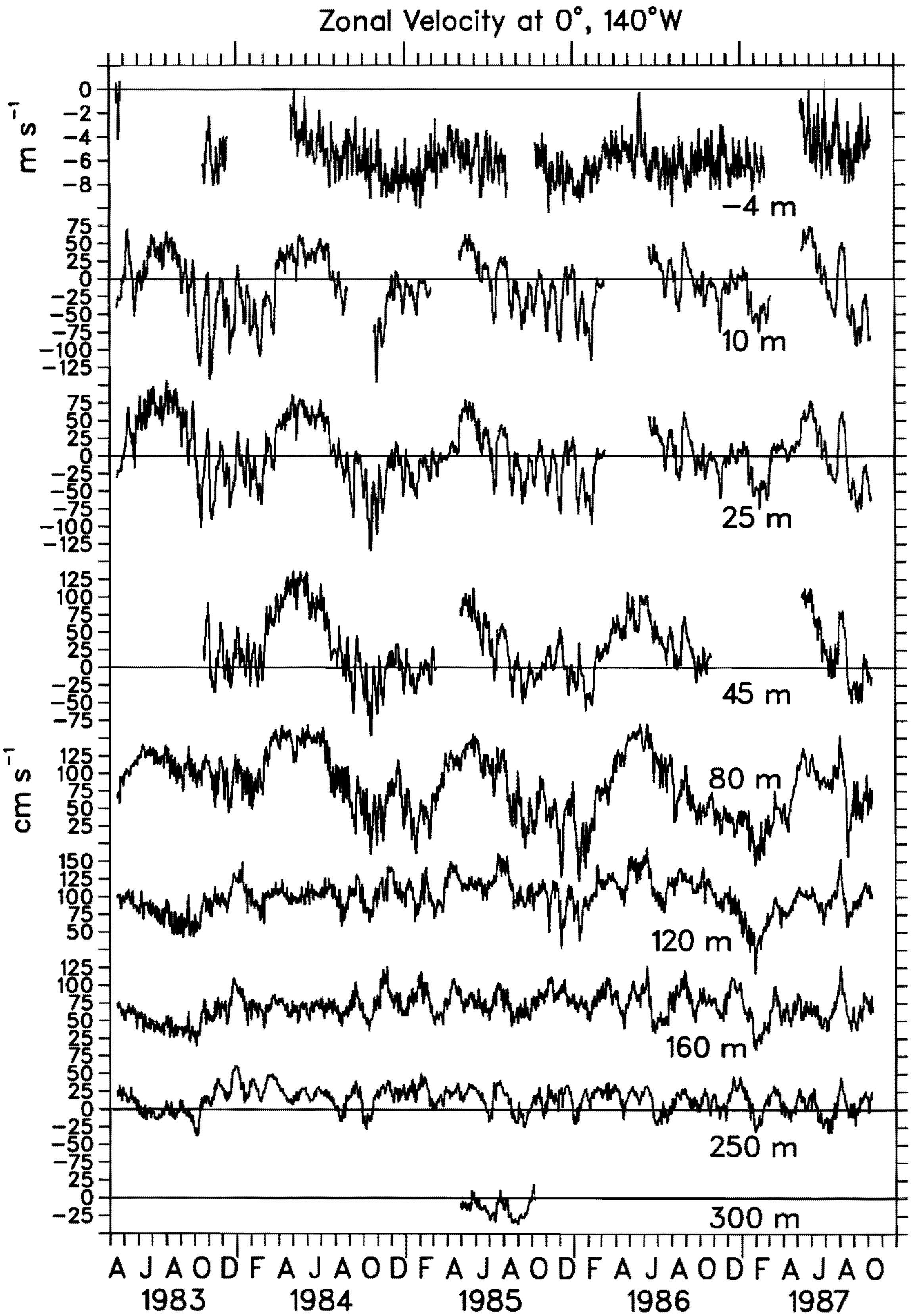


Zonal Velocity at 0°, 124.5°W
m s⁻¹
cm s⁻¹
−4 m
10 m
25 m
45 m
80 m
120 m
160 m
250 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

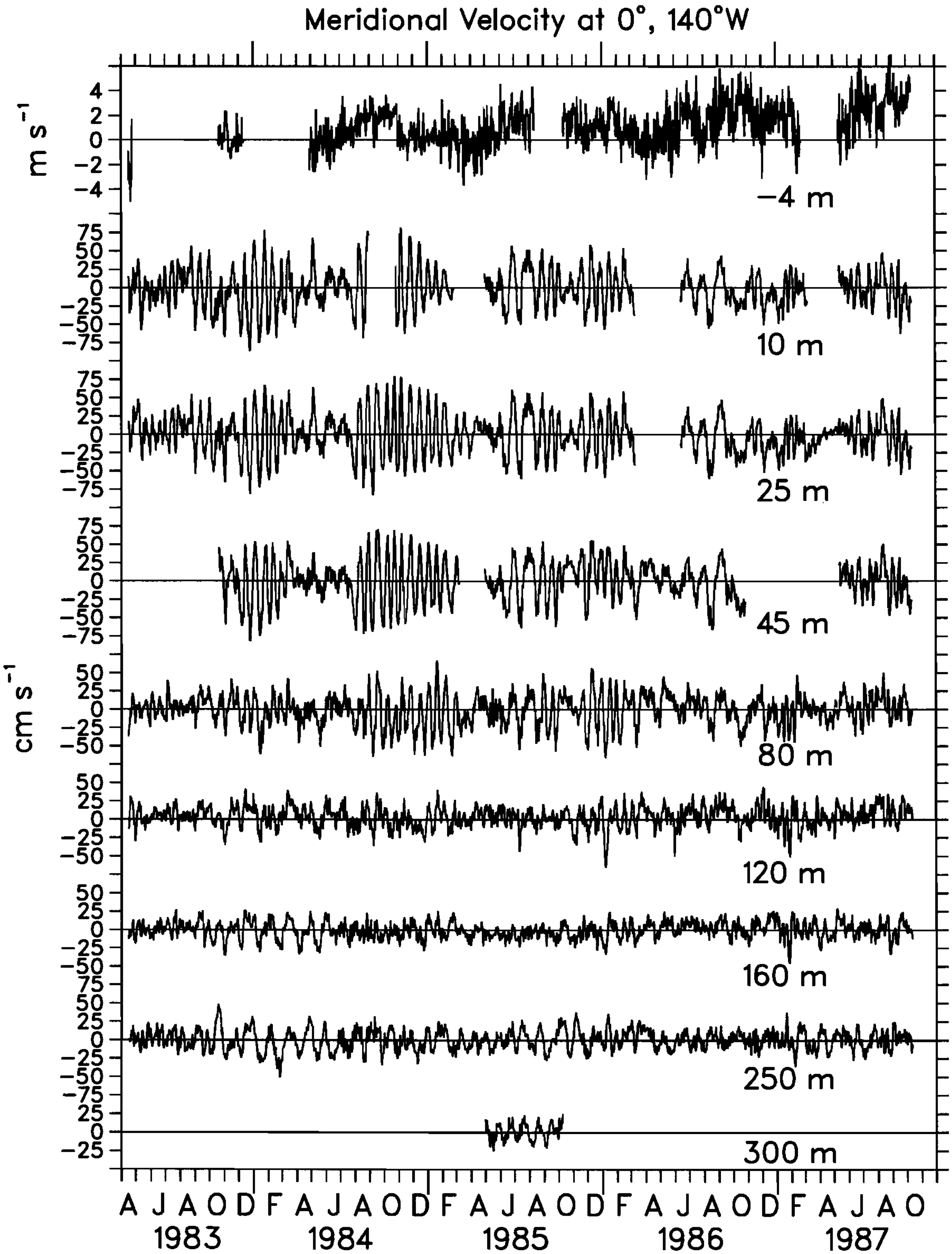


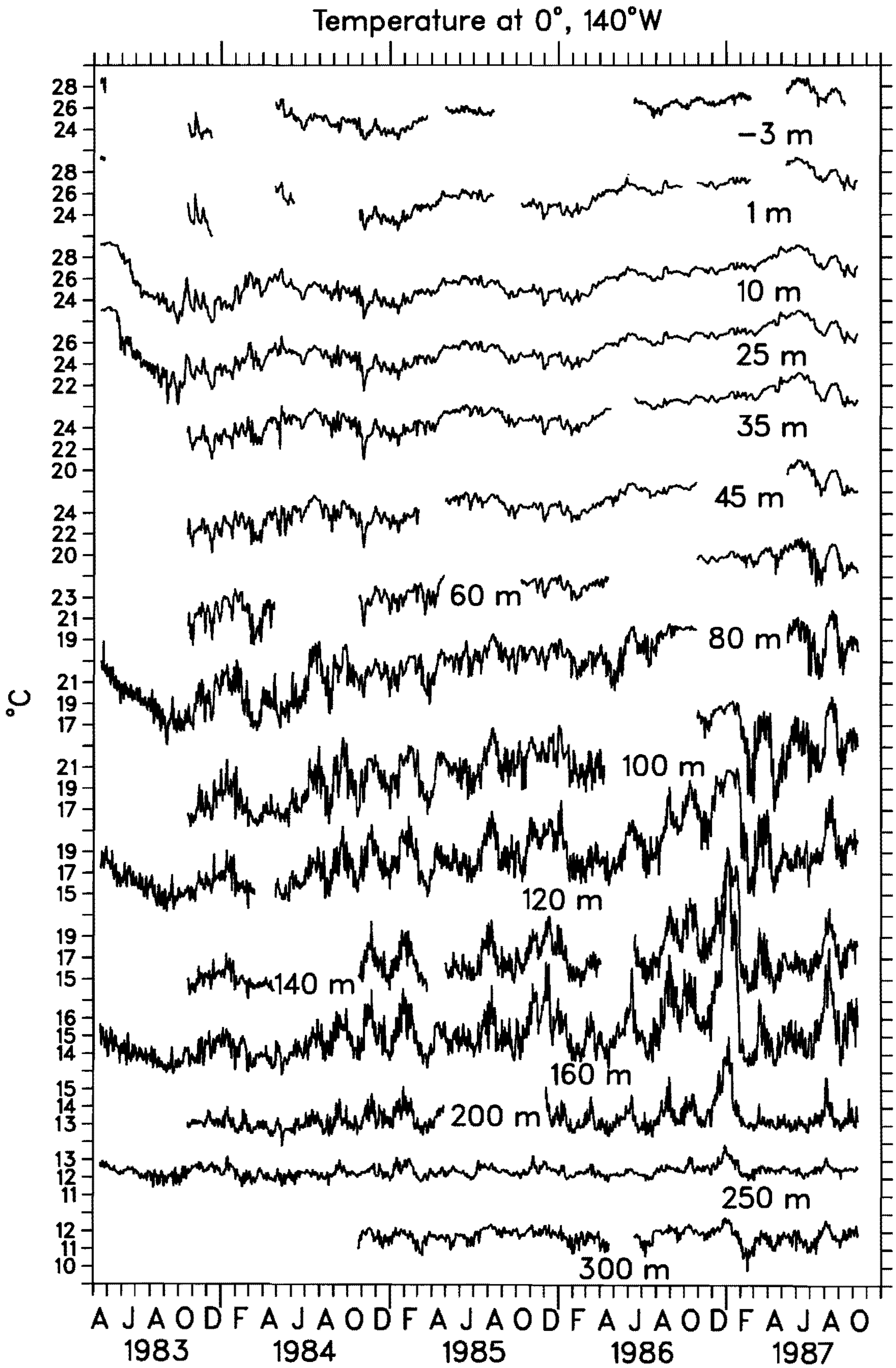
Meridional Velocity at 0°, 124.5°W
m s⁻¹
6
4
2
0
−2
−4 m
10 m
25 m
45 m
80 m
120 m
160 m
250 m
cm s⁻¹
75
50
25
0
−25
−50
−75
100
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987


Temperature at 0°, 124.5°W
°C
−3 m
1 m
10 m
25 m
35 m
45 m
60 m
80 m
100 m
120 m
140 m
160 m
200 m
250 m
300 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

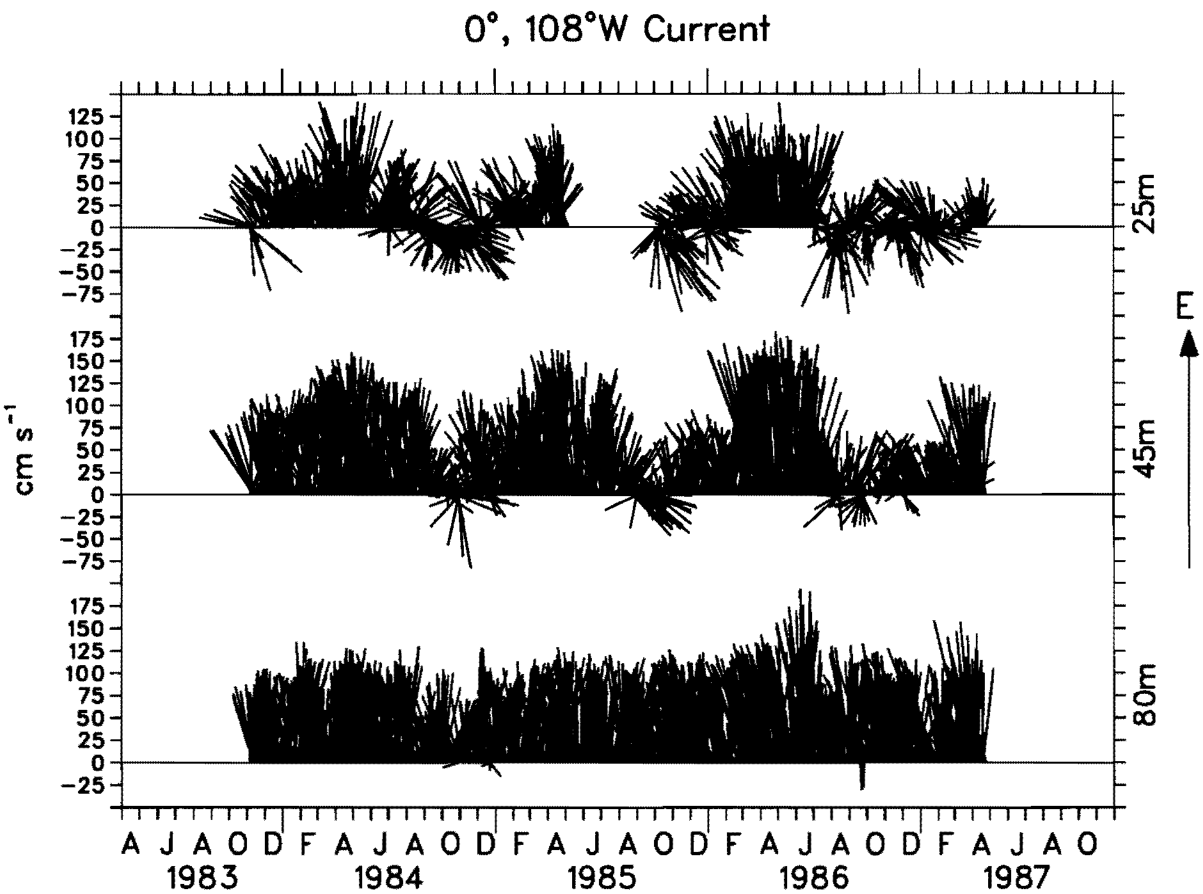


Zonal Velocity at 0°, 140°W
m s⁻¹
cm s⁻¹
−4 m
10 m
25 m
45 m
80 m
120 m
160 m
250 m
300 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987


Meridional Velocity at 0°, 140°W
m s⁻¹
cm s⁻¹
−4 m
10 m
25 m
45 m
80 m
120 m
160 m
250 m
300 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

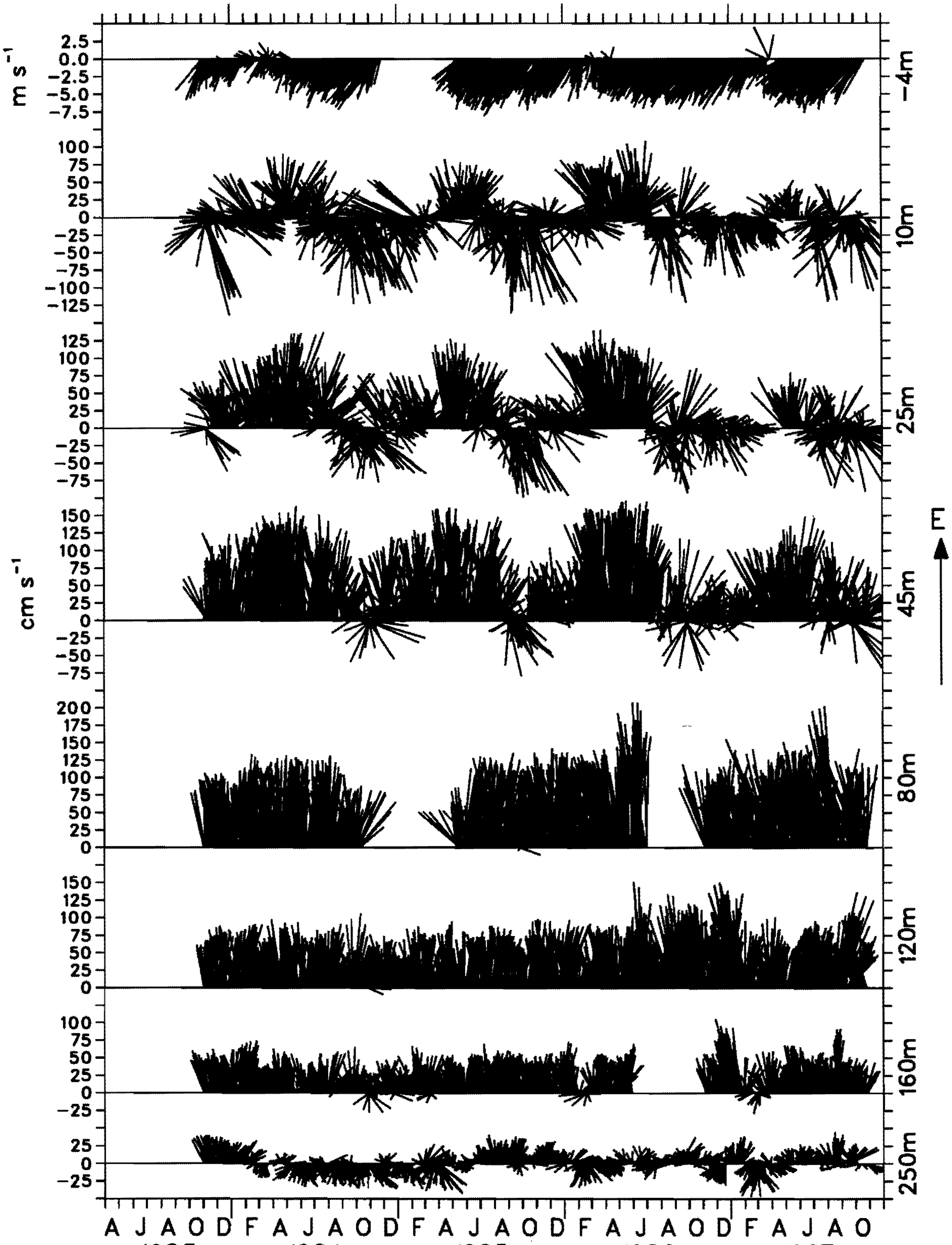

Temperature at 0°, 140°W
°C
−3 m
1 m
10 m
25 m
35 m
45 m
60 m
80 m
100 m
120 m
140 m
160 m
200 m
250 m
300 m
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

Section II.B: STICK PLOTS

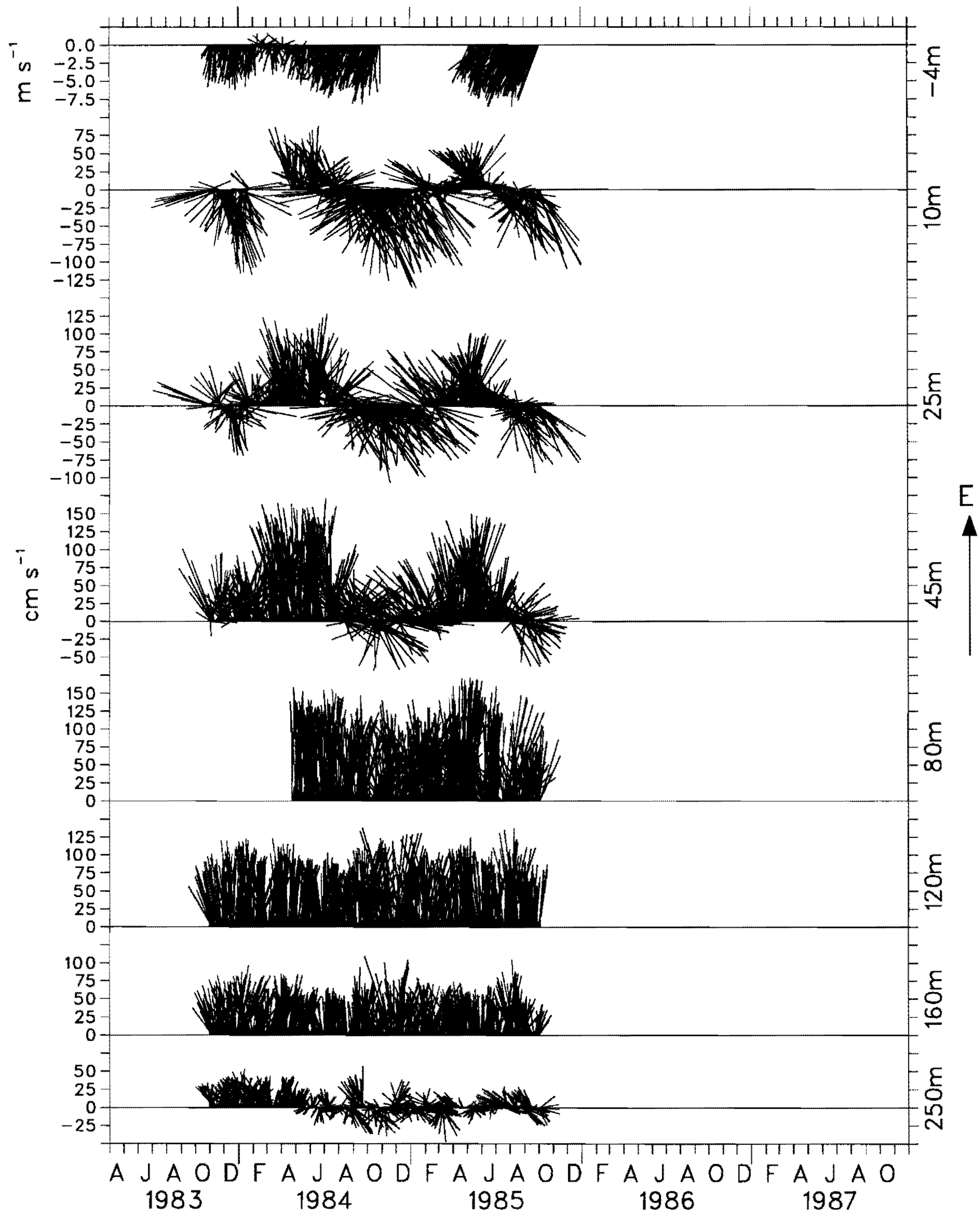


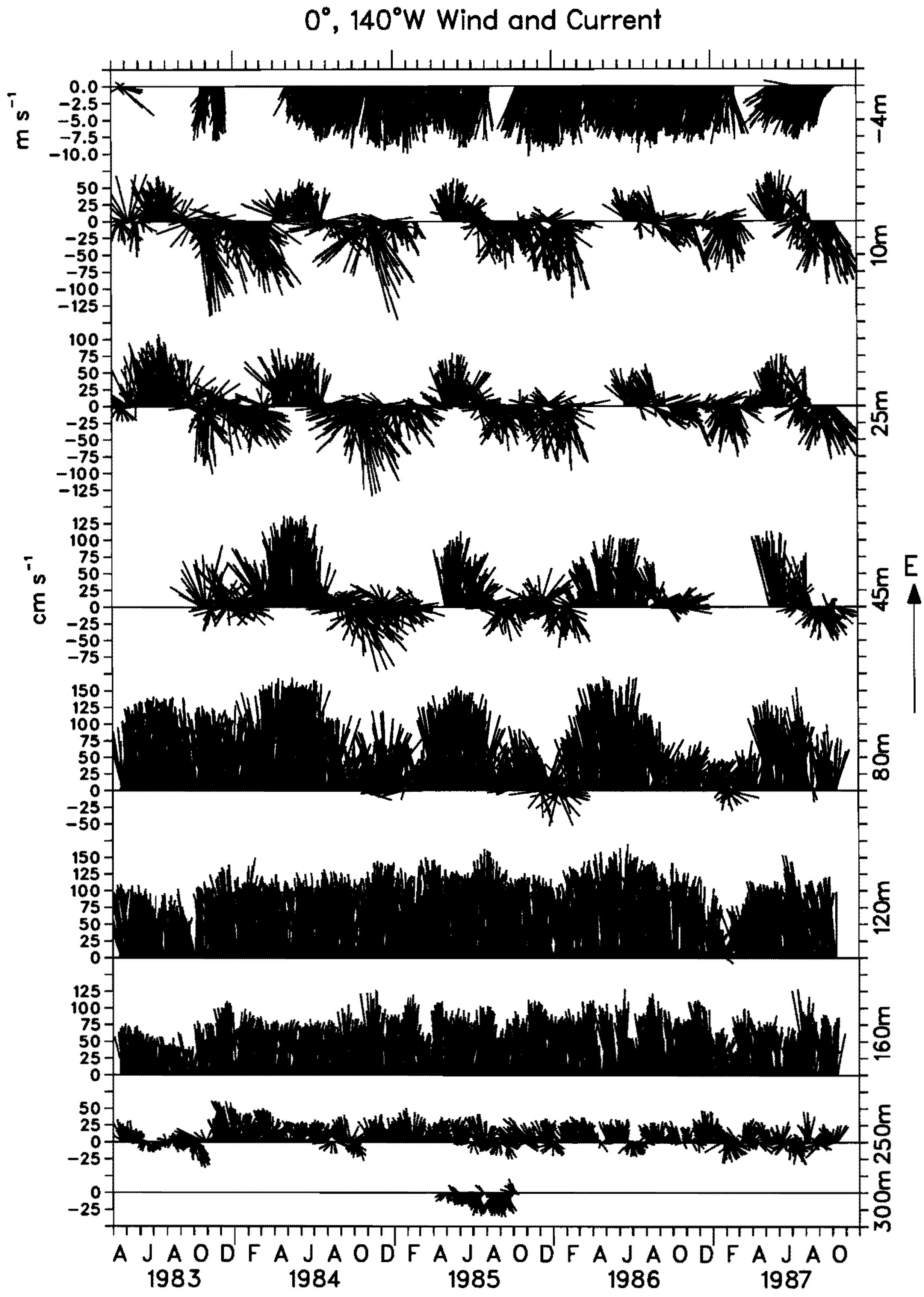
0°, 108°W Current
cm s⁻¹
125
100
75
50
25
0
-25
-50
-75
175
150
125
100
75
50
25
0
-25
-50
-75
175
150
125
100
75
50
25
0
-25
25m
45m
80m
E
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

0°, 110°W Wind and Current



0°, 124.5°W Wind and Current




0°, 140°W Wind and Current
m s⁻¹
cm s⁻¹
-4m
10m
25m
45m
80m
120m
160m
250m
300m
E
A J A O D F A J A O D F A J A O D F A J A O D F A J A O
1983
1984
1985
1986
1987

Section II.C: SUMMARY STATISTICS

ZONAL VELOCITY AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
25 m	4 11 83	8 5 85	552	38.0	1674.7	-0.29	-71.3	141.1
25 m	30 9 85	25 4 87	573	21.0	1974.5	0.22	-96.7	140.1
45 m	4 11 83	24 4 87	1268	74.1	2258.0	-0.16	-83.0	182.4
80 m	4 11 83	25 4 87	1269	88.8	644.7	-0.28	-30.2	193.7

MERIDIONAL VELOCITY AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
25 m	4 11 83	8 5 85	552	-3.3	980.6	0.14	-79.1	76.4
25 m	30 9 85	25 4 87	573	-0.5	649.0	-0.03	-72.2	67.4
45 m	4 11 83	24 4 87	1268	-1.4	547.1	-0.04	-70.5	61.0
80 m	4 11 83	25 4 87	1269	4.3	335.1	0.15	-51.9	68.3

CURRENT SPEED AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
25 m	4 11 83	8 5 85	552	58.7	665.4	0.45	3.2	148.6
25 m	30 9 85	25 4 87	573	46.3	927.6	0.75	1.5	140.5
45 m	4 11 83	24 4 87	1268	82.0	1577.1	0.29	1.5	183.1
80 m	4 11 83	25 4 87	1269	91.1	591.4	0.00	1.8	193.9

TEMPERATURE AT 0, 108 W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
25 m	4 11 83	8 5 85	552	20.26	2.879	0.114	16.14	24.57
25 m	30 9 85	25 4 87	573	23.02	4.520	0.183	17.62	28.20
45 m	4 11 83	24 4 87	1268	19.35	7.199	0.655	14.37	26.95
80 m	4 11 83	25 4 87	1269	16.18	4.728	1.822	13.51	24.99

ZONAL VELOCITY AT 0, 110W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-4 m	3 11 83	28 11 84	392	-2.6	3.0	-0.02	-7.1	2.3
-4 m	10 5 85	26 10 87	900	-3.9	2.6	0.64	-8.0	4.4
10 m	3 11 83	26 10 87	1454	-4.7	1831.7	-0.28	-139.1	108.3
25 m	3 11 83	23 3 87	1237	29.5	2348.8	-0.07	-98.3	140.3
25 m	2 5 87	26 10 87	178	6.9	1541.5	-0.34	-94.1	79.2
45 m	3 11 83	26 10 87	1454	68.5	2360.0	-0.26	-85.4	171.0
80 m	3 11 83	15 10 84	348	90.2	399.1	-0.45	12.5	133.4
80 m	10 5 85	1 7 86	418	98.8	1155.2	-0.05	-10.4	207.9
80 m	7 11 86	26 10 87	354	95.0	884.6	0.32	17.9	202.8
120 m	3 11 83	26 10 87	1454	64.0	523.2	0.35	-9.3	150.8
160 m	3 11 83	29 5 86	939	35.6	264.2	-0.80	-27.6	74.2
160 m	7 11 86	26 10 87	354	39.4	426.5	-0.01	-28.7	105.5
250 m	3 11 83	26 10 87	1454	1.6	323.6	-0.10	-47.0	45.6

MERIDIONAL VELOCITY AT 0, 110W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-4 m	3 11 83	28 11 84	392	1.8	1.7	0.52	-2.1	6.1
-4 m	10 5 85	26 10 87	900	2.9	3.0	-0.67	-3.7	7.3
10 m	3 11 83	26 10 87	1454	0.8	1064.7	0.32	-85.1	97.5
25 m	3 11 83	23 3 87	1237	-4.6	942.4	0.20	-95.2	84.5
25 m	2 5 87	26 10 87	178	-3.5	947.7	0.03	-78.7	77.4
45 m	3 11 83	26 10 87	1454	-4.4	591.7	-0.10	-82.6	75.0
80 m	3 11 83	15 10 84	348	-3.0	265.3	0.17	-53.3	48.8
80 m	10 5 85	1 7 86	418	4.6	359.6	0.31	-36.5	59.5
80 m	7 11 86	26 10 87	354	6.4	398.9	0.28	-54.3	61.6
120 m	3 11 83	26 10 87	1454	-0.7	254.0	0.06	-49.1	52.0
160 m	3 11 83	29 5 86	939	0.3	243.4	-0.09	-51.3	46.2
160 m	7 11 86	26 10 87	354	3.4	166.2	0.04	-29.9	39.6
250 m	3 11 83	26 10 87	1454	0.3	282.2	-0.04	-44.0	60.1

SPEED AT 0, 110W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-4 m	3 11 83	28 11 84	392	3.4	2.9	0.49	0.1	8.7
-4 m	10 5 85	26 10 87	900	5.2	2.7	-0.50	0.2	9.7
10 m	3 11 83	26 10 87	1454	46.9	717.4	0.62	0.6	143.4
25 m	3 11 83	23 3 87	1237	56.8	960.3	0.39	1.4	146.8
25 m	2 5 87	26 10 87	178	46.0	432.7	0.40	4.5	110.7
45 m	3 11 83	26 10 87	1454	78.4	1521.4	0.23	2.0	172.0
80 m	3 11 83	15 10 84	348	91.9	371.6	-0.34	19.1	133.6
80 m	10 5 85	1 7 86	418	101.2	1062.3	0.08	3.8	208.1
80 m	7 11 86	26 10 87	354	97.4	860.9	0.37	18.3	203.3
120 m	3 11 83	26 10 87	1454	66.4	467.0	0.62	5.7	152.1
160 m	3 11 83	29 5 86	939	40.3	147.3	-0.21	3.8	76.7
160 m	7 11 86	26 10 87	354	42.9	313.7	0.74	7.2	109.7
250 m	3 11 83	26 10 87	1454	22.7	94.1	0.36	1.2	60.7

TEMPERATURE AT 0, 110W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-3 m	3 11 83	15 10 84	348	22.75	3.949	0.622	19.55	27.46
-3 m	10 5 85	29 9 85	143	22.40	1.185	0.362	20.35	24.65
-3 m	1 6 86	20 9 86	112	23.24	1.326	0.036	20.70	25.23
-3 m	7 11 86	26 10 87	354	25.41	1.957	0.210	22.96	28.34
1 m	3 11 83	28 11 84	392	22.71	4.183	0.688	19.44	28.10
1 m	10 5 85	26 10 87	900	24.35	3.990	0.125	20.16	28.96
10 m	3 11 83	26 10 87	1454	23.37	4.343	0.162	18.70	28.46
25 m	3 11 83	26 10 87	1454	22.28	5.754	0.203	16.86	28.47
35 m	18 10 84	7 5 85	202	19.31	3.370	0.131	15.51	23.41
35 m	2 10 85	1 4 86	182	20.59	1.038	-0.235	17.84	22.63
35 m	1 6 86	26 10 87	513	24.03	3.252	-0.791	17.75	27.58
45 m	3 11 83	26 10 87	1454	20.20	8.107	0.314	14.85	26.53
60 m	18 10 84	29 9 85	347	16.84	1.959	0.713	14.29	21.92
60 m	16 12 85	26 10 87	680	20.56	7.278	-0.111	14.60	25.70
80 m	3 11 83	15 10 84	348	15.22	0.553	0.665	13.49	17.92
80 m	10 5 85	26 10 87	900	17.65	6.747	0.810	13.58	25.34
100 m	3 11 83	16 4 84	166	14.44	0.198	-0.235	13.33	15.38
100 m	18 10 84	26 2 86	497	14.41	0.314	0.447	13.12	16.26
100 m	1 6 86	29 4 87	333	16.99	4.843	0.664	13.05	23.41
120 m	3 11 83	26 10 87	1454	14.38	0.950	1.835	12.83	20.23
140 m	3 11 83	6 4 86	886	13.51	0.099	0.267	12.57	14.49
140 m	7 11 86	26 10 87	354	14.38	0.489	1.351	13.30	17.50
160 m	3 11 83	26 10 87	1454	13.40	0.192	1.613	12.47	16.15
200 m	3 11 83	15 10 84	348	12.86	0.027	1.069	12.35	13.69
200 m	2 10 85	9 4 86	190	12.70	0.025	-0.105	12.23	13.04
200 m	1 6 86	26 10 87	513	13.09	0.117	0.678	12.35	14.38
250 m	3 11 83	26 10 87	1454	12.50	0.095	-0.666	11.11	13.33
300 m	2 10 85	28 12 85	88	11.90	0.056	-0.311	11.30	12.35
300 m	7 11 86	26 10 87	354	11.90	0.322	-0.697	9.99	12.87

ZONAL VELOCITY AT 0, 124.5W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-4 m	30 10 83	30 10 84	367	-3.5	3.7	0.29	-8.3	1.6
-4 m	6 5 85	4 10 85	152	-5.6	1.6	0.14	-8.5	-2.3
10 m	30 10 83	26 1 84	89	-45.0	1232.7	-0.11	-117.8	26.7
10 m	23 4 84	4 10 85	530	-11.3	2491.6	-0.27	-136.0	88.0
25 m	30 10 83	4 10 85	706	14.6	2381.1	-0.12	-107.1	127.3
45 m	30 10 83	4 10 85	706	58.6	2678.0	-0.09	-68.2	170.9
80 m	23 4 84	4 10 85	530	102.1	954.6	-0.31	8.6	172.0
120 m	30 10 83	4 10 85	706	84.0	324.7	0.10	29.9	137.6
160 m	30 10 83	4 10 85	706	52.7	236.3	0.29	6.6	108.9
250 m	30 10 83	4 10 85	706	8.8	390.9	-0.10	-47.4	56.8

MERIDIONAL VELOCITY AT 0, 124.5W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-4 m	30 10 83	30 10 84	367	0.8	1.3	0.14	-2.0	5.1
-4 m	6 5 85	4 10 85	152	2.3	2.1	-0.33	-1.8	5.8
10 m	30 10 83	26 1 84	89	-0.8	1305.4	0.09	-71.7	83.8
10 m	23 4 84	4 10 85	530	2.8	2069.3	0.20	-103.1	114.9
25 m	30 10 83	4 10 85	706	-0.1	1679.4	0.10	-103.7	103.4
45 m	30 10 83	4 10 85	706	-1.0	1271.4	-0.11	-99.6	97.4
80 m	23 4 84	4 10 85	530	-2.0	855.1	0.92	-83.7	113.3
120 m	30 10 83	4 10 85	706	0.3	207.9	-0.13	-44.6	48.8
160 m	30 10 83	4 10 85	706	-0.4	216.4	0.03	-41.4	42.1
250 m	30 10 83	4 10 85	706	-0.8	331.6	0.12	-41.9	50.5

SPEED AT 0, 124.5W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-4 m	30 10 83	30 10 84	367	3.8	3.1	0.13	0.1	8.4
-4 m	6 5 85	4 10 85	152	6.2	1.6	-0.41	2.3	9.0
10 m	30 10 83	26 1 84	89	62.3	685.8	0.23	4.0	122.1
10 m	23 4 84	4 10 85	530	62.6	776.5	0.30	1.8	148.9
25 m	30 10 83	4 10 85	706	60.4	624.9	0.10	2.5	128.5
45 m	30 10 83	4 10 85	706	77.9	1320.6	0.39	7.0	171.5
80 m	23 4 84	4 10 85	530	106.9	808.6	-0.39	15.9	172.3
120 m	30 10 83	4 10 85	706	85.2	330.3	0.15	30.0	142.7
160 m	30 10 83	4 10 85	706	54.7	229.9	0.35	8.8	114.7
250 m	30 10 83	4 10 85	706	25.9	128.9	0.20	0.8	56.8

TEMPERATURE AT 0, 124.5W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-3 m	30 10 83	4 10 85	706	23.63	1.972	0.544	19.61	27.65
1 m	23 4 84	4 10 85	530	23.77	1.199	0.303	21.58	26.77
10 m	30 10 83	26 1 84	89	21.83	1.645	-0.658	18.76	23.95
10 m	23 4 84	4 10 85	530	23.60	1.177	0.096	21.22	26.16
25 m	30 10 83	4 10 85	706	22.91	1.897	-0.533	17.95	26.22
35 m	29 10 83	19 4 84	174	21.37	2.522	-0.563	16.66	24.25
35 m	21 10 84	4 10 85	349	22.79	1.629	-0.457	18.91	25.38
45 m	30 10 83	4 10 85	706	21.34	2.749	-0.386	15.52	24.85
60 m	21 10 84	4 10 85	349	20.60	3.021	-0.203	16.57	24.08
80 m	30 10 83	4 10 85	706	17.49	2.557	0.756	14.23	22.69
100 m	21 10 84	4 10 85	349	16.22	1.416	0.943	13.95	20.66
120 m	30 10 83	4 10 85	706	14.87	0.537	1.013	13.31	18.15
140 m	30 10 83	4 10 85	706	14.11	0.300	0.970	12.95	17.16
160 m	30 10 83	4 10 85	706	13.51	0.181	0.871	12.71	15.76
200 m	30 10 83	4 10 85	706	12.85	0.060	0.555	12.18	13.92
250 m	30 10 83	4 10 85	706	12.29	0.102	-0.578	11.32	13.19
300 m	23 4 84	19 5 84	27	11.11	0.054	-0.041	10.54	11.56
300 m	21 10 84	4 5 85	196	11.53	0.097	-0.295	10.61	12.46

ZONAL VELOCITY AT 0, 140W

Depth	FROM			TO			N	MEAN	VAR	SKEW	MIN	MAX
-4 m	16	4	83	25	4	83	10	-1.1	2.1	-0.96	-4.2	0.7
-4 m	21	10	83	13	12	83	54	-5.7	2.1	0.29	-8.1	-2.3
-4 m	28	4	84	13	8	85	473	-5.9	2.9	0.29	-10.0	-0.1
-4 m	12	10	85	23	2	87	500	-6.3	2.1	0.46	-10.4	-0.3
-4 m	12	5	87	12	10	87	154	-4.5	3.0	0.42	-7.9	0.8
10 m	16	4	83	30	8	84	503	-4.7	2075.5	-0.68	-141.1	70.7
10 m	26	10	84	26	2	85	124	-30.4	973.4	-1.36	-145.9	11.1
10 m	30	4	85	10	3	86	315	-13.3	1399.4	-0.21	-115.3	63.5
10 m	15	6	86	7	3	87	266	-9.0	800.2	-0.19	-76.2	52.4
10 m	13	5	87	12	10	87	153	-7.5	2414.3	-0.01	-94.3	74.8
25 m	16	4	83	10	3	86	1060	4.0	1949.0	-0.04	-134.2	107.5
25 m	15	6	86	12	10	87	485	-0.1	1143.7	-0.05	-79.3	77.9
45 m	21	10	83	7	3	85	504	27.4	2421.4	0.41	-96.6	136.6
45 m	30	4	85	27	10	86	546	27.9	1425.3	0.08	-60.5	113.0
45 m	13	5	87	12	10	87	153	25.6	2292.4	0.24	-50.6	113.0
80 m	16	4	83	12	10	87	1641	83.4	1958.2	-0.25	-52.7	170.6
120 m	16	4	83	12	10	87	1641	100.1	582.1	-0.36	-8.0	170.4
160 m	16	4	83	12	10	87	1641	70.1	385.2	-0.01	10.0	128.3
250 m	16	4	83	12	10	87	1641	13.6	294.1	-0.32	-38.2	61.1
300 m	30	4	85	9	10	85	163	-14.1	144.7	0.26	-36.1	20.4

MERIDIONAL VELOCITY AT 0, 140W

Depth	FROM			TO			N	MEAN	VAR	SKEW	MIN	MAX
-4 m	16	4	83	25	4	83	10	-2.0	4.0	0.48	-5.0	1.7
-4 m	21	10	83	13	12	83	54	0.1	0.9	0.82	-1.5	2.4
-4 m	28	4	84	13	8	85	473	0.6	2.0	-0.02	-3.7	4.5
-4 m	12	10	85	23	2	87	500	1.3	2.7	0.03	-3.2	5.8
-4 m	12	5	87	12	10	87	154	2.7	2.8	-0.21	-2.0	6.9
10 m	16	4	83	30	8	84	503	-2.8	943.1	-0.05	-86.4	78.0
10 m	26	10	84	26	2	85	124	2.7	1035.9	0.37	-62.2	81.4
10 m	30	4	85	10	3	86	315	1.5	713.4	-0.03	-56.5	58.0
10 m	15	6	86	7	3	87	266	-5.4	428.3	-0.01	-55.4	43.2
10 m	13	5	87	12	10	87	153	-1.2	501.2	-0.17	-61.9	47.4
25 m	16	4	83	10	3	86	1060	1.5	916.8	-0.05	-82.5	79.9
25 m	15	6	86	12	10	87	485	-5.1	451.2	-0.02	-60.1	49.6
45 m	21	10	83	7	3	85	504	-1.5	1073.4	-0.09	-82.1	71.0
45 m	30	4	85	27	10	86	546	1.0	683.7	-0.35	-66.0	56.0
45 m	13	5	87	12	10	87	153	0.7	440.3	-0.11	-46.7	51.1
80 m	16	4	83	12	10	87	1641	-0.8	452.5	-0.30	-65.8	67.2
120 m	16	4	83	12	10	87	1641	3.6	215.6	-0.35	-65.1	44.4
160 m	16	4	83	12	10	87	1641	-0.4	139.6	-0.17	-45.7	29.4
250 m	16	4	83	12	10	87	1641	0.4	194.3	-0.01	-50.6	48.6
300 m	30	4	85	9	10	85	163	1.2	125.4	-0.09	-24.8	24.9

SPEED AT 0, 140W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-4 m	16 4 83	25 4 83	10	2.9	2.7	0.83	1.1	6.6
-4 m	21 10 83	13 12 83	54	5.8	2.0	-0.21	2.7	8.1
-4 m	28 4 84	13 8 85	473	6.1	2.6	-0.28	0.8	10.0
-4 m	12 10 85	23 2 87	500	6.7	1.9	-0.40	0.5	10.4
-4 m	12 5 87	12 10 87	154	5.6	2.6	-0.54	0.8	8.9
10 m	16 4 83	30 8 84	503	48.6	682.7	0.93	1.2	141.1
10 m	26 10 84	26 2 85	124	44.1	994.0	1.11	2.4	153.5
10 m	30 4 85	10 3 86	315	42.6	473.8	0.43	2.5	115.4
10 m	15 6 86	7 3 87	266	32.4	288.9	0.51	1.6	79.9
10 m	13 5 87	12 10 87	153	49.4	530.7	0.25	5.2	108.5
25 m	16 4 83	10 3 86	1060	48.3	551.6	0.16	0.5	135.4
25 m	15 6 86	12 10 87	485	35.4	368.6	0.32	1.4	88.1
45 m	21 10 83	7 3 85	504	57.3	967.4	0.60	0.7	137.4
45 m	30 4 85	27 10 86	546	48.5	533.5	0.51	0.8	113.1
45 m	13 5 87	12 10 87	153	49.9	898.6	0.52	4.9	113.3
80 m	16 4 83	12 10 87	1641	88.6	1517.8	0.03	4.0	171.6
120 m	16 4 83	12 10 87	1641	101.4	555.3	-0.24	13.4	170.5
160 m	16 4 83	12 10 87	1641	71.2	368.0	0.04	19.4	129.0
250 m	16 4 83	12 10 87	1641	23.8	104.9	0.52	1.1	68.9
300 m	30 4 85	9 10 85	163	20.0	67.8	0.25	3.9	39.8

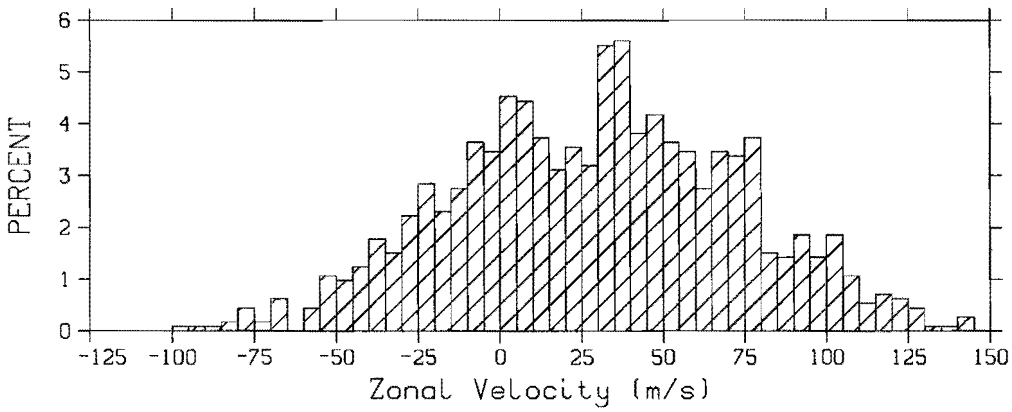
TEMPERATURE AT 0, 140W

Depth	FROM	TO	N	MEAN	VAR	SKEW	MIN	MAX
-3 m	16 4 83	25 4 83	10	28.40	0.216	-0.982	27.40	28.88
-3 m	21 10 83	11 12 83	52	23.82	0.283	1.222	23.00	25.58
-3 m	28 4 84	22 3 85	329	24.60	0.558	0.306	23.01	26.90
-3 m	30 4 85	13 8 85	106	25.70	0.049	0.189	25.28	26.20
-3 m	15 6 86	23 2 87	254	26.47	0.185	-0.426	25.03	27.40
-3 m	12 5 87	12 10 87	154	27.44	0.639	0.032	25.89	28.85
1 m	16 4 83	25 4 83	10	29.26	0.020	0.255	29.07	29.50
1 m	21 10 83	13 12 83	54	23.58	0.813	0.339	21.99	25.99
1 m	28 4 84	8 6 84	42	25.87	0.394	0.384	24.94	27.09
1 m	27 10 84	13 8 85	291	24.77	1.040	-0.224	22.57	26.40
1 m	12 10 85	27 9 86	351	25.63	0.897	-0.191	23.61	27.55
1 m	30 10 86	23 2 87	117	27.00	0.063	0.033	26.40	27.52
1 m	12 5 87	12 10 87	154	28.01	0.748	-0.061	26.31	29.40
10 m	16 4 83	12 10 87	1641	25.69	2.489	0.279	21.76	29.43
25 m	16 4 83	12 10 87	1641	25.43	2.767	0.154	20.20	29.35
35 m	21 10 83	24 4 86	917	24.38	0.946	-0.517	21.09	26.17
35 m	15 6 86	12 10 87	485	27.16	0.684	0.784	25.79	29.21
45 m	21 10 83	3 3 85	500	23.40	1.000	-0.225	20.26	25.65
45 m	30 4 85	27 10 86	546	25.28	0.764	-0.107	23.17	26.96
45 m	13 5 87	12 10 87	153	27.45	1.068	-0.140	25.64	29.06
60 m	21 10 83	25 4 84	188	21.52	1.497	-0.535	18.43	23.81
60 m	26 10 84	27 4 85	184	23.11	0.733	-0.354	20.34	25.11
60 m	12 10 85	19 4 86	190	24.24	0.292	-0.771	22.83	25.15
60 m	30 10 86	12 10 87	348	26.90	0.680	-0.479	24.11	28.69
80 m	16 4 83	27 10 86	1291	21.94	6.174	-0.350	15.12	26.58
80 m	13 5 87	12 10 87	153	25.07	2.559	-0.388	21.40	27.90
100 m	21 10 83	10 4 86	903	19.88	5.048	-0.118	15.34	25.03
100 m	30 10 86	12 10 87	348	23.92	5.510	-0.573	16.92	27.70
120 m	16 4 83	15 3 84	335	16.03	1.501	0.426	13.34	19.52
120 m	28 4 84	12 10 87	1263	19.25	6.523	0.845	14.32	26.97
140 m	21 10 83	25 4 84	188	14.91	0.563	0.591	13.14	17.38
140 m	26 10 84	22 3 85	148	16.57	1.854	0.382	13.84	20.47
140 m	30 4 85	2 4 86	338	16.92	2.048	0.686	14.30	20.91
140 m	15 6 86	12 10 87	485	18.19	7.493	1.107	13.82	26.64
160 m	16 4 83	12 10 87	1641	15.14	2.600	2.398	12.81	25.71
200 m	21 10 83	27 4 85	555	13.17	0.225	0.714	11.77	15.19
200 m	4 12 85	12 10 87	678	13.51	0.655	2.189	12.35	18.01
250 m	16 4 83	12 10 87	1641	12.37	0.096	0.472	11.42	13.90
300 m	25 10 84	21 4 86	544	11.74	0.111	-0.706	10.63	12.40
300 m	15 6 86	12 10 87	485	11.77	0.211	-0.600	9.80	12.81

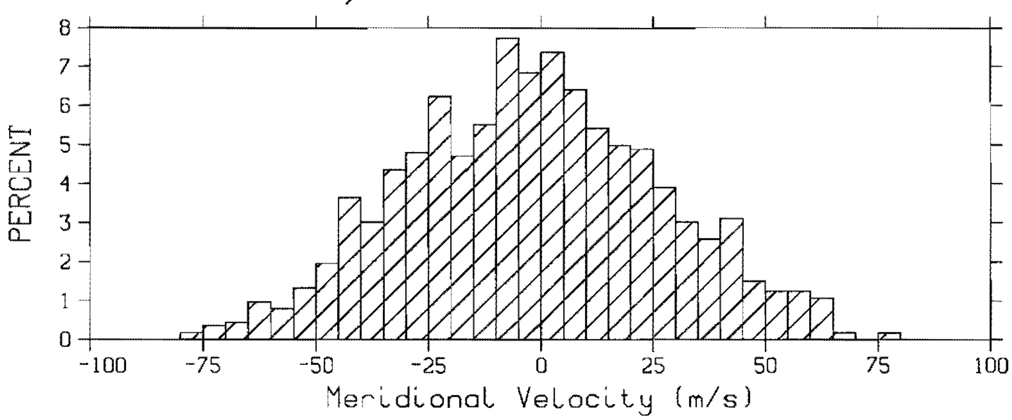
Section II.D: HISTOGRAMS

O, 108W: 25m
4 NOV 83 TO 25 APR 87

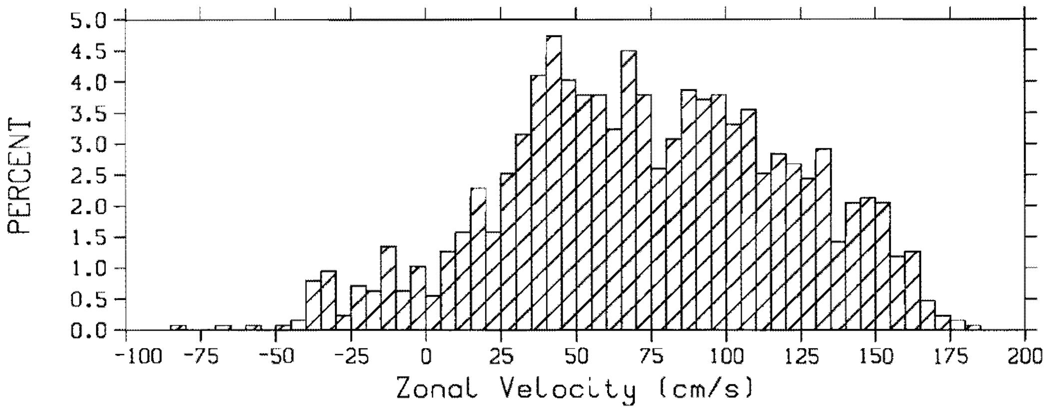
NPOINTS = 1125, NOUT = 144



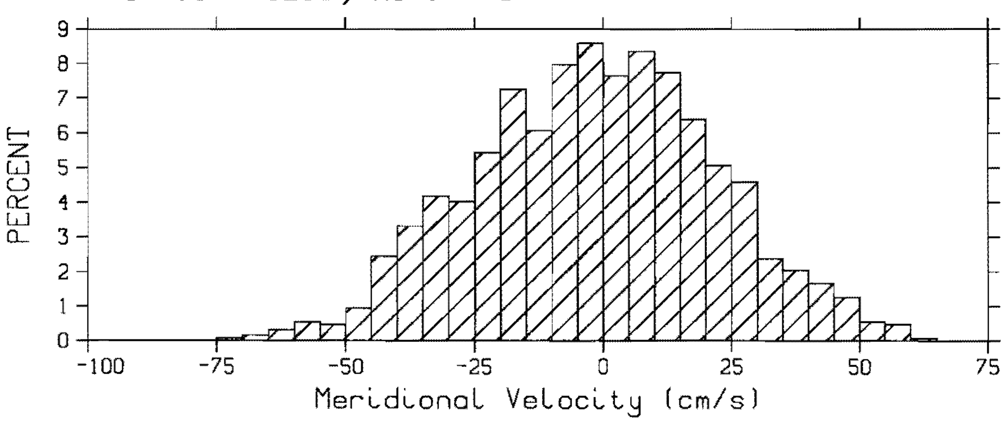
NPOINTS = 1125, NOUT = 144

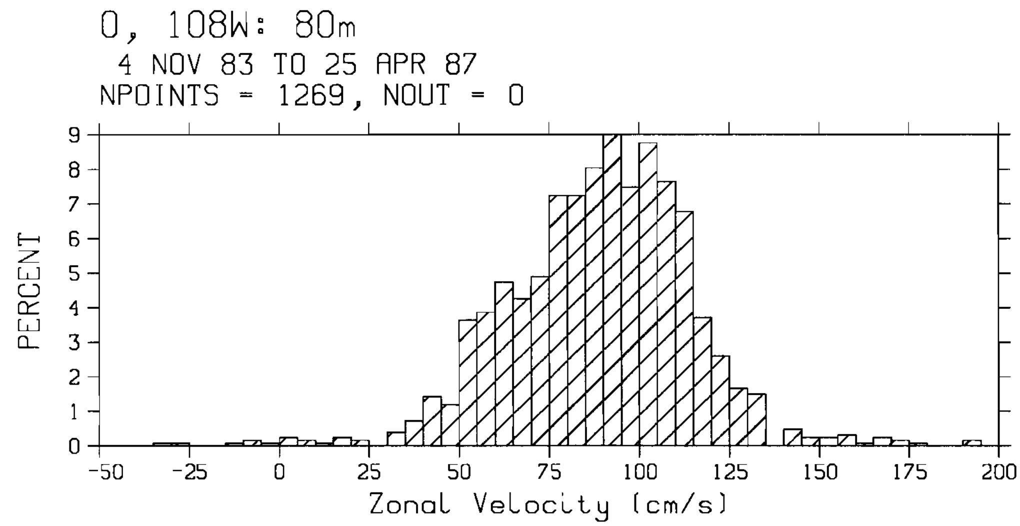


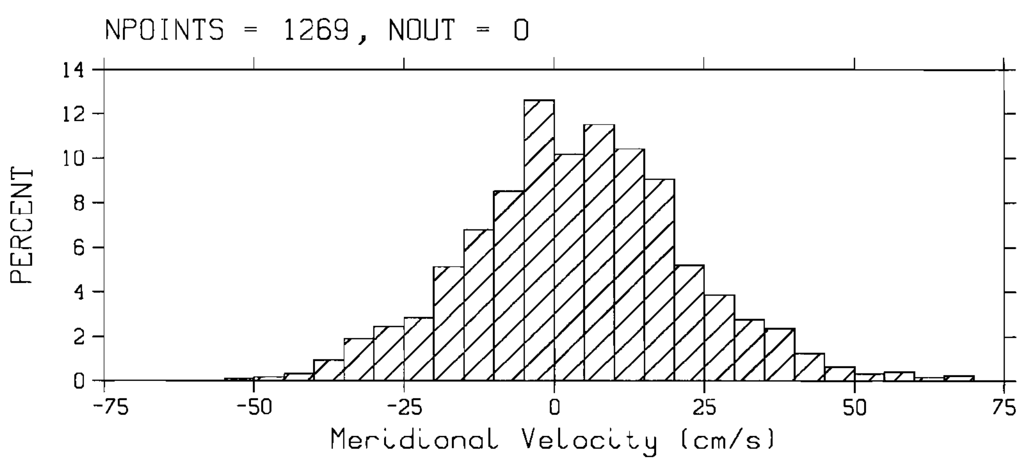
0, 108W: 45m
4 NOV 83 TO 24 APR 87
NPOINTS = 1268, NOUT = 0



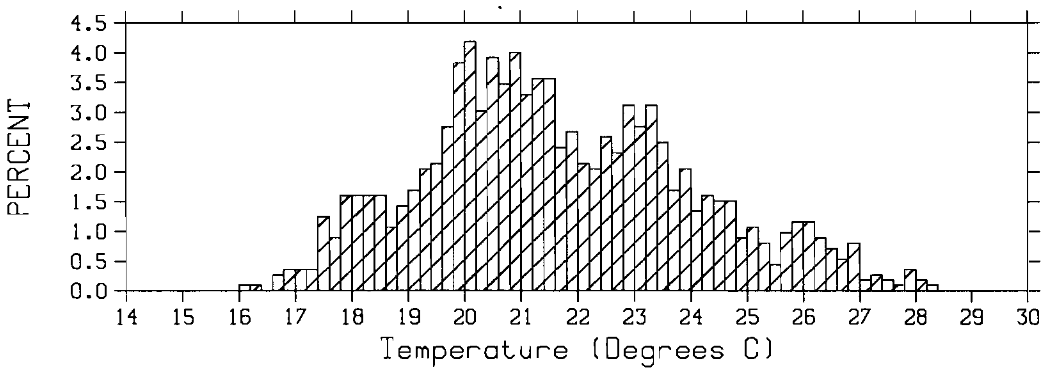
NPOINTS = 1268, NOUT = 0



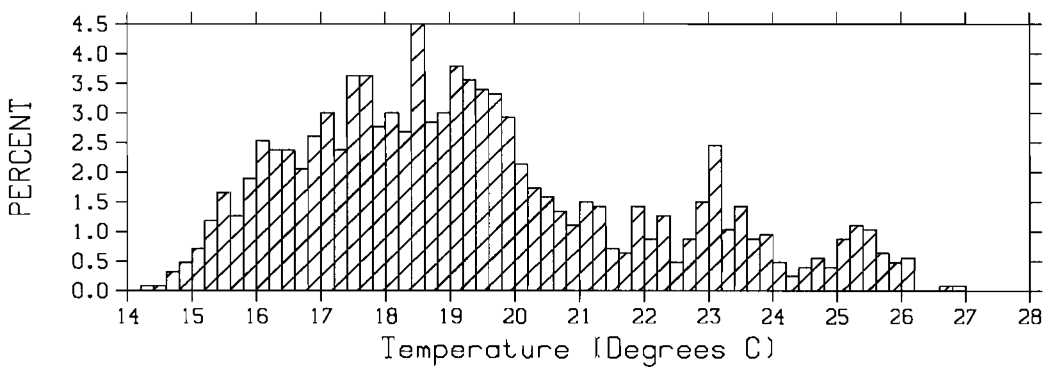

0, 108W: 80m
4 NOV 83 TO 25 APR 87
NPOINTS = 1269, NOUT = 0
PERCENT
Zonal Velocity (cm/s)


NPOINTS = 1269, NOUT = 0
PERCENT
Meridional Velocity (cm/s)

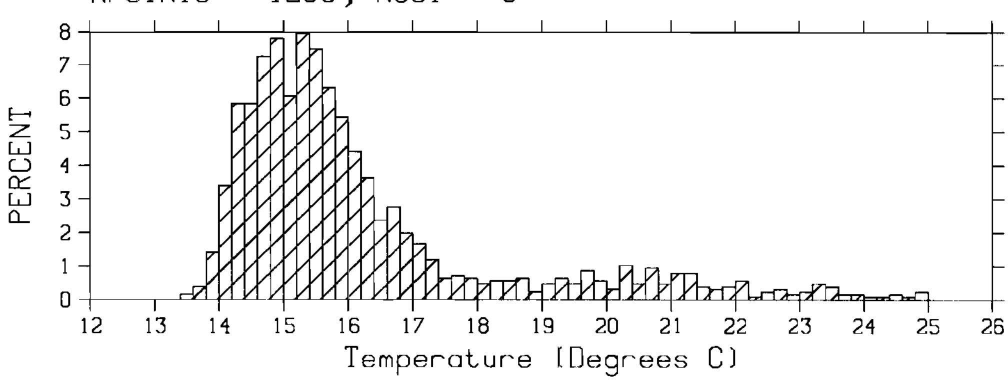
0, 108W: 25m
4 NOV 83 TO 25 APR 87
NPOINTS = 1125, NOUT = 144



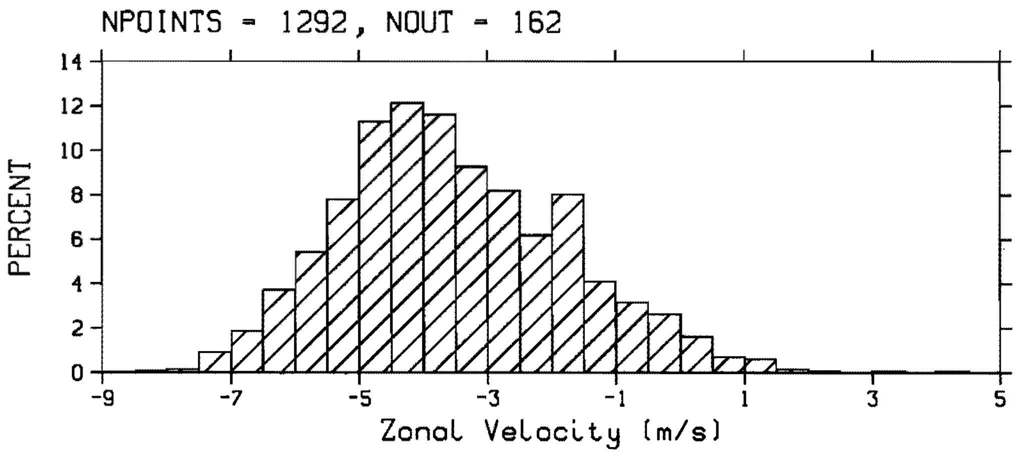
0, 108W: 45m
4 NOV 83 TO 24 APR 87
NPOINTS = 1268, NOUT = 0

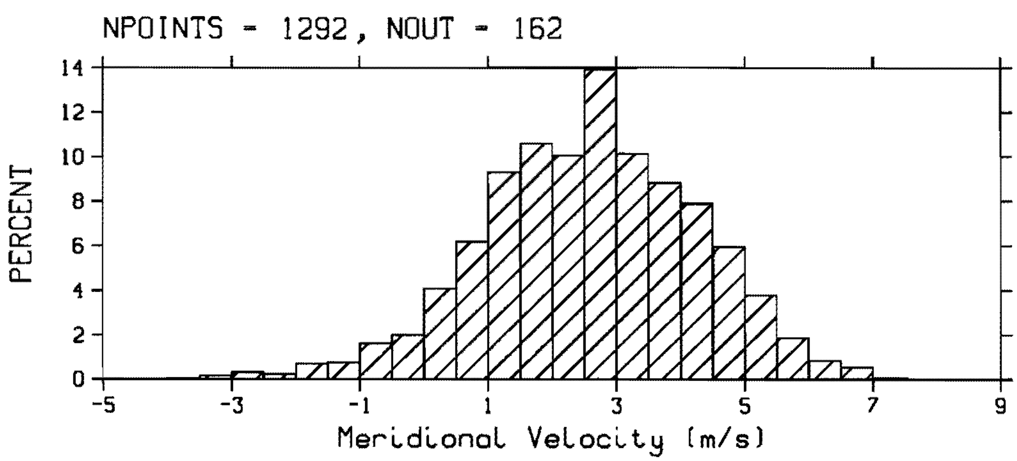


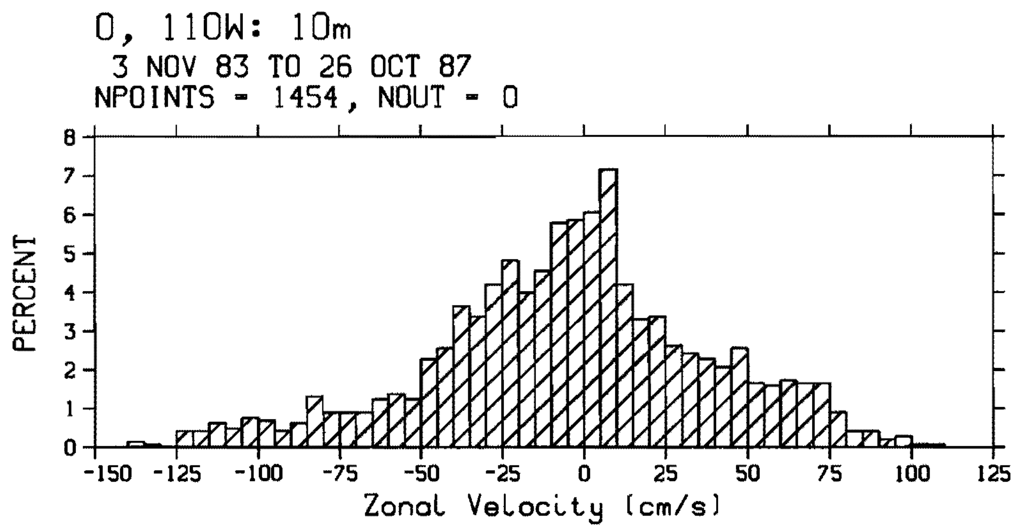
0, 108W: 80m
4 NOV 83 TO 25 APR 87
NPOINTS = 1269, NOUT = 0

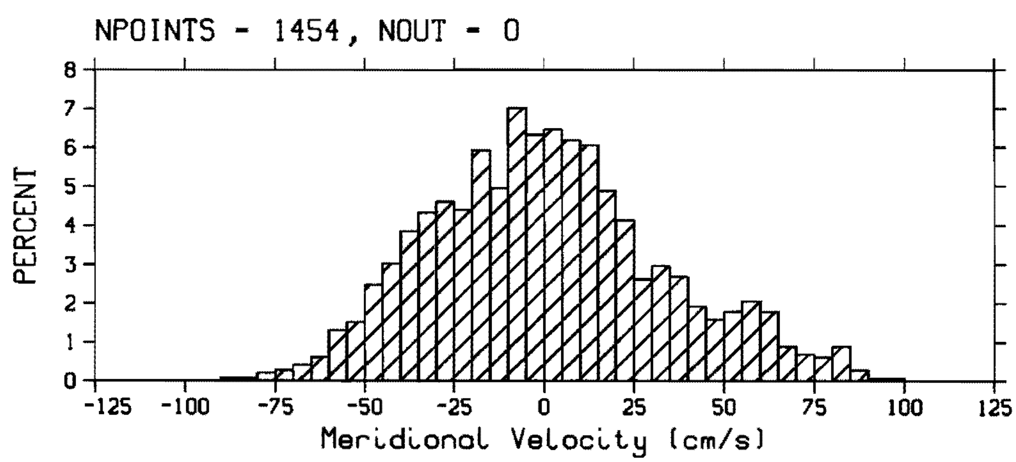


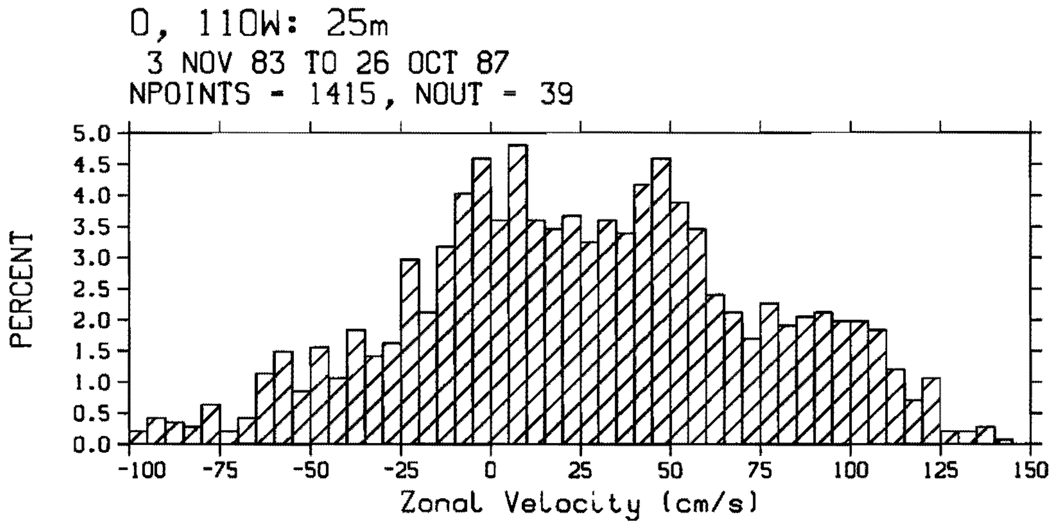
0, 110W: -4m
3 NOV 83 TO 26 OCT 87

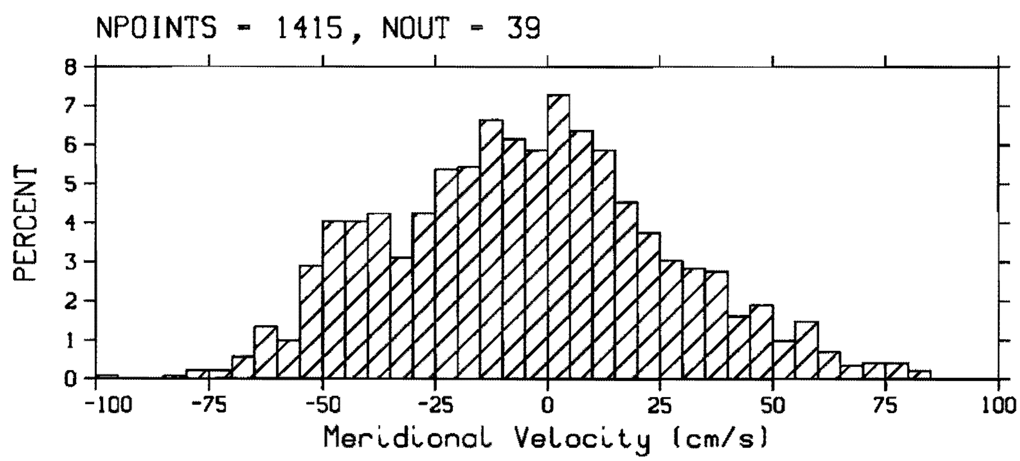


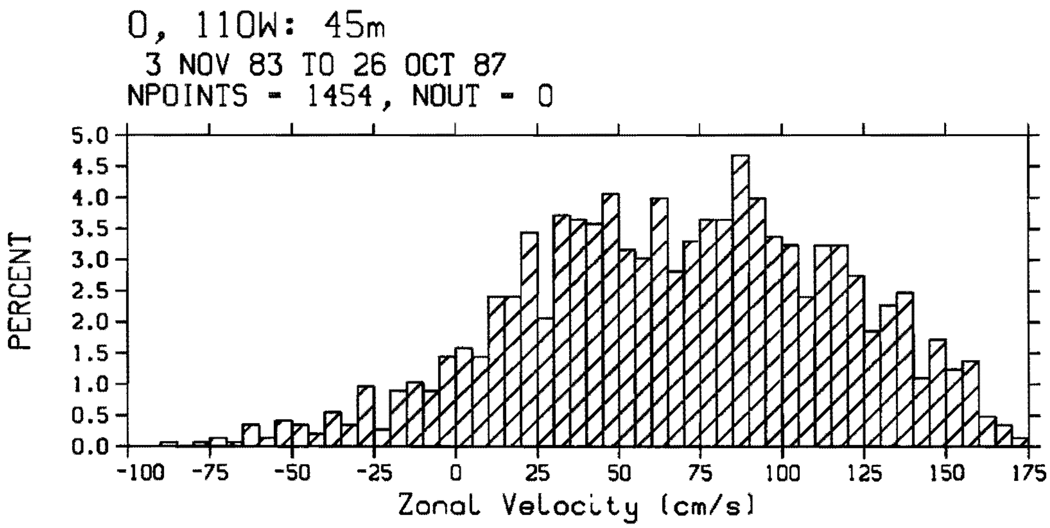


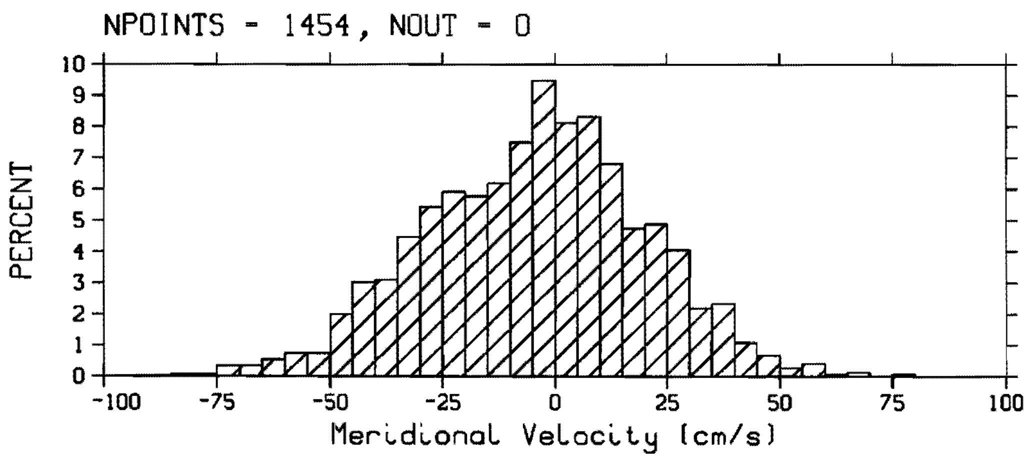

0, 110W: 10m
3 NOV 83 TO 26 OCT 87
NPOINTS - 1454, NOUT - 0
PERCENT
Zonal Velocity (cm/s)


NPOINTS - 1454, NOUT - 0
PERCENT
Meridional Velocity (cm/s)


0, 110W: 25m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1415, NOUT = 39
PERCENT
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-100
-75
-50
-25
0
25
50
75
100
125
150
Zonal Velocity (cm/s)


NPOINTS = 1415, NOUT = 39
PERCENT
8
7
6
5
4
3
2
1
0
-100
-75
-50
-25
0
25
50
75
100
Meridional Velocity (cm/s)

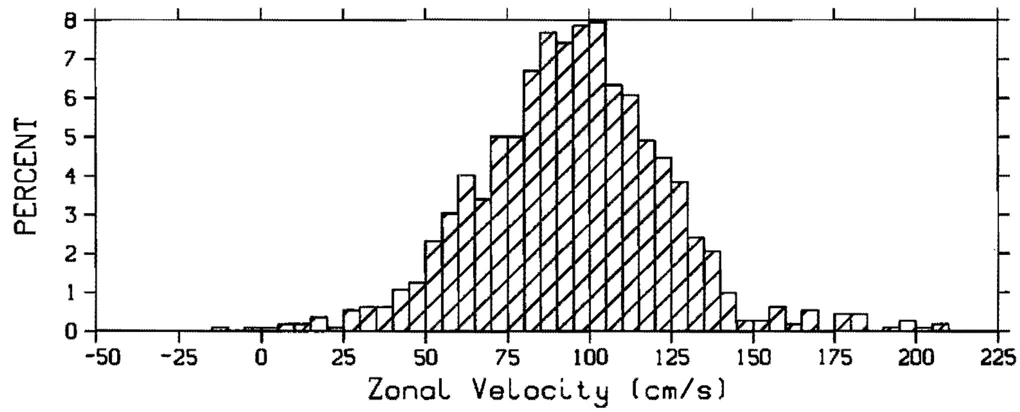

0, 110W: 45m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454, NOUT = 0
PERCENT
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-100 -75 -50 -25 0 25 50 75 100 125 150 175
Zonal Velocity (cm/s)


NPOINTS = 1454, NOUT = 0
PERCENT
10
9
8
7
6
5
4
3
2
1
0
-100 -75 -50 -25 0 25 50 75 100
Meridional Velocity (cm/s)

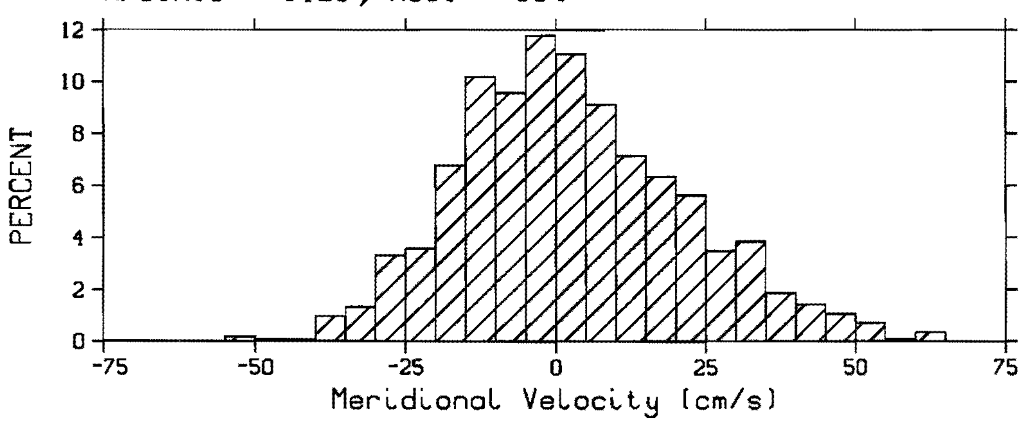
0, 110W: 80m

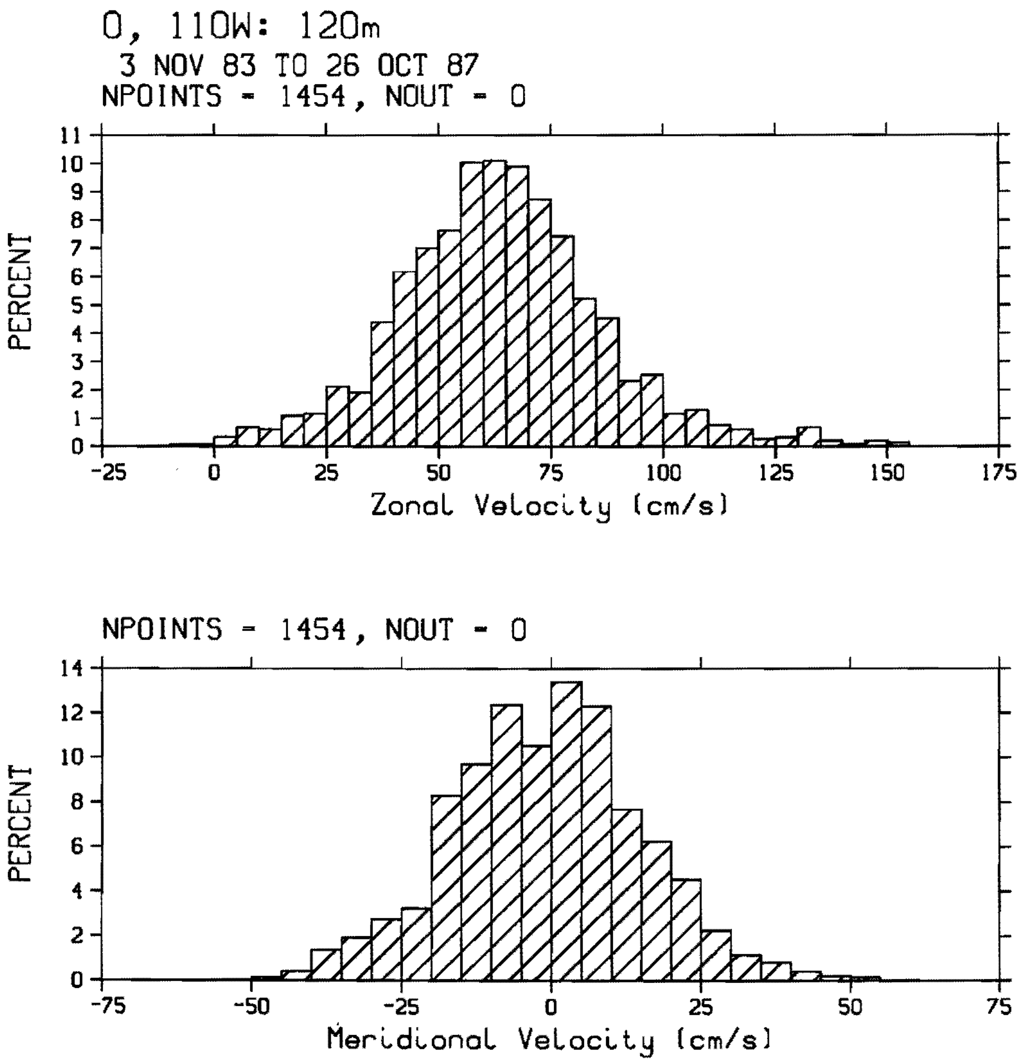
3 NOV 83 TO 26 OCT 87

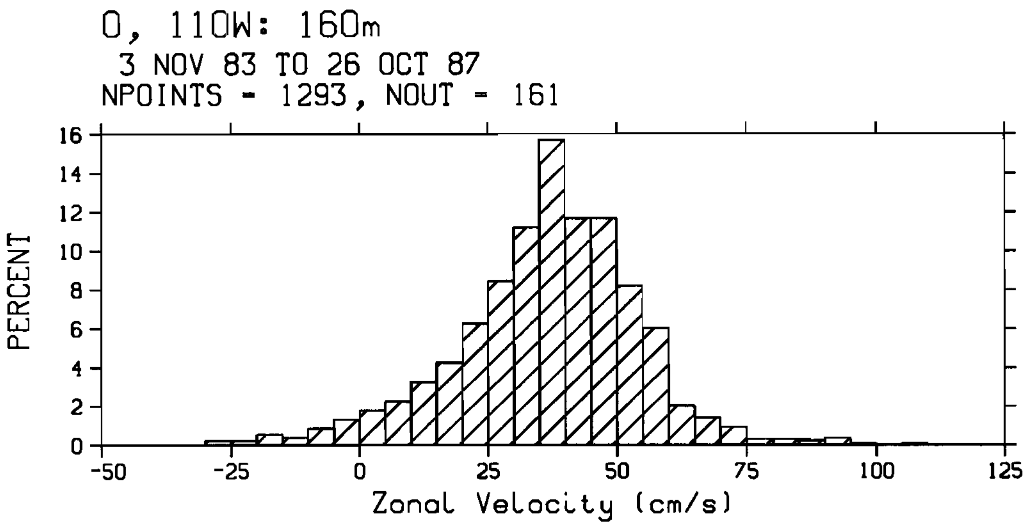
NPOINTS = 1120, NOUT = 334

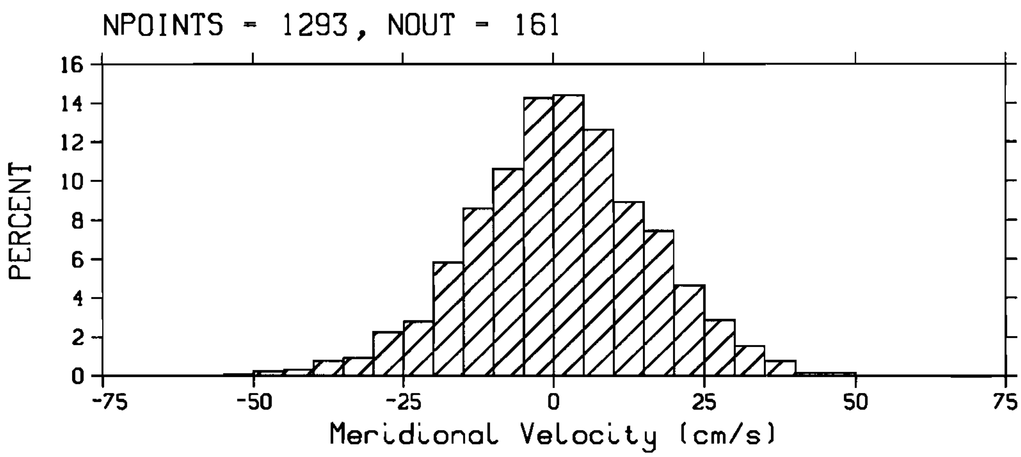


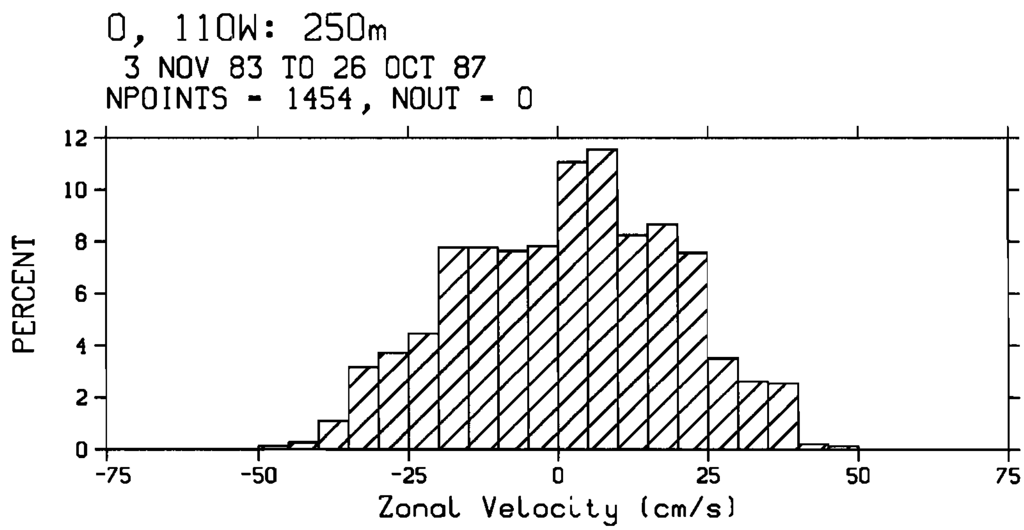
NPOINTS = 1120, NOUT = 334

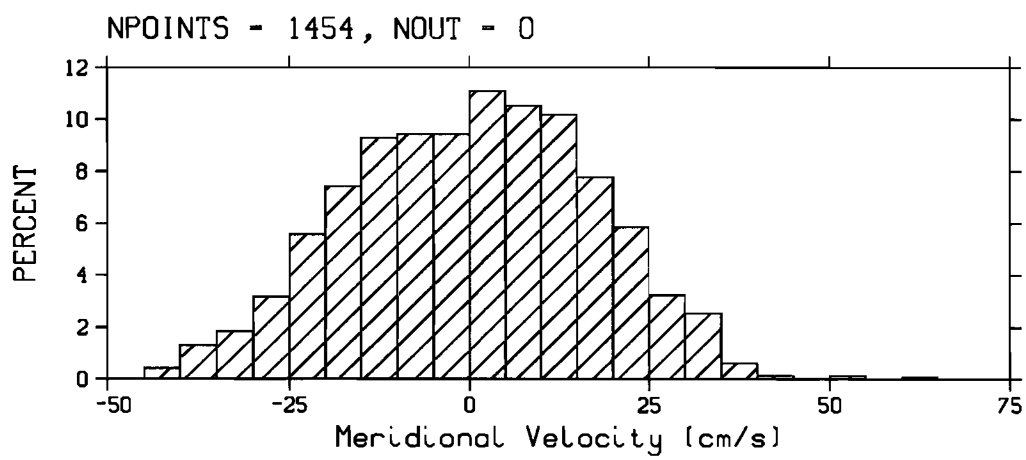



0, 110W: 120m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454, NOUT = 0
PERCENT
0 1 2 3 4 5 6 7 8 9 10 11
-25 0 25 50 75 100 125 150 175
Zonal Velocity (cm/s)
NPOINTS = 1454, NOUT = 0
PERCENT
0 2 4 6 8 10 12 14
-75 -50 -25 0 25 50 75
Meridional Velocity (cm/s)

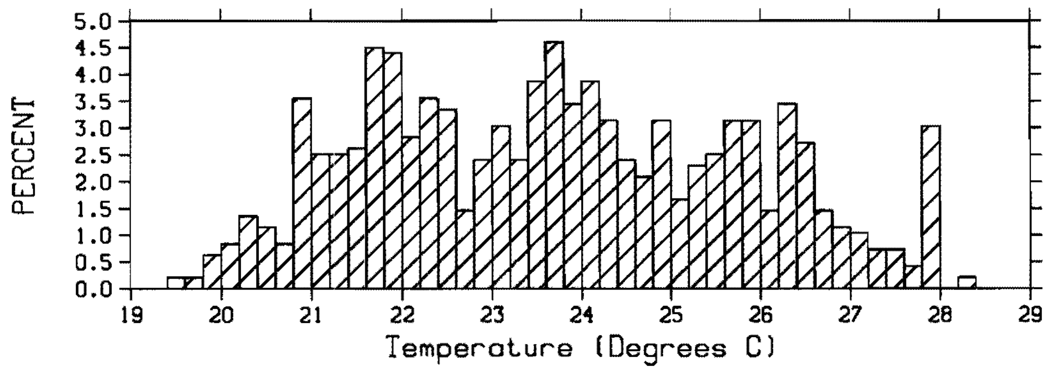

0, 110W: 160m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1293, NOUT = 161
PERCENT
16
14
12
10
8
6
4
2
0
-50
-25
0
25
50
75
100
125
Zonal Velocity (cm/s)


NPOINTS = 1293, NOUT = 161
PERCENT
16
14
12
10
8
6
4
2
0
-75
-50
-25
0
25
50
75
Meridional Velocity (cm/s)

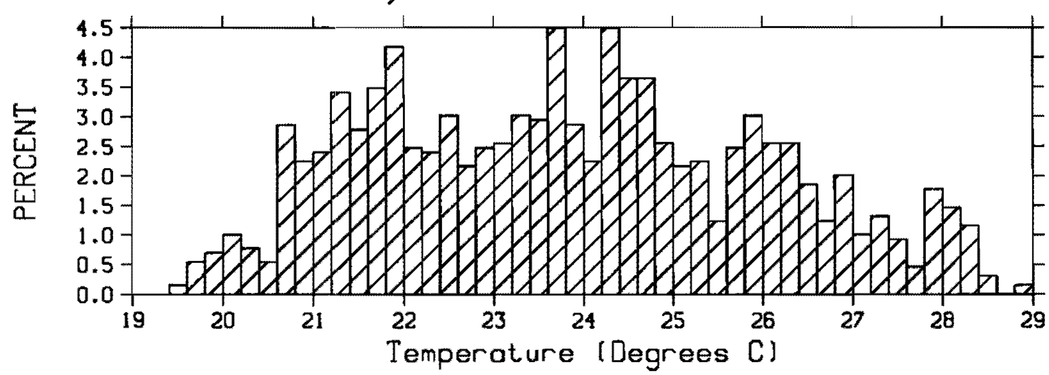

0, 110W: 250m
3 NOV 83 TO 26 OCT 87
NPOINTS - 1454, NOUT - 0
PERCENT
Zonal Velocity (cm/s)


NPOINTS - 1454, NOUT - 0
PERCENT
Meridional Velocity (cm/s)

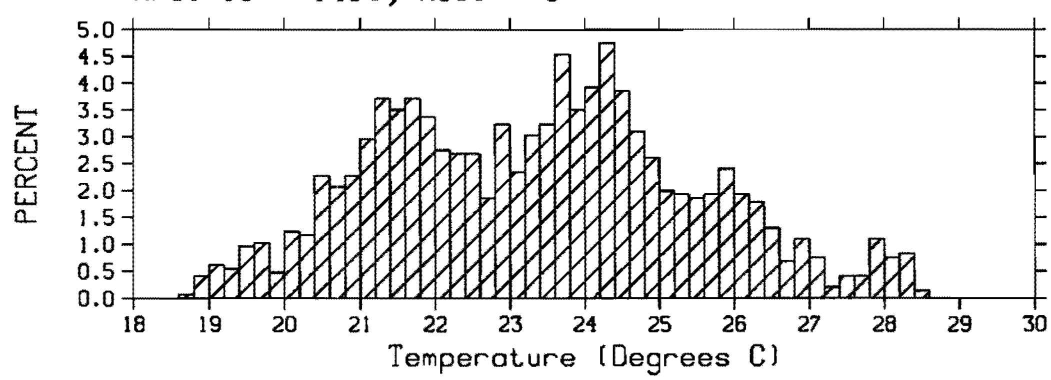
0, 110W: -3m
3 NOV 83 TO 26 OCT 87
NPOINTS = 957, NOUT = 497

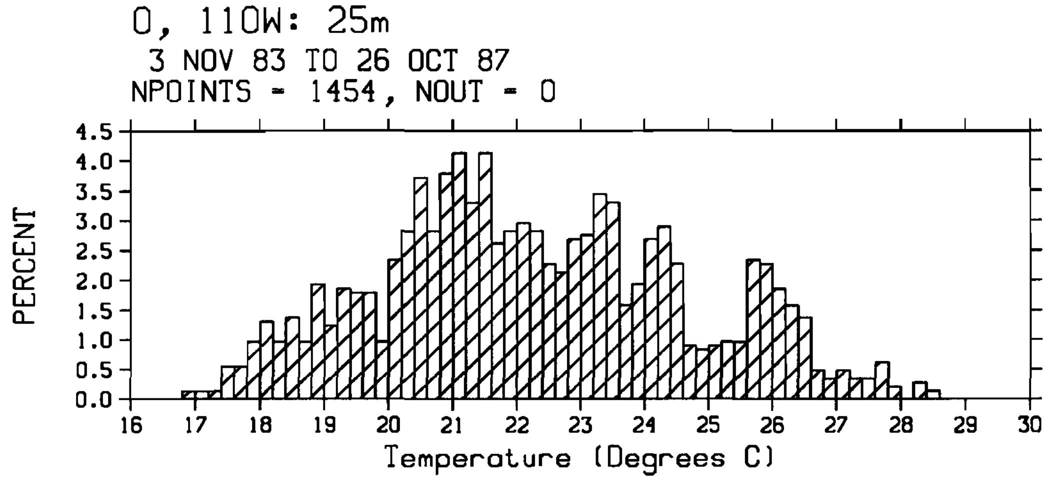


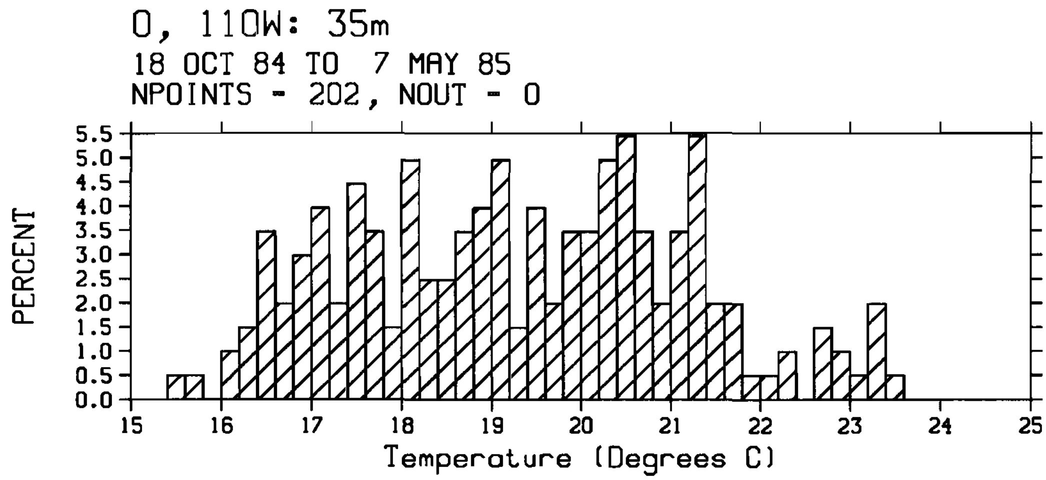
0, 110W: 1m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1292, NOUT = 162

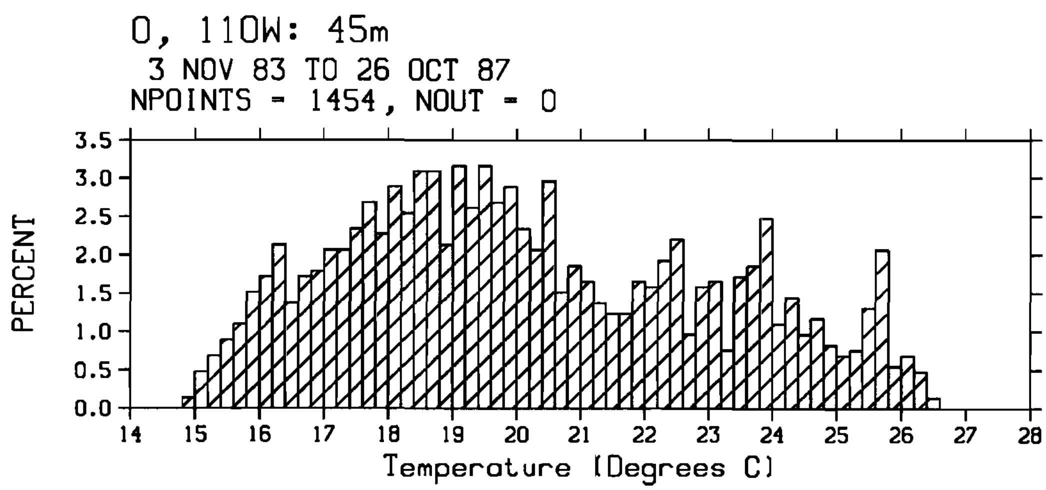


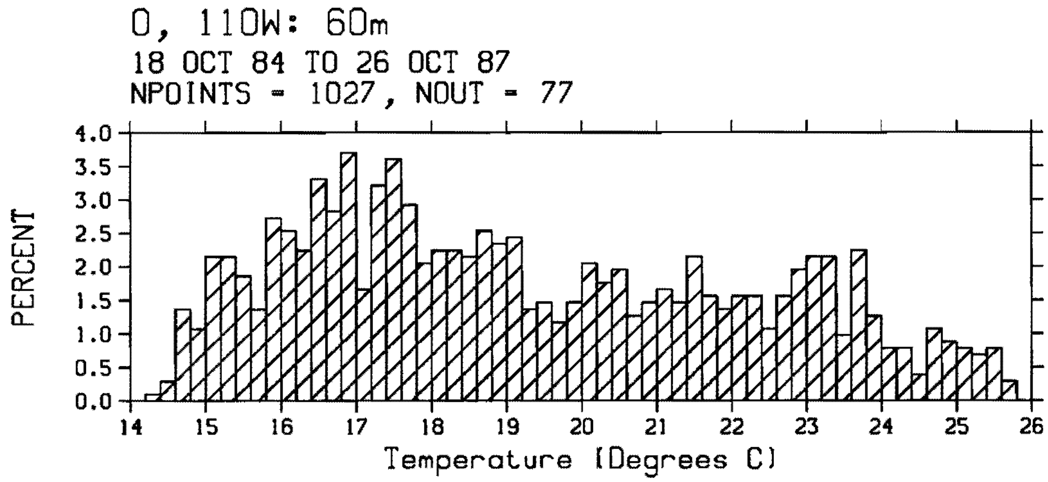
0, 110W: 10m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454, NOUT = 0

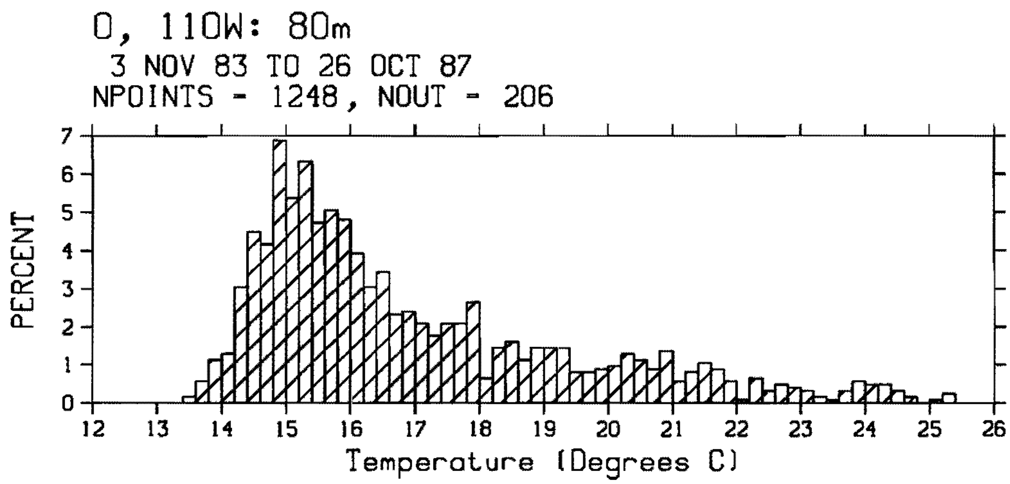


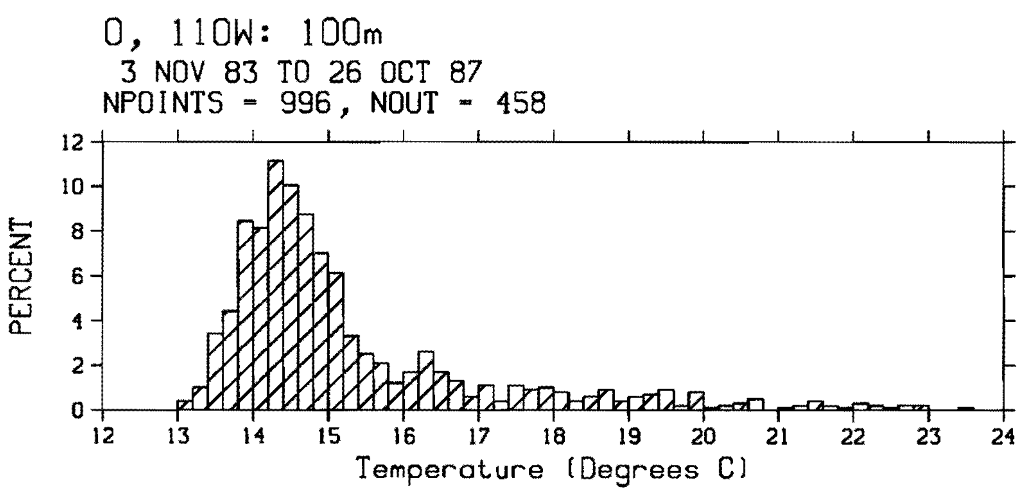

0, 110W: 25m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454, NOUT = 0
PERCENT
Temperature (Degrees C)

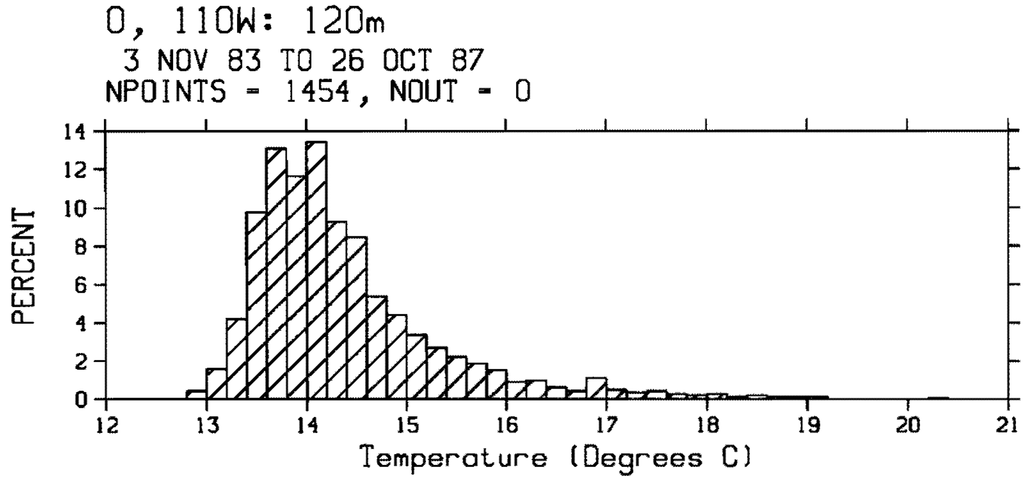

0, 110W: 35m
18 OCT 84 TO 7 MAY 85
NPOINTS = 202, NOUT = 0
PERCENT
Temperature (Degrees C)

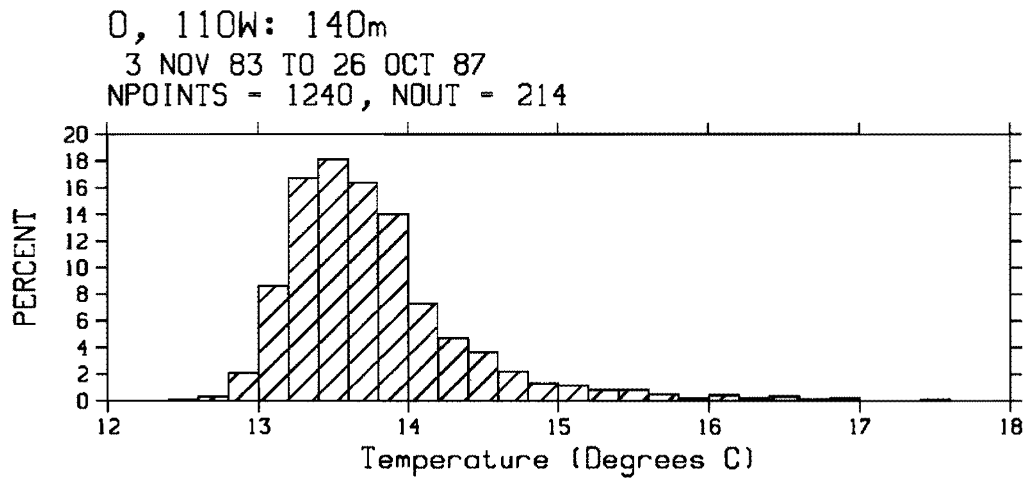

0, 110W: 45m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454, NOUT = 0
PERCENT
Temperature (Degrees C)

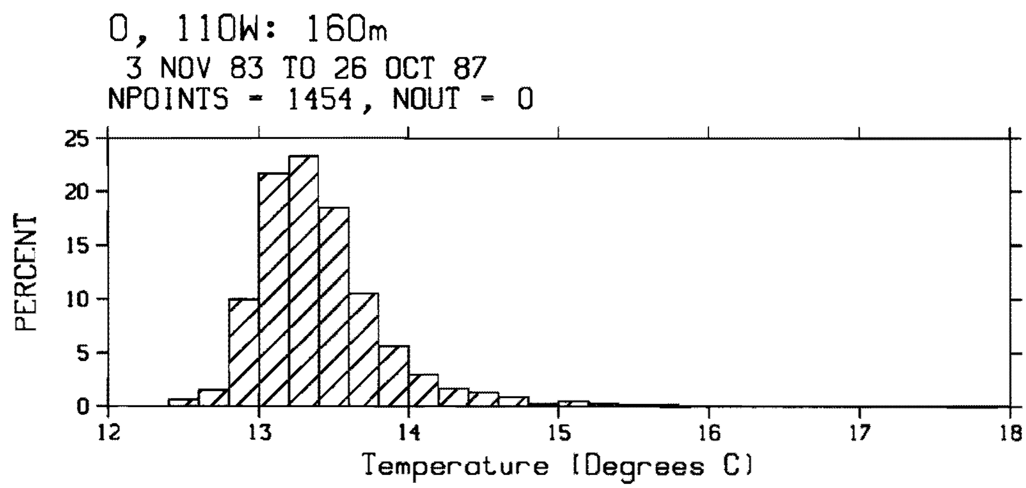

0, 110W: 60m
18 OCT 84 TO 26 OCT 87
NPOINTS = 1027, NOUT = 77
PERCENT
Temperature (Degrees C)


0, 110W: 80m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1248, NOUT = 206
PERCENT
Temperature (Degrees C)

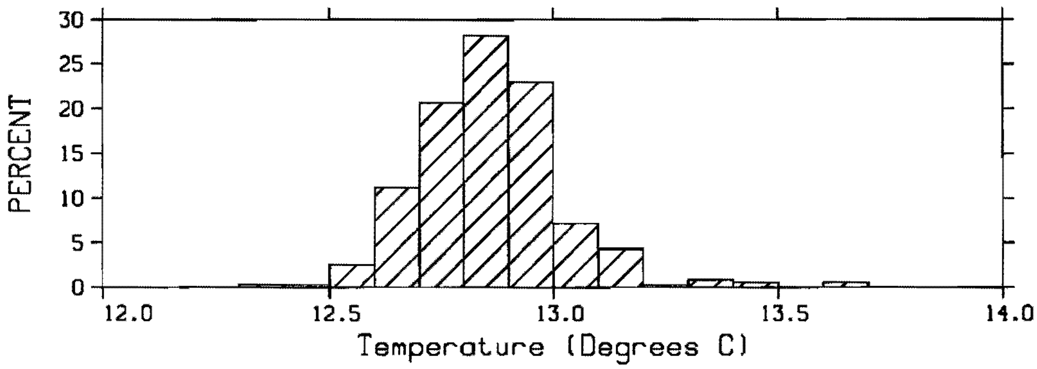

0, 110W: 100m
3 NOV 83 TO 26 OCT 87
NPOINTS = 996, NOUT = 458
PERCENT
Temperature (Degrees C)


0, 110W: 120m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454 , NOUT = 0
PERCENT
Temperature (Degrees C)

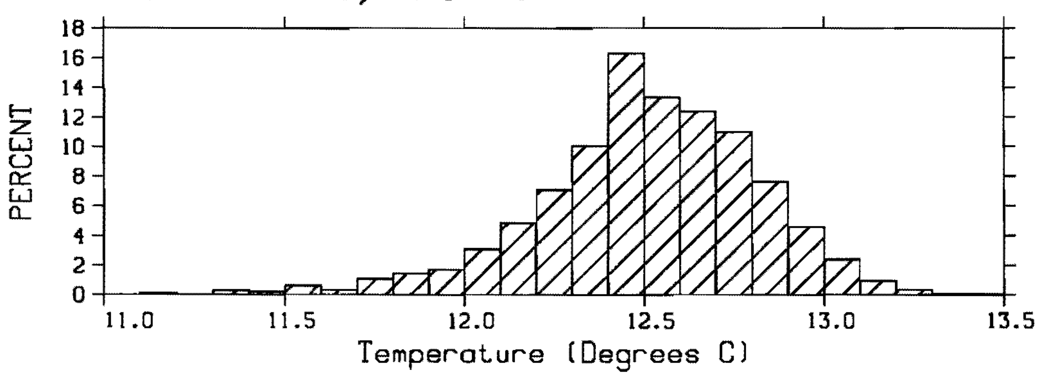

0, 110W: 140m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1240 , NOUT = 214
PERCENT
Temperature (Degrees C)


0, 110W: 160m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454 , NOUT = 0
PERCENT
Temperature (Degrees C)

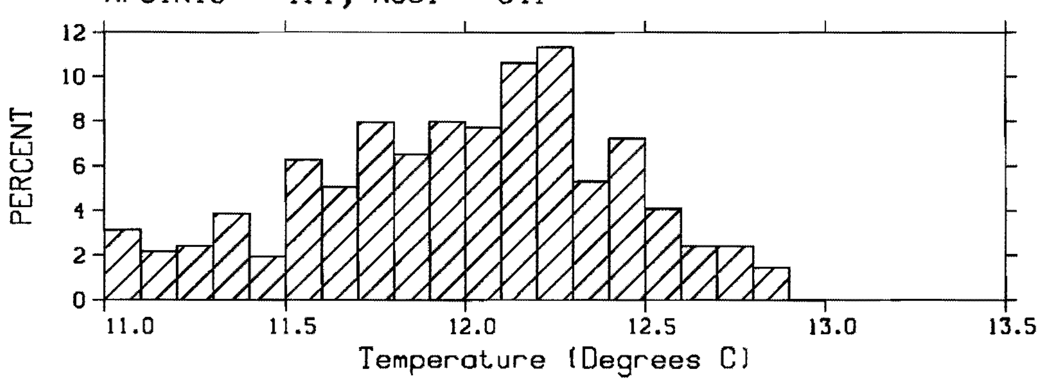
0, 110W: 200m
3 NOV 83 TO 15 OCT 84
NPOINTS = 348, NOUT = 0



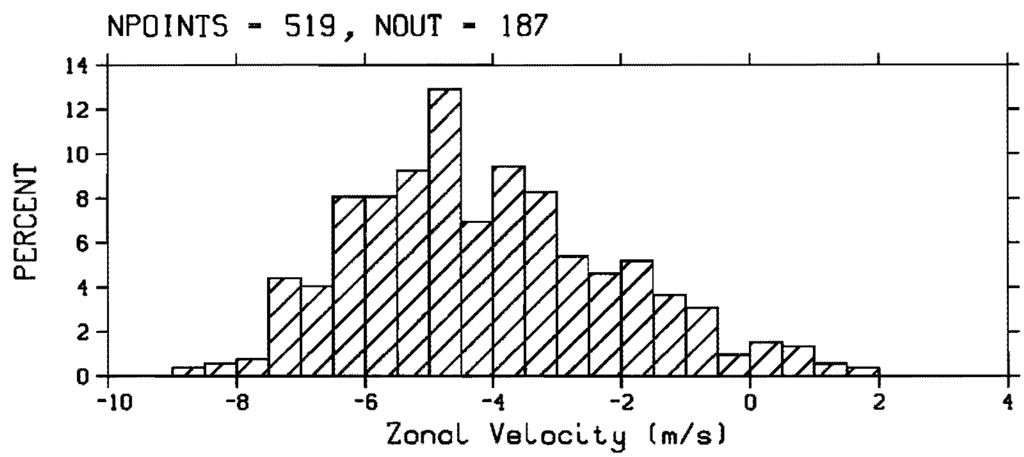
0, 110W: 250m
3 NOV 83 TO 26 OCT 87
NPOINTS = 1454, NOUT = 0

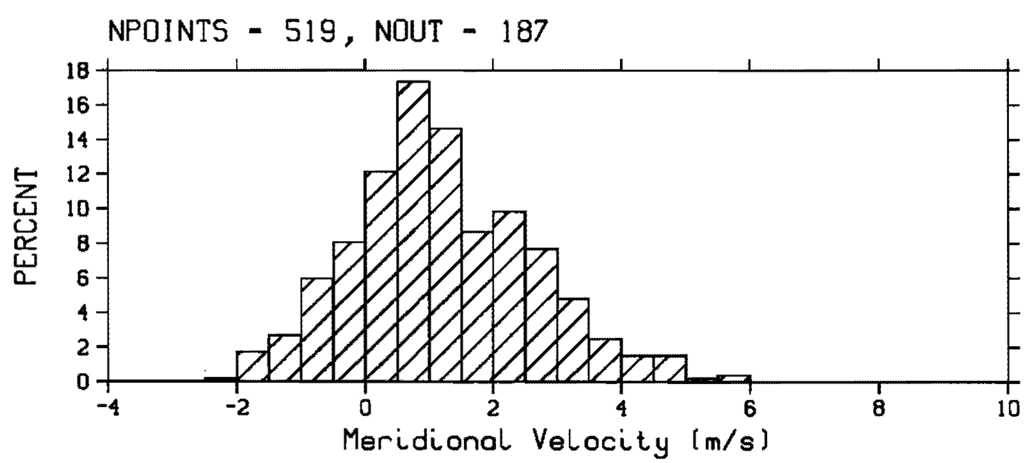


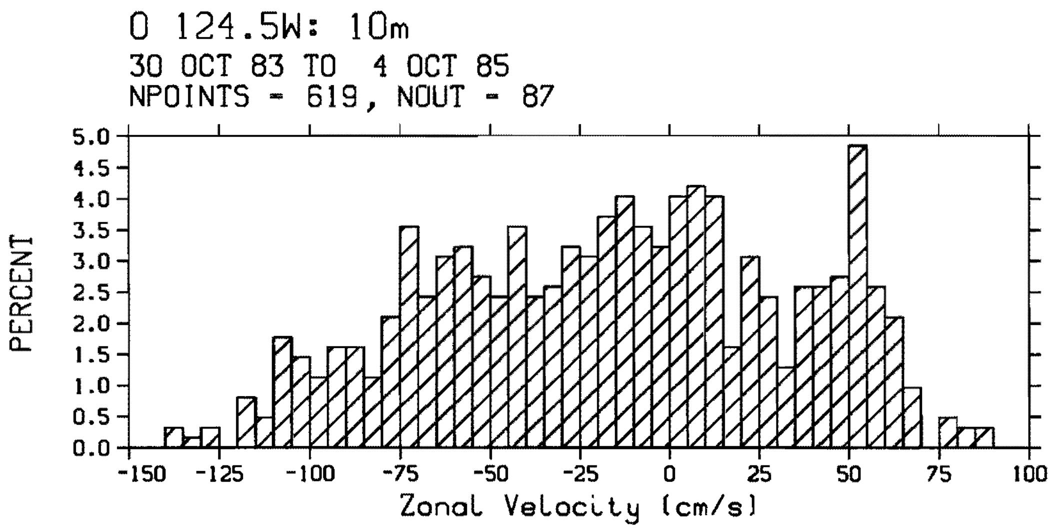
0, 110W: 300m
2 OCT 85 TO 26 OCT 87
NPOINTS = 414, NOUT = 341

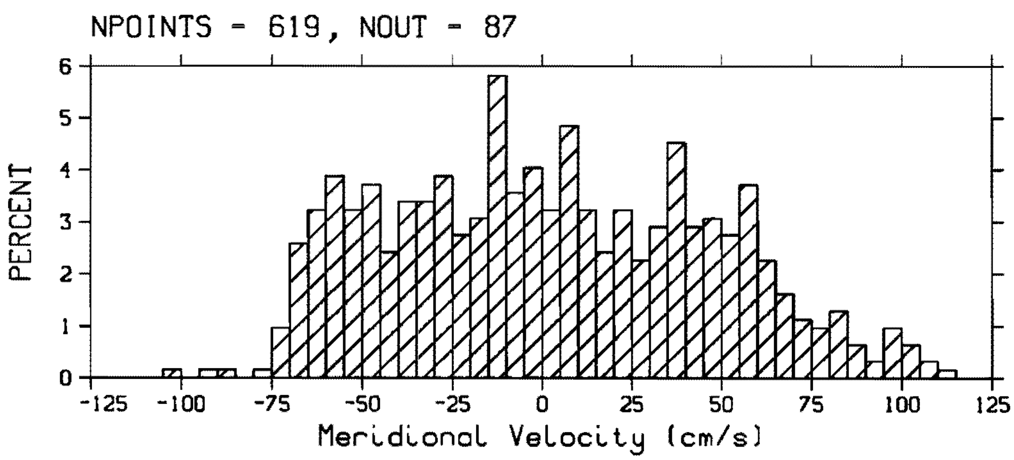


0 124.5W: -4m
30 OCT 83 TO 4 OCT 85





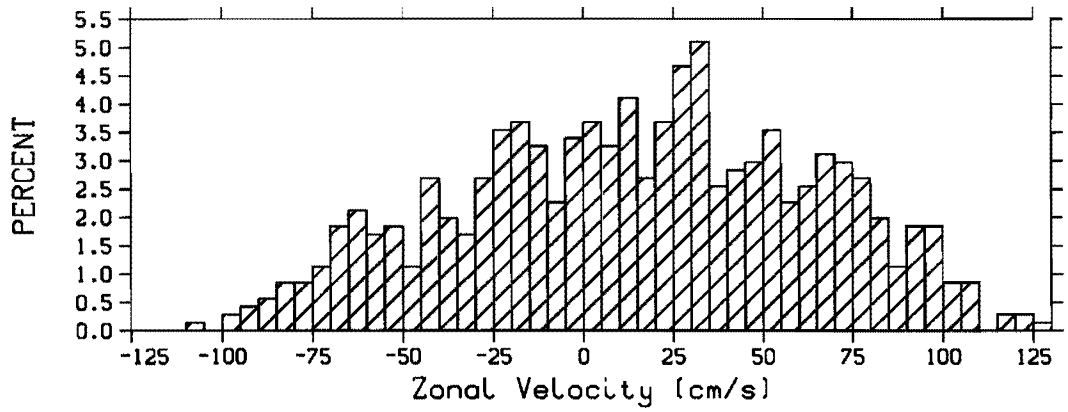

0 124.5W: 10m
30 OCT 83 TO 4 OCT 85
NPOINTS = 619, NOUT = 87
PERCENT
Zonal Velocity (cm/s)


NPOINTS = 619, NOUT = 87
PERCENT
Meridional Velocity (cm/s)

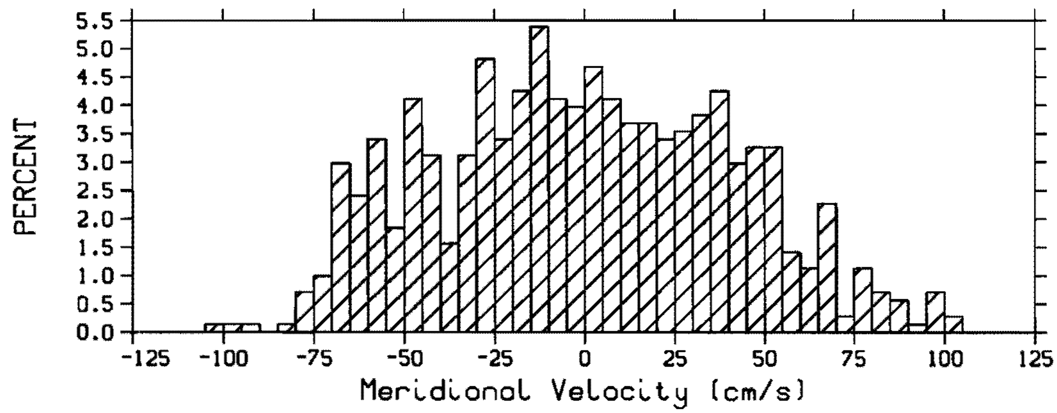
0 124.5W: 25m

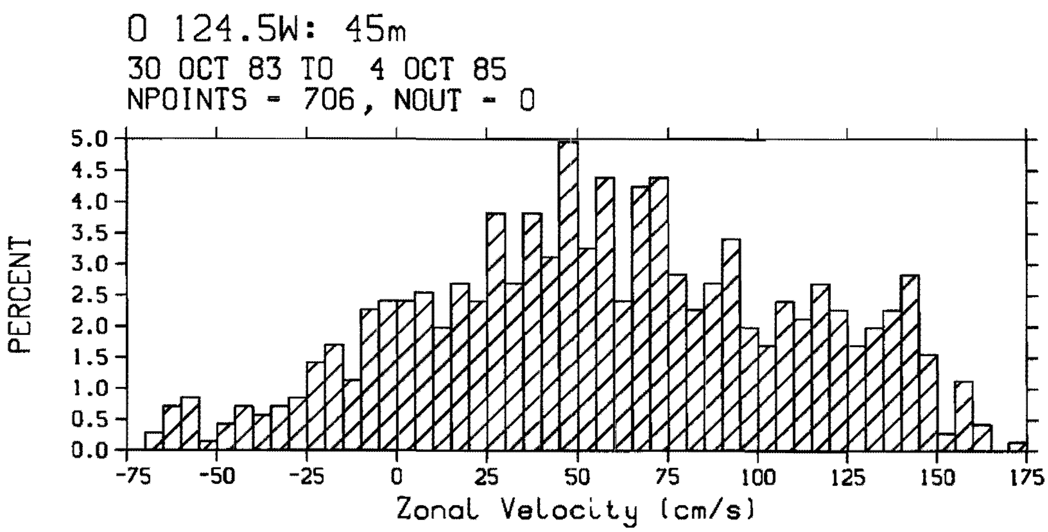
30 OCT 83 TO 4 OCT 85

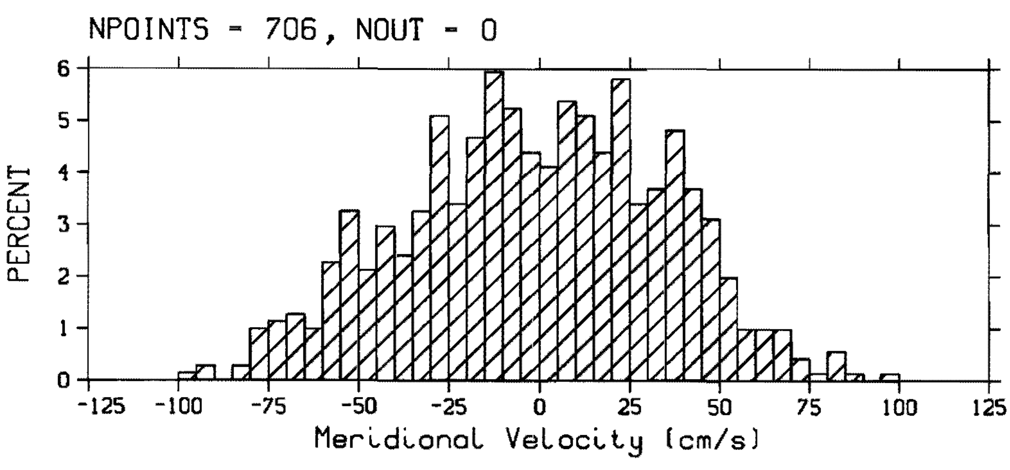
NPOINTS - 706, NOUT - 0

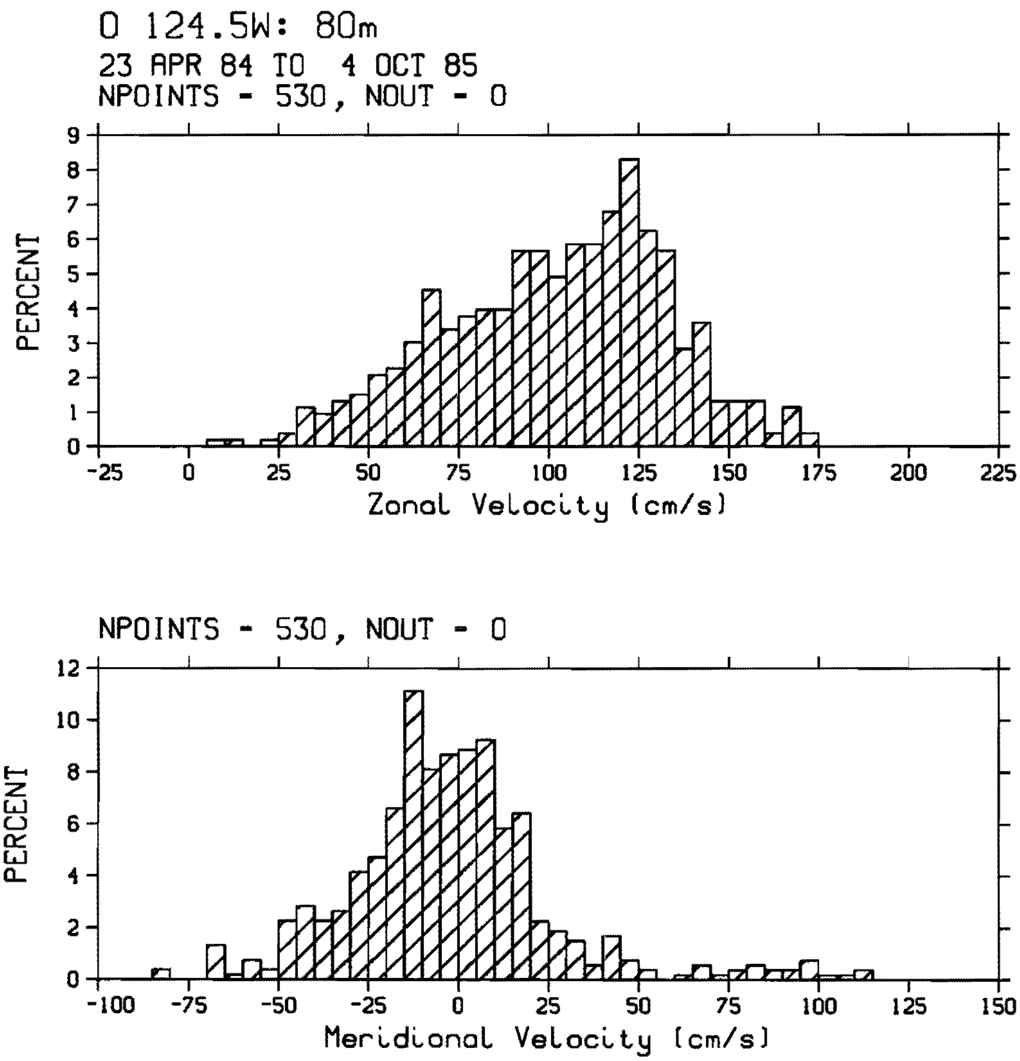


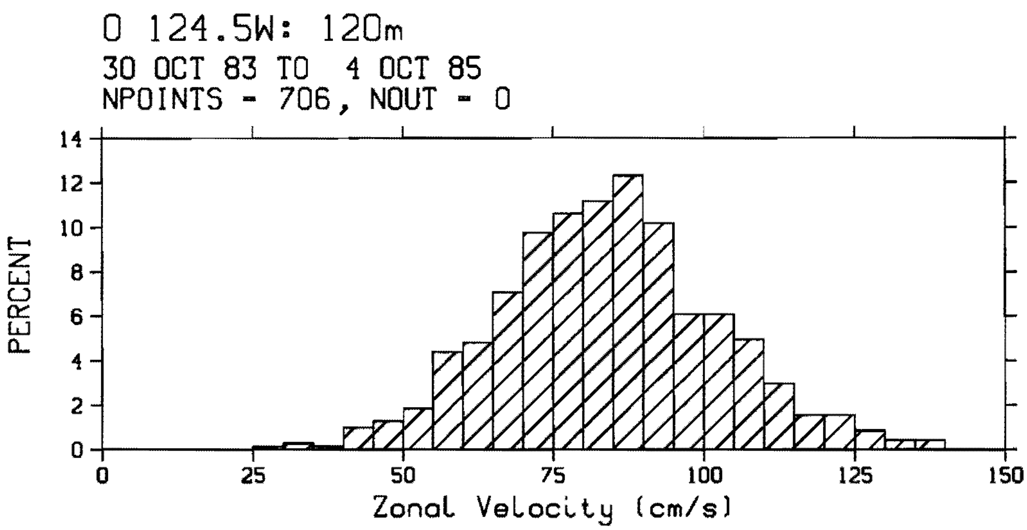
NPOINTS - 706, NOUT - 0

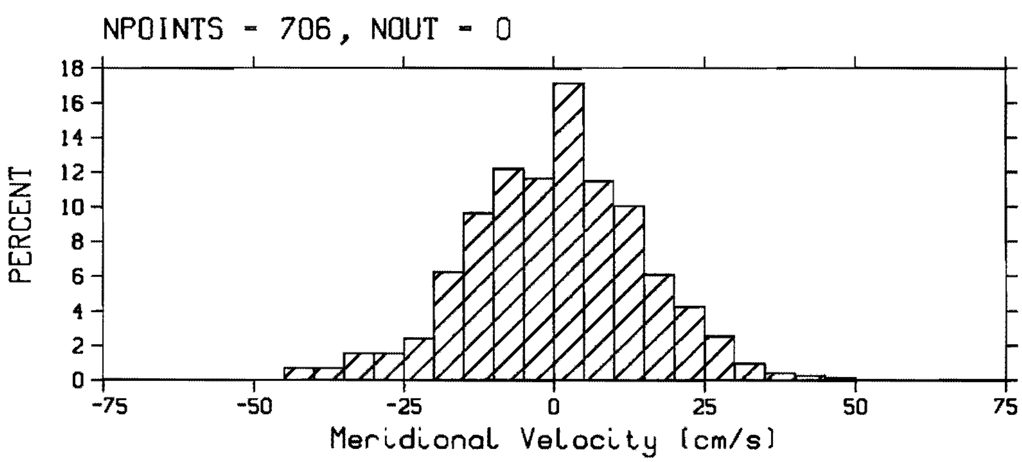


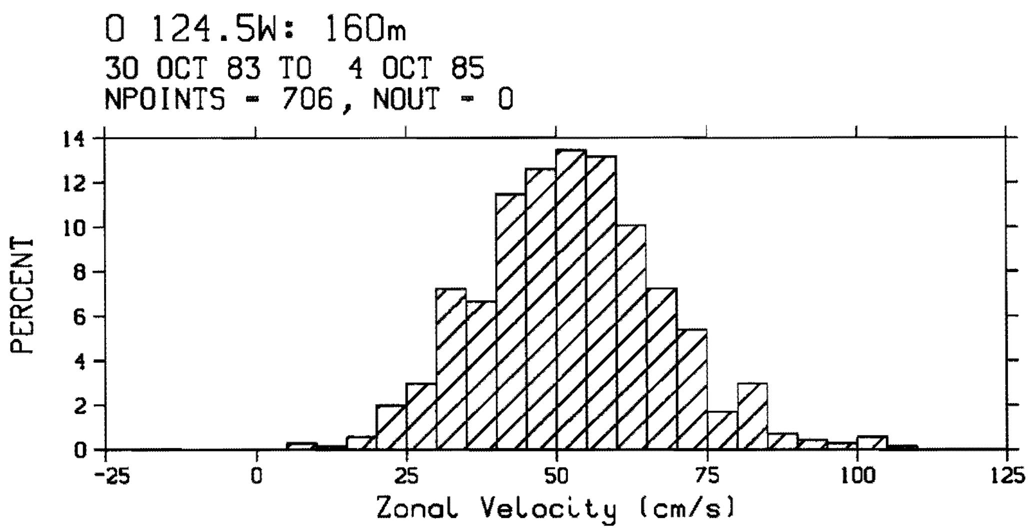

0 124.5W: 45m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-75
-50
-25
0
25
50
75
100
125
150
175
Zonal Velocity (cm/s)


NPOINTS = 706, NOUT = 0
PERCENT
6
5
4
3
2
1
0
-125
-100
-75
-50
-25
0
25
50
75
100
125
Meridional Velocity (cm/s)

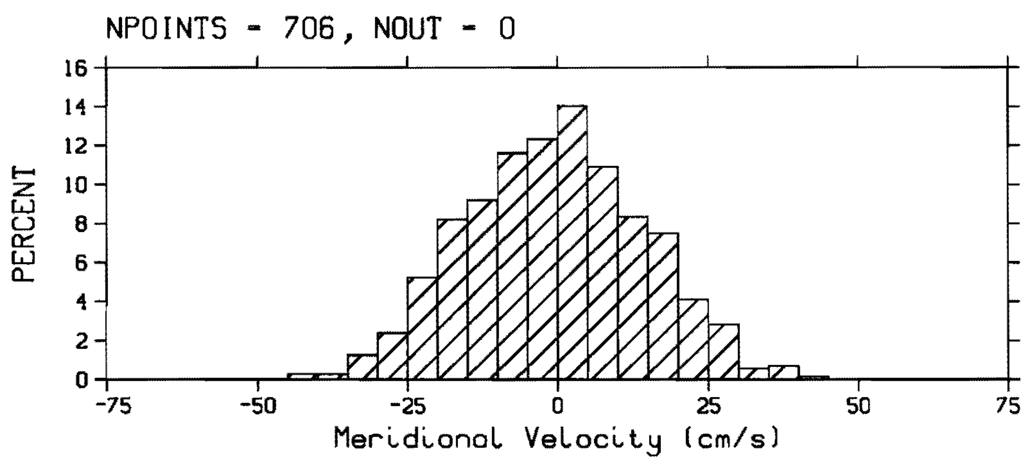

0 124.5W: 80m
23 APR 84 TO 4 OCT 85
NPOINTS - 530, NOUT - 0
PERCENT
0
1
2
3
4
5
6
7
8
9
-25
0
25
50
75
100
125
150
175
200
225
Zonal Velocity (cm/s)
NPOINTS - 530, NOUT - 0
PERCENT
0
2
4
6
8
10
12
-100
-75
-50
-25
0
25
50
75
100
125
150
Meridional Velocity (cm/s)


0 124.5W: 120m
30 OCT 83 TO 4 OCT 85
NPOINTS - 706, NOUT - 0
PERCENT
14
12
10
8
6
4
2
0
0
25
50
75
100
125
150
Zonal Velocity (cm/s)


NPOINTS - 706, NOUT - 0
PERCENT
18
16
14
12
10
8
6
4
2
0
-75
-50
-25
0
25
50
75
Meridional Velocity (cm/s)



0 124.5W: 160m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
14
12
10
8
6
4
2
0
-25
0
25
50
75
100
125
Zonal Velocity (cm/s)

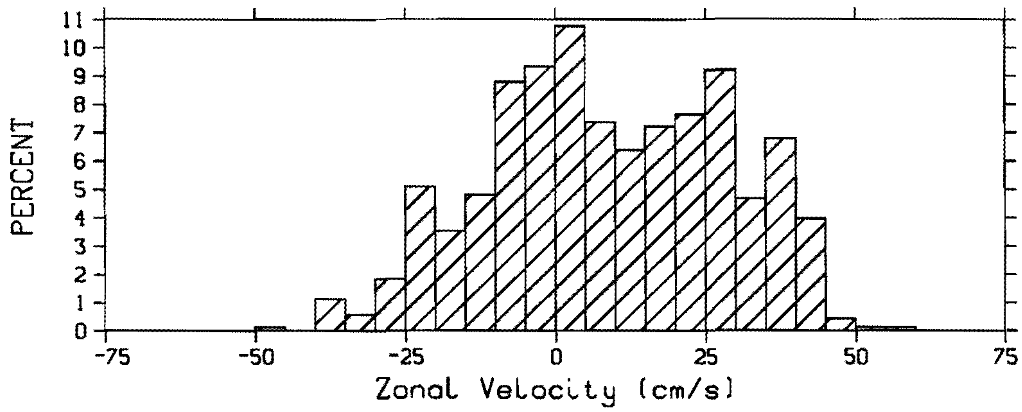


NPOINTS = 706, NOUT = 0
PERCENT
16
14
12
10
8
6
4
2
0
-75
-50
-25
0
25
50
75
Meridional Velocity (cm/s)

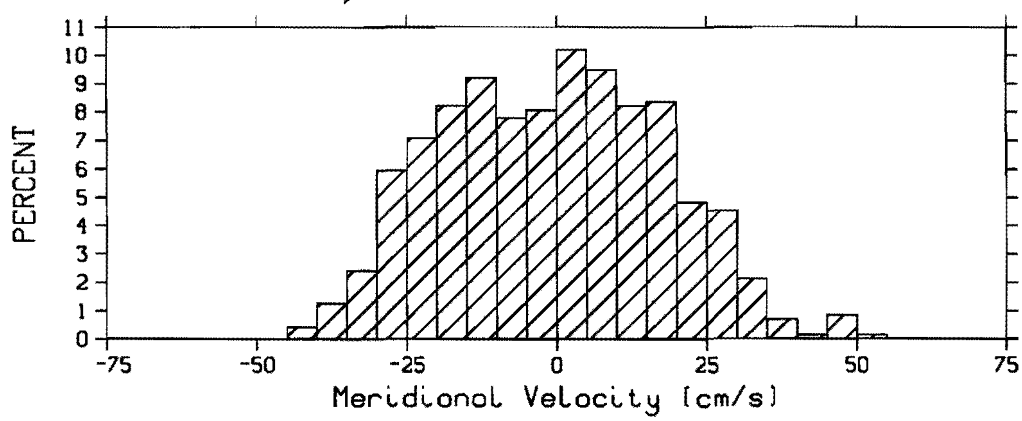
0 124.5W: 250m

30 OCT 83 TO 4 OCT 85

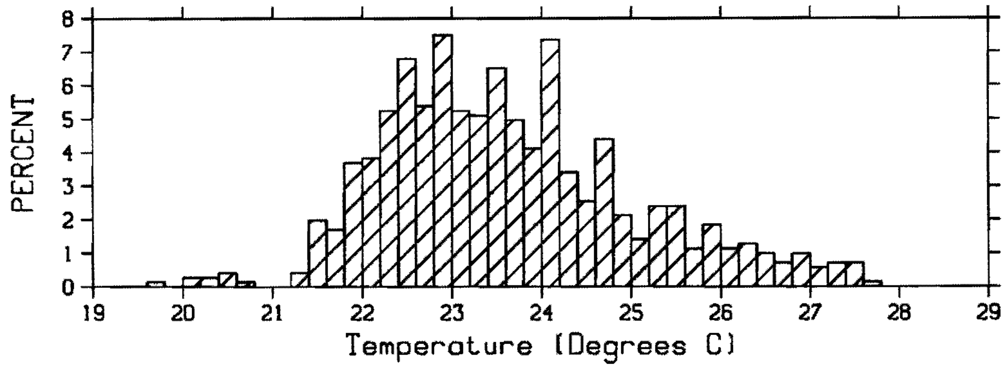
NPOINTS = 706, NOUT = 0



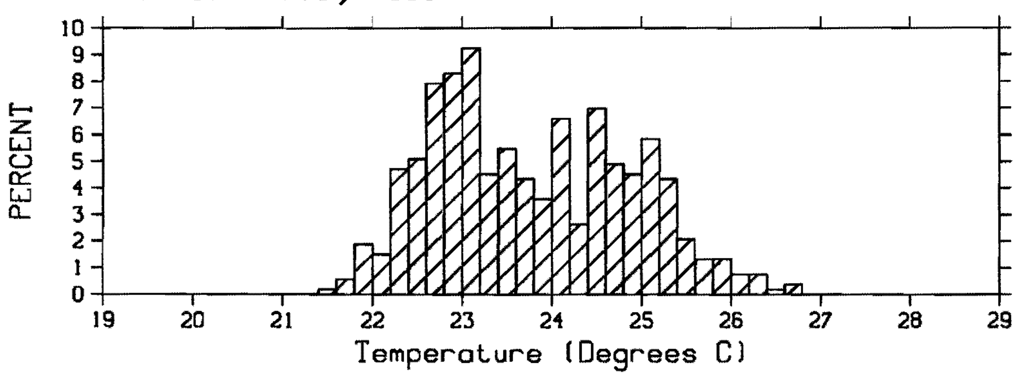
NPOINTS = 706, NOUT = 0



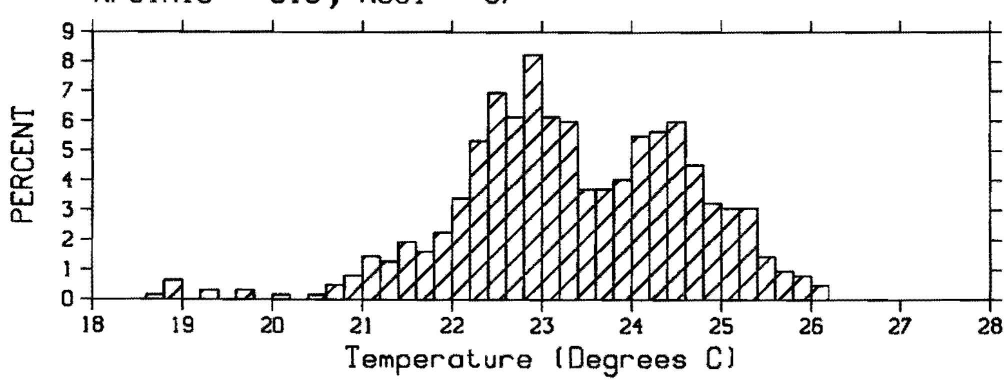
0 124.5W: -3m
30 OCT 83 TO 4 OCT 85
NPOINTS - 706, NOUT - 0

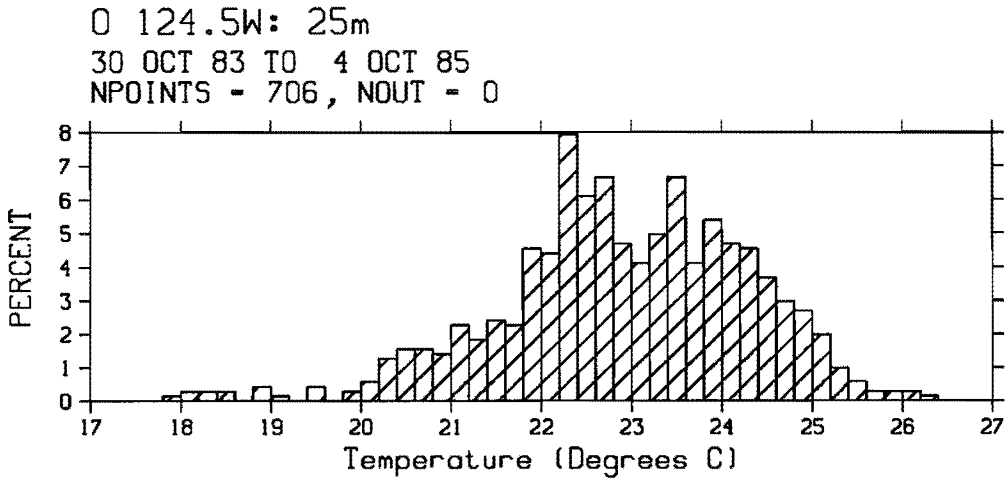


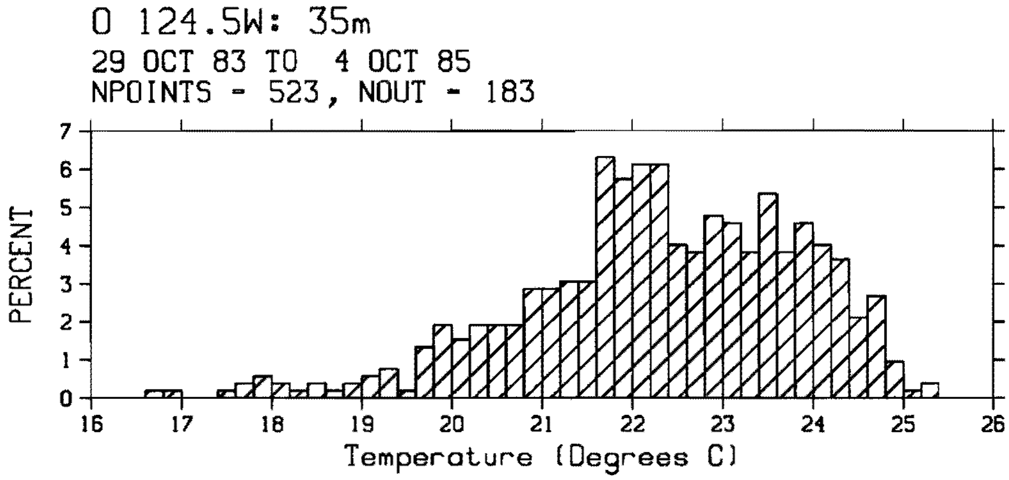
0 124.5W: 1m
23 APR 84 TO 4 OCT 85
NPOINTS - 530, NOUT - 0

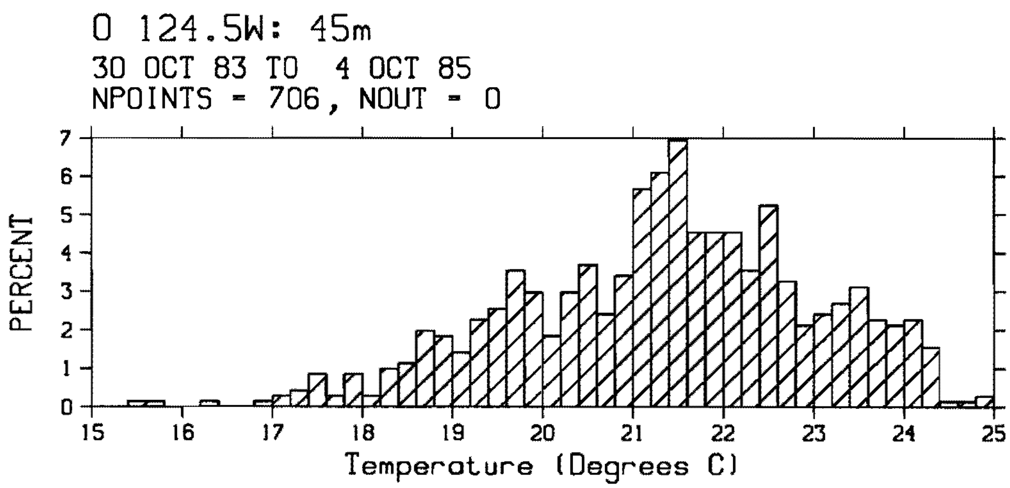


0 124.5W: 10m
30 OCT 83 TO 4 OCT 85
NPOINTS - 619, NOUT - 87

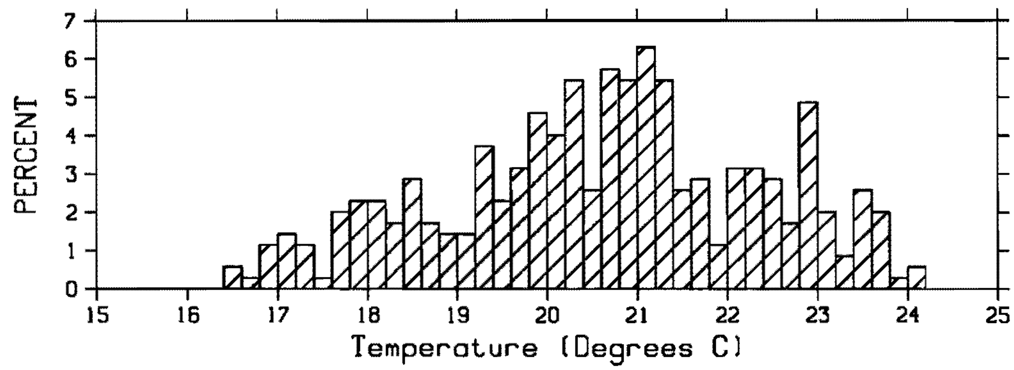



0 124.5W: 25m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
0
1
2
3
4
5
6
7
8
17
18
19
20
21
22
23
24
25
26
27
Temperature (Degrees C)

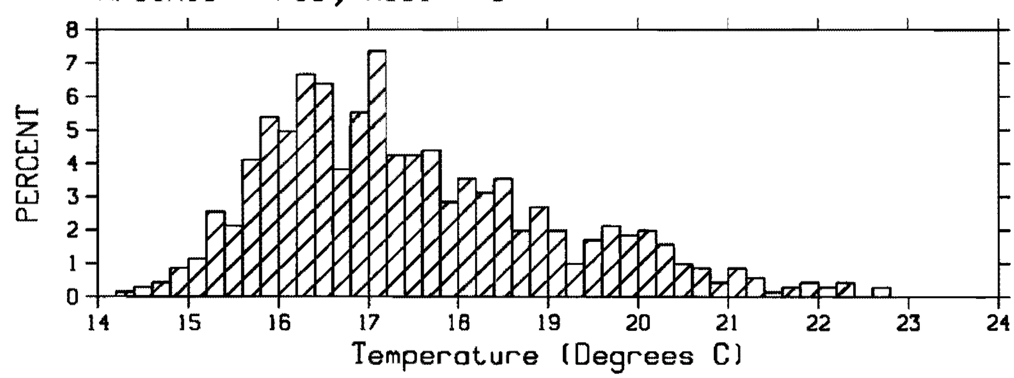

0 124.5W: 35m
29 OCT 83 TO 4 OCT 85
NPOINTS = 523, NOUT = 183
PERCENT
0
1
2
3
4
5
6
7
16
17
18
19
20
21
22
23
24
25
26
Temperature (Degrees C)


0 124.5W: 45m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
0
1
2
3
4
5
6
7
15
16
17
18
19
20
21
22
23
24
25
Temperature (Degrees C)

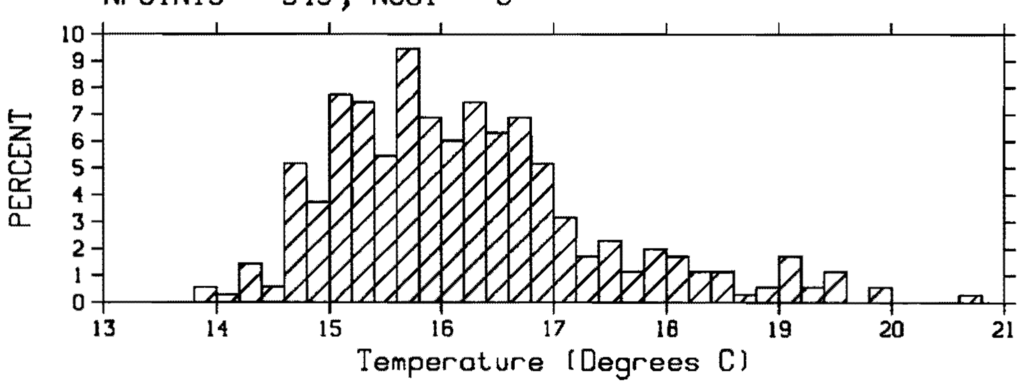
0 124.5W: 60m
21 OCT 84 TO 4 OCT 85
NPOINTS = 349, NOUT = 0

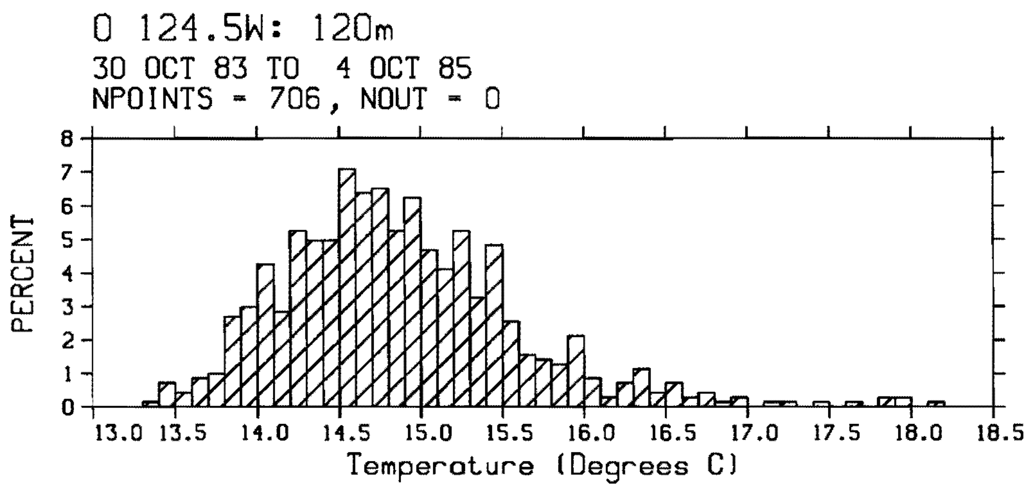


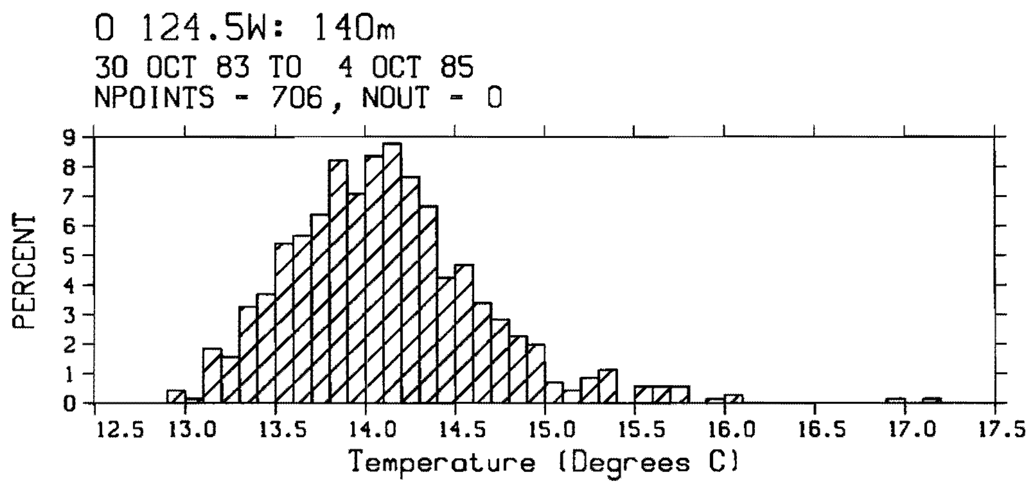
0 124.5W: 80m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0

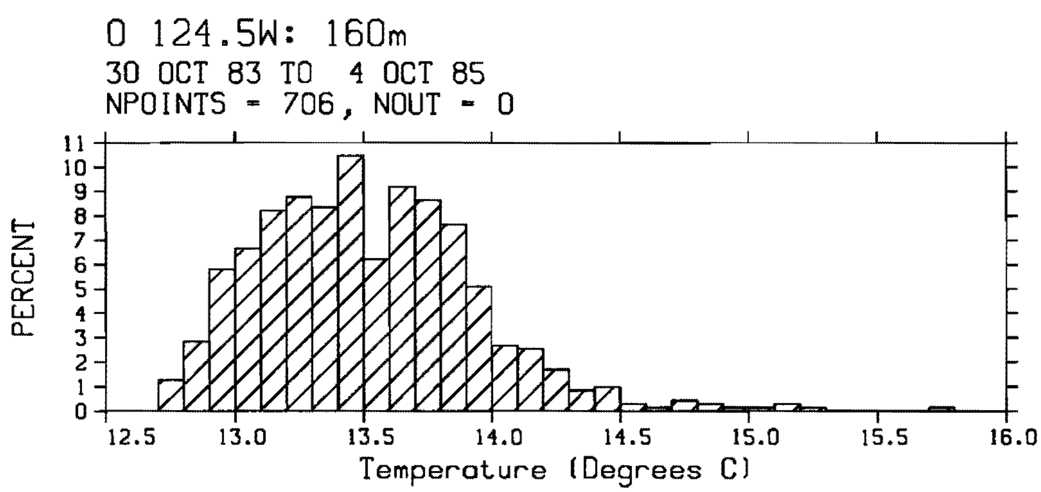


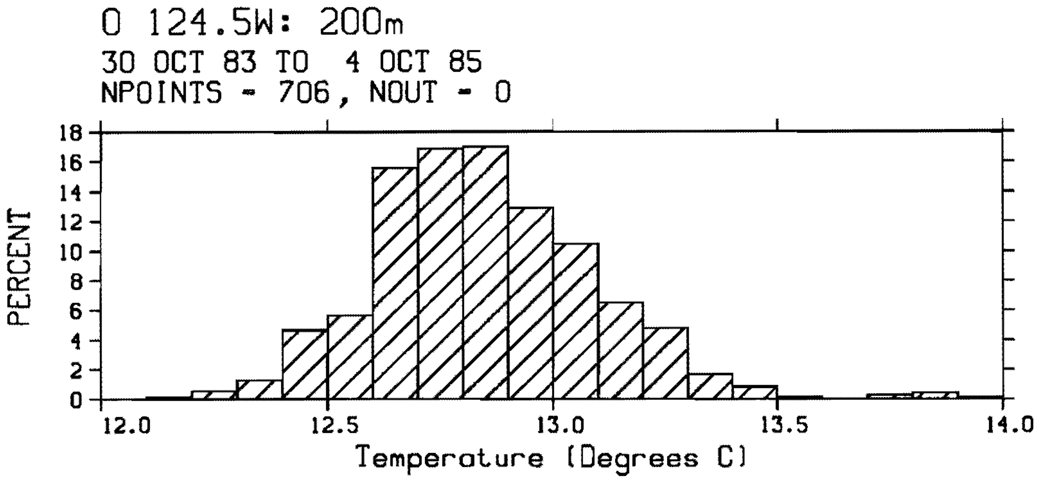
0 124.5W: 100m
21 OCT 84 TO 4 OCT 85
NPOINTS = 349, NOUT = 0

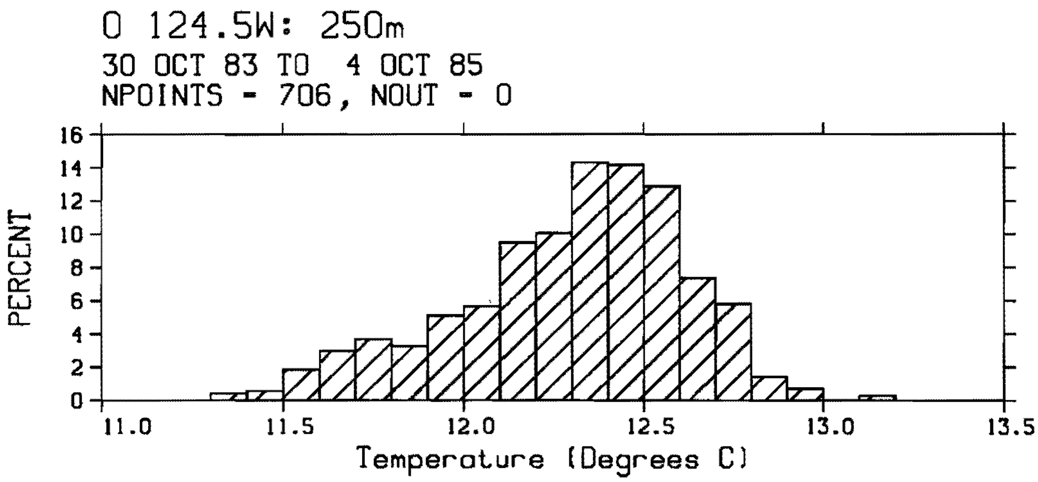


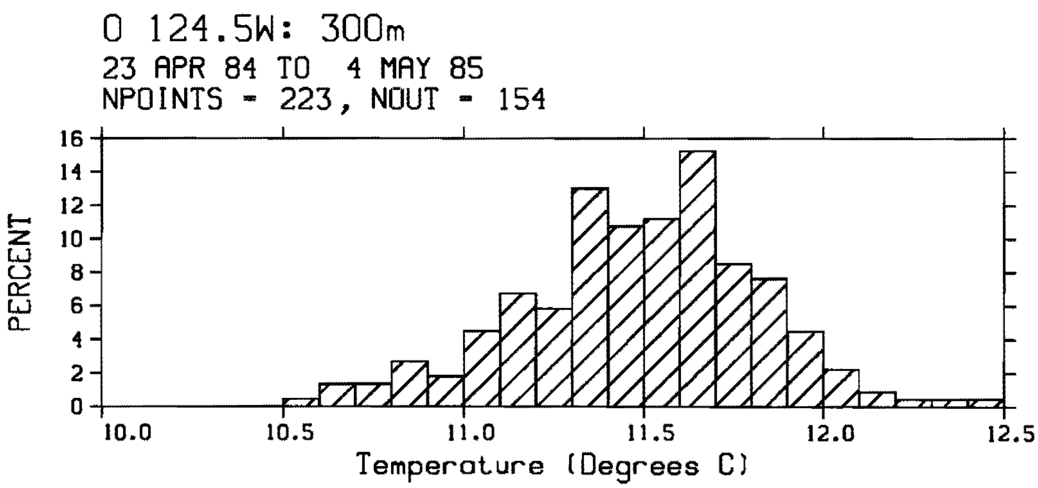

0 124.5W: 120m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
0
1
2
3
4
5
6
7
8
13.0
13.5
14.0
14.5
15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
Temperature (Degrees C)


0 124.5W: 140m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
0
1
2
3
4
5
6
7
8
9
12.5
13.0
13.5
14.0
14.5
15.0
15.5
16.0
16.5
17.0
17.5
Temperature (Degrees C)

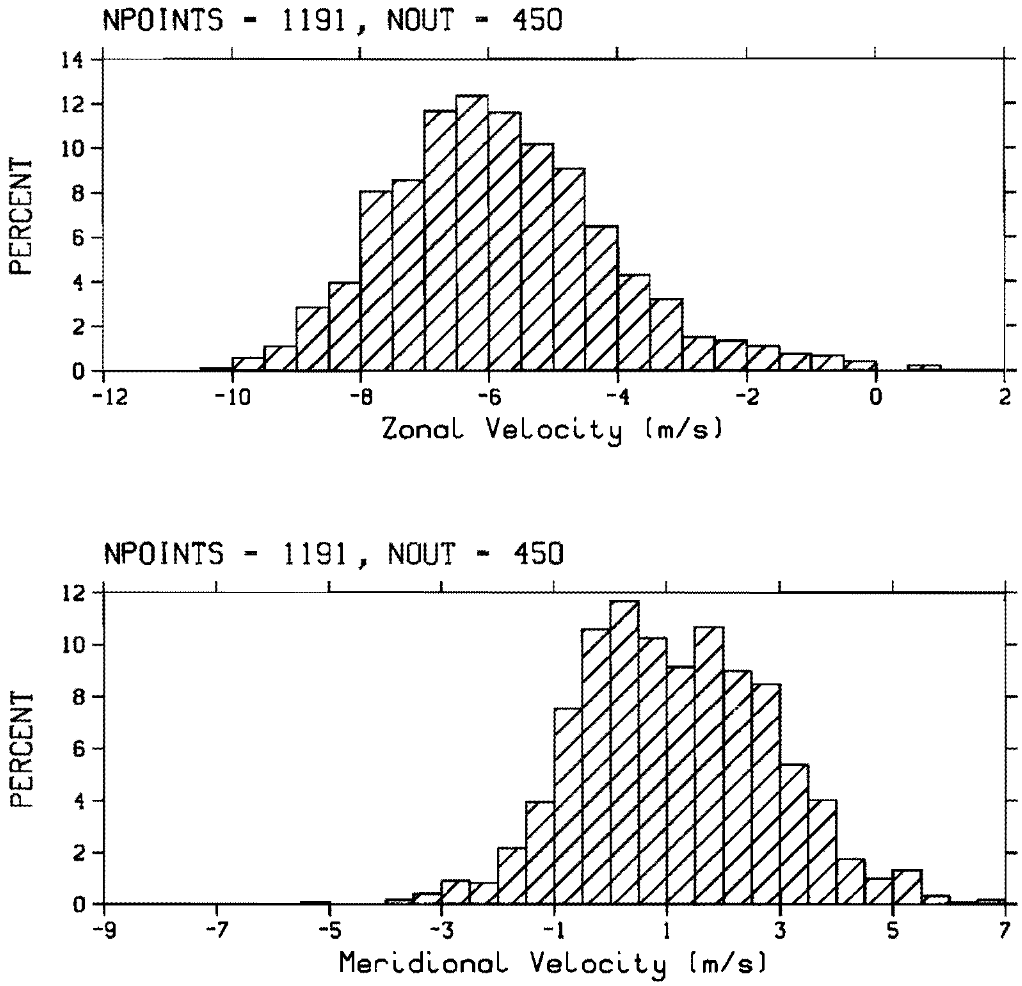

0 124.5W: 160m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
0
1
2
3
4
5
6
7
8
9
10
11
12.5
13.0
13.5
14.0
14.5
15.0
15.5
16.0
Temperature (Degrees C)

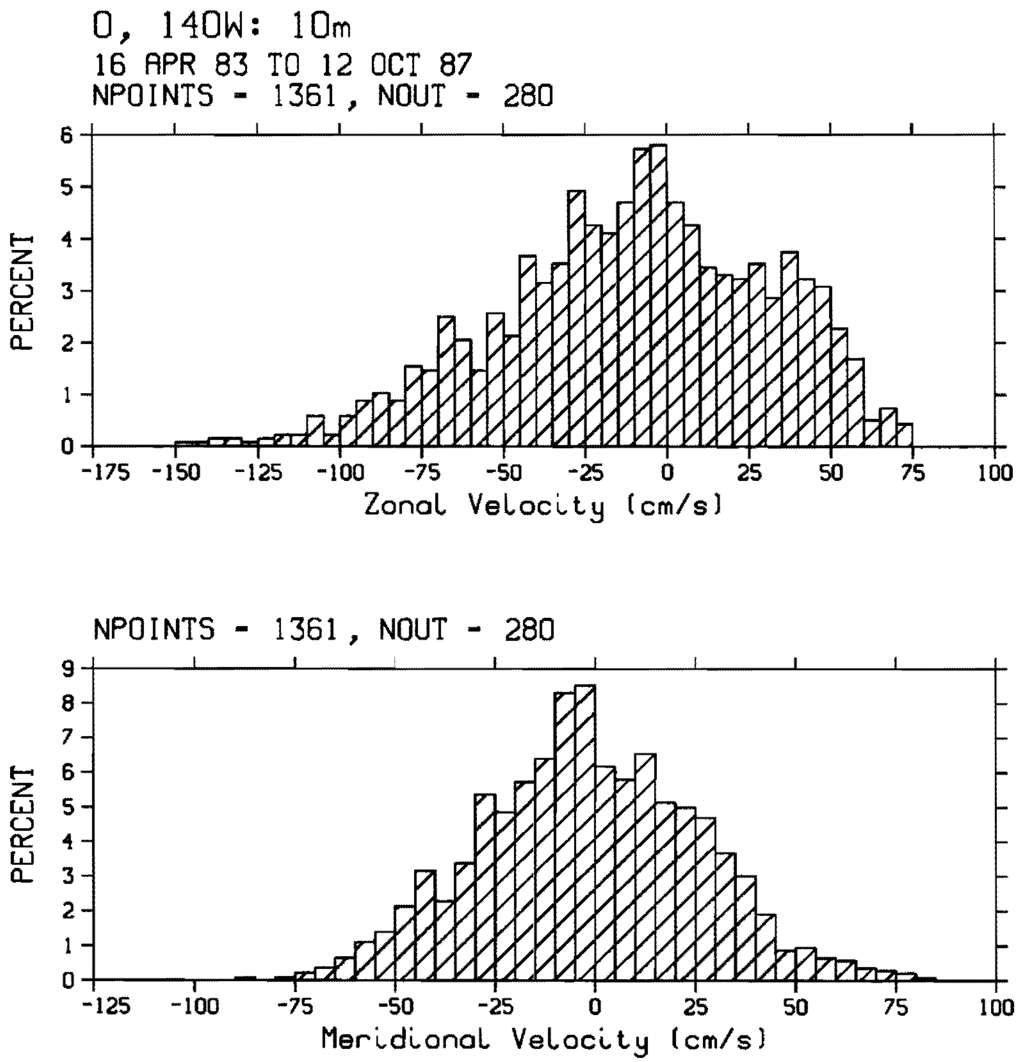

0 124.5W: 200m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
Temperature (Degrees C)


0 124.5W: 250m
30 OCT 83 TO 4 OCT 85
NPOINTS = 706, NOUT = 0
PERCENT
Temperature (Degrees C)

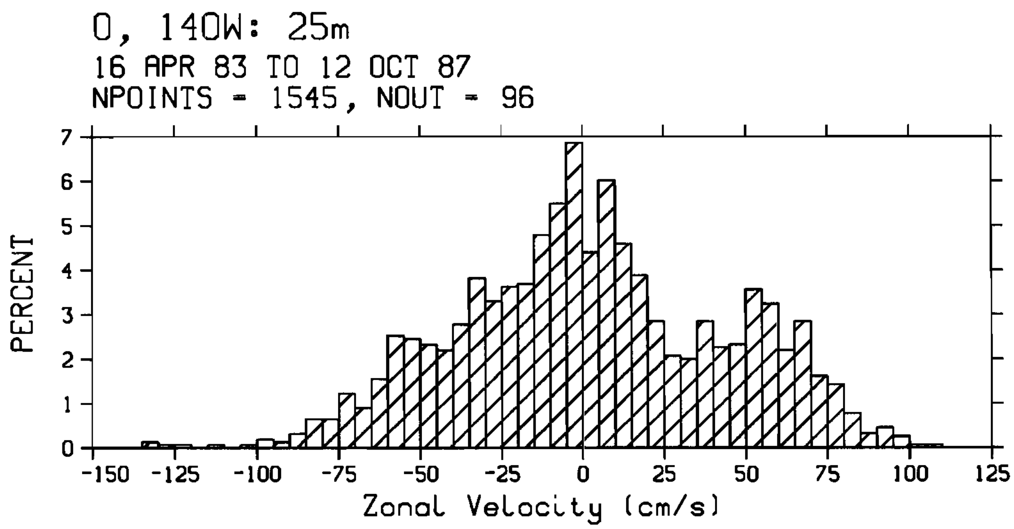

0 124.5W: 300m
23 APR 84 TO 4 MAY 85
NPOINTS = 223, NOUT = 154
PERCENT
Temperature (Degrees C)

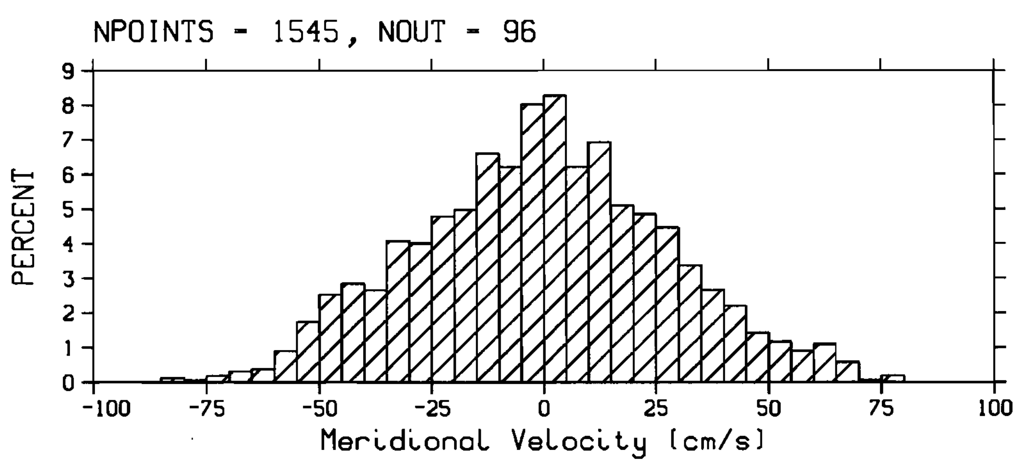
0, 140W: -4m
16 APR 83 TO 12 OCT 87

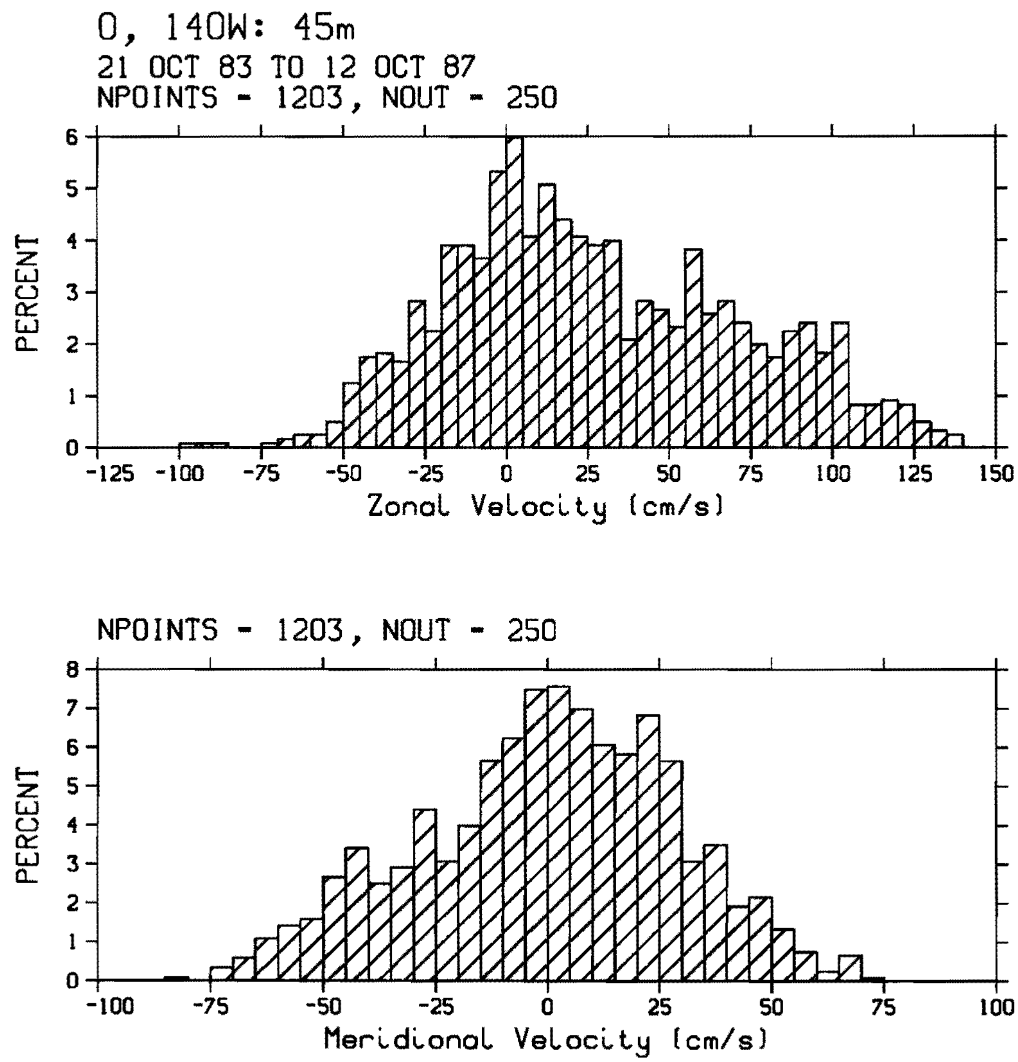


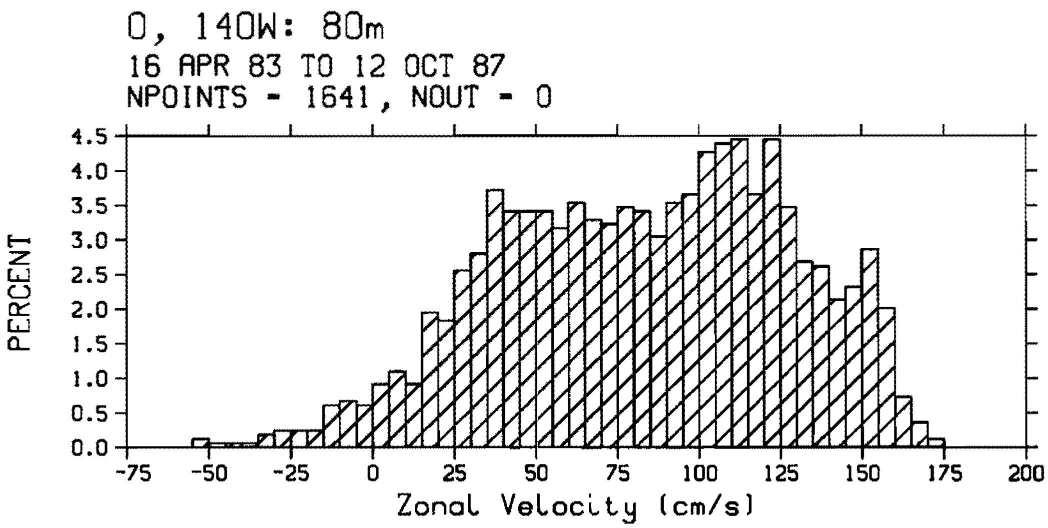


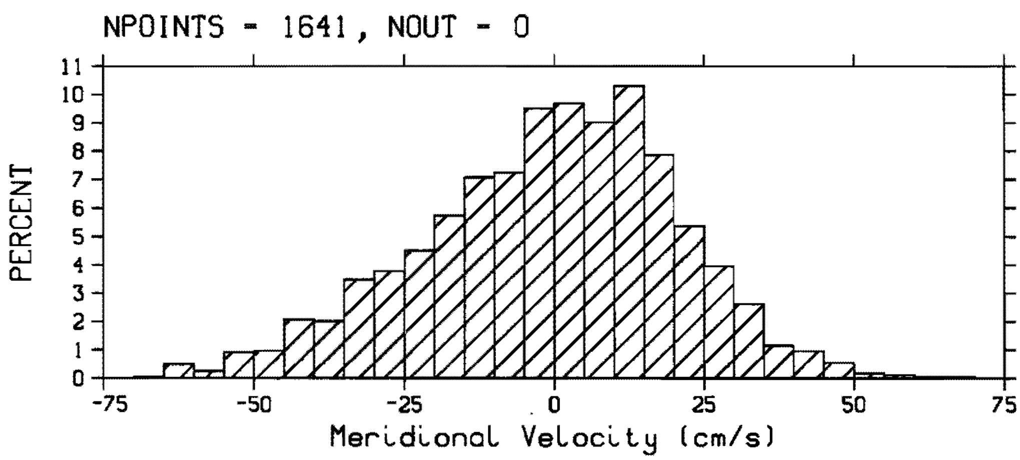
0, 140W: 10m
16 APR 83 TO 12 OCT 87
NPOINTS - 1361 , NOUT - 280
PERCENT
Zonal Velocity (cm/s)
NPOINTS - 1361 , NOUT - 280
PERCENT
Meridional Velocity (cm/s)

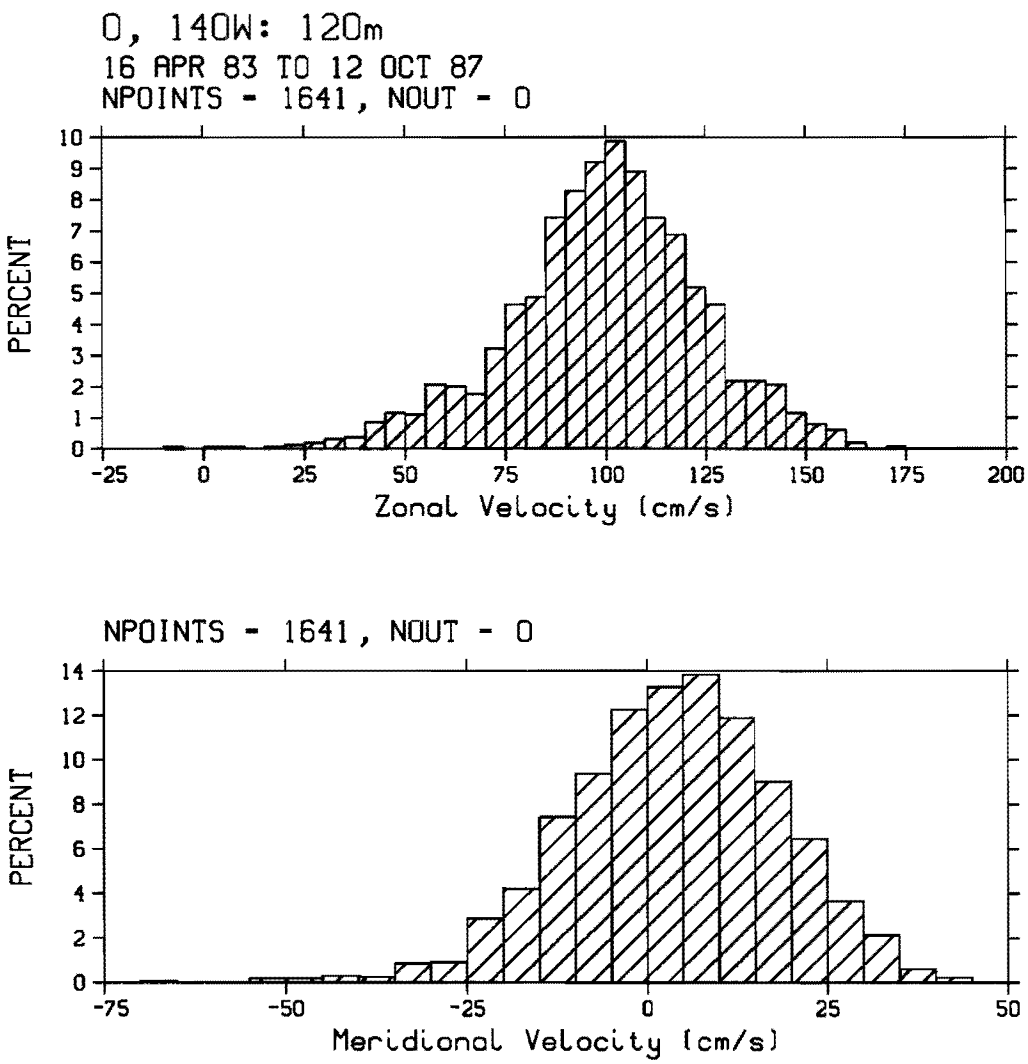

0, 140W: 25m
16 APR 83 TO 12 OCT 87
NPOINTS = 1545, NOUT = 96
PERCENT
0
1
2
3
4
5
6
7
-150
-125
-100
-75
-50
-25
0
25
50
75
100
125
Zonal Velocity (cm/s)


NPOINTS = 1545, NOUT = 96
PERCENT
0
1
2
3
4
5
6
7
8
9
-100
-75
-50
-25
0
25
50
75
100
Meridional Velocity (cm/s)

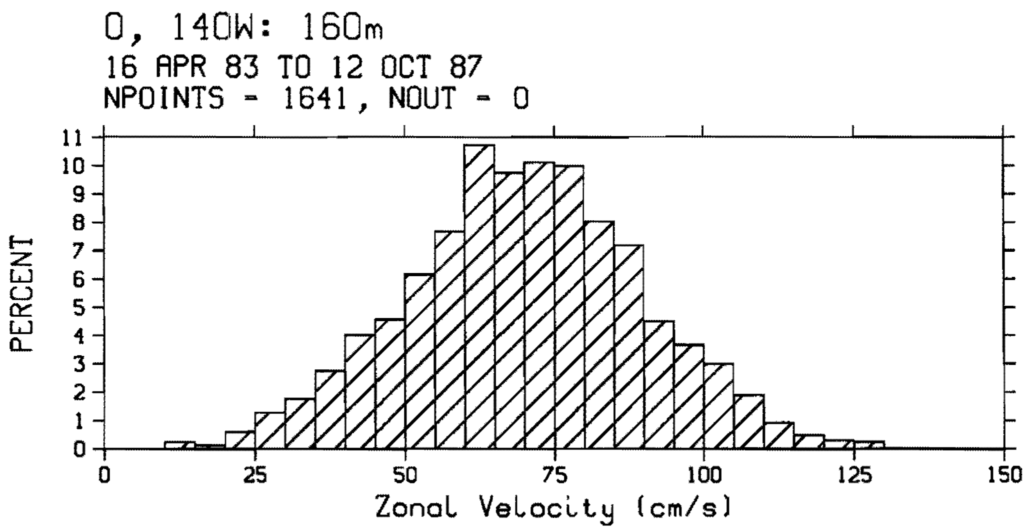

0, 140W: 45m
21 OCT 83 TO 12 OCT 87
NPOINTS - 1203, NOUT - 250
PERCENT
Zonal Velocity (cm/s)
NPOINTS - 1203, NOUT - 250
PERCENT
Meridional Velocity (cm/s)

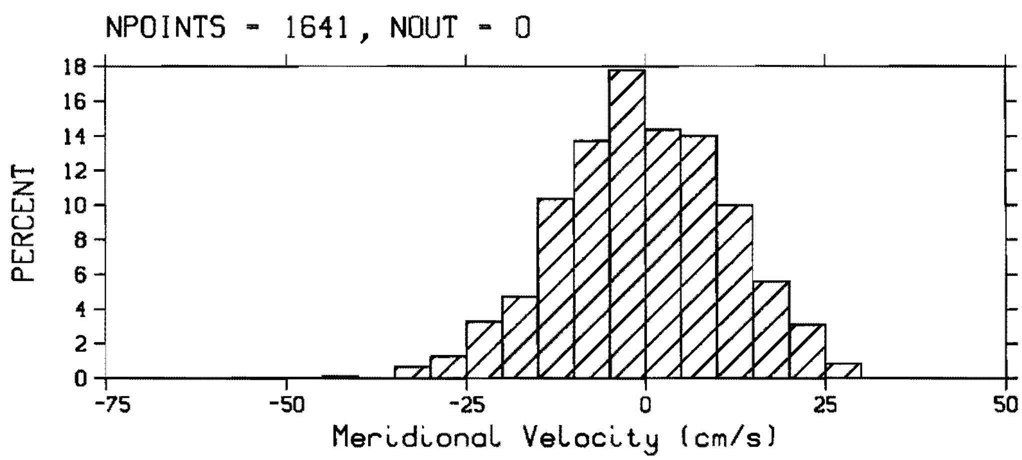

0, 140W: 80m
16 APR 83 TO 12 OCT 87
NPOINTS - 1641, NOUT - 0
PERCENT
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-75
-50
-25
0
25
50
75
100
125
150
175
200
Zonal Velocity (cm/s)

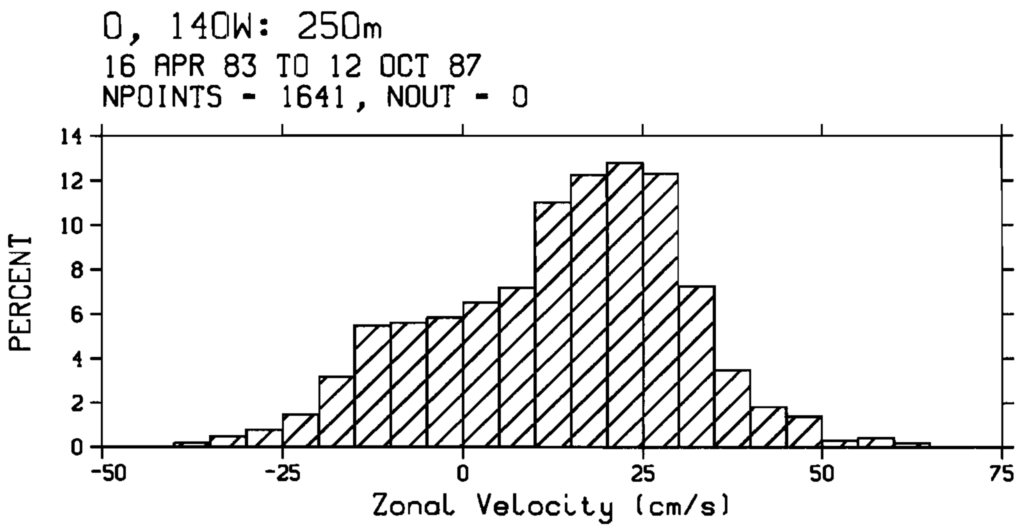

NPOINTS - 1641, NOUT - 0
PERCENT
11
10
9
8
7
6
5
4
3
2
1
0
-75
-50
-25
0
25
50
75
Meridional Velocity (cm/s)



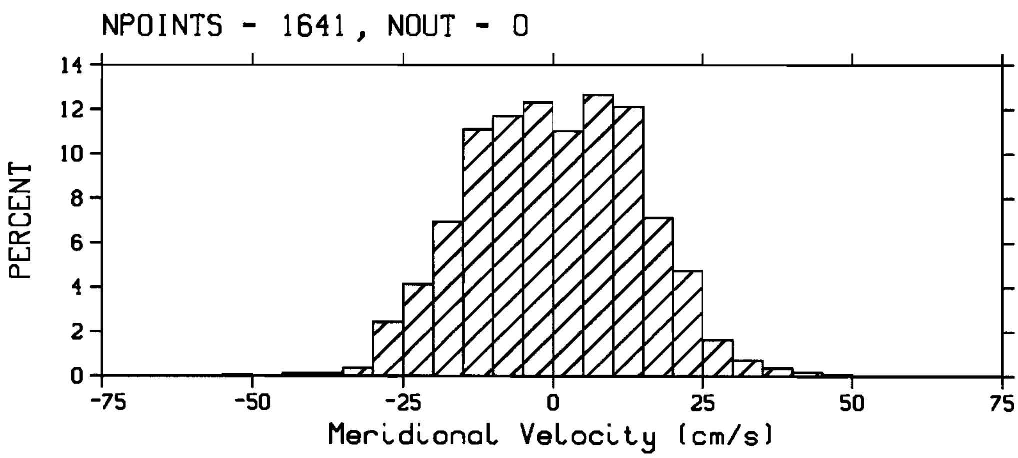
0, 140W: 120m
16 APR 83 TO 12 OCT 87
NPOINTS - 1641, NOUT - 0
PERCENT
Zonal Velocity (cm/s)
NPOINTS - 1641, NOUT - 0
PERCENT
Meridional Velocity (cm/s)


0, 140W: 160m
16 APR 83 TO 12 OCT 87
NPOINTS = 1641 , NOUT = 0
PERCENT
Zonal Velocity (cm/s)

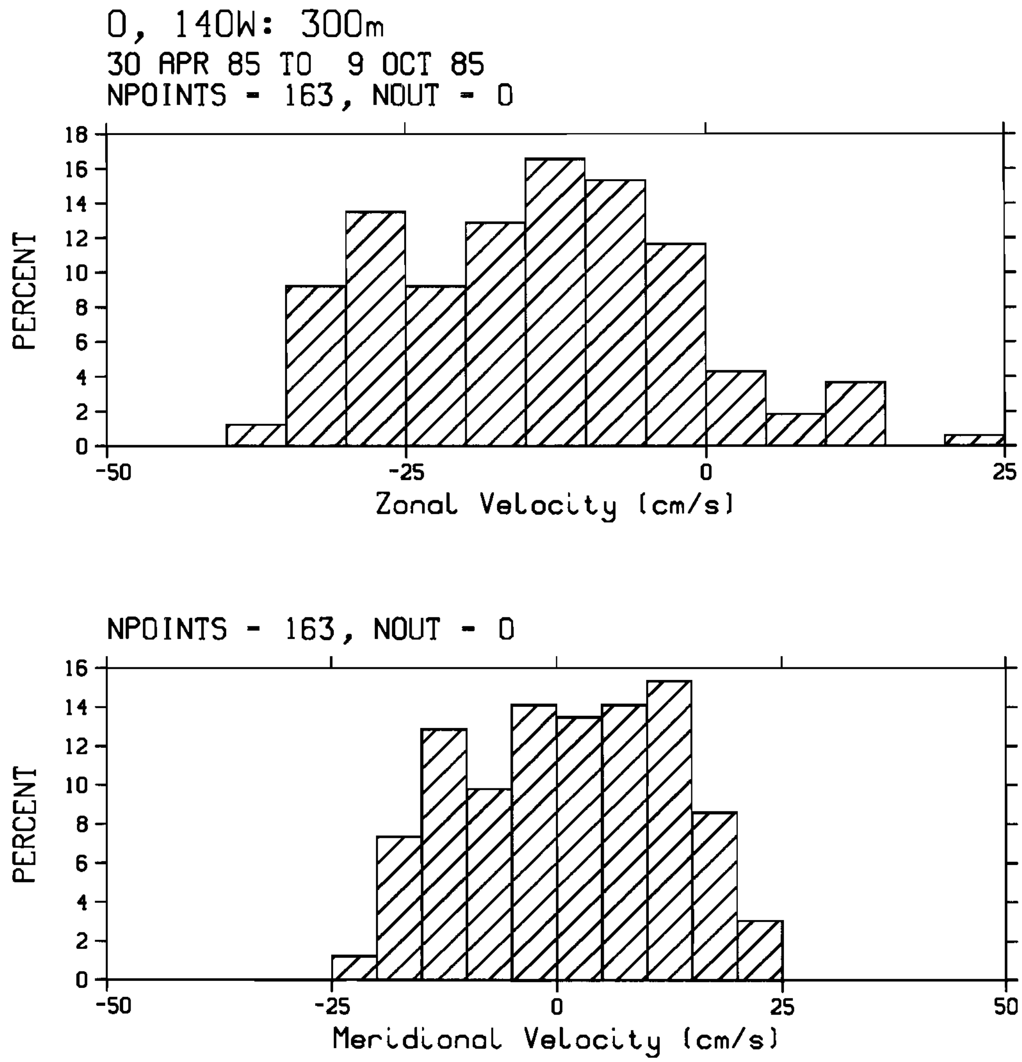

NPOINTS = 1641 , NOUT = 0
PERCENT
Meridional Velocity (cm/s)



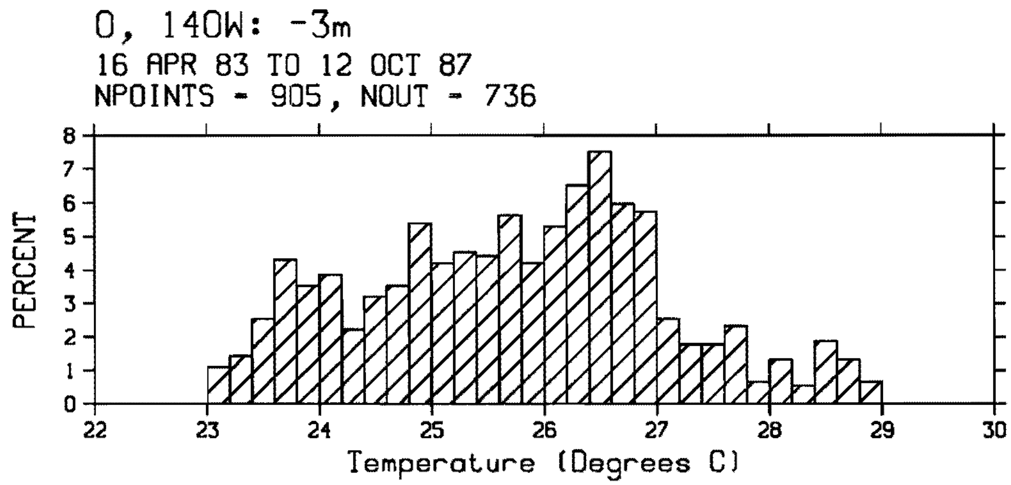
O, 140W: 250m
16 APR 83 TO 12 OCT 87
NPOINTS - 1641 , NOUT - 0
PERCENT
0
2
4
6
8
10
12
14
-50
-25
0
25
50
75
Zonal Velocity (cm/s)



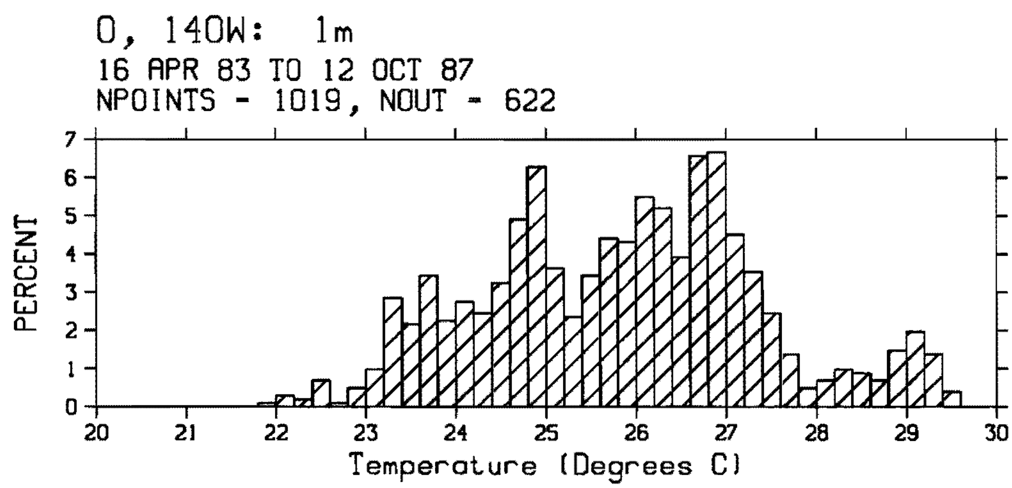
NPOINTS - 1641 , NOUT - 0
PERCENT
0
2
4
6
8
10
12
14
-75
-50
-25
0
25
50
75
Meridional Velocity (cm/s)



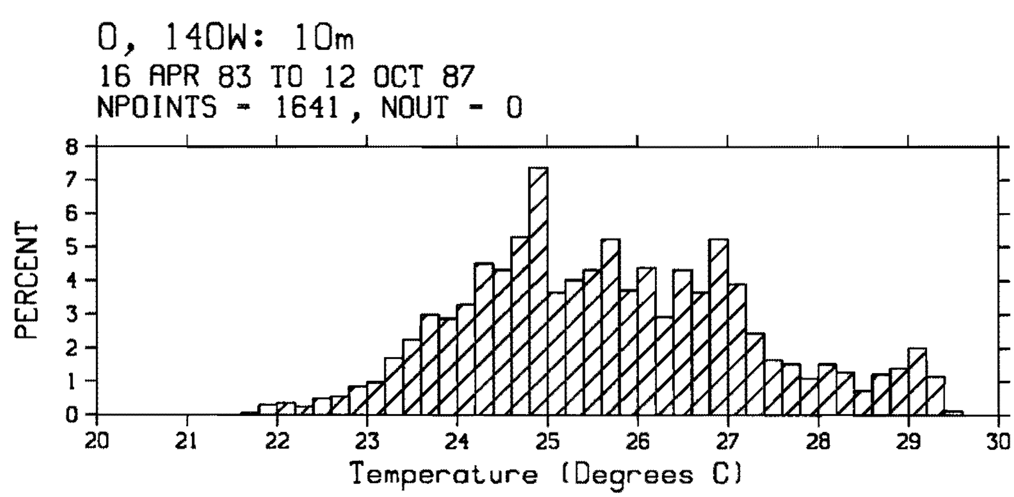
0, 140W: 300m
30 APR 85 TO 9 OCT 85
NPOINTS - 163, NOUT - 0
PERCENT
18
16
14
12
10
8
6
4
2
0
-50
-25
0
25
Zonal Velocity (cm/s)
NPOINTS - 163, NOUT - 0
PERCENT
16
14
12
10
8
6
4
2
0
-50
-25
0
25
50
Meridional Velocity (cm/s)



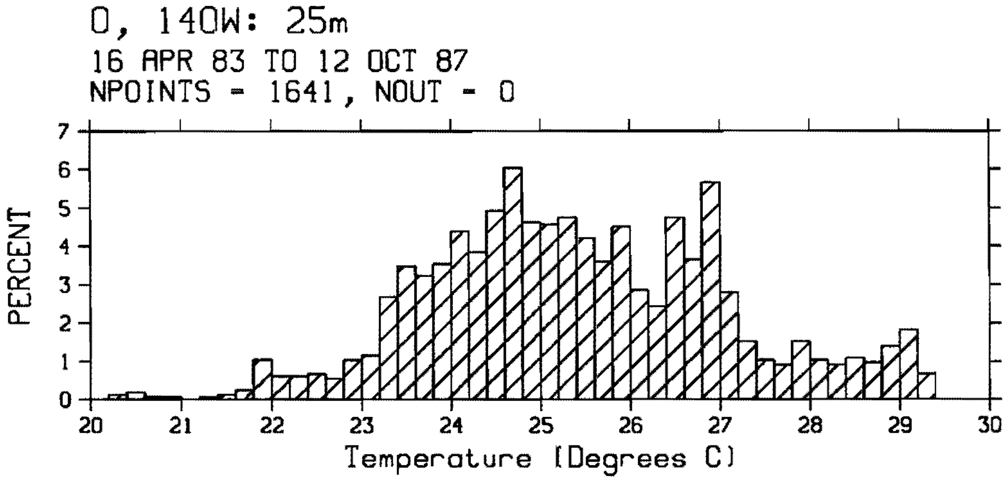
0, 140W: -3m
16 APR 83 TO 12 OCT 87
NPOINTS - 905, NOUT - 736
PERCENT
Temperature (Degrees C)

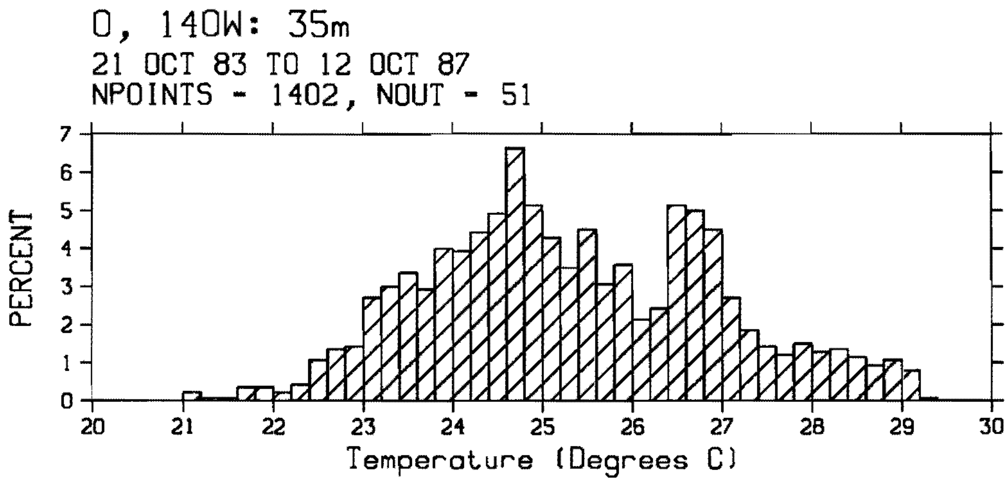


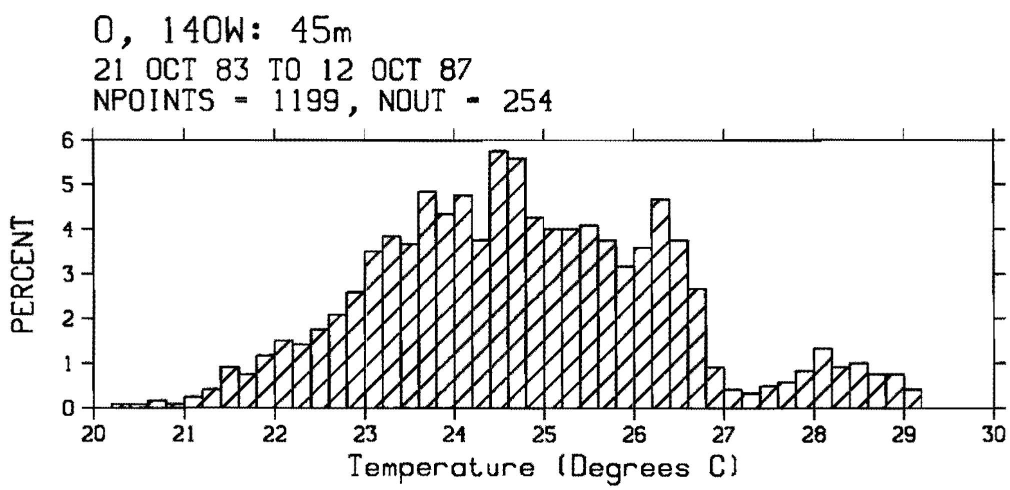
0, 140W: 1m
16 APR 83 TO 12 OCT 87
NPOINTS - 1019, NOUT - 622
PERCENT
Temperature (Degrees C)



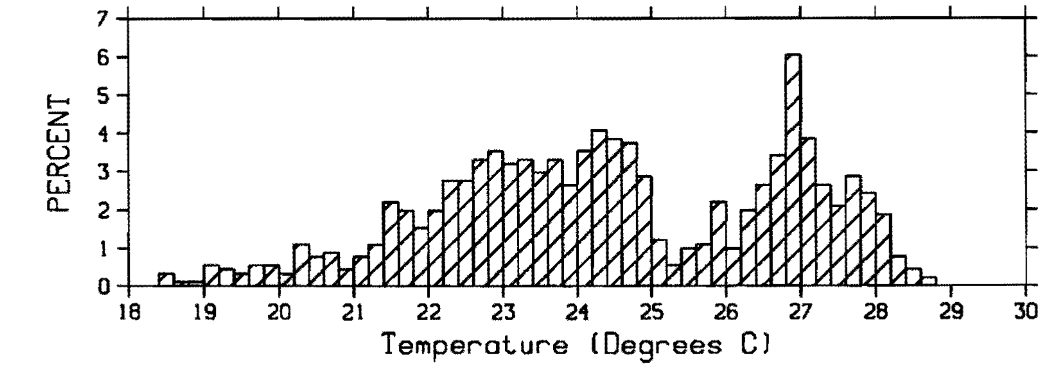
0, 140W: 10m
16 APR 83 TO 12 OCT 87
NPOINTS - 1641, NOUT - 0
PERCENT
Temperature (Degrees C)


0, 140W: 25m
16 APR 83 TO 12 OCT 87
NPOINTS = 1641, NOUT = 0
PERCENT
Temperature (Degrees C)

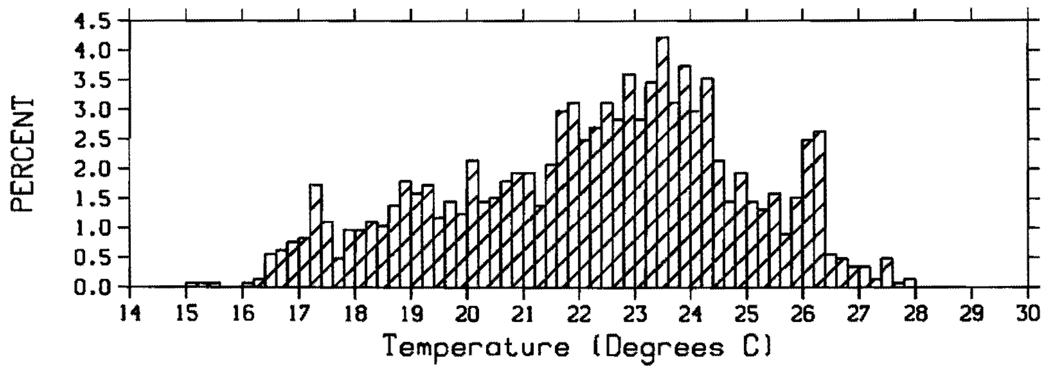

0, 140W: 35m
21 OCT 83 TO 12 OCT 87
NPOINTS = 1402, NOUT = 51
PERCENT
Temperature (Degrees C)


0, 140W: 45m
21 OCT 83 TO 12 OCT 87
NPOINTS = 1199, NOUT = 254
PERCENT
Temperature (Degrees C)

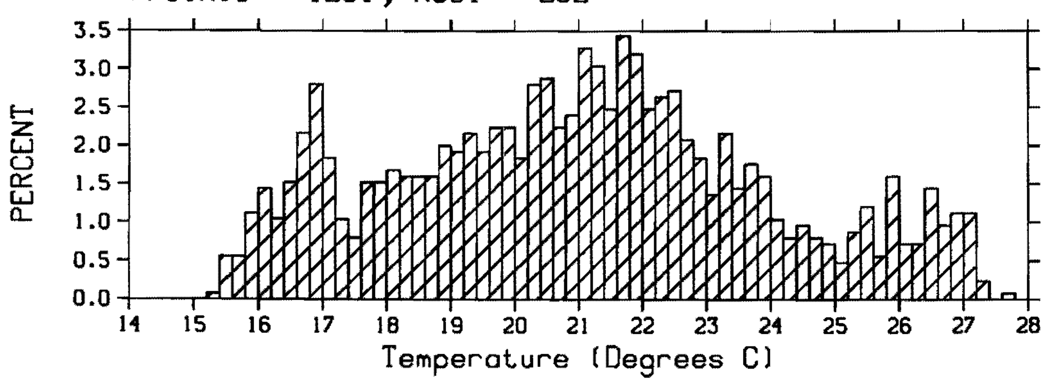
0, 140W: 60m
21 OCT 83 TO 12 OCT 87
NPOINTS - 910, NOUT - 543

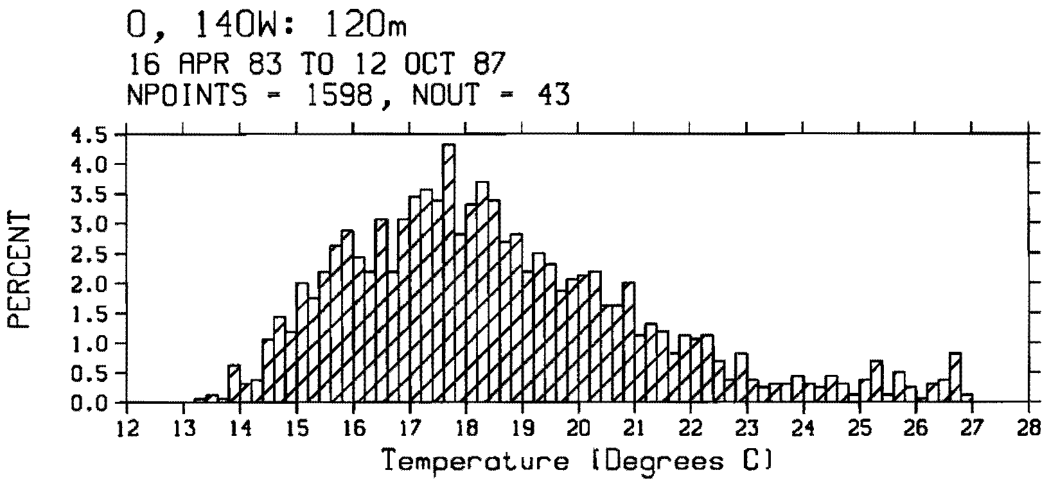


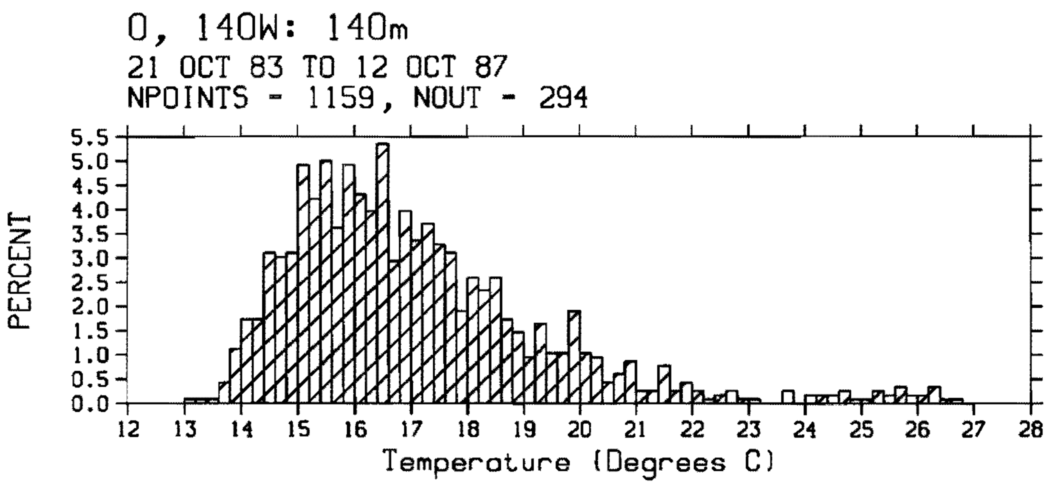
0, 140W: 80m
16 APR 83 TO 12 OCT 87
NPOINTS - 1444, NOUT - 197

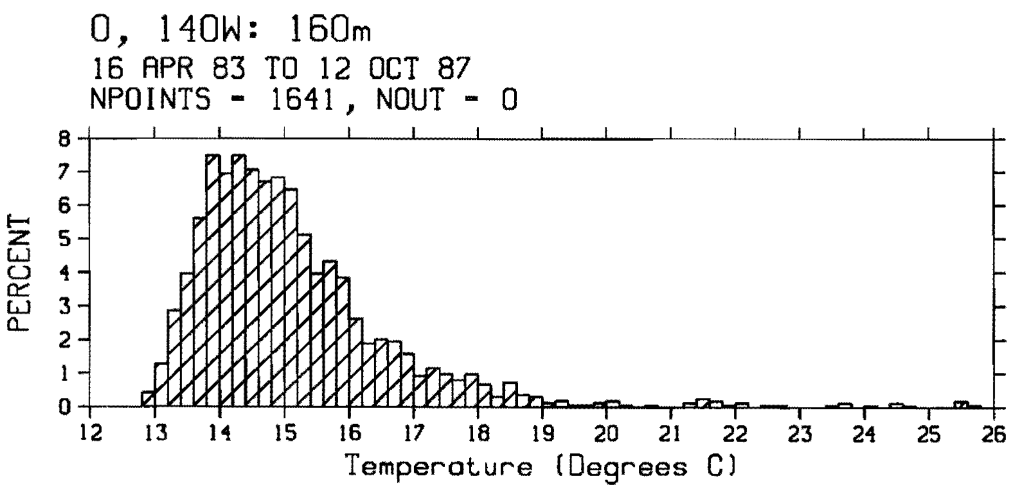


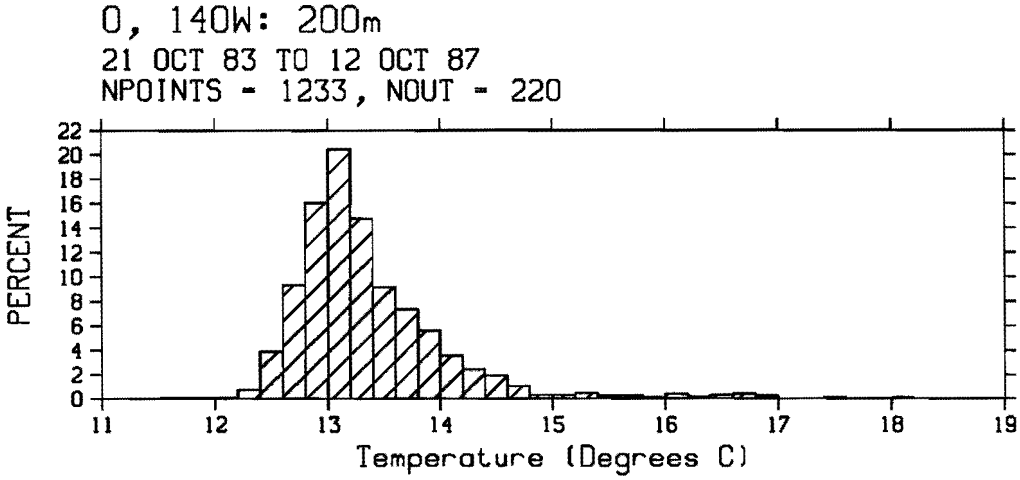
0, 140W: 100m
21 OCT 83 TO 12 OCT 87
NPOINTS - 1251, NOUT - 202

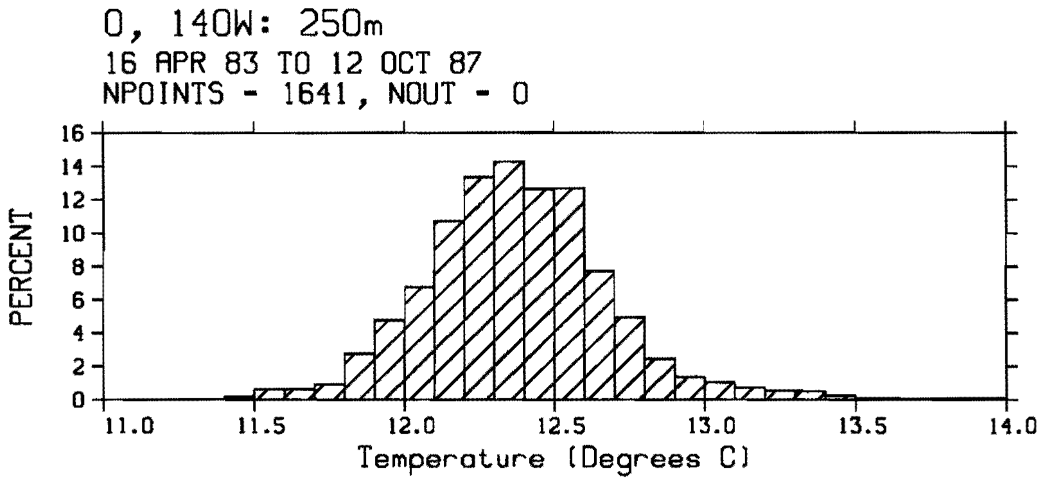


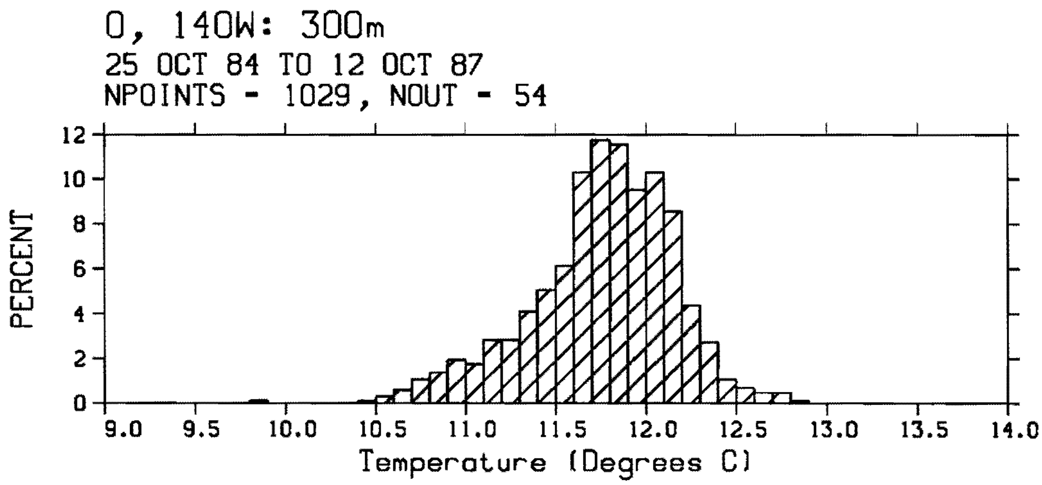

0, 140W: 120m
16 APR 83 TO 12 OCT 87
NPOINTS = 1598, NOUT = 43
PERCENT
Temperature (Degrees C)


0, 140W: 140m
21 OCT 83 TO 12 OCT 87
NPOINTS = 1159, NOUT = 294
PERCENT
Temperature (Degrees C)

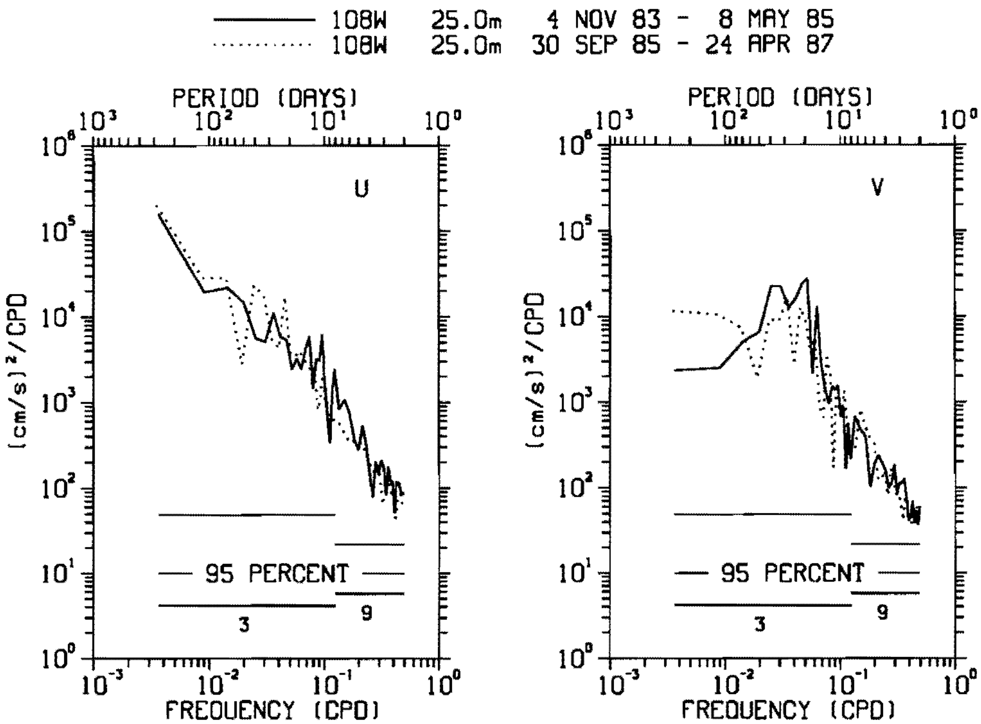

0, 140W: 160m
16 APR 83 TO 12 OCT 87
NPOINTS = 1641, NOUT = 0
PERCENT
Temperature (Degrees C)

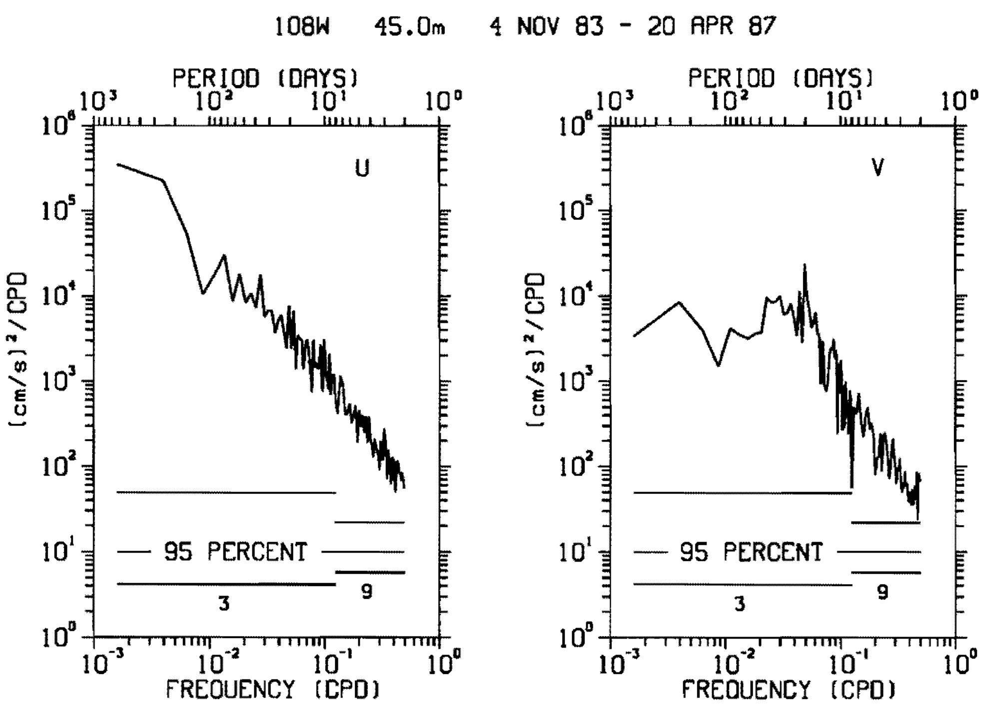

0, 140W: 200m
21 OCT 83 TO 12 OCT 87
NPOINTS - 1233, NOUT - 220
PERCENT
Temperature (Degrees C)


0, 140W: 250m
16 APR 83 TO 12 OCT 87
NPOINTS - 1641, NOUT - 0
PERCENT
Temperature (Degrees C)

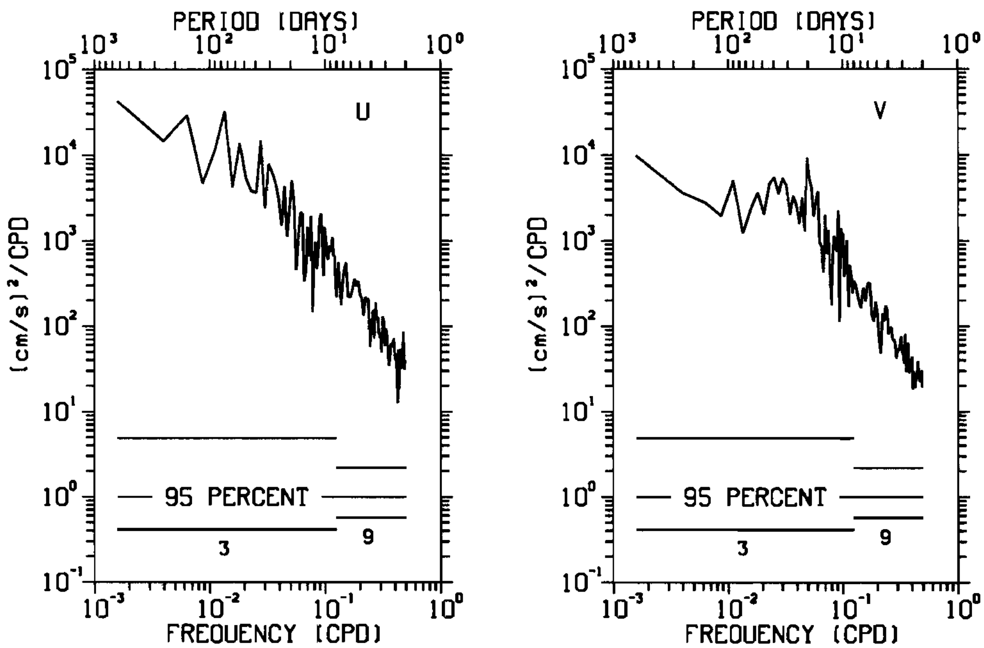

0, 140W: 300m
25 OCT 84 TO 12 OCT 87
NPOINTS - 1029, NOUT - 54
PERCENT
Temperature (Degrees C)

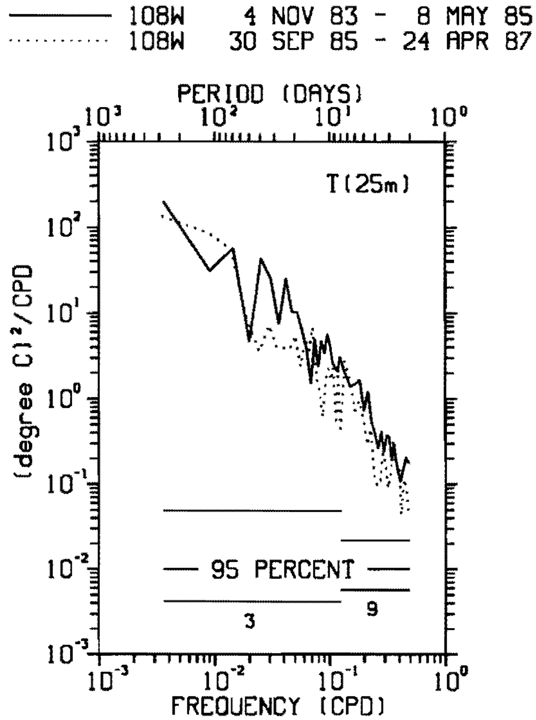
Section II.E: SPECTRA

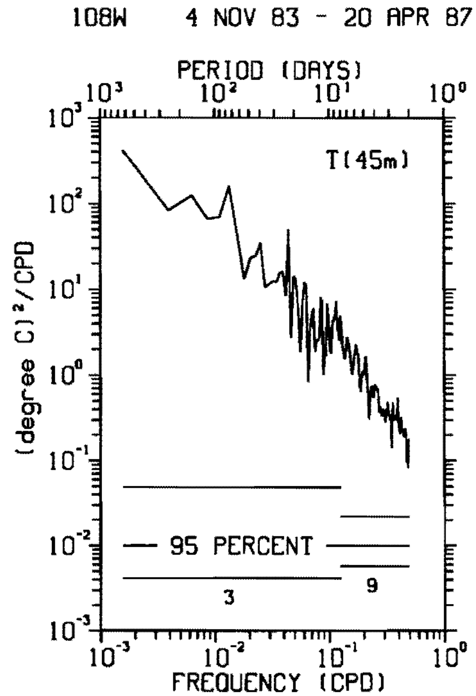

108W 25.0m 4 NOV 83 - 8 MAY 85
108W 25.0m 30 SEP 85 - 24 APR 87
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

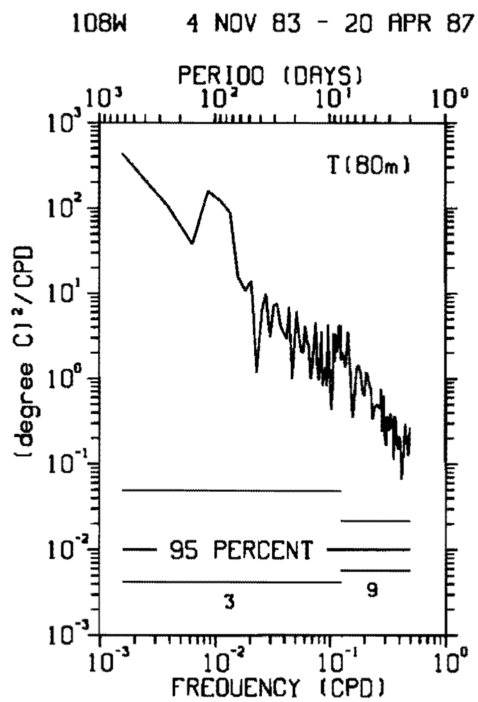

108W 45.0m 4 NOV 83 - 20 APR 87
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

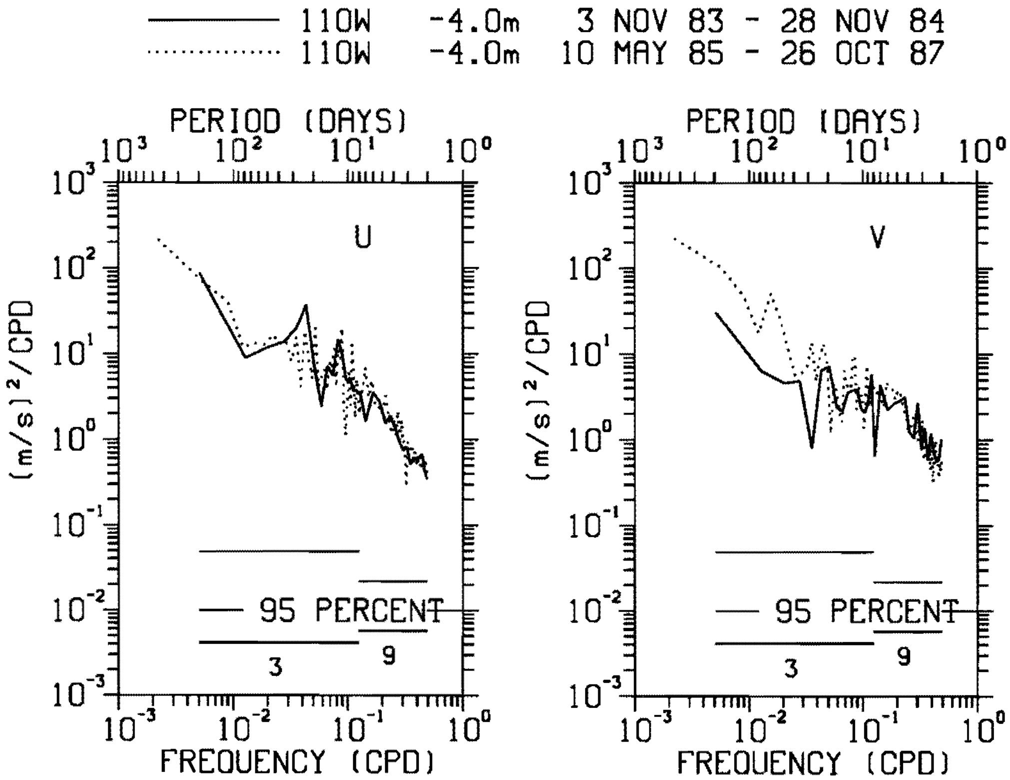
108W   80.0m   4 NOV 83 - 20 APR 87

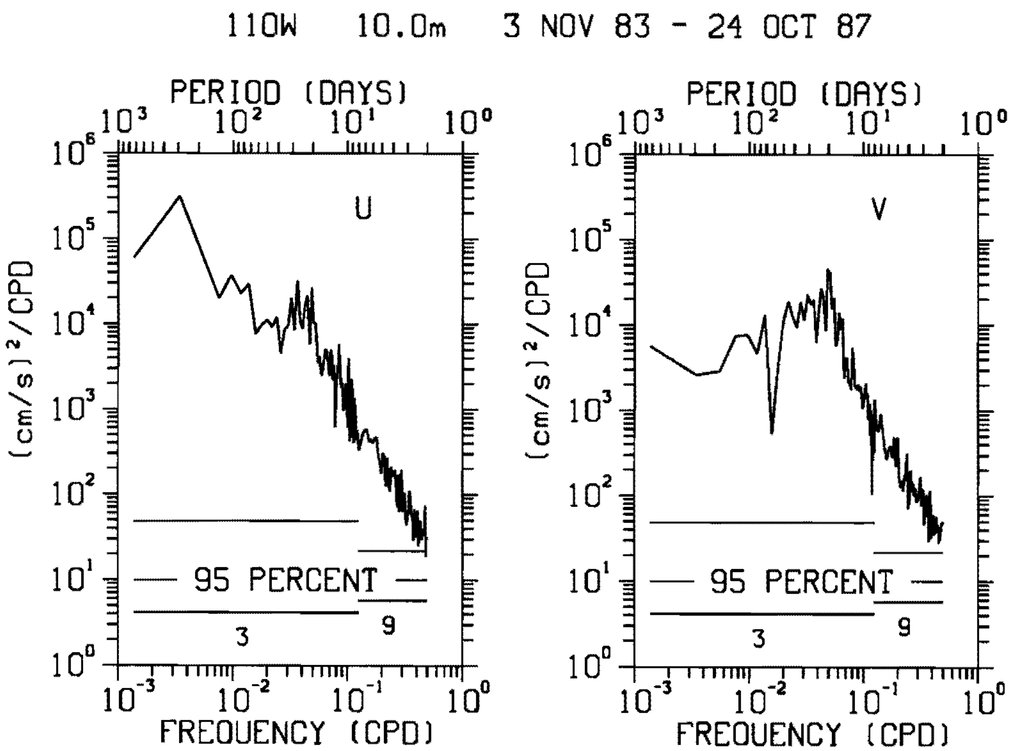


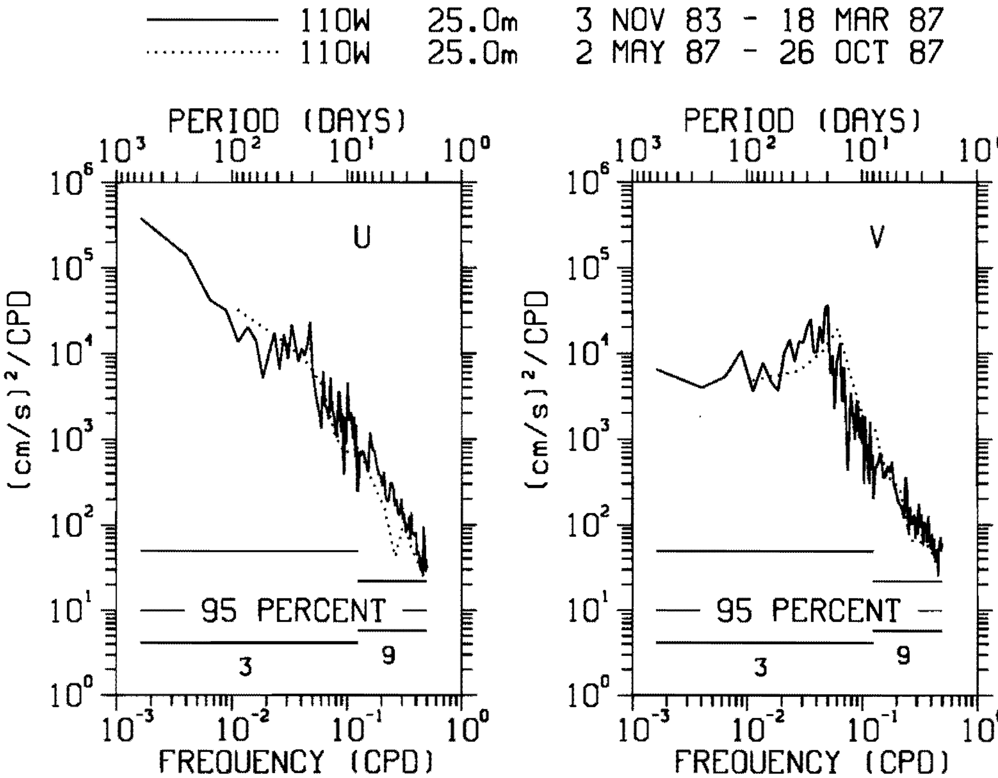

108W 4 NOV 83 - 8 MAY 85
108W 30 SEP 85 - 24 APR 87
PERIOD (DAYS)
T(25m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


108W 4 NOV 83 - 20 APR 87
PERIOD (DAYS)
T(45m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

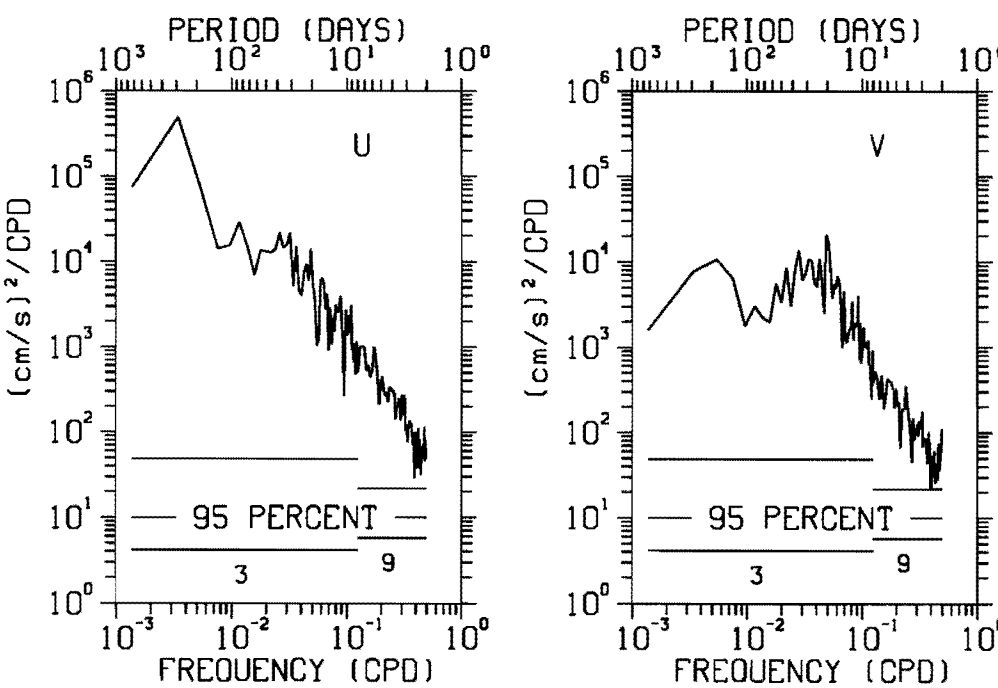

108W 4 NOV 83 - 20 APR 87
PERIOD (DAYS)
T(80m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

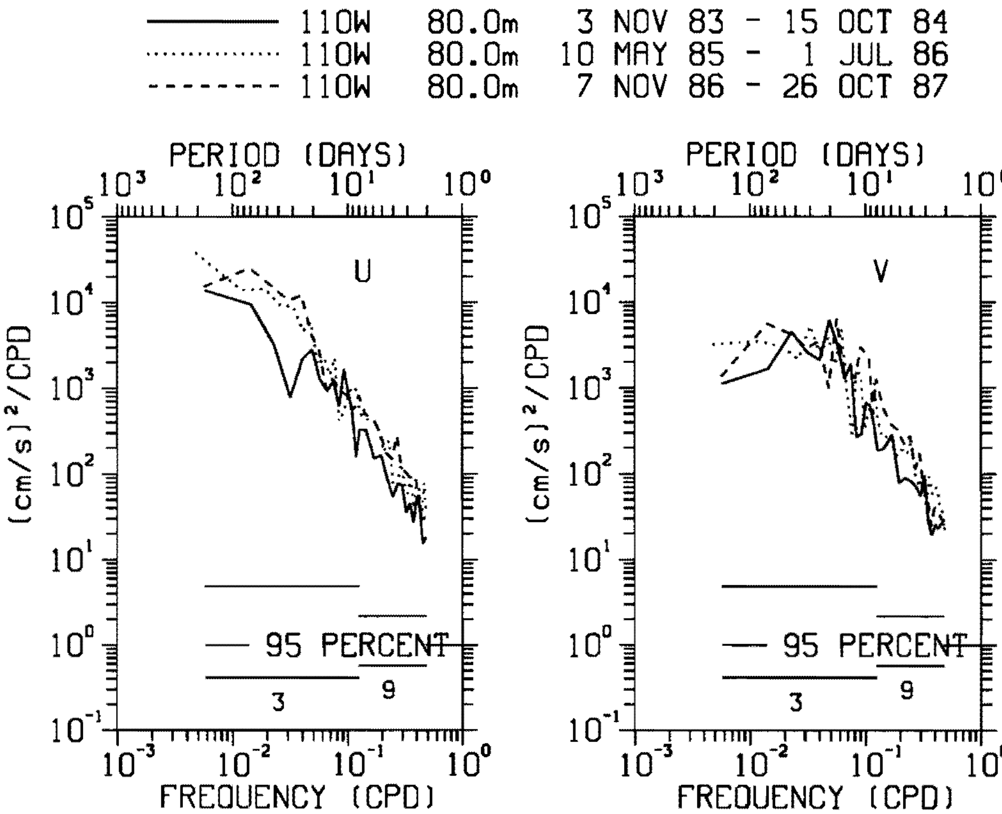

110W -4.0m 3 NOV 83 - 28 NOV 84
110W -4.0m 10 MAY 85 - 26 OCT 87
PERIOD (DAYS)
U
V
(m/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


110W 10.0m 3 NOV 83 - 24 OCT 87
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

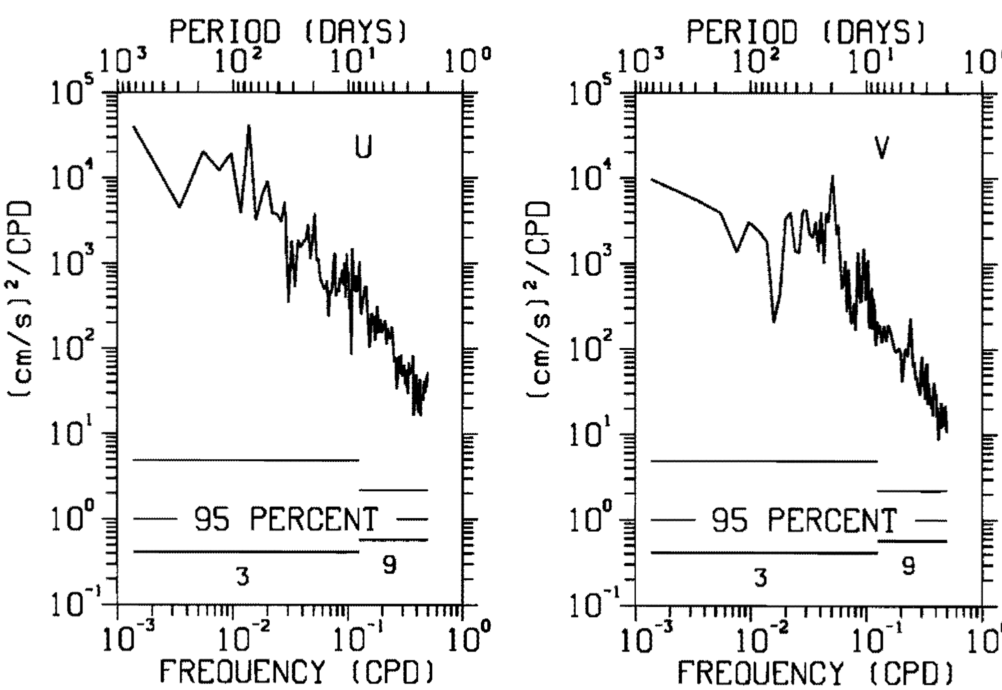


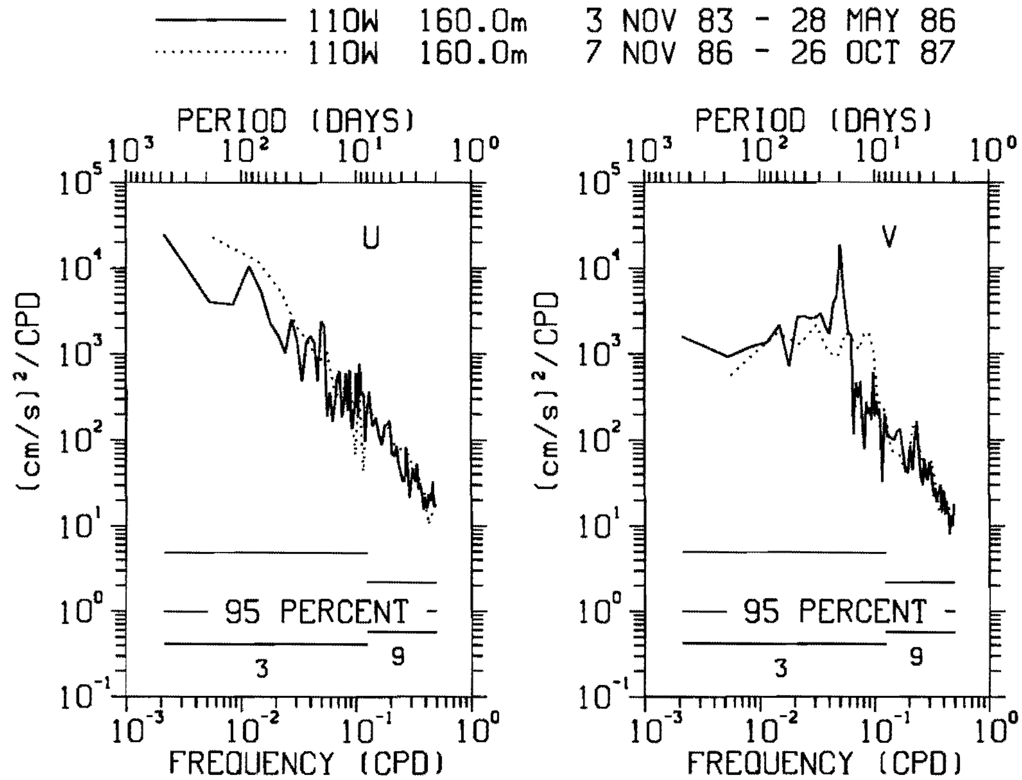
110W 45.0m 3 NOV 83 - 24 OCT 87



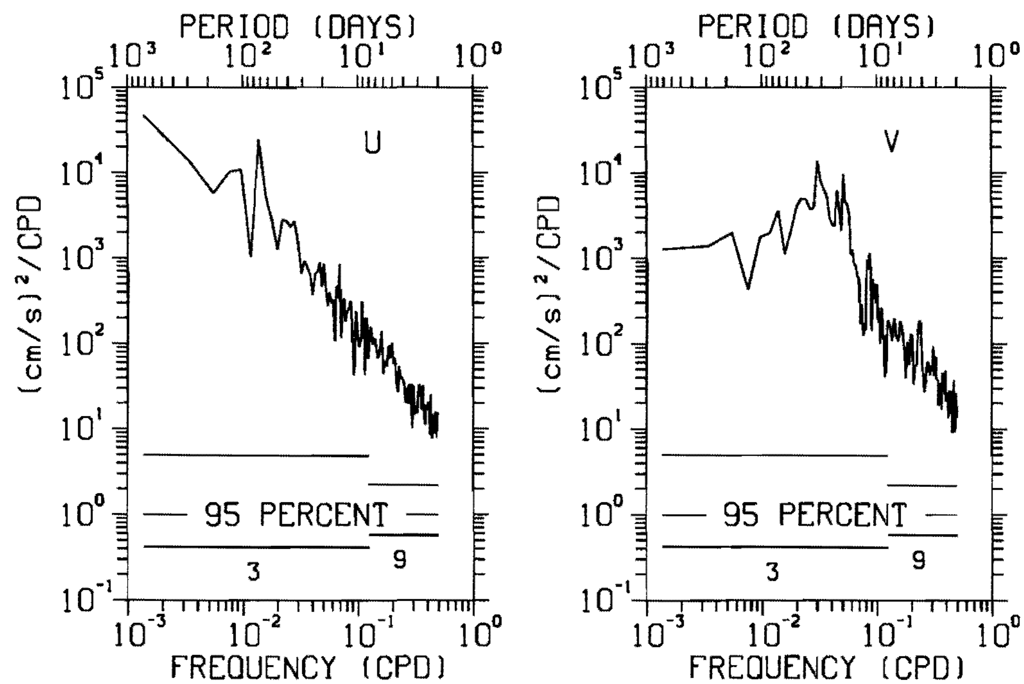


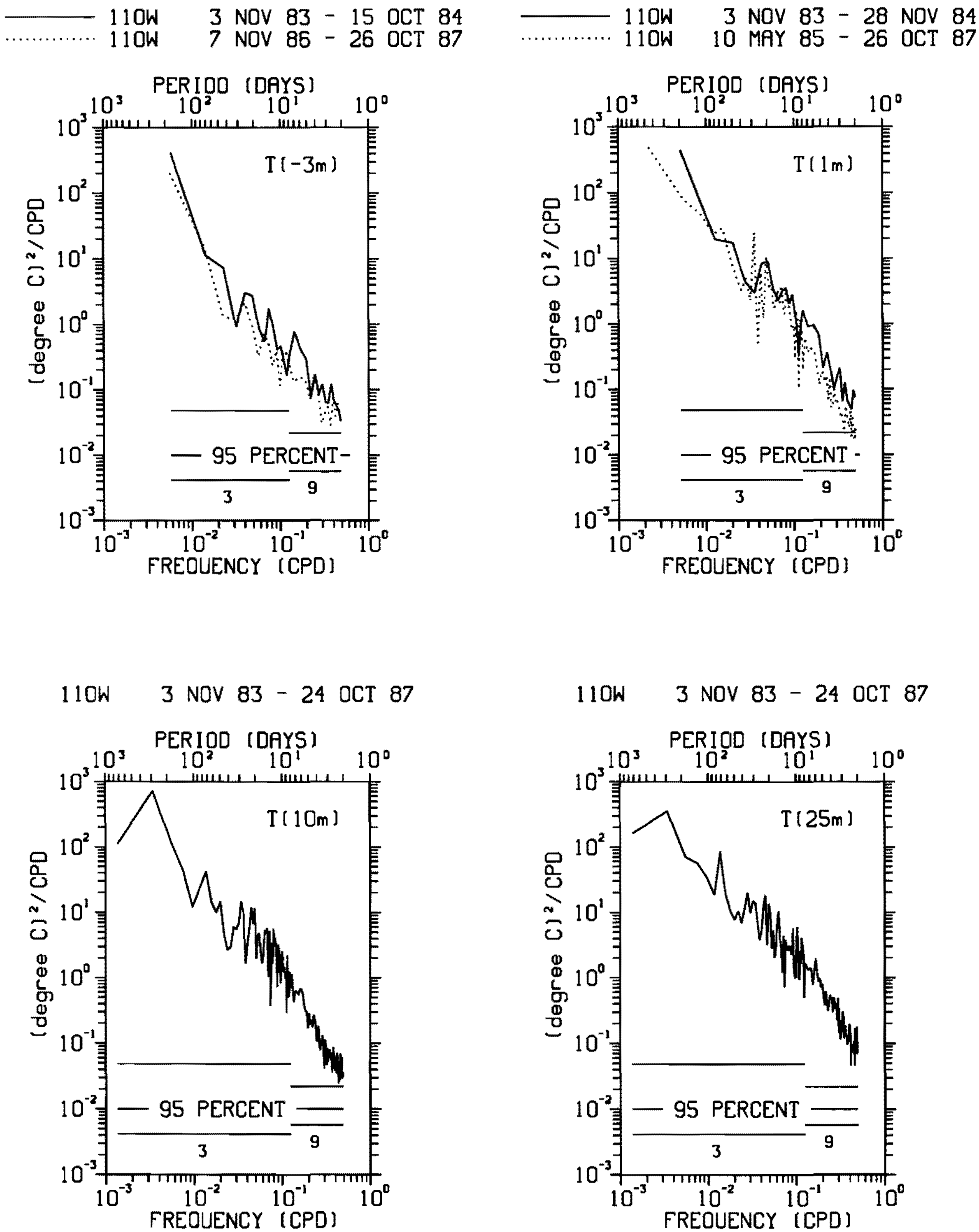
110W 120.0m 3 NOV 83 - 24 OCT 87

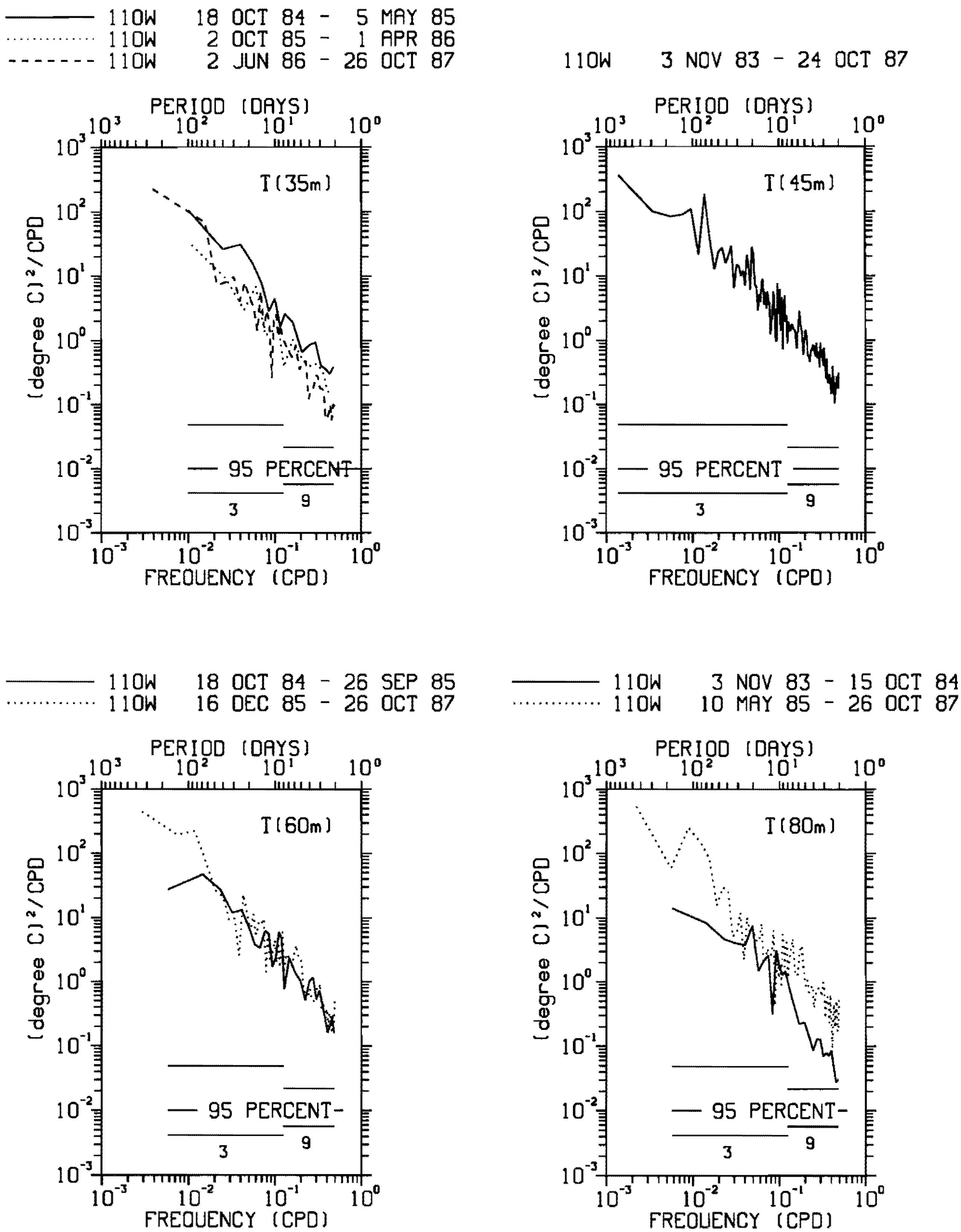


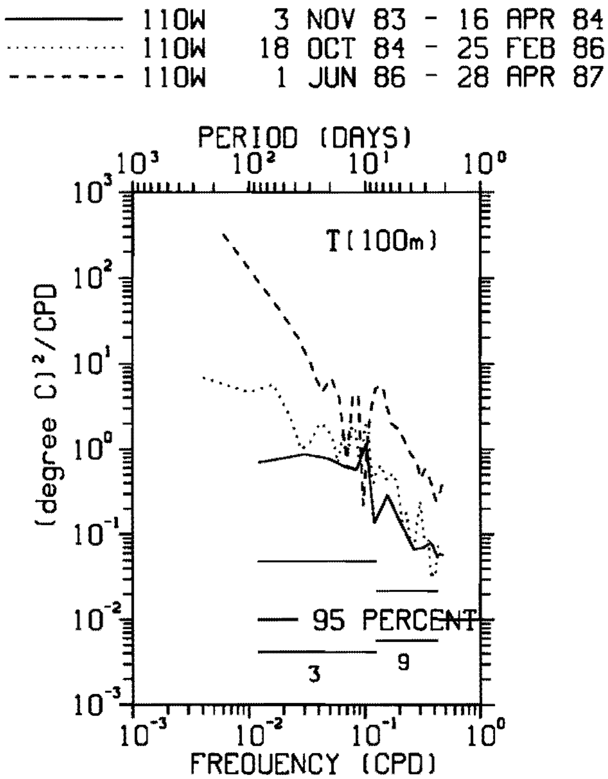


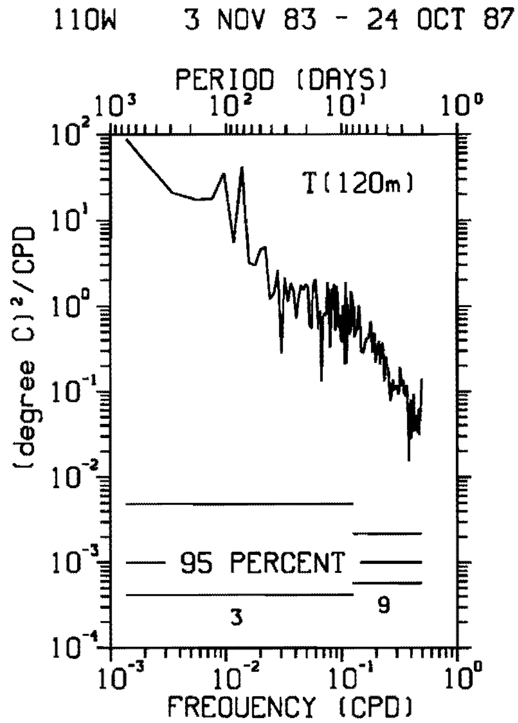
110W 250.0m 3 NOV 83 - 24 OCT 87

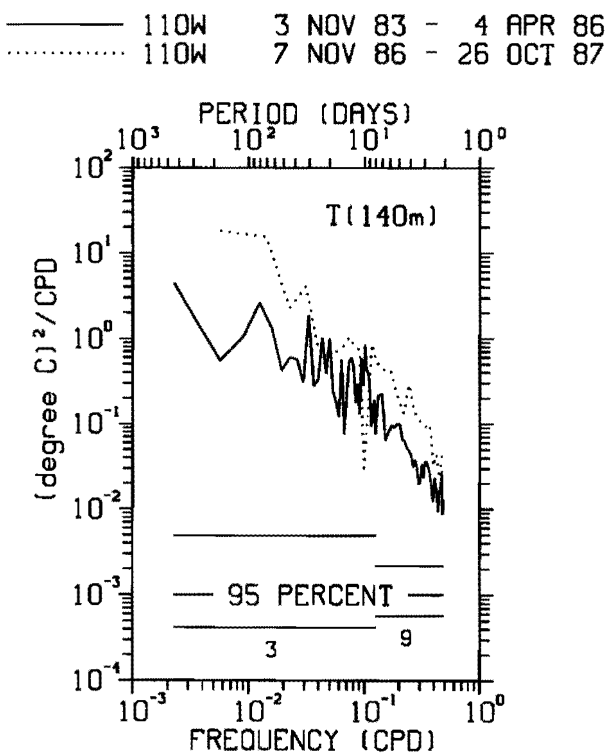


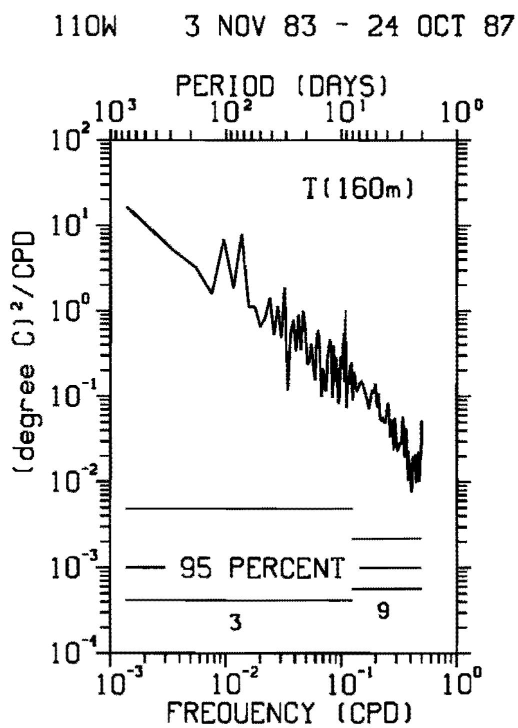

110W 3 NOV 83 - 15 OCT 84
110W 7 NOV 86 - 26 OCT 87
T(-3m)
110W 3 NOV 83 - 28 NOV 84
110W 10 MAY 85 - 26 OCT 87
T(1m)
110W 3 NOV 83 - 24 OCT 87
T(10m)
110W 3 NOV 83 - 24 OCT 87
T(25m)
PERIOD (DAYS)
FREQUENCY (CPD)
(degree C)²/CPD
95 PERCENT
3
9


110W 18 OCT 84 - 5 MAY 85
110W 2 OCT 85 - 1 APR 86
110W 2 JUN 86 - 26 OCT 87
PERIOD (DAYS)
T(35m)
(degree C)²/CPD
95 PERCENT
FREQUENCY (CPD)
110W 3 NOV 83 - 24 OCT 87
PERIOD (DAYS)
T(45m)
(degree C)²/CPD
95 PERCENT
FREQUENCY (CPD)
110W 18 OCT 84 - 26 SEP 85
110W 16 DEC 85 - 26 OCT 87
PERIOD (DAYS)
T(60m)
(degree C)²/CPD
95 PERCENT-
FREQUENCY (CPD)
110W 3 NOV 83 - 15 OCT 84
110W 10 MAY 85 - 26 OCT 87
PERIOD (DAYS)
T(80m)
(degree C)²/CPD
95 PERCENT-
FREQUENCY (CPD)

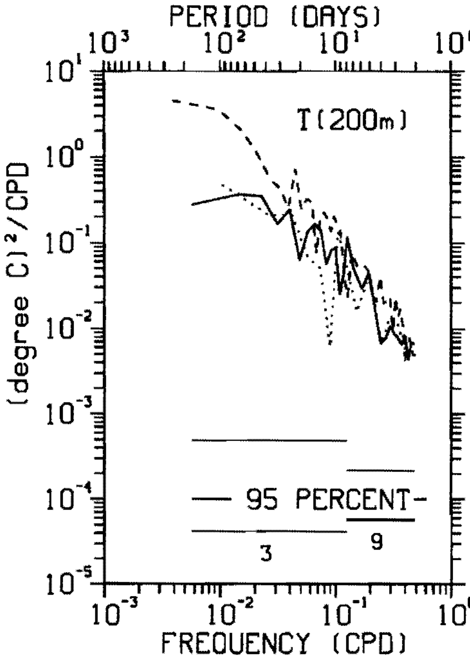

110W 3 NOV 83 - 16 APR 84
110W 18 OCT 84 - 25 FEB 86
110W 1 JUN 86 - 28 APR 87
PERIOD (DAYS)
T(100m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


110W 3 NOV 83 - 24 OCT 87
PERIOD (DAYS)
T(120m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

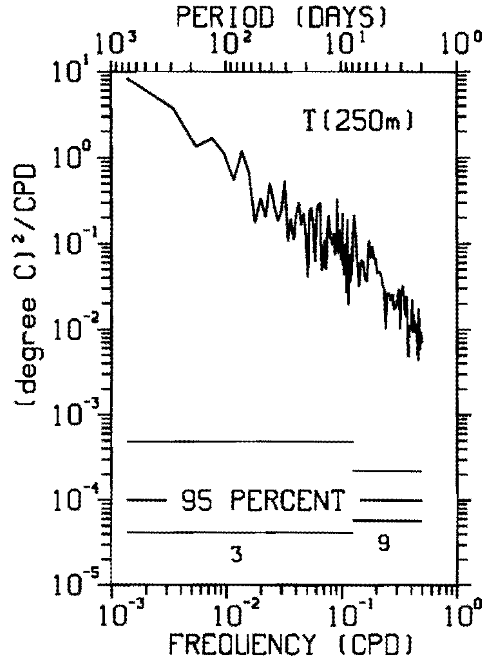

110W 3 NOV 83 - 4 APR 86
110W 7 NOV 86 - 26 OCT 87
PERIOD (DAYS)
T(140m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


110W 3 NOV 83 - 24 OCT 87
PERIOD (DAYS)
T(160m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

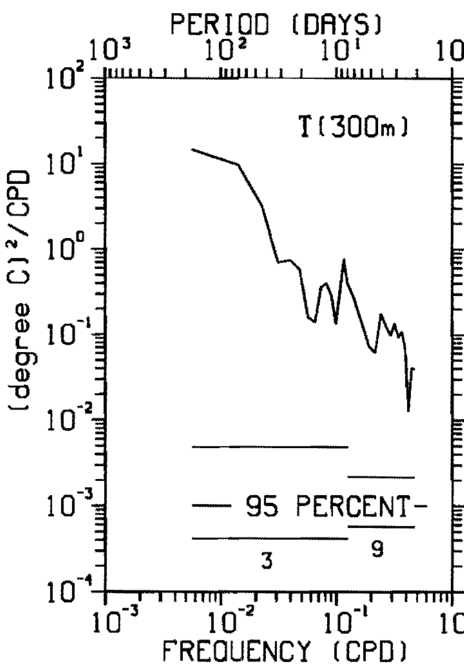
110W 3 NOV 83 - 15 OCT 84
110W 2 OCT 85 - 9 APR 86
110W 1 JUN 86 - 25 OCT 87

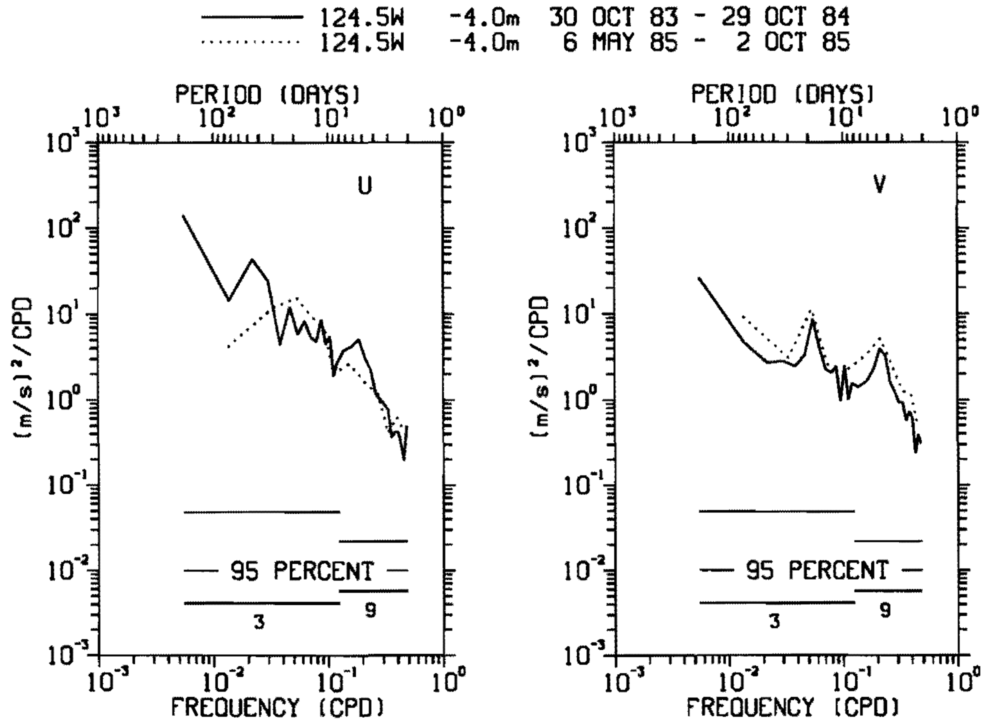


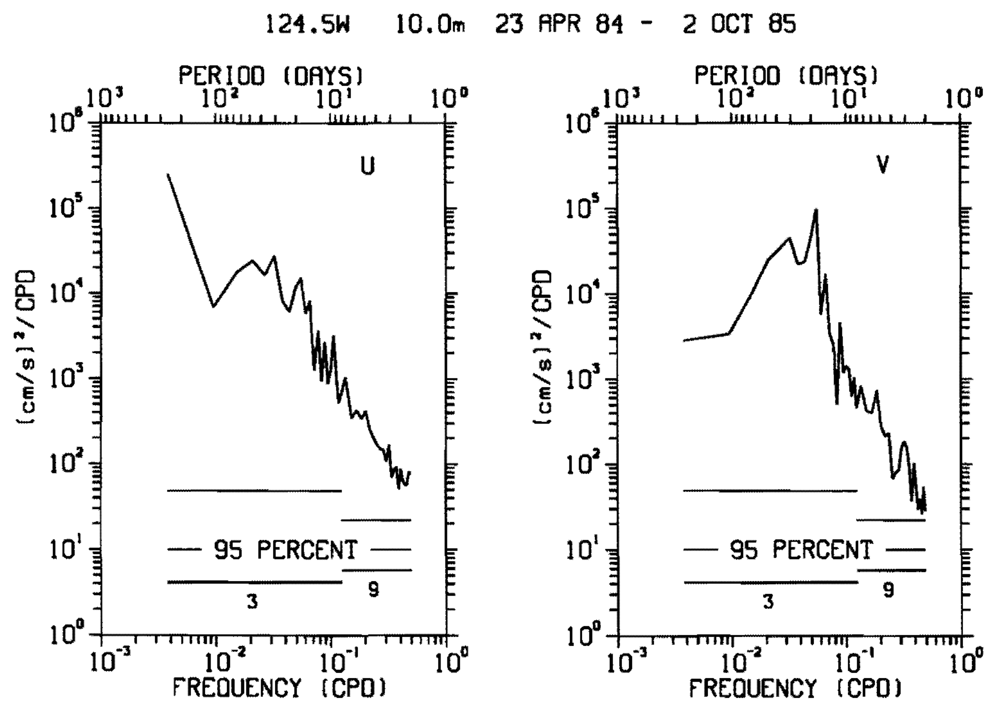
110W 3 NOV 83 - 24 OCT 87



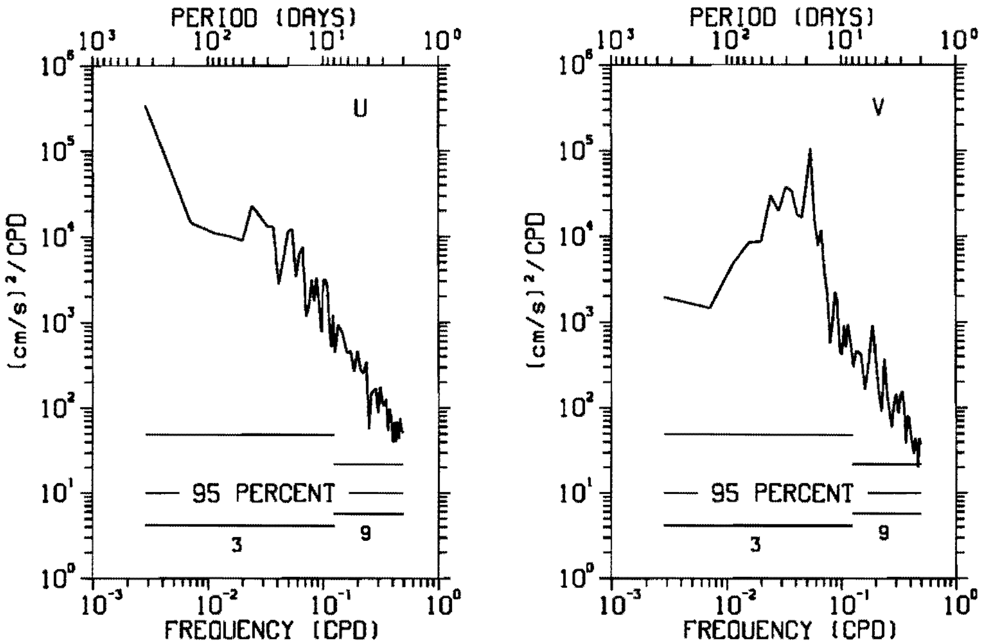
110W 7 NOV 86 - 26 OCT 87



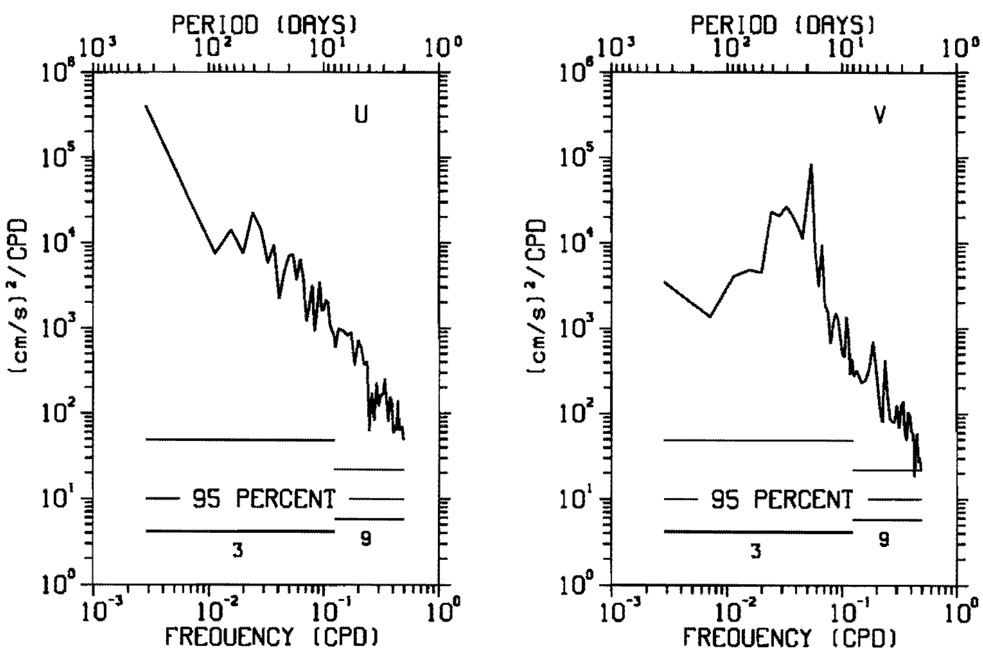

124.5W -4.0m 30 OCT 83 - 29 OCT 84
124.5W -4.0m 6 MAY 85 - 2 OCT 85
PERIOD (DAYS)
U
V
(m/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


124.5W 10.0m 23 APR 84 - 2 OCT 85
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

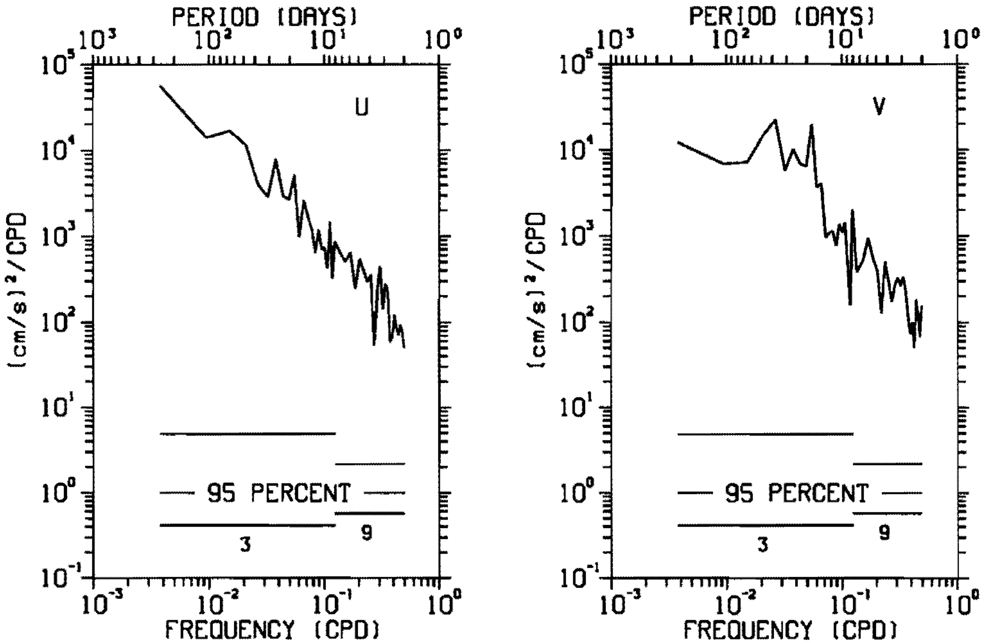
124.5W 25.0m 30 OCT 83 - 2 OCT 85



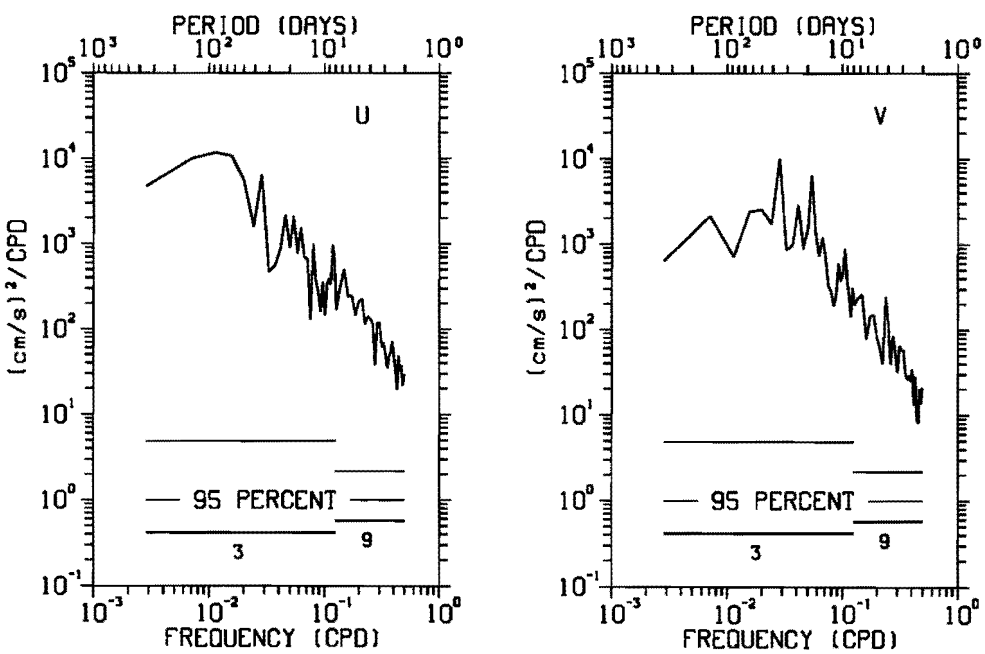
124.5W 45.0m 30 OCT 83 - 2 OCT 85



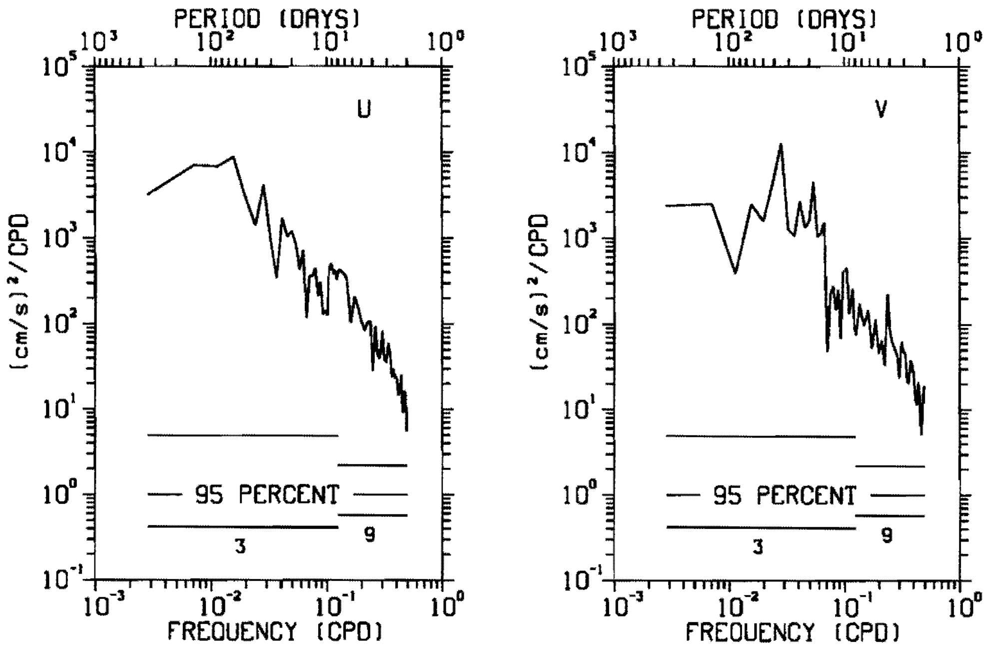
124.5W 80.0m 23 APR 84 - 2 OCT 85



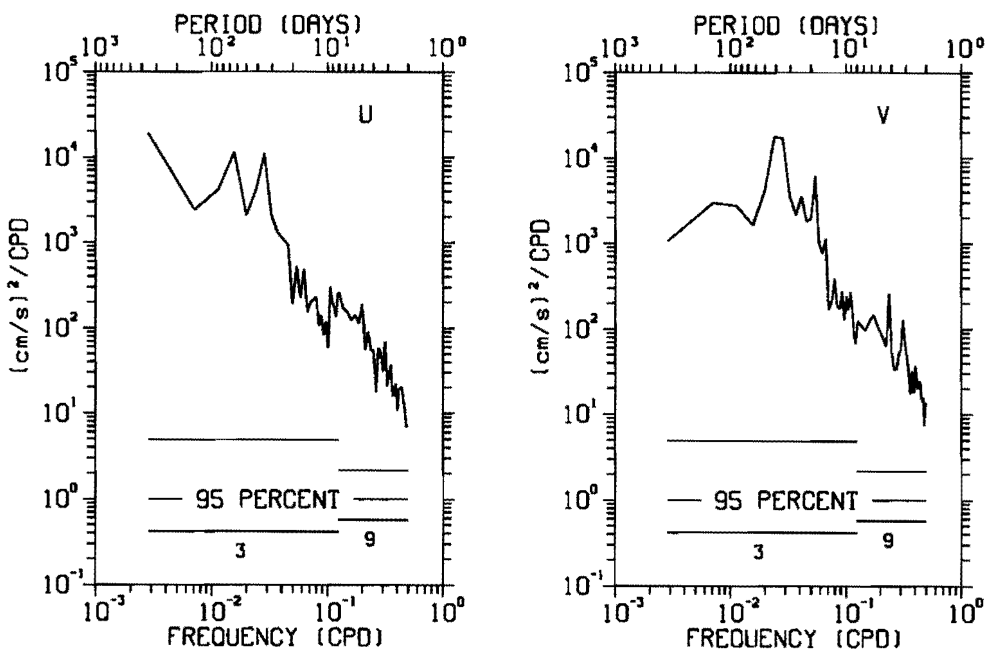
124.5W 120.0m 30 OCT 83 - 2 OCT 85



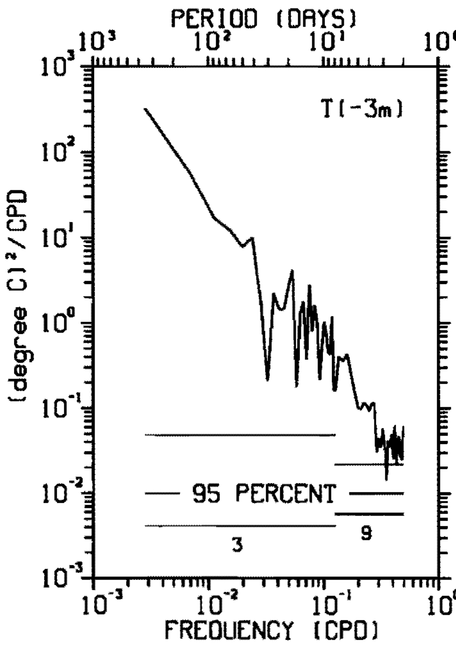
124.5W 160.0m 30 OCT 83 - 2 OCT 85



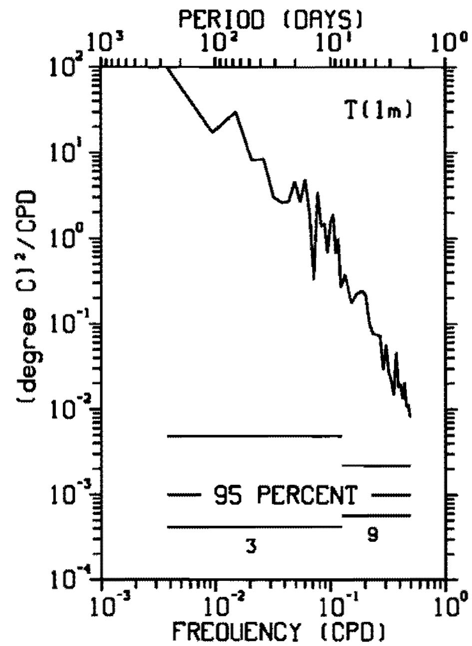
124.5W 250.0m 30 OCT 83 - 2 OCT 85



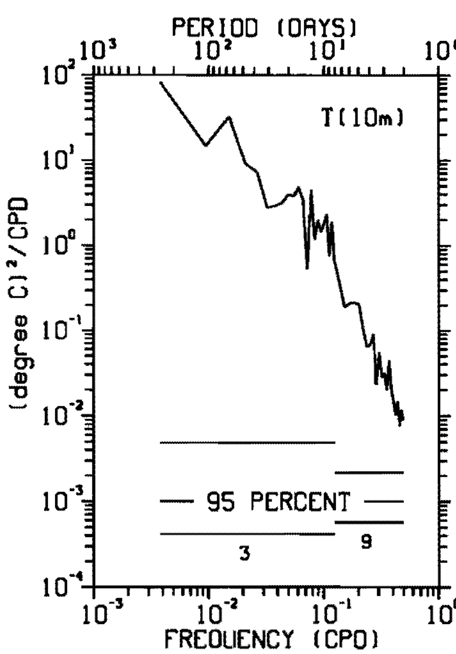
124.5W 30 OCT 83 - 2 OCT 85



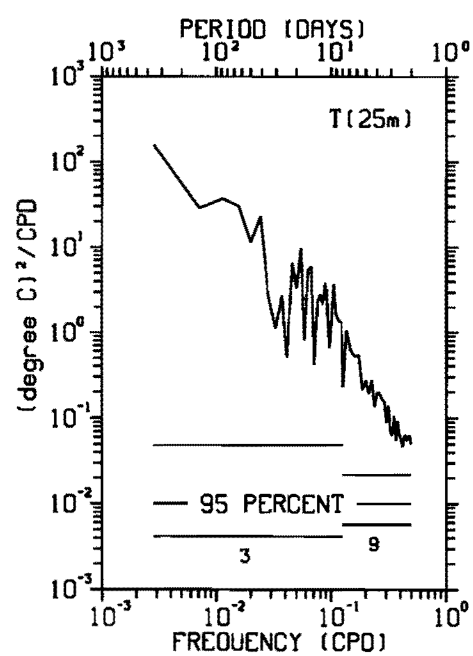
124.5W 23 APR 84 - 2 OCT 85

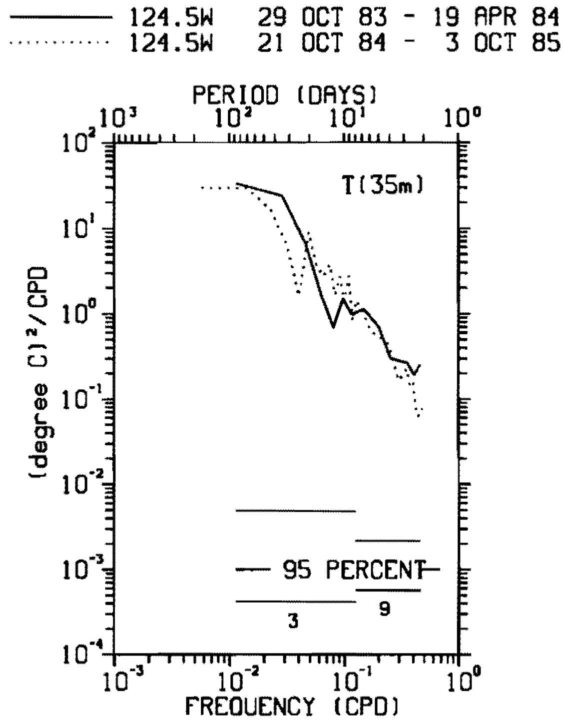


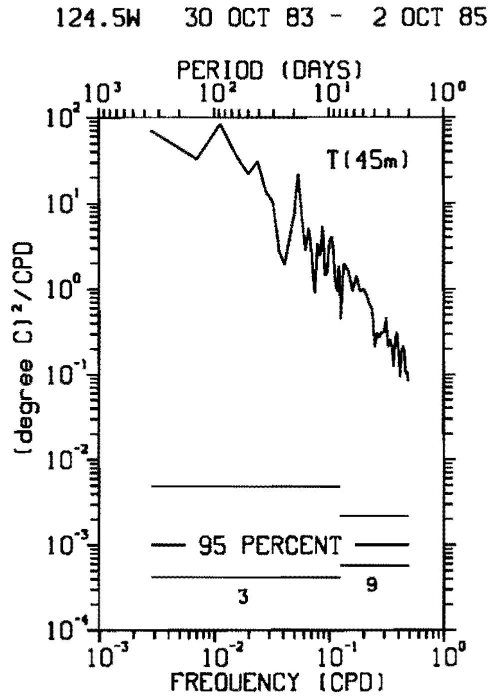
124.5W 23 APR 84 - 2 OCT 85

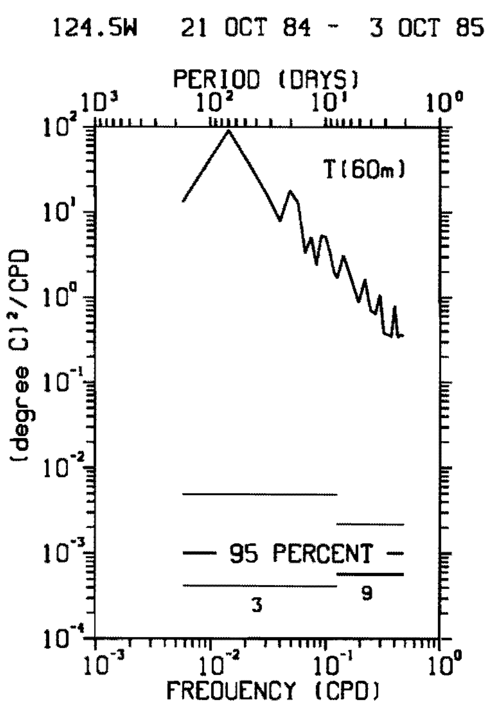


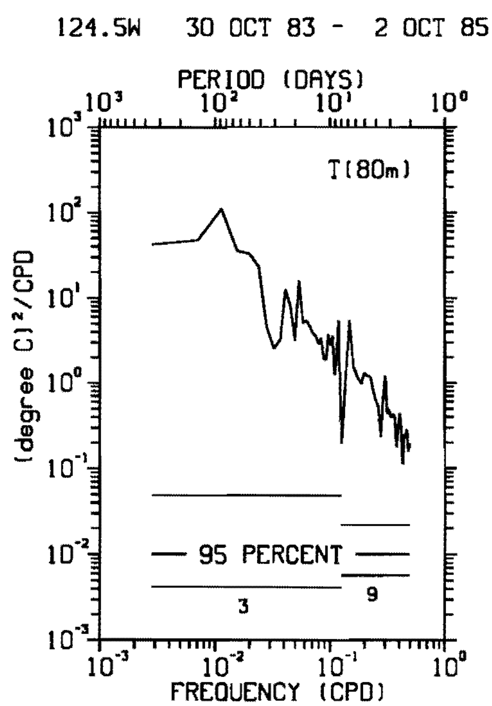
124.5W 30 OCT 83 - 2 OCT 85

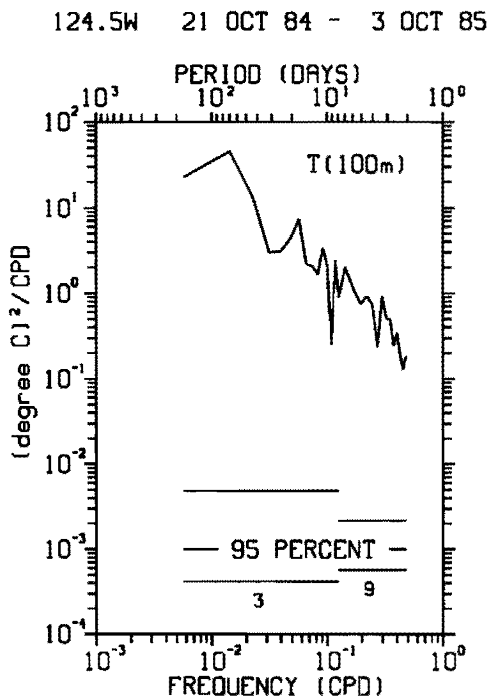


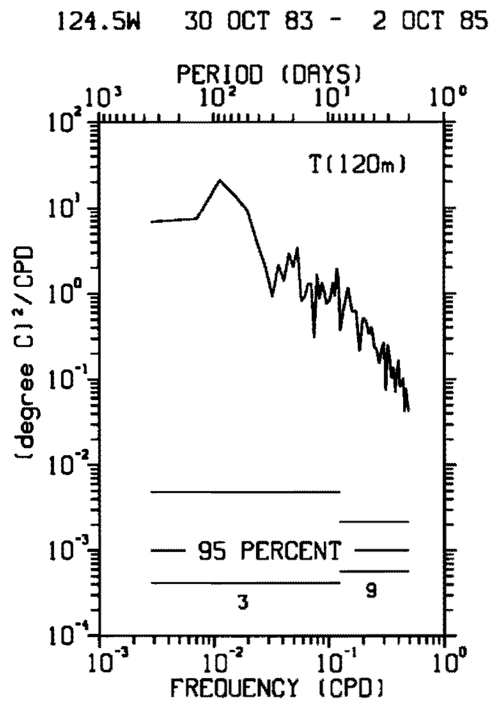

124.5W 29 OCT 83 - 19 APR 84
124.5W 21 OCT 84 - 3 OCT 85
PERIOD (DAYS)
T(35m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

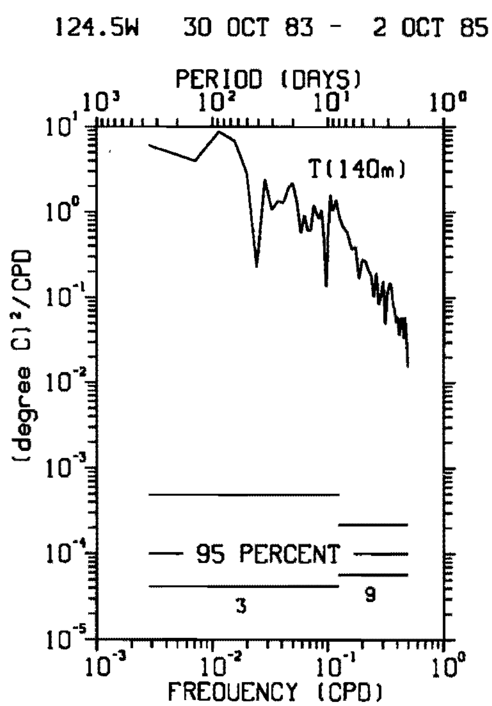

124.5W 30 OCT 83 - 2 OCT 85
PERIOD (DAYS)
T(45m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

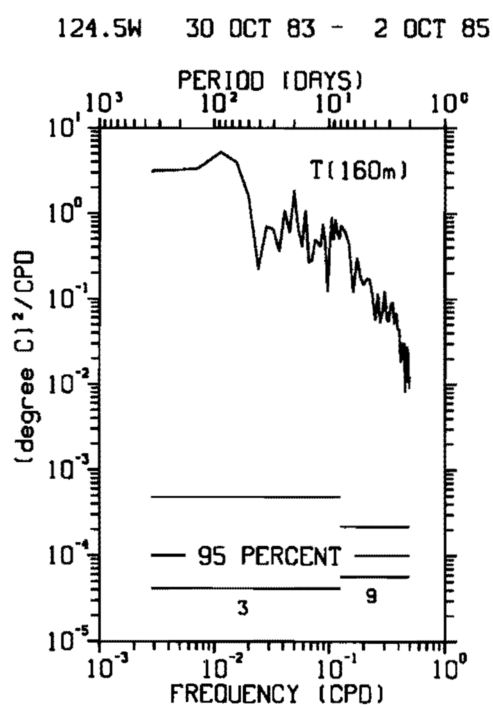

124.5W 21 OCT 84 - 3 OCT 85
PERIOD (DAYS)
T(60m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


124.5W 30 OCT 83 - 2 OCT 85
PERIOD (DAYS)
T(80m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

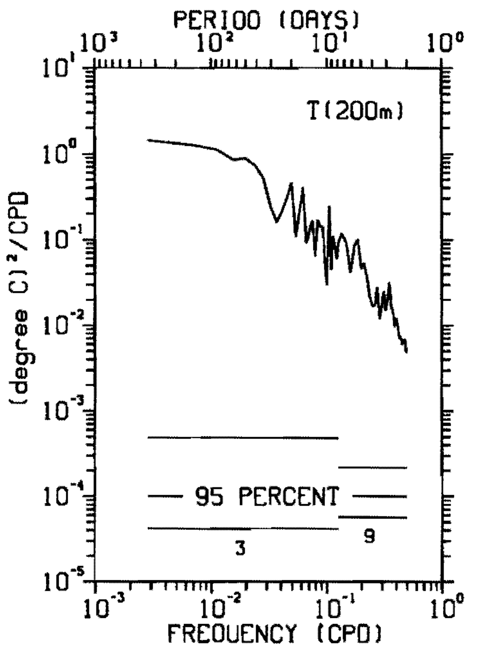

124.5W 21 OCT 84 - 3 OCT 85
PERIOD (DAYS)
T(100m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


124.5W 30 OCT 83 - 2 OCT 85
PERIOD (DAYS)
T(120m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

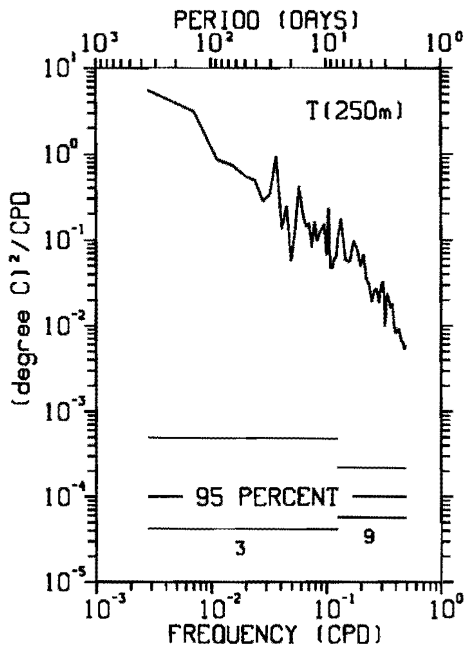

124.5W 30 OCT 83 - 2 OCT 85
PERIOD (DAYS)
T(140m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


124.5W 30 OCT 83 - 2 OCT 85
PERIOD (DAYS)
T(160m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

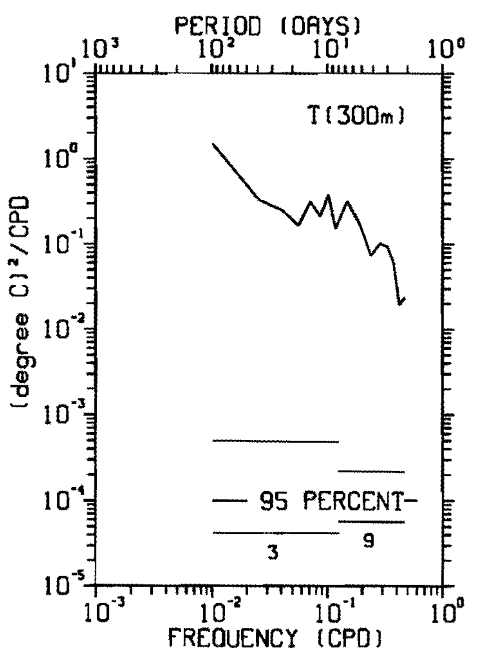
124.5W 30 OCT 83 - 2 OCT 85

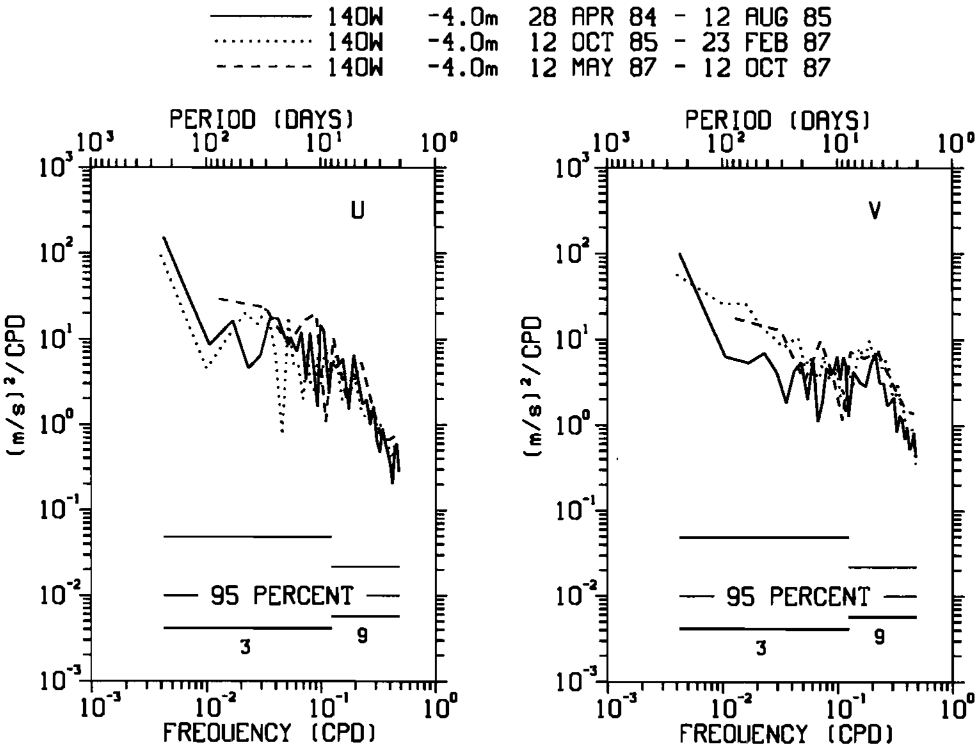


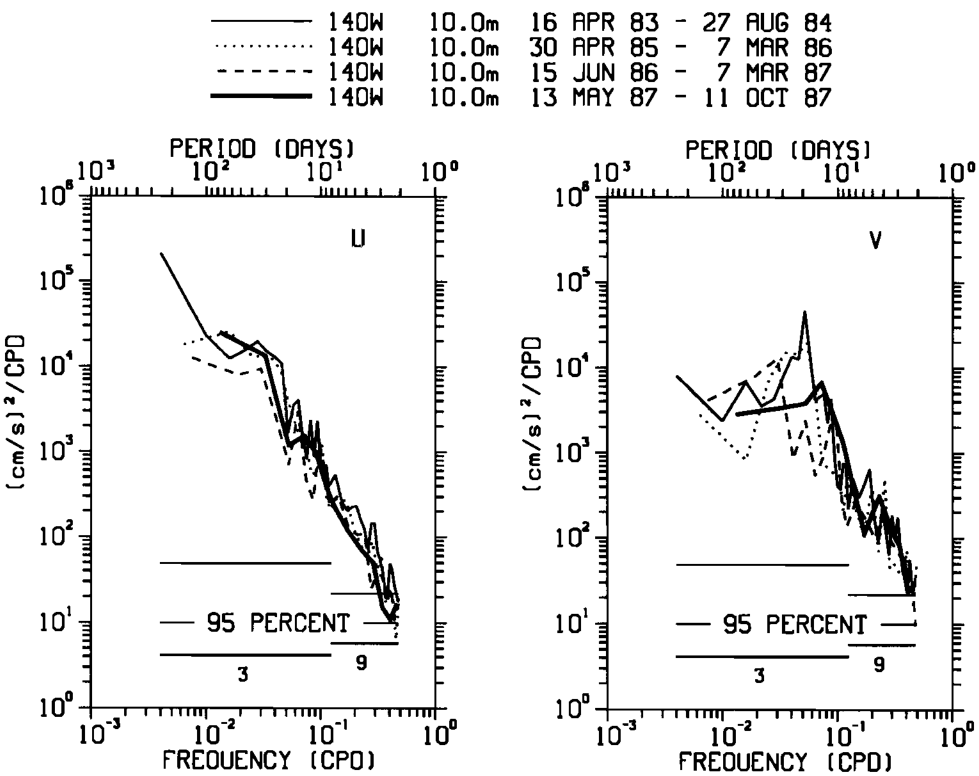
124.5W 30 OCT 83 - 2 OCT 85

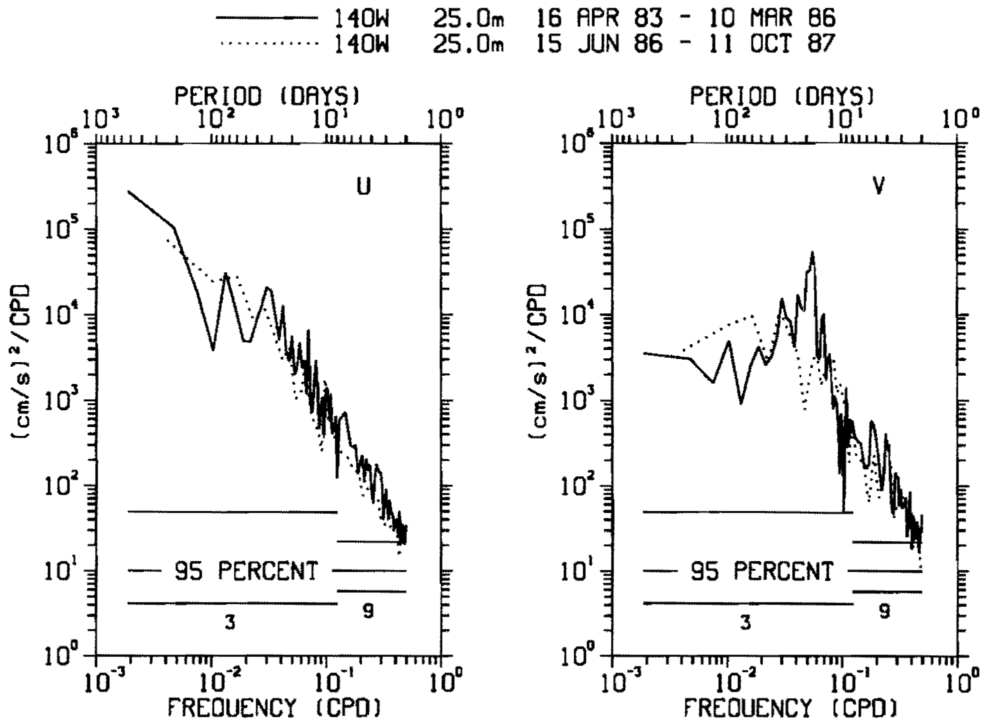


124.5W 21 OCT 84 - 4 MAY 85

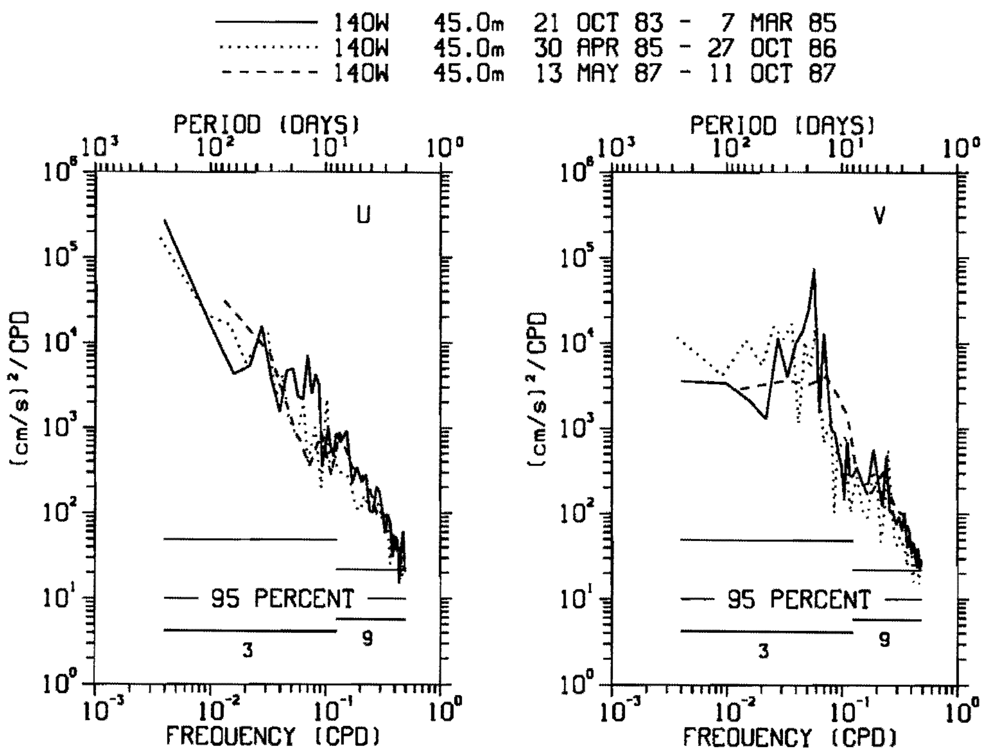



140W -4.0m 28 APR 84 - 12 AUG 85
140W -4.0m 12 OCT 85 - 23 FEB 87
140W -4.0m 12 MAY 87 - 12 OCT 87
PERIOD (DAYS)
U
V
(m/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


140W 10.0m 16 APR 83 - 27 AUG 84
140W 10.0m 30 APR 85 - 7 MAR 86
140W 10.0m 15 JUN 86 - 7 MAR 87
140W 10.0m 13 MAY 87 - 11 OCT 87
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

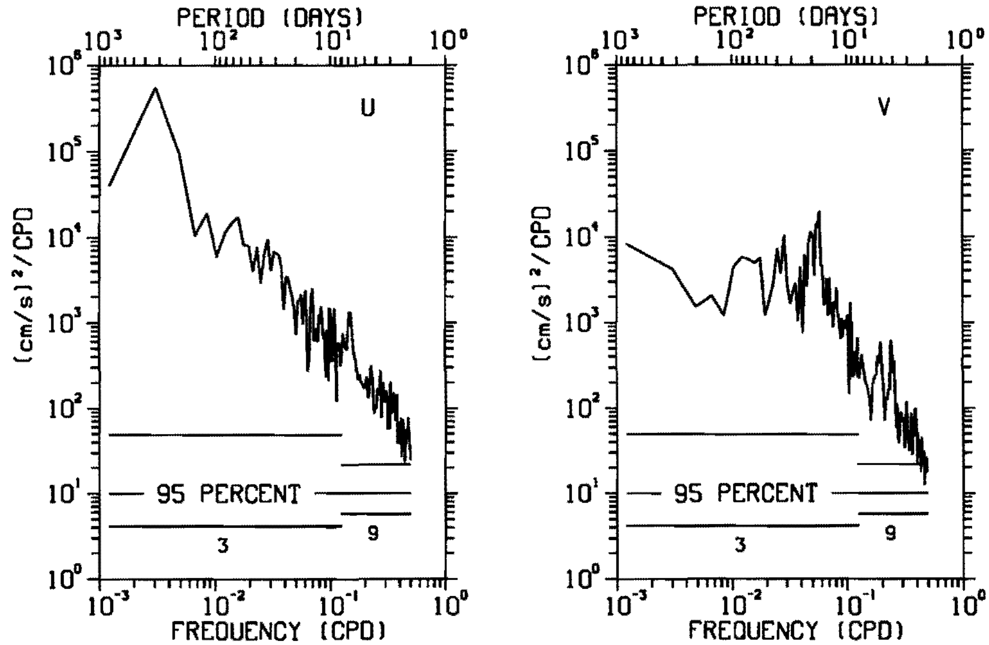


140W 25.0m 16 APR 83 - 10 MAR 86
140W 25.0m 15 JUN 86 - 11 OCT 87
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

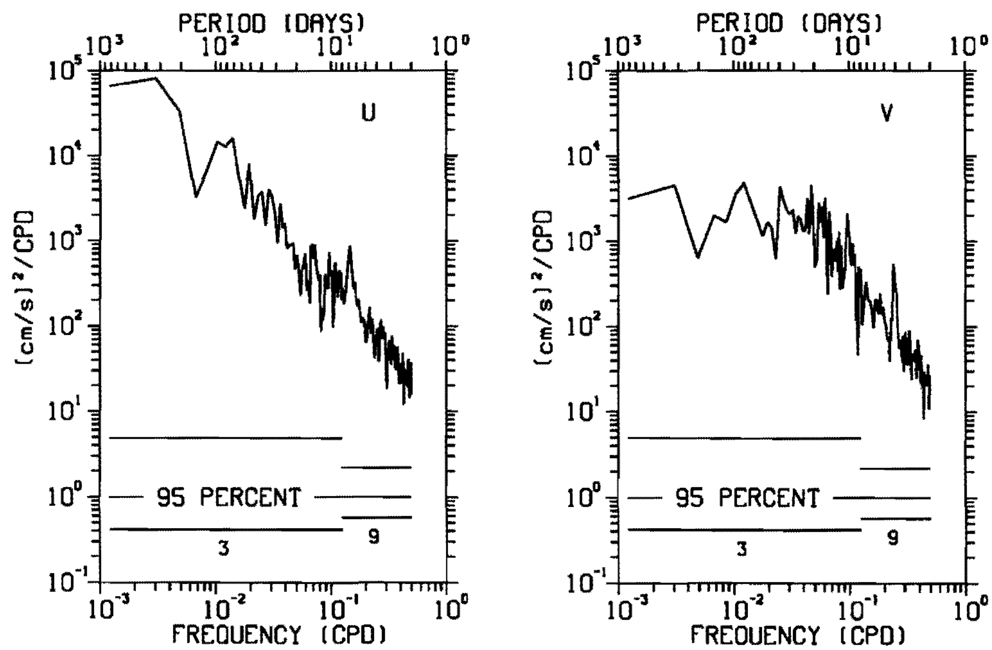


140W 45.0m 21 OCT 83 - 7 MAR 85
140W 45.0m 30 APR 85 - 27 OCT 86
140W 45.0m 13 MAY 87 - 11 OCT 87
PERIOD (DAYS)
U
V
(cm/s)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

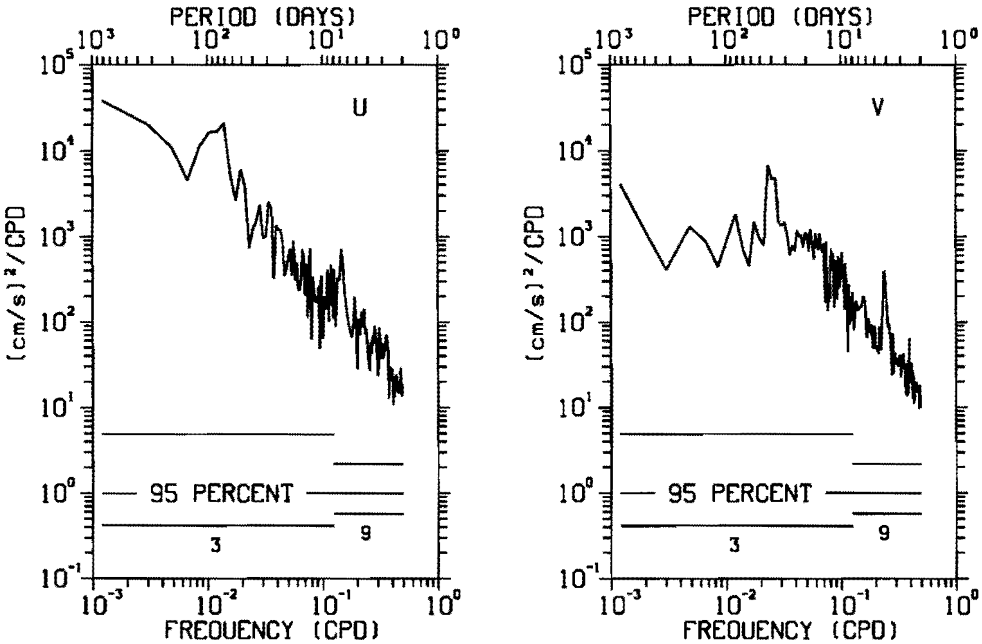
140W 80.0m 16 APR 83 - 11 OCT 87



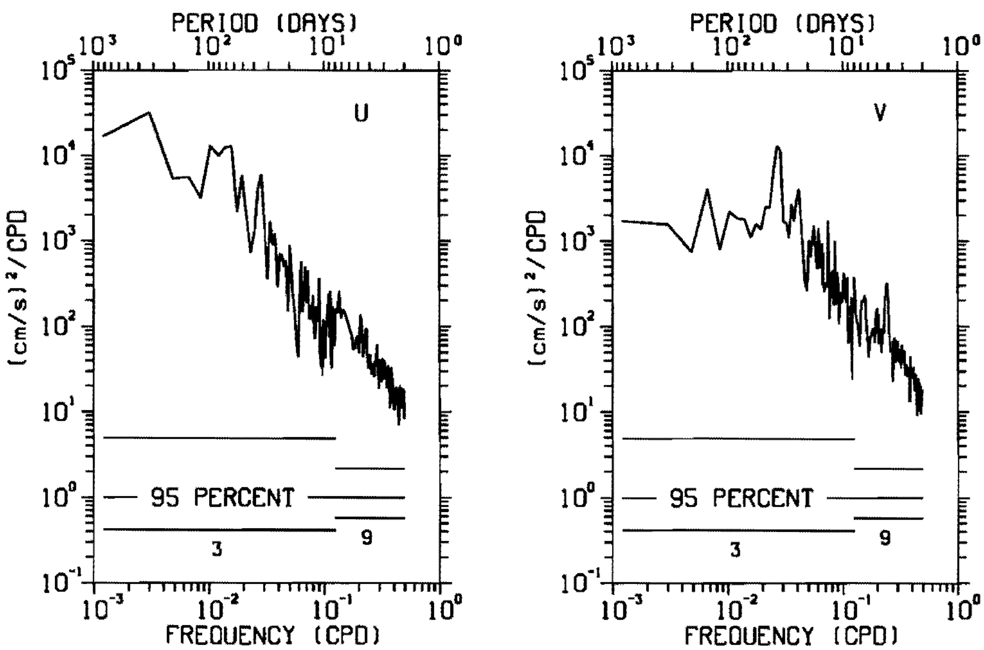
140W 120.0m 16 APR 83 - 11 OCT 87



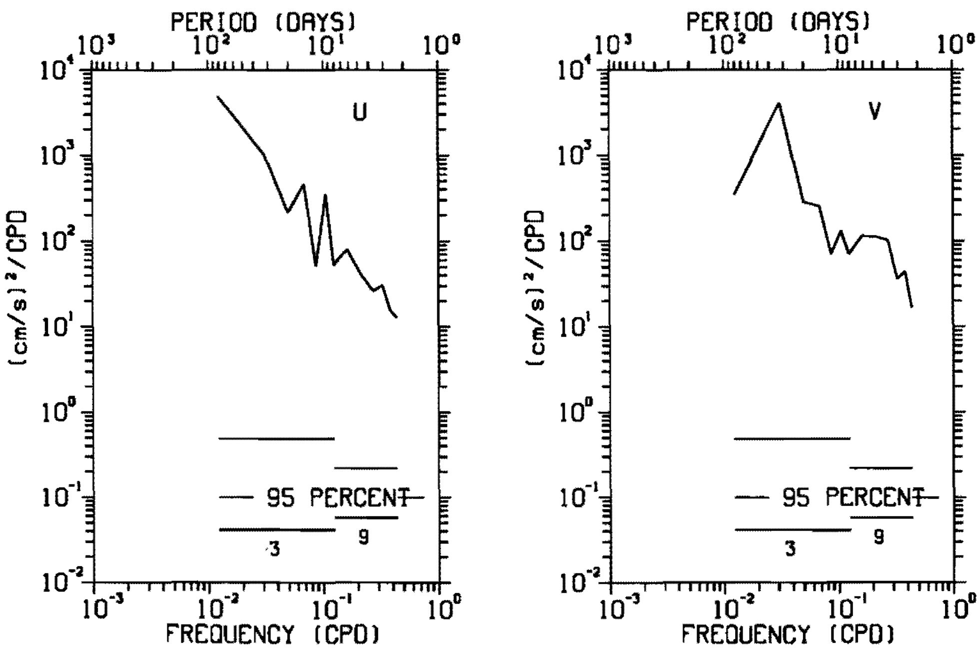
140W 160.0m 16 APR 83 - 11 OCT 87

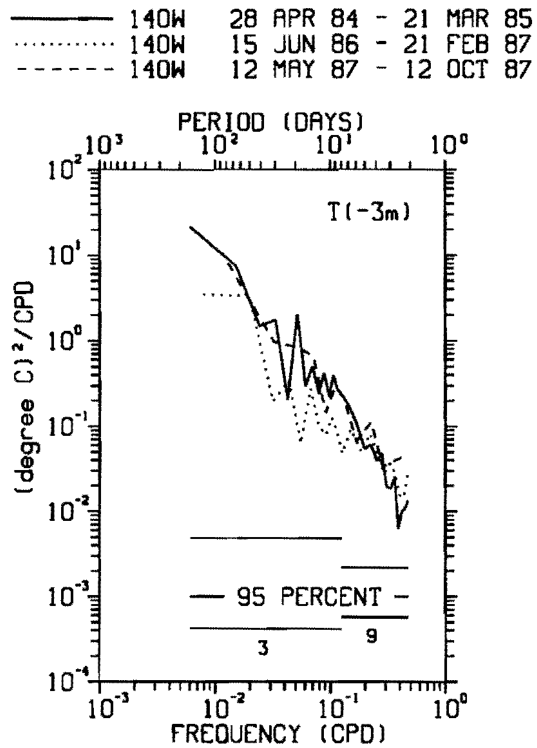


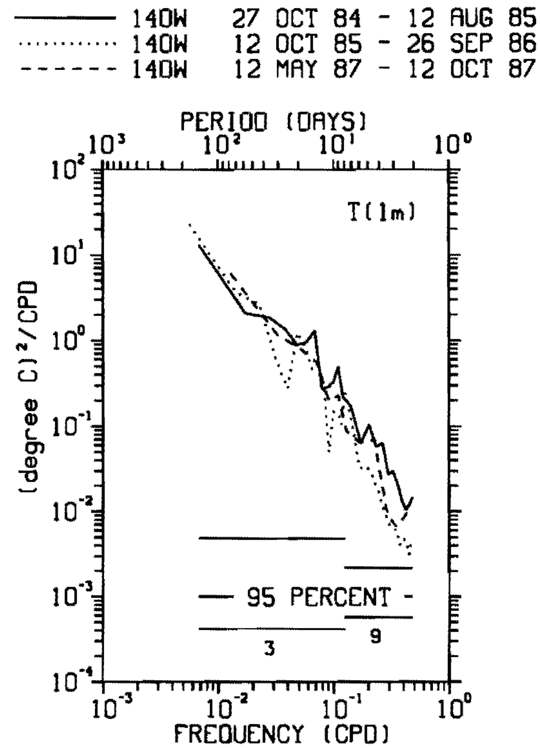
140W 250.0m 16 APR 83 - 11 OCT 87

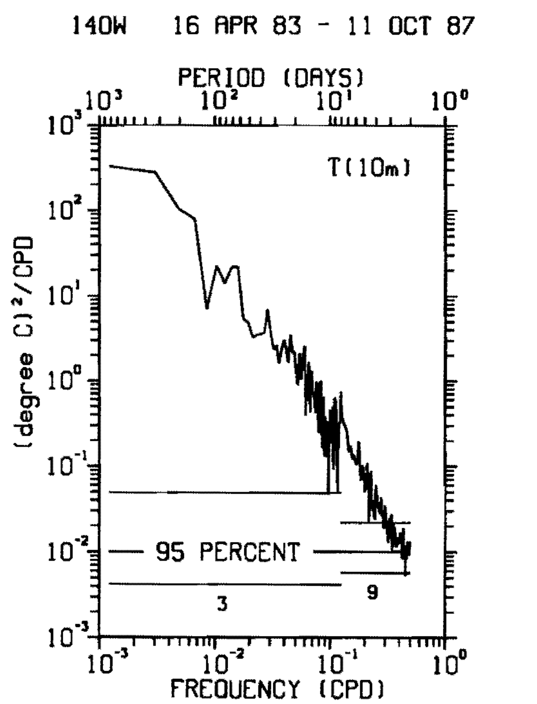


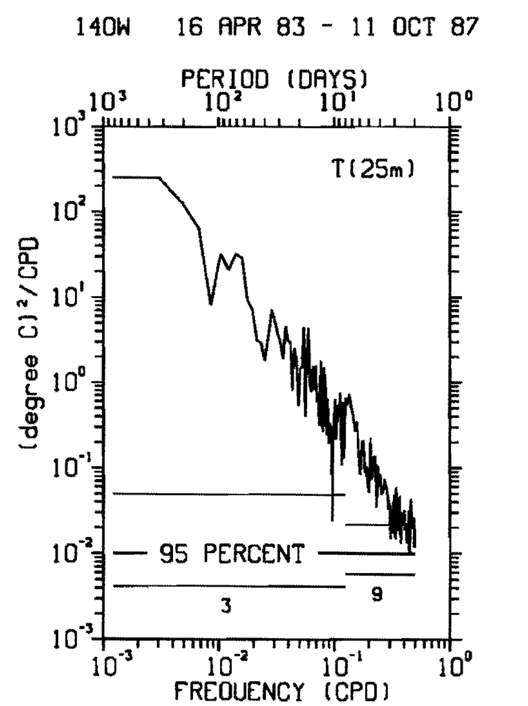
140W 300.0m 30 APR 85 - 8 OCT 85

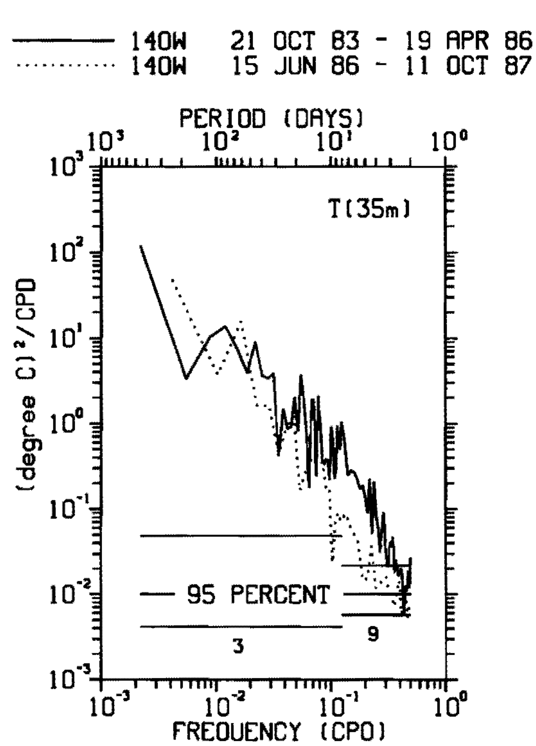



140W 28 APR 84 - 21 MAR 85
140W 15 JUN 86 - 21 FEB 87
140W 12 MAY 87 - 12 OCT 87
PERIOD (DAYS)
T(-3m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

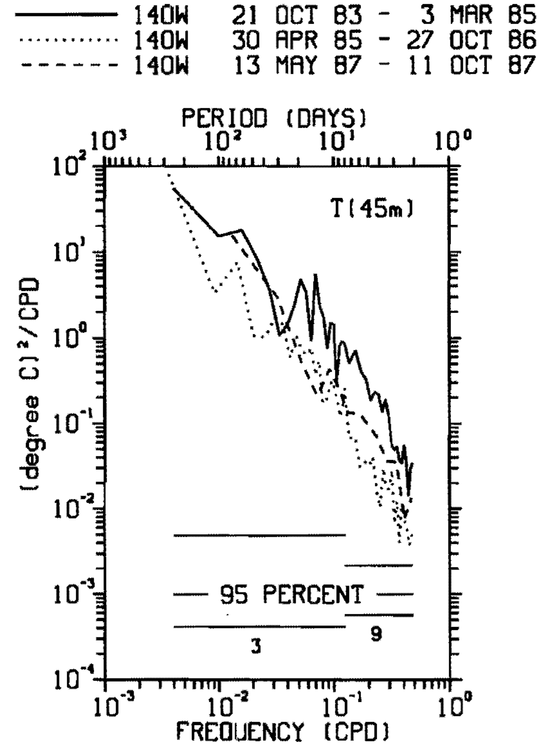

140W 27 OCT 84 - 12 AUG 85
140W 12 OCT 85 - 26 SEP 86
140W 12 MAY 87 - 12 OCT 87
PERIOD (DAYS)
T(1m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)


140W 16 APR 83 - 11 OCT 87
PERIOD (DAYS)
T(10m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

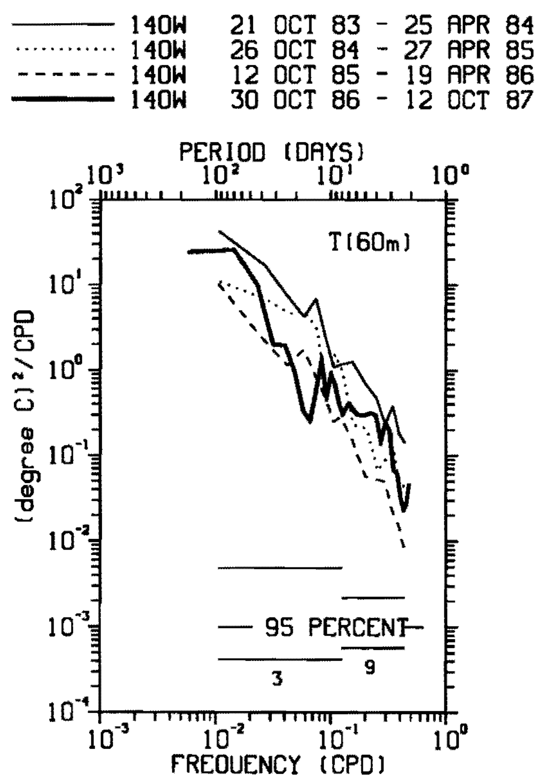

140W 16 APR 83 - 11 OCT 87
PERIOD (DAYS)
T(25m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)



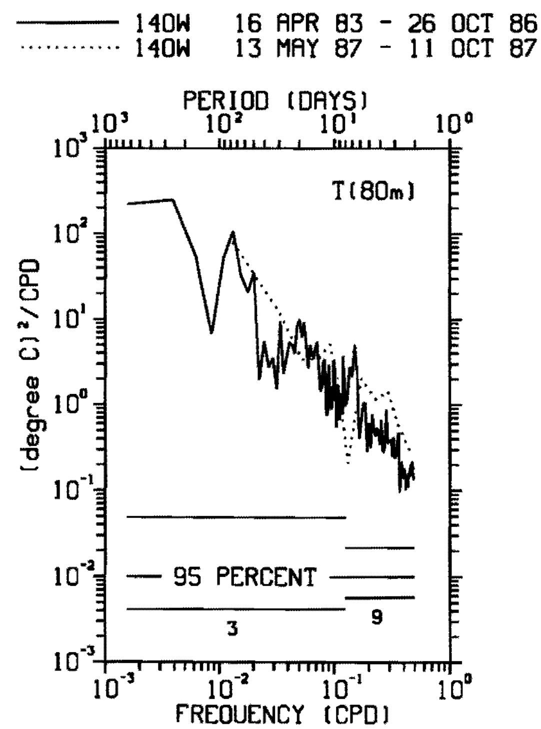
140W 21 OCT 83 - 19 APR 86
140W 15 JUN 86 - 11 OCT 87
PERIOD (DAYS)
T(35m)
95 PERCENT
3
9
(degree C)²/CPD
FREQUENCY (CPD)



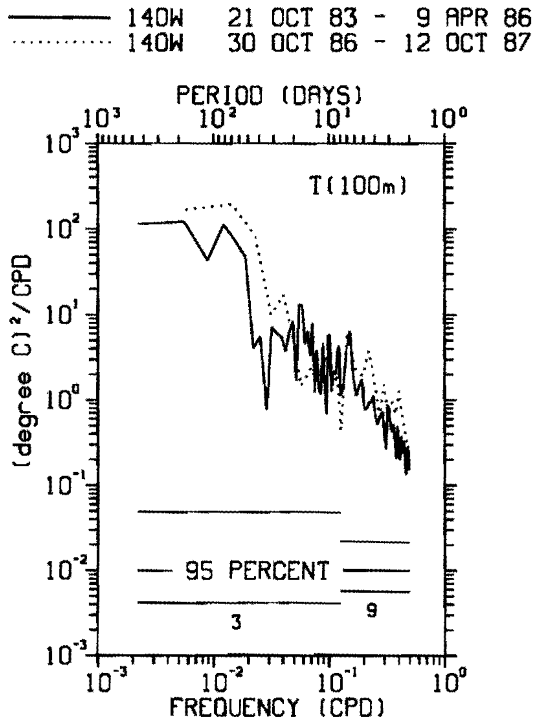
140W 21 OCT 83 - 3 MAR 85
140W 30 APR 85 - 27 OCT 86
140W 13 MAY 87 - 11 OCT 87
PERIOD (DAYS)
T(45m)
95 PERCENT
3
9
(degree C)²/CPD
FREQUENCY (CPD)



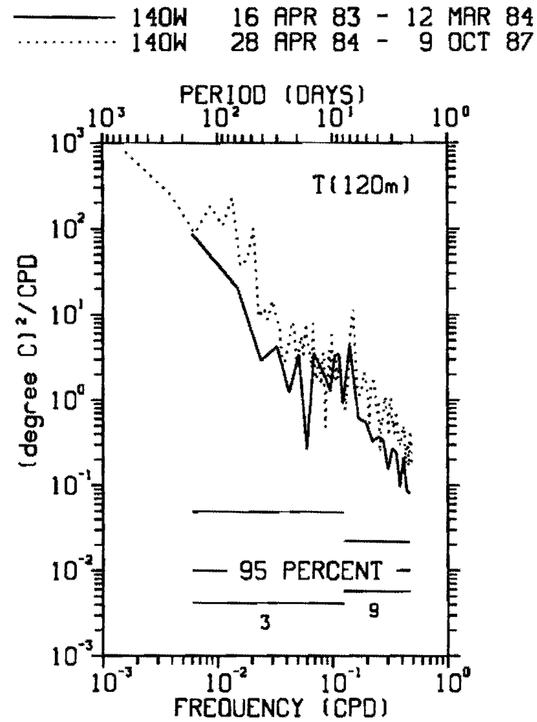
140W 21 OCT 83 - 25 APR 84
140W 26 OCT 84 - 27 APR 85
140W 12 OCT 85 - 19 APR 86
140W 30 OCT 86 - 12 OCT 87
PERIOD (DAYS)
T(60m)
95 PERCENT
3
9
(degree C)²/CPD
FREQUENCY (CPD)



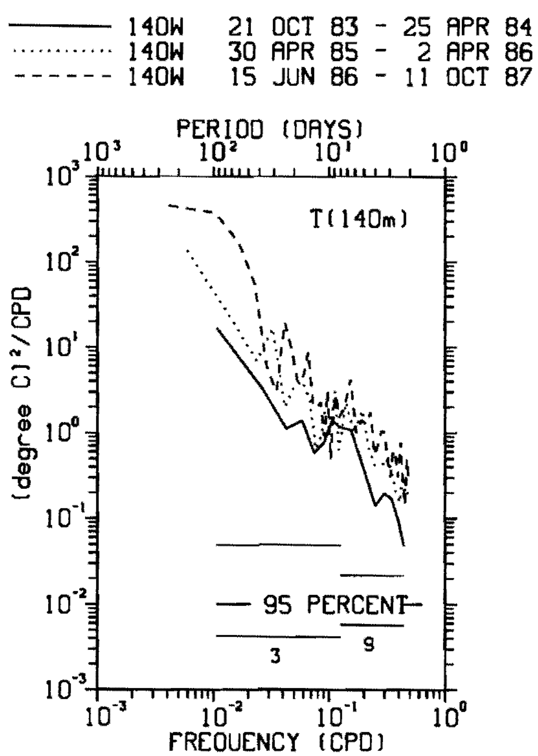
140W 16 APR 83 - 26 OCT 86
140W 13 MAY 87 - 11 OCT 87
PERIOD (DAYS)
T(80m)
95 PERCENT
3
9
(degree C)²/CPD
FREQUENCY (CPD)



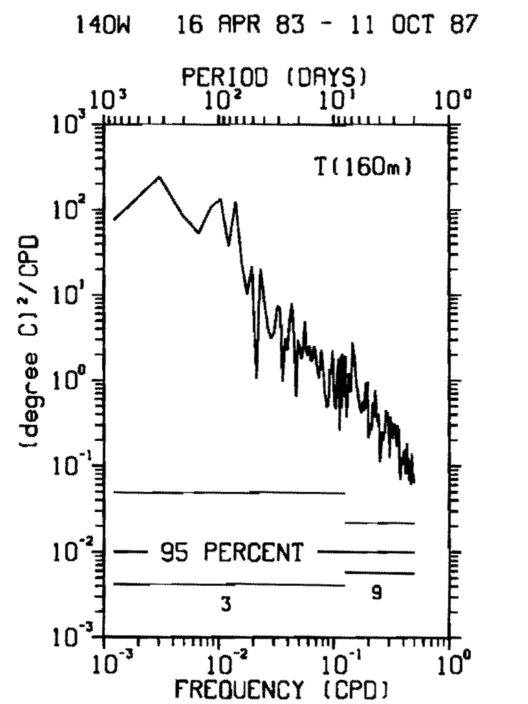
140W 21 OCT 83 - 9 APR 86
140W 30 OCT 86 - 12 OCT 87
PERIOD (DAYS)
T(100m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)



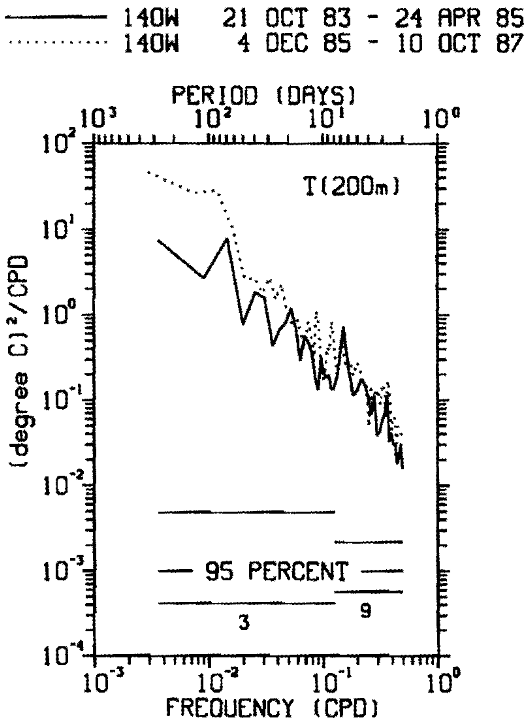
140W 16 APR 83 - 12 MAR 84
140W 28 APR 84 - 9 OCT 87
PERIOD (DAYS)
T(120m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)

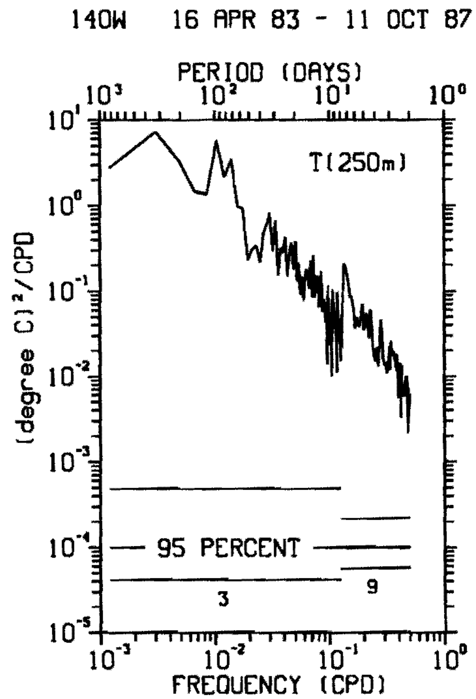


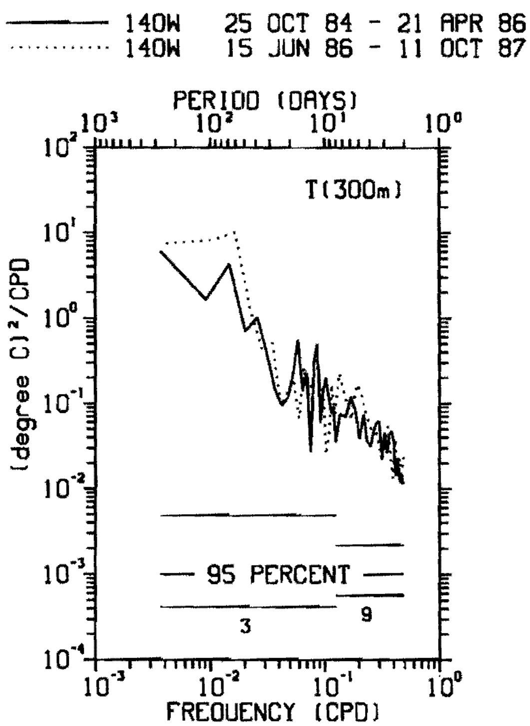
140W 21 OCT 83 - 25 APR 84
140W 30 APR 85 - 2 APR 86
140W 15 JUN 86 - 11 OCT 87
PERIOD (DAYS)
T(140m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)



140W 16 APR 83 - 11 OCT 87
PERIOD (DAYS)
T(160m)
(degree C)²/CPD
95 PERCENT
3
9
FREQUENCY (CPD)







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