



# Acoustic Doppler Current Profiler Records

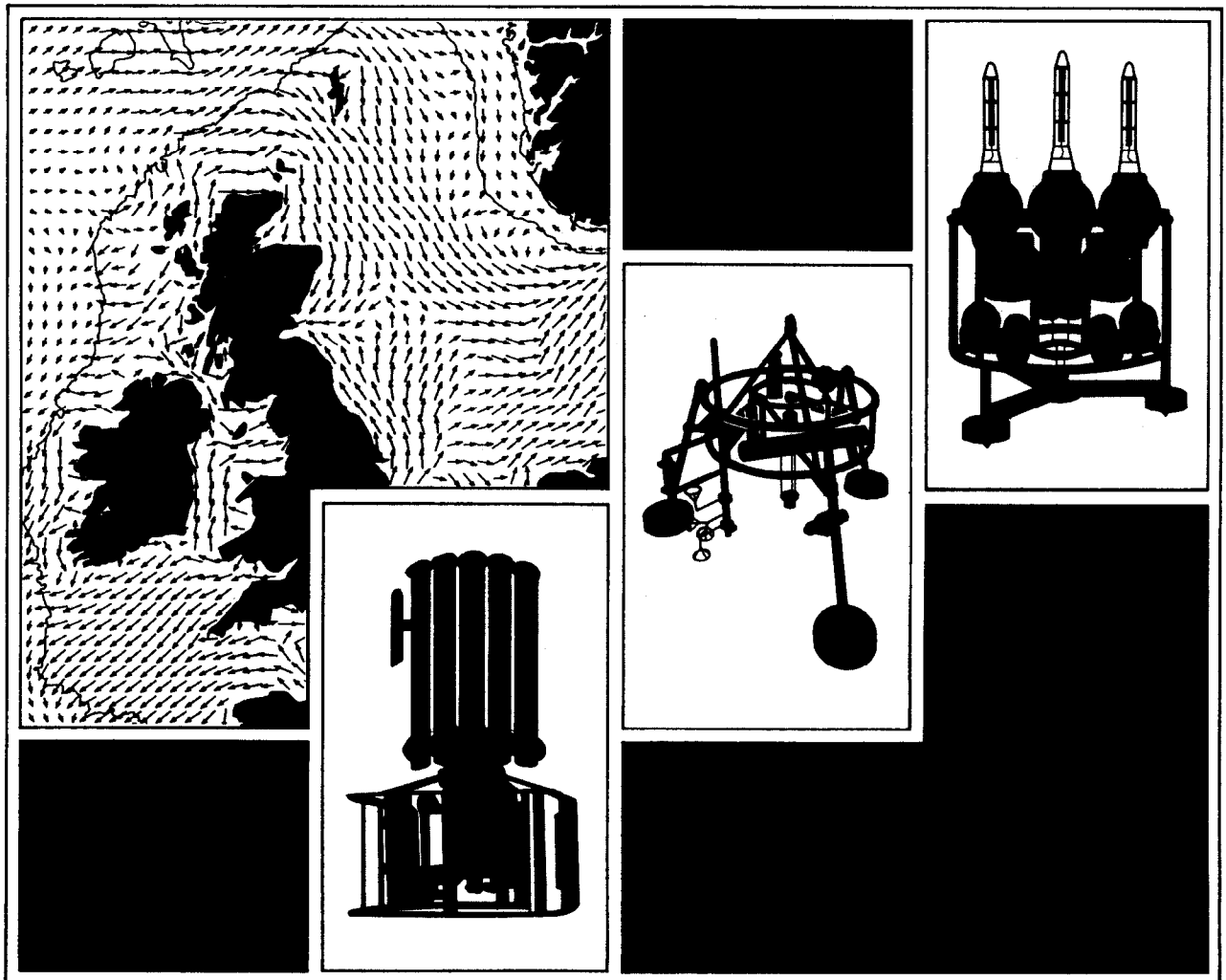
Site D – 53°30' N 03°00' E

August 1988 – September 1989

North Sea Project

PJ Knight MJ Howarth and D Flatt

Report No 17 1991



# **PROUDMAN OCEANOGRAPHIC LABORATORY**

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**PROUDMAN OCEANOGRAPHIC LABORATORY**

**REPORT No. 17**

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## 1 INTRODUCTION

Fifteen months of data were gathered in the southern North Sea as part of the North Sea Project, a NERC Community Research Project. Each month the RRS Challenger ship time was split between a two week survey and a two week process cruise.

This report describes the results from a current meter mooring at  $53^{\circ} 30' N$   $03^{\circ} 00' E$  deployed during the survey cruises. The mooring was first deployed on survey cruise Challenger C33/88 and subsequently re-deployed during follow up cruises between August 1988 and September 1989.

Figure 1 shows the position of the mooring, site D, and its relative position to other sites in the North Sea. It was one of six current meter moorings deployed during the North Sea Survey, and was situated in a region of moderate tidal currents, up to a maximum of  $1.0 \text{ m s}^{-1}$ , and in 30m depth of water. Data reports for the other sites are given in POL reports 11, 12, 13 (Knight, Falconer and Howarth, 1990) and 15, 16 (Knight, Howarth and Flatt, 1991).

The mooring, Figure 2, contained two instruments, an Acoustic Doppler Current Profiler (ADCP) and an Aanderaa, RCM 4 or RCM 7 current meter, both mounted on the sea bed. The ADCP recorded vector averaged North and East components of current at set levels throughout the water column. The Aanderaa measured conductivity, pressure and temperature. The pressure sensor, not of tide gauge quality, gave an indication of mooring stability.

Gaps of the order of 20 minutes occurred in the ADCP data during C35/88, C39/88, C41/88, C45/89 and C49/89 deployments. After calibration of the data and, if required, linear interpolation of the gaps, statistics were calculated and a low pass filter was applied to produce six hourly values which were also statistically analysed. Finally standard current meter plots were produced in order to check data quality and to aid in interpretation of the data.

The reference direction was estimated for each deployment, see Section 7, since the compasses returned arbitrary zero directions, because of a design fault. During C47/89 and C53/89 cruises RCM's were not fitted due to their unavailability. Also, C43/88 mooring was not deployed due to bad weather conditions. The ADCP's returned 64% (angle corrected) and the RCM's 100% good data when deployed. The data coverage over the 15 month period was 59% for the ADCP's and 82% for the RCM's.

## 2 SUMMARY OF DEPLOYMENTS

The following information gives an overview of the data processed at site D during the North Sea project.

Mooring	Meter No	Deployment	Recovery	Meter Ht(m)	Data length	Comments
C33DC	0003	07-AUG-88	06-SEP-88	0.8	0.0 days	Corrupted data set
C33DC	6443	07-AUG-88	06-SEP-88	0.8	29.8 days	Good data set
C35DC	0005	06-SEP-88	05-OCT-88	0.8	25.2 days	Short by 3.5 days + Gaps
C35DC	1509	06-SEP-88	05-OCT-88	0.8	28.7 days	Good data set
C37DC	0006	05-OCT-88	-----	0.8	0.0 days	Lost
C37DC	4387	05-OCT-88	10-DEC-88	0.8	65.6 days	Good data set
C39DC	0004	04-NOV-88	12-DEC-88	0.8	37.3 days	Frame movement + Gaps
C39DC	6443	04-NOV-88	12-DEC-88	0.8	37.9 days	T/S/P Spikes in parameters
C41DC	0001	12-DEC-88	25-JAN-89	0.8	11.6 days	Short by 32.0 days + Gaps
C41DC	6443	12-DEC-88	25-JAN-89	0.8	43.6 days	Good data set
C45DC	0001	31-JAN-89	05-MAR-89	0.8	32.3 days	Gaps
C45DC	6443	31-JAN-89	05-MAR-89	0.8	32.6 days	Good data set
C47DC	0002	04-MAR-89	01-APR-89	0.8	17.8 days	Short by 10.1 days
C49DC	0001	01-APR-89	30-APR-89	0.8	28.6 days	Gaps
C49DC	6443	01-APR-89	30-APR-89	0.8	28.9 days	Good data set
C51DC	0002	30-APR-89	29-MAY-89	0.8	26.7 days	Short by 2.1 days
C51DC	9633	30-APR-89	29-MAY-89	0.8	28.8 days	Good data set
C53DC	0004	29-MAY-89	27-JUN-89	0.8	28.7 days	Good data set
C55DC	0003	27-JUN-89	27-JUL-89	0.8	12.8 days	Short by 17.3 days
C55DC	9632	27-JUN-89	27-JUL-89	0.8	30.1 days	Good data set
C57DC	0009	27-JUL-89	26-AUG-89	0.8	29.7 days	Good data set
C57DC	6443	27-JUL-89	26-AUG-89	0.8	29.7 days	Good data set
C59DC	0003	26-AUG-89	24-SEP-89	0.8	28.8 days	Good data set
C59DC	9632	26-AUG-89	24-SEP-89	0.8	28.8 days	Good data set



### 3 RIG SYSTEM DESCRIPTION

The mooring was deployed in a water depth of 30m at latitude 53° 30'N and longitude 03° 00'E. It consisted of two instruments, see Figure 4, and an IOS acoustic release mounted on a frame positioned on the sea bed. On recovery the release was triggered by sending acoustic signals from the ship so that the frame separated from the ballast weight. The frame under its own buoyancy (glass spheres) then rose to the surface ready for picking up. Figure 2 shows a schematic diagram of the mooring.

### 4 CURRENT METER SPECIFICATIONS

The ADCP (Proudman Oceanographic Laboratory 250 KHz version) measured the vertical profile of currents in bins from the sea floor to the surface. The Aanderaa of type RCM 4 or RCM 7 was used to measure conductivity, temperature and pressure.

#### 4.1 Acoustic Doppler Current Profiler (POL 250 KHz version)

The ADCP sends out short acoustic pulses, typically lasting a few thousandths of a second, at a fixed frequency. The acoustic pulses are transmitted in two narrow beams at right angles to each other and 30° to the vertical and are reflected back to the ADCP by small particles such as plankton which move with the water. The frequency of the reflected signal is changed by a small amount proportional to the current speed, the Doppler shift. By measuring the frequency change along the two beams the speed and direction of the currents are determined. The currents at different heights through the water column are obtained by chopping the return signal into segments by time.

The 250 KHz ADCP has a range of 100m and can measure up to 24 bins. However, the technique has some limitations which reduce the amount of good data return. The closest bins to the transducers can give erroneous data due to the time taken for transients to decay and the far end bins can be effected by interference from side lobes reflected from the sea surface. Hence, the good data return bins are usually between 25% of depth from the surface and 10% of depth from the bottom. The good bin returns are as follows : C35DC / C37DC / C41DC / C45DC / C47DC / C49DC / C51DC / C53DC / C55DC / C57DC / C59DC / bins(1-5) with bins 1 (bottom) to 8 (top). The M2 amplitude generally increases with each bin up through the profile. However, amplitudes for bin 5's tended to be significantly lower than for bin 4's. Also, deployments C47DC, C49DC, C53DC, C57DC and C59DC show larger than expected vector mean speeds. Both of these anomalies are currently being investigated.

#### 4.2 ADCP specification

<b>Speed</b>	Range	0 to 350 cm s <sup>-1</sup>
	Accuracy	±4 cm s <sup>-1</sup>
<b>Direction</b>	Refer to section	<b>7 ANGLE CORRECTION TO ADCP DATA</b>
<b>Tilt</b>	Two tilts measured at 90° to each other (not used in processing)	

#### 4.3 ADCP set up details

<b>Set up</b>	Sample period	10 minutes
	Number of bins (cells)	8
	Number of pings in ensemble	425
	First bin height/Bin separation	7.9 m / 4.5 m
	Bin heights (range) (1-8)	7.9 m / 12.4 m / 16.9 m / 21.4 m / 25.9 m / 30.4 m / 34.9 m / 39.4 m

#### 4.4 Aanderaa RCM 4 and RCM 7 current meters

Temperature is measured by a thermistor fitted into a stud extending into the water. Conductivity is measured by an electrodeless induction conductivity cell and pressure is measured by a sensor consisting of a potentiometer driven by a Bourdon tube. Both types of meter used similar sensors, but differed in data storage. The RCM 4 used 6mm width reel magnetic tape and the RCM 7 used solid state memory.

#### 4.5 Aanderaa sensor specifications

<b>Temperature</b>	Range	-2.46 to 21.4°C
	Accuracy	±0.05°C
<b>Conductivity</b>	Range	21 to 51 mmho cm <sup>-1</sup>
	Accuracy	±0.025 mmho cm <sup>-1</sup>
<b>Pressure</b>	Range	0 to 100 PSI or 0 to 200 PSI
	Accuracy	±1%

## **5 DATA PROCESSING STEPS**

### **5.1 Raw data transfer**

The data from the deployments were brought back to POL in three different forms. These consisted of standard magnetic cassette from the ADCP, 6mm width magnetic tape from the RCM 4 and 3.5 inch floppy disk from the RCM 7. The RCM 7 data was translated from the solid state memory on board ship and the RCM 4 and ADCP data were translated on to an IBM/PS2 at POL. The data were then transferred to the IBM 4381 mainframe via a 3270 terminal emulator on the IBM/PS2.

### **5.2 Processing stage**

Two software systems, CALT and CALP, were developed at POL for quick and efficient processing and display of times series data, such as current meter data. The CALT system calibrates and checks for errors and the CALP system produces standard graphical output, filtered and non-filtered statistical analyses. Before calibrating the data, all the information required for processing were input into an ORACLE data base. All the information could then be accessed easily with FORTRAN programs.

Processing was then initiated by CALTUX, which calls a suite of FORTRAN programs for error checking and producing calibrated data. Any errors found from the initial run were edited out of the raw data and CALTUX run again. After successful completion of the CALTUX stage another suite of FORTRAN programs initiated by DOPTX were used to produce the output contained in this report. The types of plot obtained, details of filtering and statistics are explained in more detail in the following sections.

### **5.3 Interpolation**

In some data sets, gaps occur of the order of 20 minutes, as indicated by the meter information sheets found further into the report and in section 2 SUMMARY OF DEPLOYMENTS. In these cases the gaps were filled by linear interpolation to the data before producing standard graphical output and statistical analyses.

## **6 DETAILS OF STATISTICS AND FILTERING**

### **6.1 Simple statistics**

A simple statistical analysis was carried out on each calibrated data set. The following statistics were calculated :-

- (1) Mean, variance and standard deviation of the East and North components of velocity.
- (2) The mean vector speed and direction were calculated from the above statistics.
- (3) The maximum ten and minimum ten Northings and Eastings and the top speeds.

### **6.2 Variance ellipse statistics**

Statistical analysis was also carried out on the ellipse which can be graphically represented by a scatter plot. The following statistics were calculated :-

- (1) The maximum and minimum variances and their ratio (minimum/maximum). If the ratio is near to one the currents have no preferred direction, whilst if it is near to zero the flow is rectilinear.
- (2) The direction associated with the maximum and minimum variance, in the range of  $-180^{\circ}$  to  $+180^{\circ}$ .
- (3) The total variance which equals the sum of the North and East component variances or the sum of the maximum and minimum variances.
- (4) The average direction for each half of the ellipse, related to the directions of maximum variance. If these directions differ by  $180^{\circ}$  the scatter plot is symmetrical.

### **6.3 Filtering**

The ten minute calibrated data were also low pass filtered, see Figure 3 which shows the filters response function, and sub-sampled every 6 hours. Three days of data are lost at the beginning and the end of the record. The statistical analysis was repeated on the filtered data set.

## 7 ANGLE CORRECTION TO ADCP DATA

### 7.1 Direction measurement

Figure 5 shows how beam 1 and beam 2 of the ADCP align with respect to the frame and the compass. The compass manufactured by Digicourse (no longer in production) measures the angle between magnetic North and the frame. The two beams can be converted into East and North components of velocity by using the angle obtained from the compass and trigonometry.

Preliminary analysis of ADCP data obtained from the Celtic Sea showed no problem with this type of compass. However, during the North Sea Project it had a tendency to stick giving directions of flow different from those predicted by tidal model results (Proctor, personal communication) and previous current meter records (Howarth, 1990). Also, the frame moved on the sea floor during some storm events. A correction was then required to the frame angle for each deployment.

### 7.2 Correction procedure

The ADCP data were first processed using the CALT and CALP software. The statistical analysis gave the angle  $\alpha$  of maximum variance as shown in Figure 6(a). This angle  $\alpha$  was taken to represent the M2 major axis tidal ellipse angle  $\beta$  shown in Figure 6(b). The compass, although giving incorrect readings of frame angle was recording direction to an unknown fixed position. It was therefore decided to correct the frame angle by adding a correction angle.

The correction angle was calculated from the difference between  $\beta$  calculated from a model and  $\alpha$  calculated from the initial raw data analysis. The model gave a depth average value so  $\alpha$  obtained from the data bin closest to this depth was needed. The bin to use was found by taking the bin nearest to a value  $z=0.4D$ , where  $D$  is the total depth of water and  $z$  is the height from the bottom (Prandle, 1982). There is a  $180^\circ$  ambiguity in the calculation of  $\alpha$  which was resolved by study of the M2 tidal phase given by the model and by the observations.

### **7.3 Adaption of correction for frame movements**

During some of the deployments the tilt and compass measurements from the ADCP and recovery positions of the mooring indicated limited movement of the frame on the sea floor. On some occasions the compass reacts correctly to the movement and the correction procedure is as in section 7.2. However, when the compass does not react correctly to these changes the record has to be split up into stable periods and the procedure in section 7.2 followed.

## 8 FORMAT OF DATA OUTPUT

All speeds and velocities are in m/s, directions in degrees true and time in GMT. The results are ordered by mooring number (See page 10). Each mooring result is made up of mooring information, meter information and, combined and depth averaged graphical output and statistics (unfiltered and filtered) with the ADCP first followed by the RCM.

### 8.1 Mooring information

Position latitude	: Latitude of deployment
Position longitude	: Longitude of deployment
Water depth(m)	: Depth measured from ship's echo sounder
Deployed on cruise	: Cruise identifier
Recovered on cruise	: Cruise identifier
Site name identification	: Additional site identifier
Magnetic deviation	: Taken from charts
Rig deployed on	: Time frame on the bottom
Rig recovered on	: Time release fired on rig
Period of deployment	: Total time of deployment
Comments	: Details regarding mooring

### 8.2 Meter information

Rig number	: Unique POL mooring/rig reference
Meter number	: Four digit current meter number
Frame angle correction	: Correction to be added to ADCP frame angle
Sample interval	: Sampling interval in seconds
Meter height from bottom	: Height in metres
Position of meter on rig	: A for attached to frame
Meter type	: DP for ADCP AA for RCM 4 AS for RCM 7
Meter started	: Date and time
Meter stopped	: Date and time
Time of last valid scan	: Used when good data ends before switch off
Period in days on record	: Total time meter switched on
Total number of scans	: Used to check timing
Timing error	: Error in seconds
Comments	: Details regarding meter

### **8.3 Combined ADCP profile output**

- (1) North and East components of velocity against time. The semi-diurnal nature of the tides can be seen as well as the Spring/Neap cycle in both components of velocity.
- (2) Scatter diagrams of North components of velocity against the East components. Shows the direction and magnitudes of the currents. This plot is often a good check on the quality of the data, in particular regarding direction and possible problems at low speeds.
- (3) Stacked filtered stick plot. The filtered data can be displayed in a stick type way in order to see the change of the residual flow with time and through the vertical.
- (4) Combined statistics for each bin giving vector mean speed and direction, and maximum and minimum variance and directions of maximum and minimum variance.

### **8.4 Single bin (closest to depth average) output**

- (1) North and East components of velocity against time.
- (2) Eulerian progressive vector plot. The nature of the residual flow is emphasised, although the semi-diurnal tides are also apparent.
- (3) This is followed by simple statistics of the calibrated data and filtered data. The filtered statistics page is indicated by the letter 'F' at the end of the file type printed at the top of the page. The statistics shown are from the ADCP bin closest to a value representing the depth averaged value.

### **8.5 Aanderaa graphical output**

- (1) Temperature, salinity and pressure against time. Salinity is calculated from temperature, conductivity and pressure.



**ACKNOWLEDGEMENTS**

The authors would like to thank POL engineers for setting up, deploying and recovering the instruments. The survey on such a large scale and with quick turn around of equipment needed would not have yielded such excellent returns without their effort and it is to their credit. We would also like to thank Steve Loch of BODC for undertaking the initial design and implementation of the CALTUX software.

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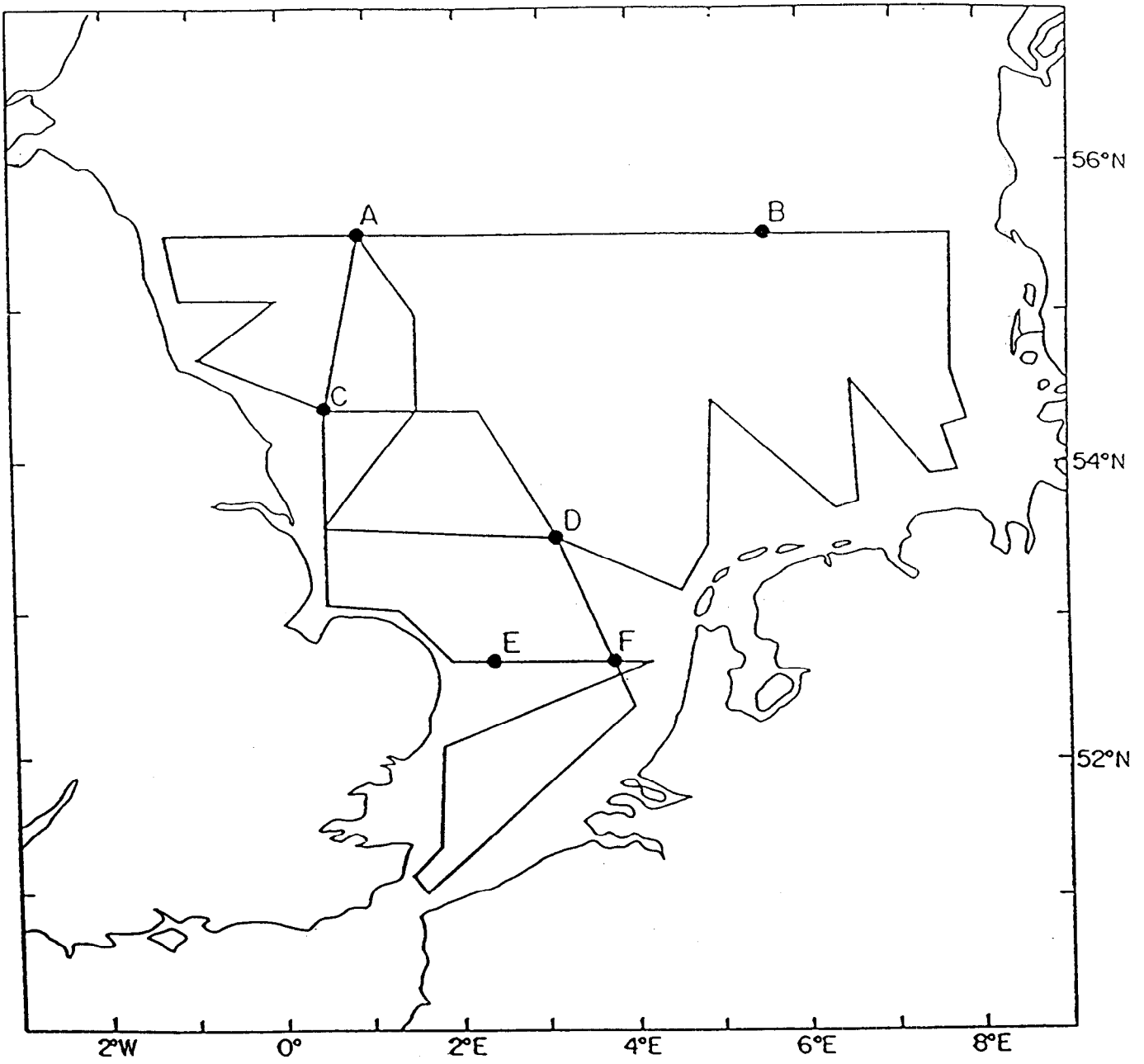


Figure 1. Positions of North Sea Project current meter rigs.

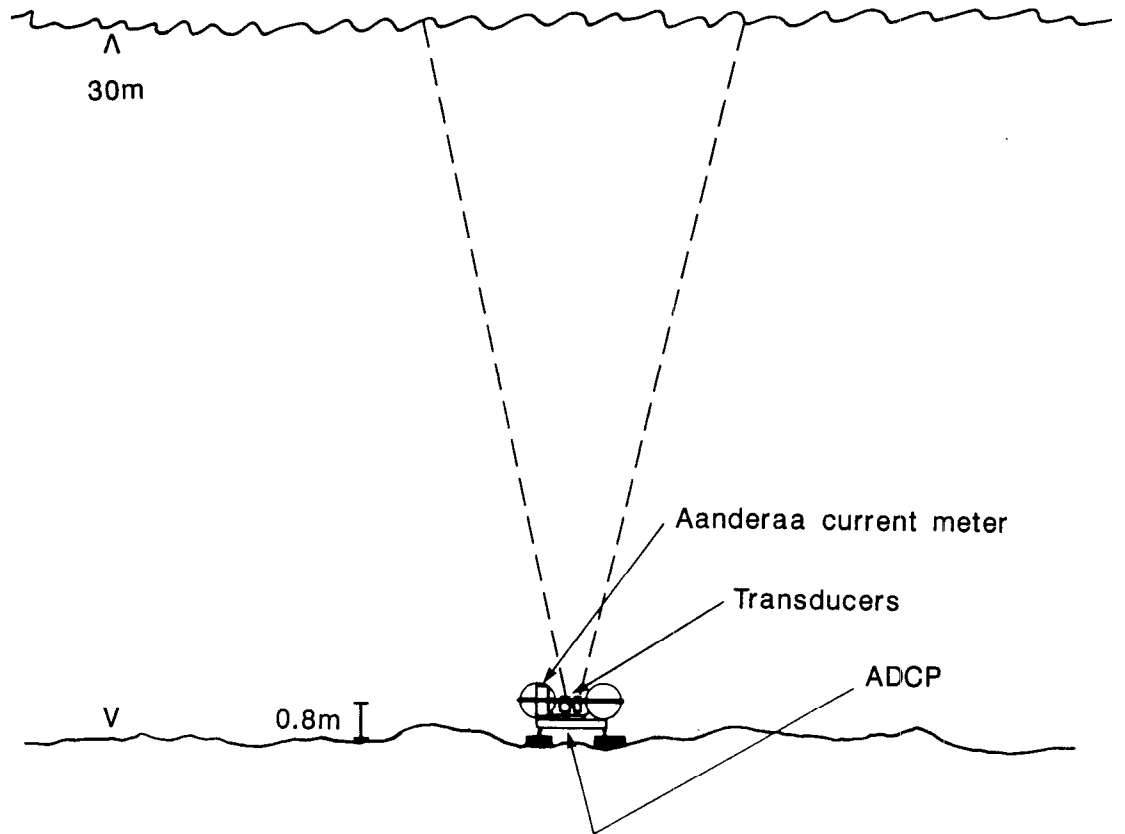


Figure 2. Mooring system schematic description.

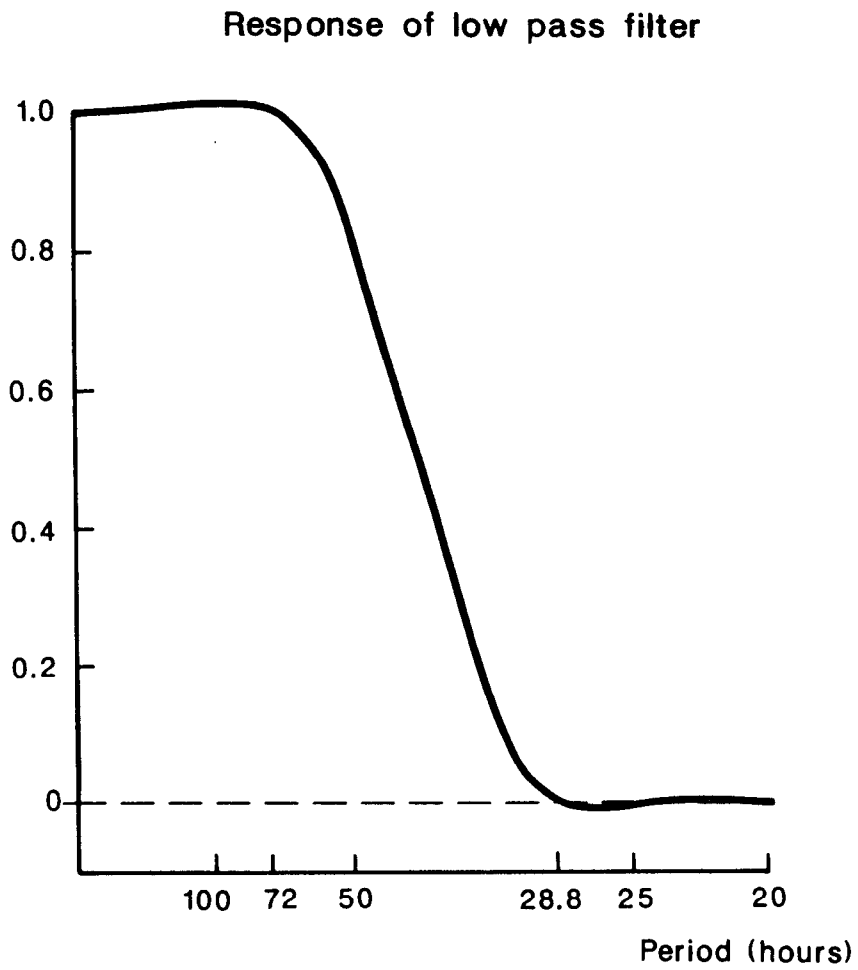


Figure 3. Response of low pass filter.

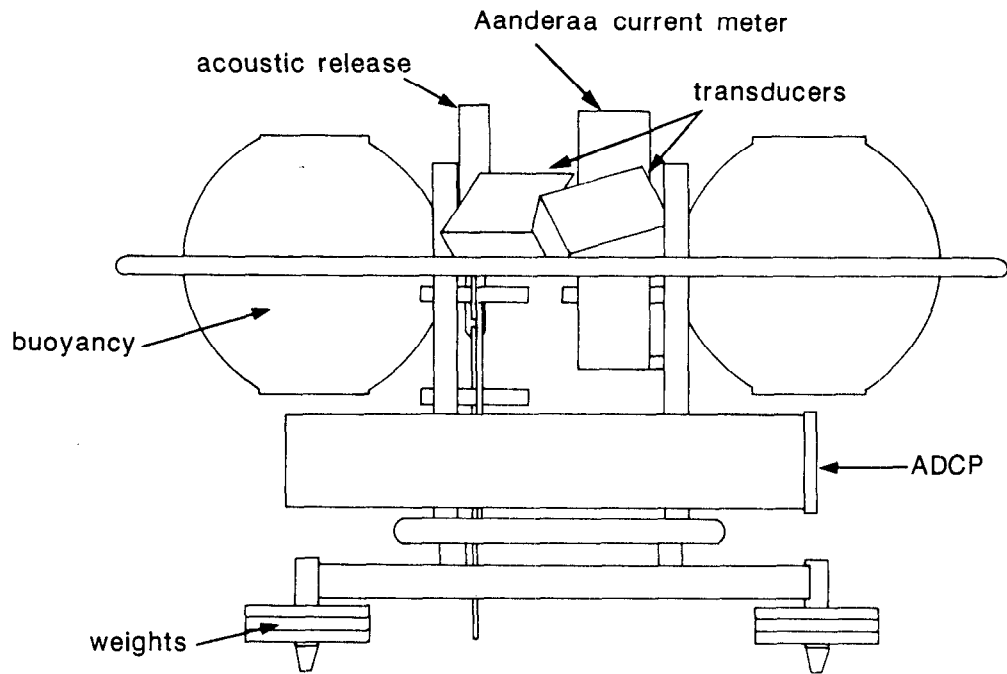


Figure 4. Diagram of ADCP and Aanderaa current meters on frame.

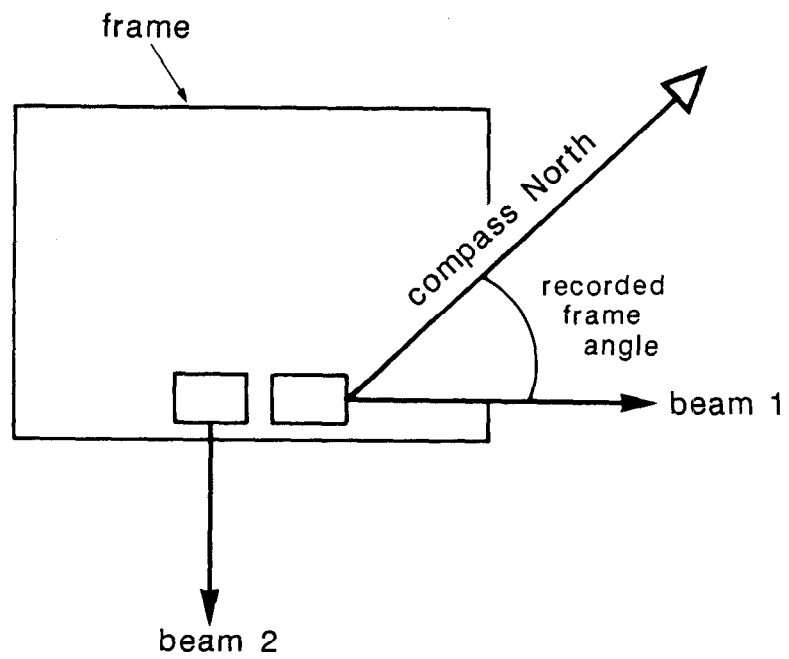


Figure 5. ADCP compass alignment.

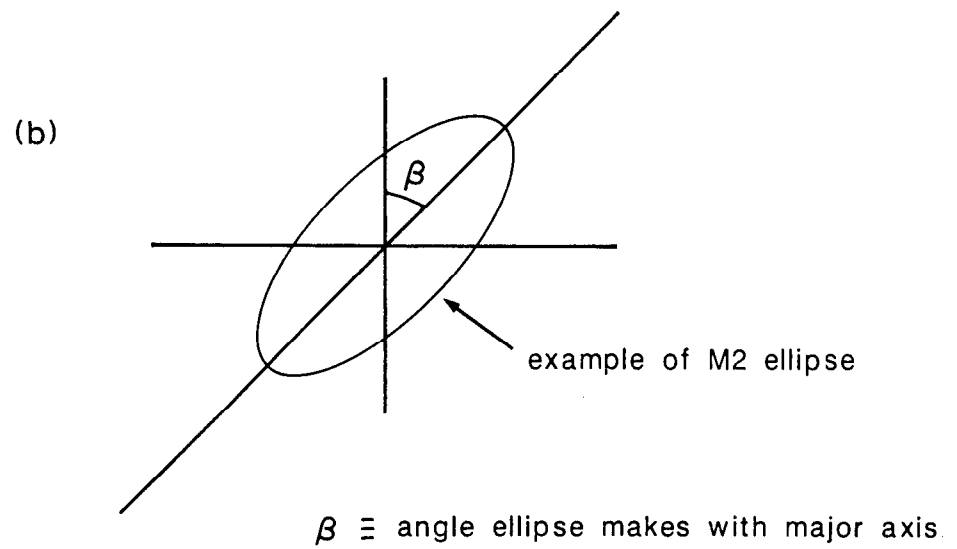
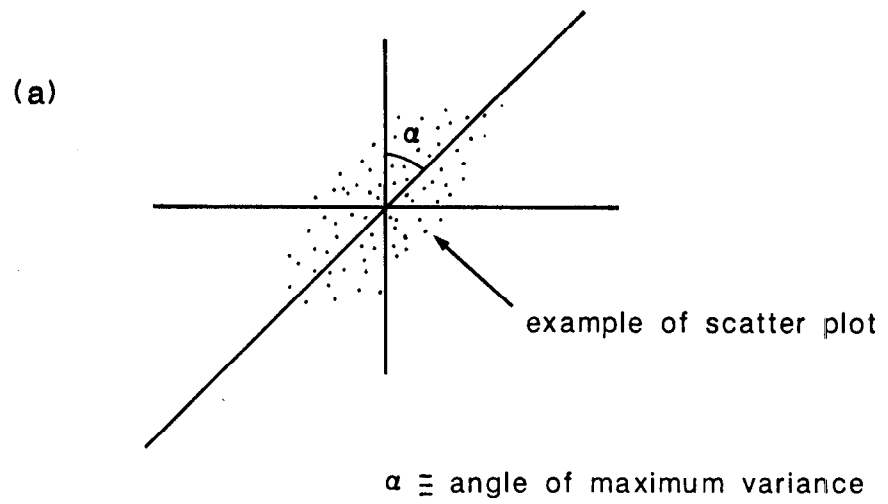


Figure 6. Diagram showing angles used in correction.



**Rig information details for C33DC**

Position Latitude	:	53 30.00N
Position Longitude	:	03 00.00E
Water depth	:	31.0 m
Deployed on cruise	:	C33
Recovered on cruise	:	C35
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	07-AUG-88 18:20:00
Rig recovered on	:	06-SEPT-88 14:07:00
Period of deployment	:	29.8 days
Comments	:	Launch and recovery successful

**Meter information details for 0003**

Rig No	:	C33DC
Meter No	:	0003
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Period of good data	:	0.0 days
Comments	:	Corrupted data set

**Meter information details for 6443**

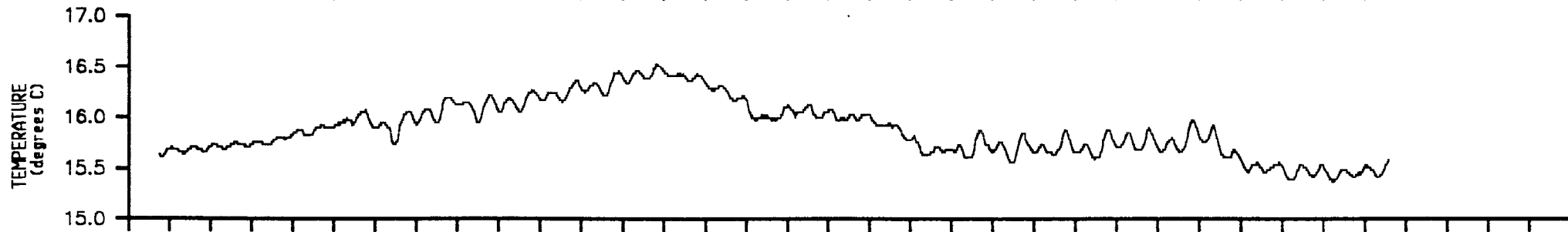
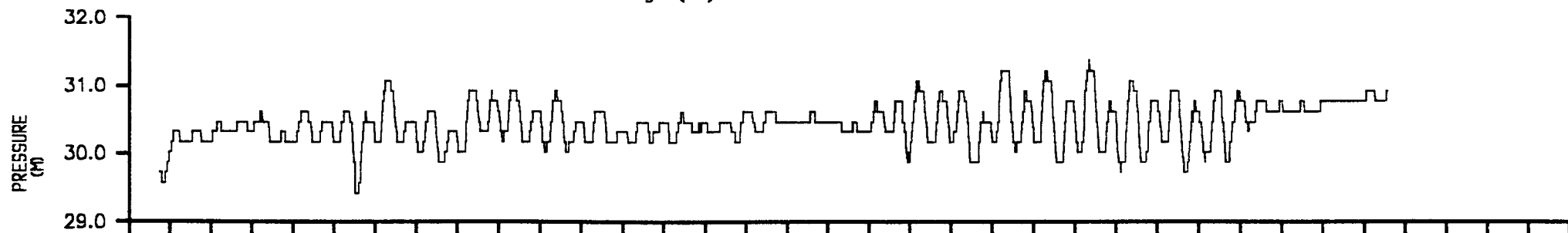
Rig No	:	C33DC
Meter No	:	6443
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	05-AUG-88 20:10:00
Meter stopped	:	06-SEPT-88 19:10:23
Period switched on	:	32.0 days
Period of good data	:	29.8 days
Total number of scans	:	4295
Timing error	:	23 seconds slow
Comments	:	Good record obtained

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C33DC Depth of water(m) 31.0

Start/End 1988/08/07 AT 18:20:00 1988/09/06 AT 14:07:00

Position 53 30.00N 03 00.00E Meter Height(m) 0.8



7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10

88

Aug

88

Sep

**Rig information details for C35DC**

Position Latitude	:	53 30.00N
Position Longitude	:	02 59.70E
Water depth	:	31.0 m
Deployed on cruise	:	C35
Recovered on cruise	:	C37
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	06-SEP-88 15:30:00
Rig recovered on	:	05-OCT-88 07:10:00
Period of deployment	:	28.7 days
Comments	:	Launch and recovery successful

**Meter information details for 0005**

Rig No	:	C35DC
Meter No	:	0005
Frame angle correction	:	356.6 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Time of first valid scan	:	07-SEPT-88 03:19:17
Time of last valid scan	:	02-OCT-88 15:09:13
Period of good data	:	25.2 days      short record
Total number of scans	:	3628
Timing error	:	4 seconds fast
Comments	:	Sixteen increments of 30 minutes instead of 10 minutes every 219 scans  Recording malfunction occurred in data before 03:19 on the 07-SEPT-88 and after 15:09 on the 02-OCT-88

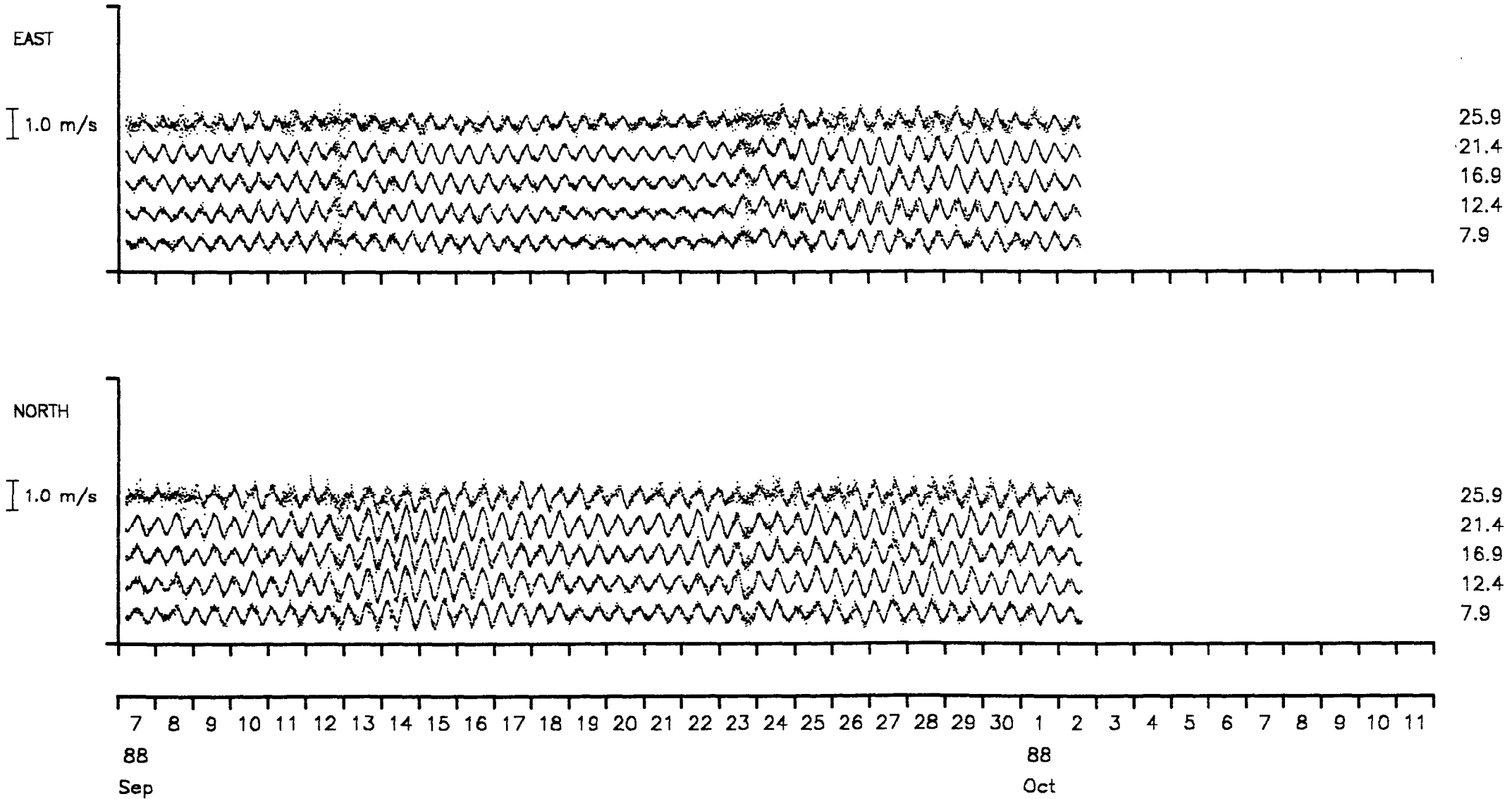
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0005 Rig no. C35DC Depth of water(m) 31.0

Start/End 1988/09/07 AT 05:18:00 1988/10/05 AT 07:10:00

Position 53 30.00N 02 59.70E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)

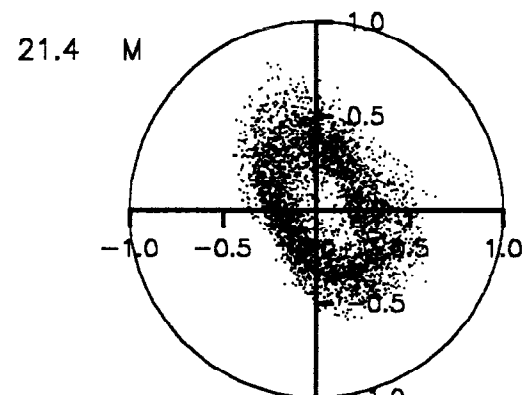
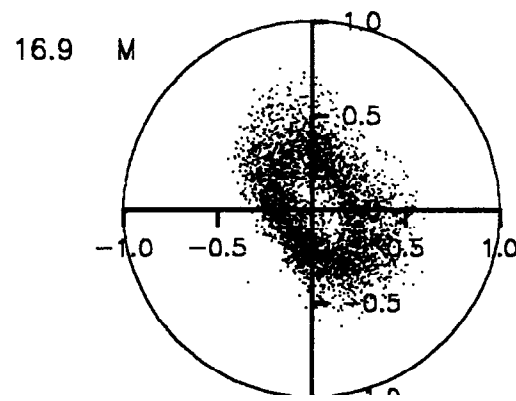
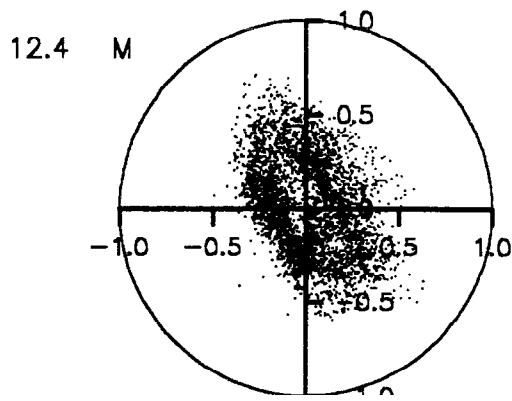
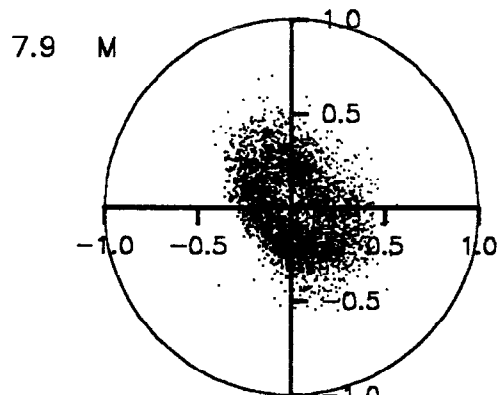
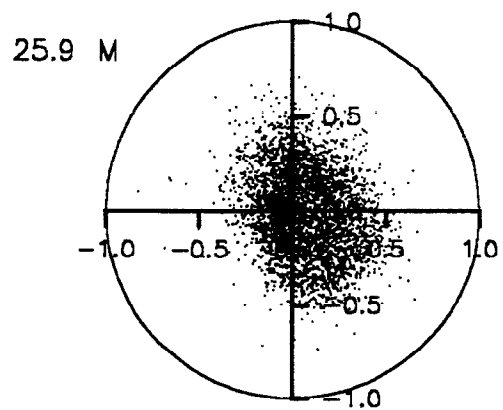


SCATTER PLOT

Meter no. 0005 Rig no. C35DC Depth of water(m) 31.0

Start/End 1988/09/07 AT 05:18:00 1988/10/05 AT 07:10:00

Position 53 30.00N 02 59.70E 7.9 Base Ht 4.5 Gap Ht

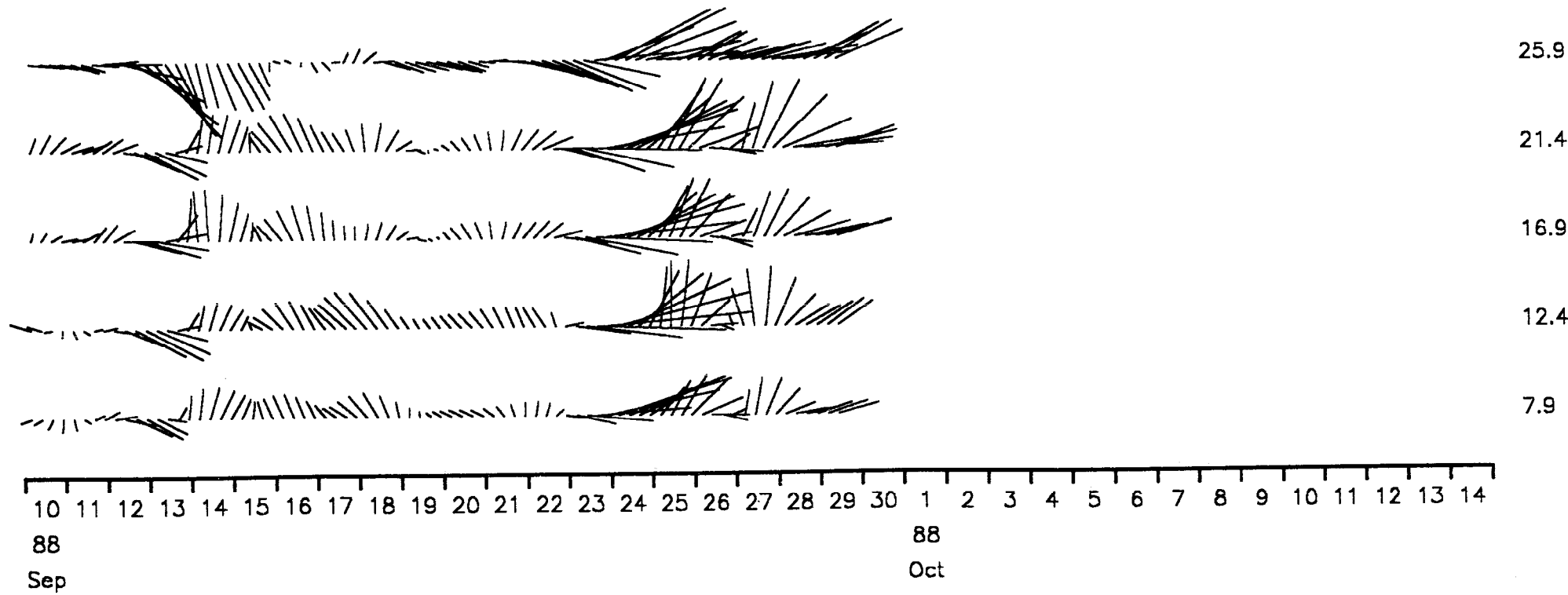




STICK TIME SERIES PLOT

Meter no. 0005 Rig no. C35DC Depth of water(m) 31.0  
Start/End 1988/09/07 AT 05:18:00 1988/10/05 AT 07:10:00  
Position 53 30.00N 02 59.70E 7.9 Base Ht 4.5 Gap Ht

— Bin Ht (m)  
Scale 0.1 m/s



STATISTICS FOR DP0005 C35DC

Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.021	54.0	0.0524	-30.1	0.0228	59.9
2	12.4	0.025	29.7	0.0745	-25.6	0.0282	64.4
3	16.9	0.041	54.5	0.0733	-29.0	0.0304	61.0
4	21.4	0.046	54.2	0.0908	-27.9	0.0370	62.1
5	25.9	0.064	94.7	0.0531	-23.2	0.0293	66.8

Filtered Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.032	50.7	0.0024	84.7	0.0006	174.7
2	12.4	0.036	35.9	0.0039	-83.3	0.0011	6.7
3	16.9	0.051	54.6	0.0031	-84.2	0.0009	5.8
4	21.4	0.057	56.3	0.0035	-87.4	0.0013	2.6
5	25.9	0.073	96.7	0.0027	49.0	0.0014	139.0

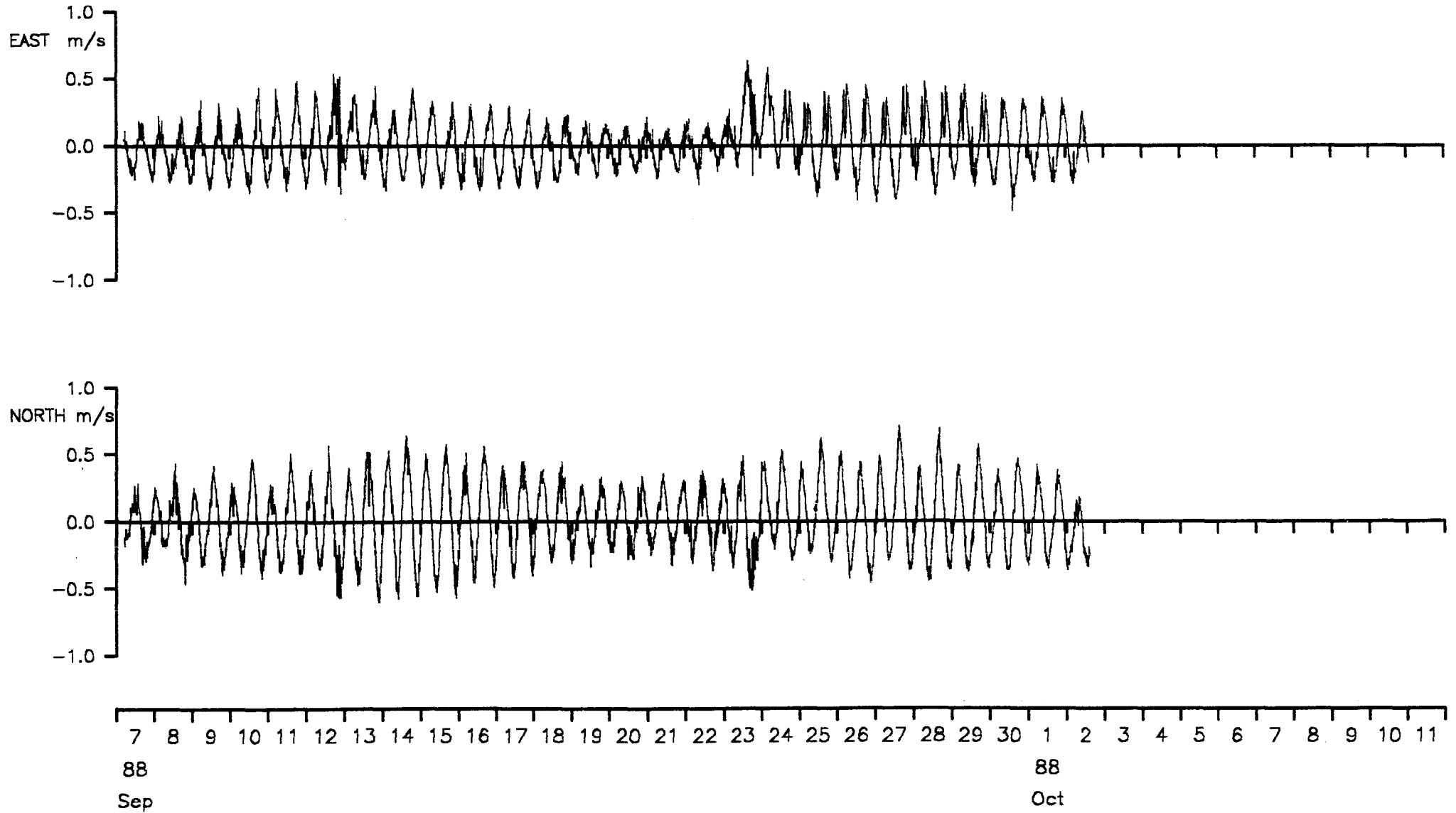
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0005 Rig no. C35DC Depth of water(m) 31.0

Start/End 1988/09/07 AT 05:18:00 1988/10/05 AT 07:10:00

Position 53 30.00N 02 59.70E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



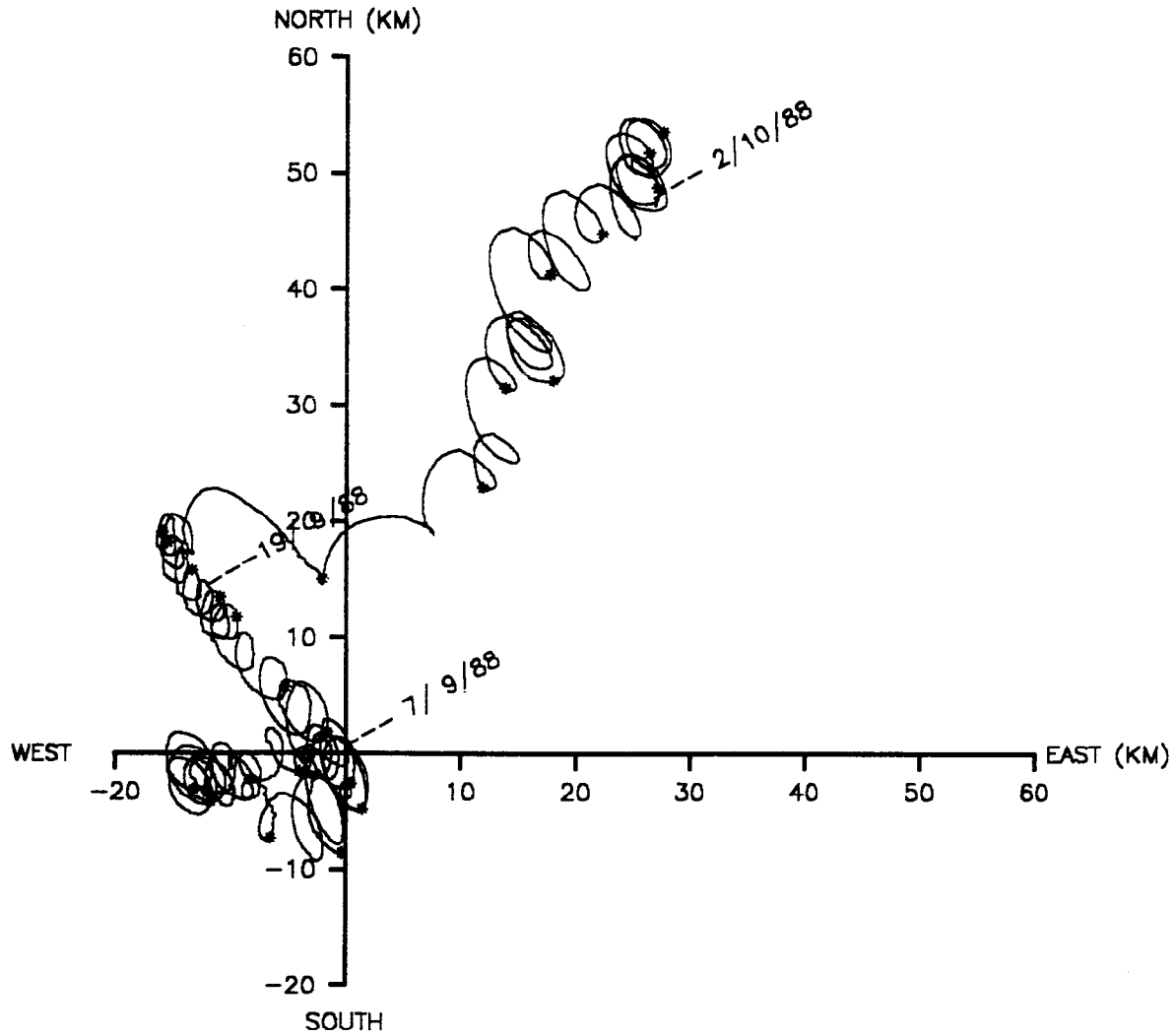
VECTOR PLOT

Meter no. 0005 Rig no. C35DC Depth of water(m) 31.0

Start/End 1988/09/07 AT 05:18:00 1988/10/05 AT 07:10:00

Position 53 30.00N 02 59.70E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0005 C35DC2 A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0122	0.36837474E-01	0.19193083E+00
Northings	0.0215	0.65867364E-01	0.25664639E+00
Speed	0.2948	0.16416535E-01	0.12812698E+00

Vector mean speed 0.0247  
 Vector Mean Direction 29.7

Maximum ten values

Eastings					Northings				
0.630	0.627	0.597	0.581	0.577	0.711	0.701	0.692	0.690	0.665
0.558	0.558	0.553	0.547	0.535	0.660	0.659	0.654	0.642	0.640

Minimum ten values

Eastings					Northings				
-0.380	-0.381	-0.381	-0.381	-0.383	-0.557	-0.557	-0.561	-0.564	-0.567
-0.383	-0.397	-0.408	-0.421	-0.490	-0.568	-0.572	-0.573	-0.582	-0.599

Maximum speeds

0.778	0.759	0.758	0.751	0.743	0.742	0.735	0.726	0.715	0.705
0.702	0.699	0.695	0.685	0.685	0.685	0.679	0.673	0.664	0.663
0.663	0.661	0.661	0.660	0.660	0.649	0.649	0.647	0.642	0.638
0.638	0.635	0.634	0.634	0.632	0.630	0.625	0.624	0.620	0.620
0.617	0.617	0.616	0.614	0.608	0.607	0.607	0.606	0.605	0.604
0.602	0.598	0.598	0.596	0.596	0.593	0.592	0.591	0.590	0.589
0.587	0.587	0.587	0.587	0.586	0.585	0.585	0.584	0.584	0.583
0.582	0.582	0.582	0.581	0.581	0.580	0.579	0.579	0.579	0.578
0.578	0.578	0.577	0.577	0.576	0.576	0.575	0.574	0.574	0.573
0.573	0.573	0.572	0.572	0.571	0.571	0.571	0.570	0.567	0.567

Variance ellipse statistics

Maximum variance	0.7447E-01	Direction	-25.6
Minimum variance	0.2824E-01	Direction	64.4
Total variance	0.1027E+00	Ratio of variances	0.3792E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		8.6
Average direction. maxdir	+PI/2 to maxdir -PI/2		177.9

Statistics for DP0005 C35DC2F A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0213	0.38509215E-02	0.62055796E-01
Northings	0.0295	0.11749205E-02	0.34277111E-01
Speed	0.0623	0.24306669E-02	0.49301796E-01

Vector mean speed 0.0364  
 Vector Mean Direction 35.9

Maximum ten values

Eastings					Northings				
0.244	0.227	0.220	0.176	0.162	0.110	0.109	0.098	0.098	0.094
0.110	0.097	0.091	0.091	0.085	0.090	0.087	0.087	0.078	0.078

Minimum ten values

Eastings					Northings				
-0.030	-0.032	-0.034	-0.034	-0.035	-0.007	-0.011	-0.013	-0.013	-0.019
-0.037	-0.046	-0.046	-0.053	-0.053	-0.020	-0.026	-0.041	-0.045	-0.051

Maximum speeds

0.245	0.233	0.220	0.192	0.164	0.140	0.111	0.109	0.109	0.104
0.099	0.099	0.099	0.096	0.094	0.094	0.092	0.086	0.081	0.076
0.075	0.075	0.072	0.071	0.071	0.071	0.067	0.065	0.065	0.065
0.064	0.062	0.058	0.053	0.052	0.049	0.048	0.047	0.047	0.047
0.044	0.043	0.042	0.040	0.040	0.038	0.038	0.038	0.038	0.038
0.037	0.037	0.037	0.036	0.035	0.035	0.033	0.032	0.030	0.030
0.027	0.027	0.025	0.025	0.025	0.023	0.022	0.022	0.021	0.019
0.018	0.017	0.015	0.014	0.014	0.013	0.012	0.011		

Variance ellipse statistics

Maximum variance	0.3889E-02	Direction	-83.3
Minimum variance	0.1137E-02	Direction	6.7
Total variance	0.5026E-02	Ratio of variances	0.2924E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		48.4
Average direction. maxdir	+PI/2 to maxdir -PI/2		150.9

**Meter information details for 1509**

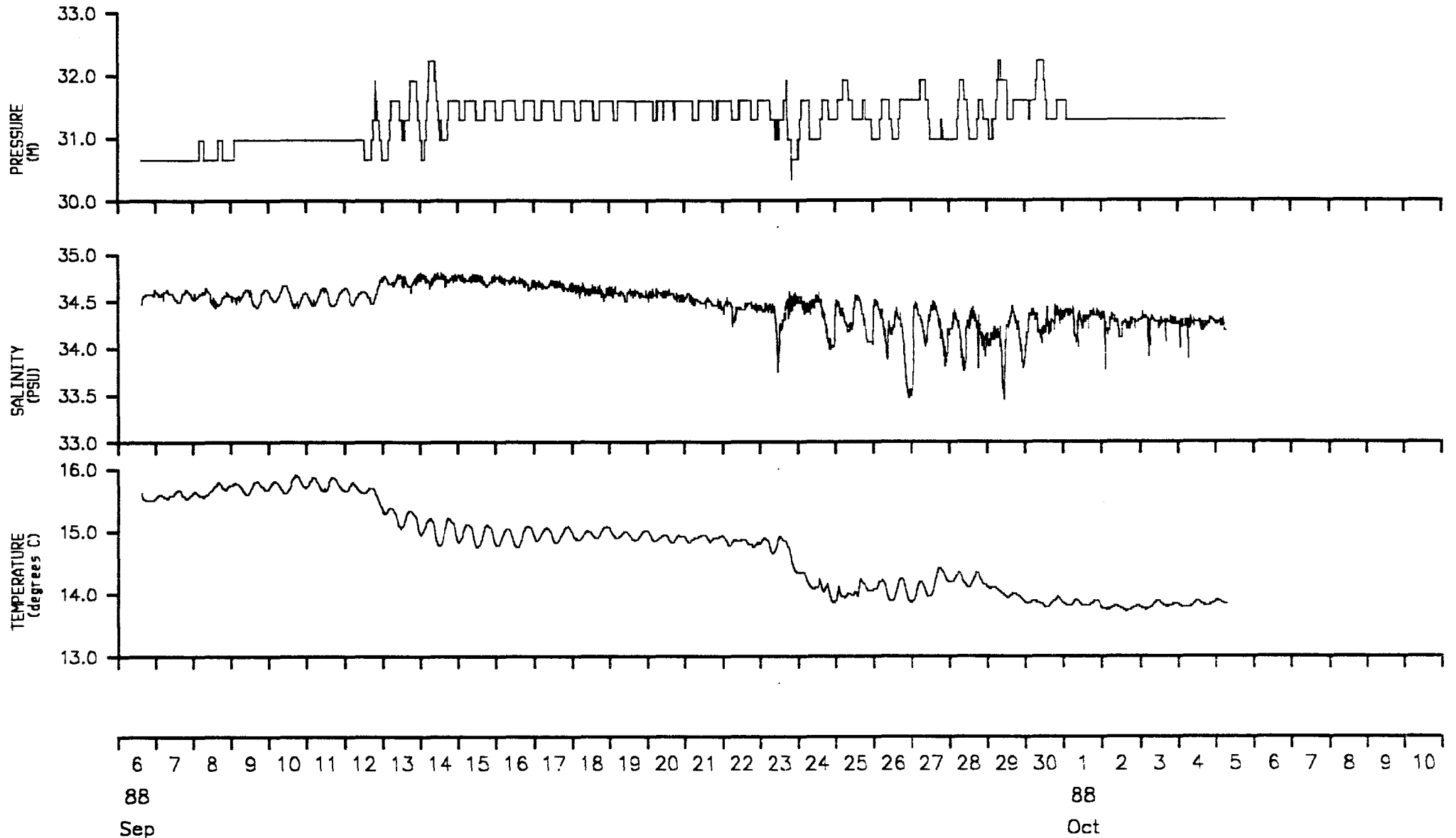
Rig No	:	C35DC
Meter No	:	1509
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	06-SEPT-88 00:40:00
Meter stopped	:	09-OCT-88 12:10:25
Period switched on	:	33.5 days
Period of good data	:	28.7 days
Total number of scans	:	4126
Timing error	:	25 seconds slow
Comments	:	Good record obtained

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 1509 Rig no. C35DC Depth of water(m) 31.0

Start/End 1988/09/06 AT 15:30:00 1988/10/05 AT 07:10:00

Position 53 30.00N 02 59.70E Meter Height(m) 0.8





**Rig information details for C37DC**

Position Latitude	:	53 29.87N
Position Longitude	:	02 59.79E
Water depth	:	31.0 m
Deployed on cruise	:	C37
Recovered on cruise	:	TRAWLED
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	05-OCT-88 09:20:00
Rig recovered on	:	10-DEC-88 00:00:00
Period of deployment	:	65.6 days
Comments	:	No response to acoustic search during 04-NOV-88  Part of rig recovered from Esbjerg during Challenger 66

**Meter information details for 0006**

Rig No	:	C37DC
Meter No	:	0006
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter was	:	LOST
Period of good data	:	0.0 days
Comments	:	Frame and meter suffered damage

**Meter information details for 4387**

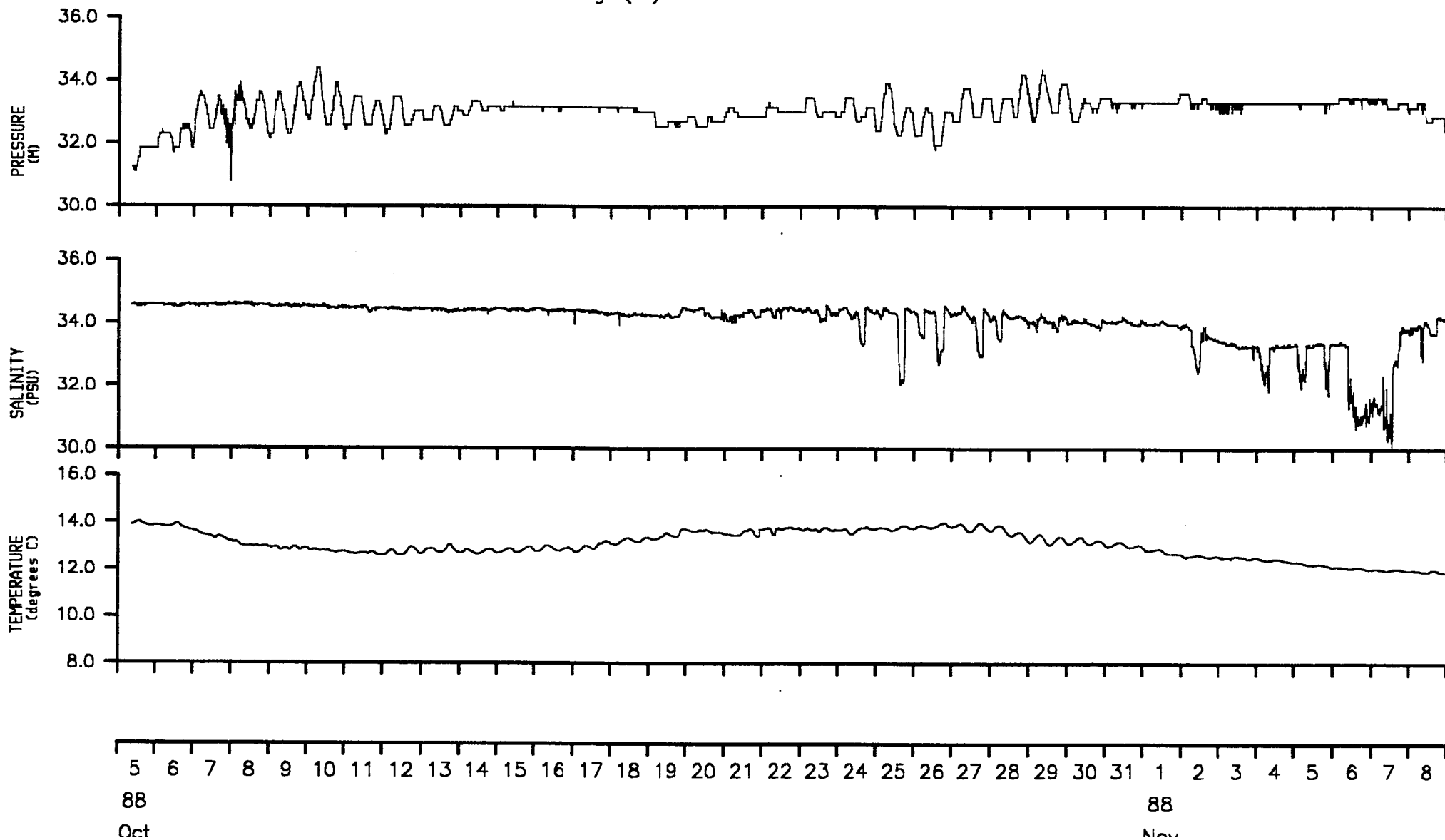
Rig No	:	C37DC
Meter No	:	4387
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	03-OCT-88 18:30:00
Meter stopped	:	09-DEC-88 13:30:00
Period switched on	:	66.8 days
Period of good data	:	65.6 days
Total number of scans	:	9449
Timing error	:	None
Comments	:	Meter still attached to damaged frame

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 4387 Rig no. C37DC Depth of water(m) 31.0

Start/End 1988/10/05 AT 09:20:00 1988/12/10 AT 00:00:00

Position 53 29.87N 02 59.79E Meter Height(m) 0.8

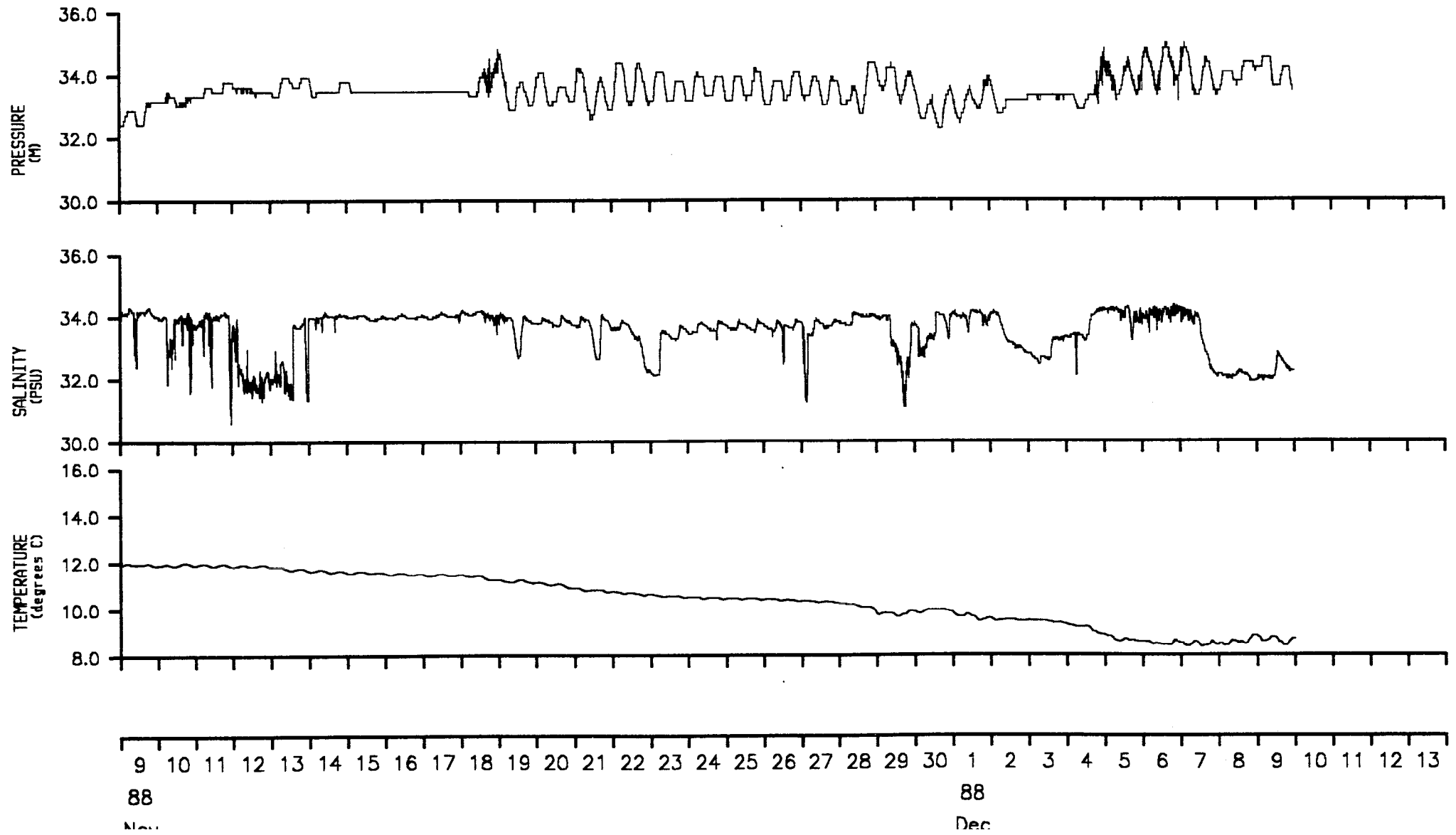


TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 4387 Rig no. C37DC Depth of water(m) 31.0

Start/End 1988/10/05 AT 09:20:00 1988/12/10 AT 00:00:00

Position 53 29.87N 02 59.79E Meter Height(m) 0.8



**Rig information details for C39DC**

Position Latitude	:	53 29.81N
Position Longitude	:	02 59.92E
Water depth	:	31.0 m
Deployed on cruise	:	C39
Recovered on cruise	:	C41
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	04-NOV-88 15:30:00
Rig recovered on	:	12-DEC-88 13:30:00
Period of deployment	:	37.9 days
Comments	:	Frame moves during deployment

**Meter information details for 0004**

Rig No : C39DC  
 Meter No : 0004  
 Recording interval : 600.0 seconds  
 Meter height from bottom : 0.8 m  
 Meter type : DP  
 Meter started : 04-NOV-88 11:09:27  
 Time of last valid scan : 12-DEC-88 07:49:15  
 Period of good data : 37.3 days short record  
 Total number of scans : 5378  
 Timing error : 12 seconds fast  
 Comments : Compass does not react correctly to  
 frame movement

Applied frame angle corrections are  
 209.0 degrees between scans 1 - 1987  
 213.4 degrees between scans 2049 - 3405  
 227.9 degrees between scans 3406 - 3577  
 200.0 degrees between scans 3578 - 4317  
 149.4 degrees between scans 4614 - 5377

Twenty-four increments of 30 minutes  
 instead of 10 minutes every 219 scans

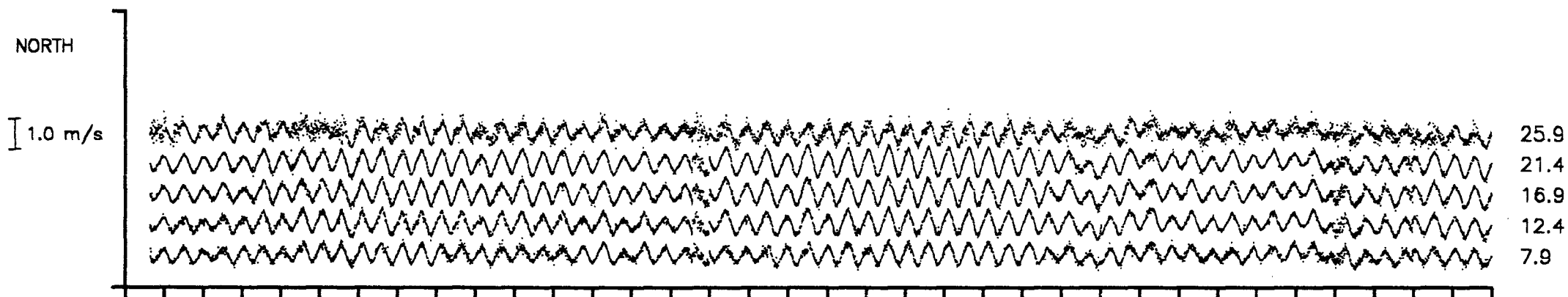
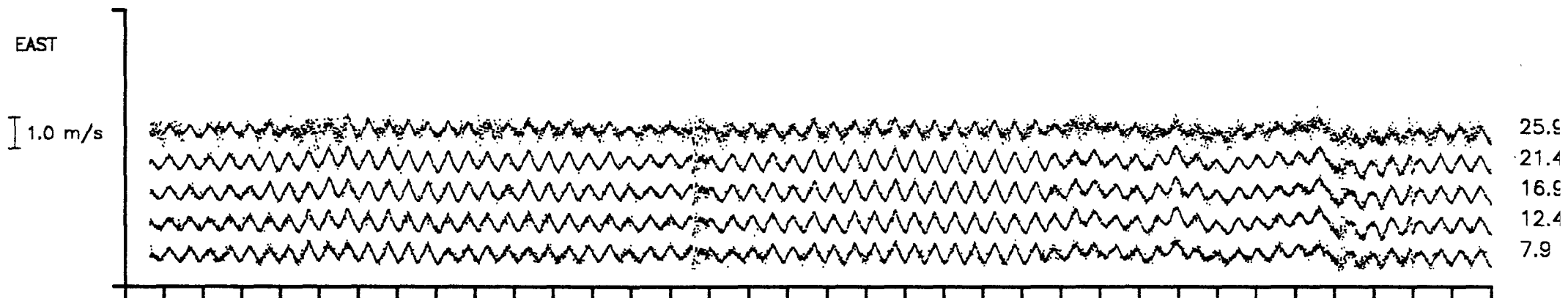
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0004 Rig no. C39DC Depth of water(m) 31.0

Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

Position 53 29.81N 02 59.92E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8

88  
Nov

88  
Nov



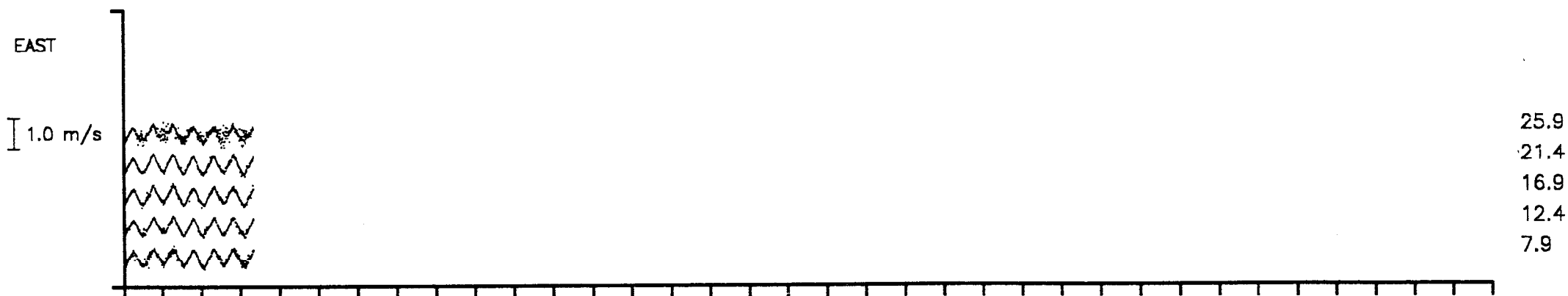
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0004 Rig no. C39DC Depth of water(m) 31.0

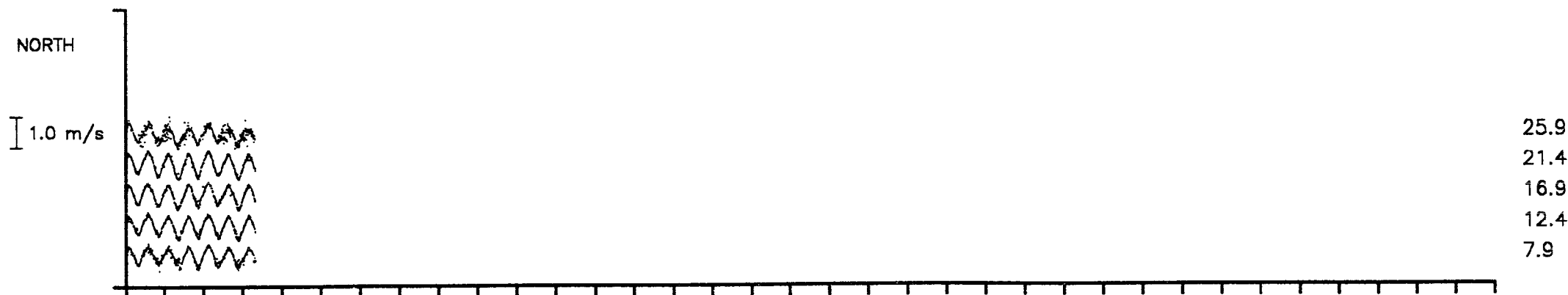
Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

Position 53 29.81N 02 59.92E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



25.9  
21.4  
16.9  
12.4  
7.9



25.9  
21.4  
16.9  
12.4  
7.9

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12

88

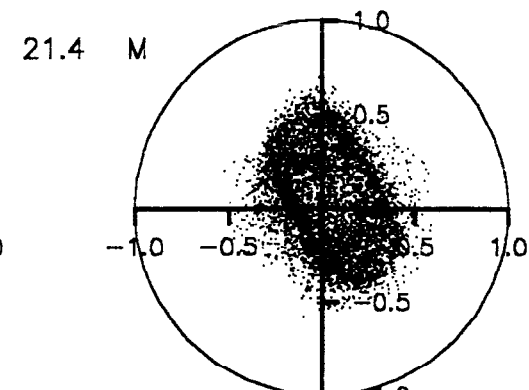
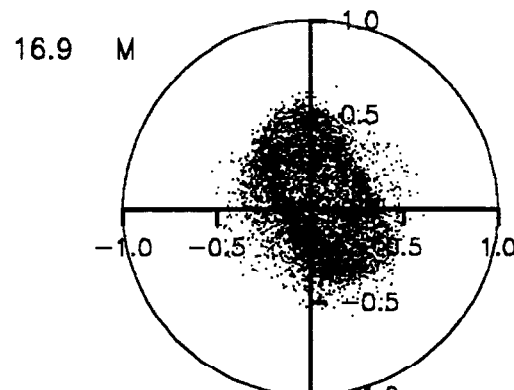
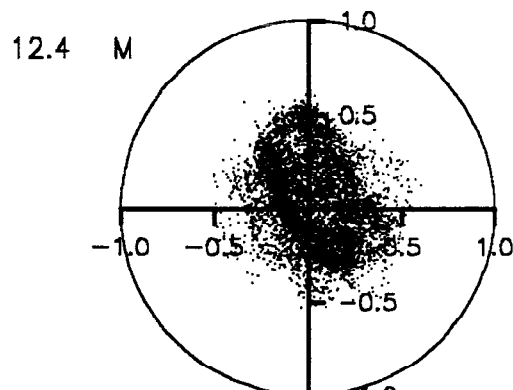
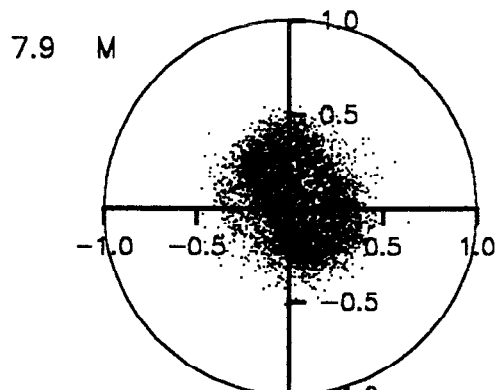
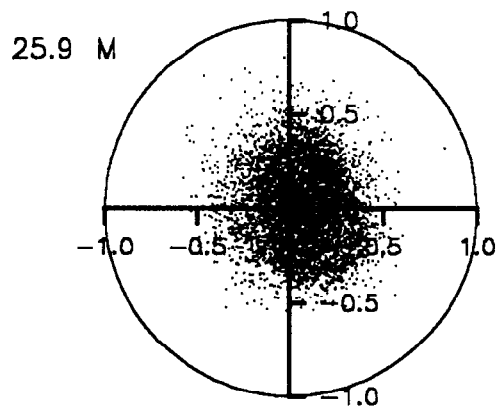
Dec

SCATTER PLOT

Meter no. 0004 Rig no. C39DC Depth of water(m) 31.0

Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

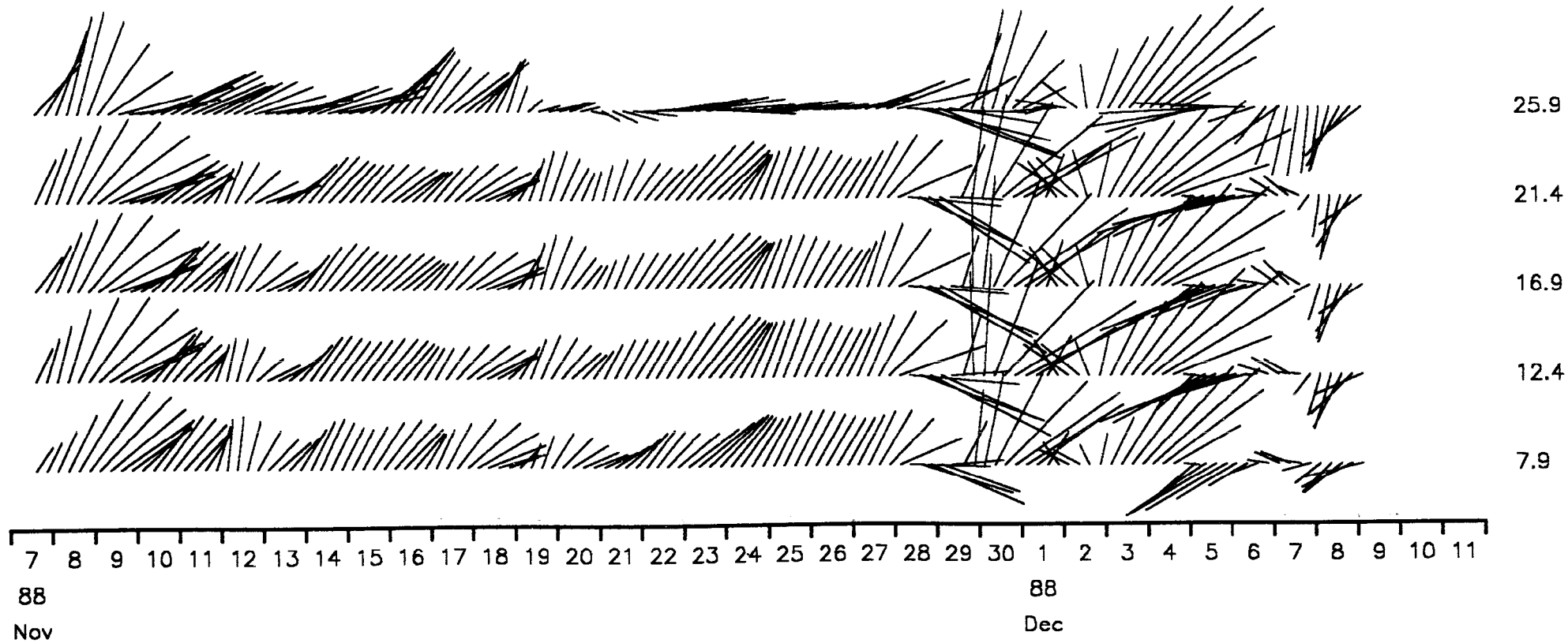
Position 53 29.81N 02 59.92E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0004 Rig no. C39DC Depth of water(m) 31.0  
Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00  
Position 53 29.81N 02 59.92E 7.9 Base Ht 4.5 Gap Ht

————— Bin Ht (m)  
Scale 0.1 m/s



STATISTICS FOR DP0004 C39DC

Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.055	35.6	0.0458	-29.2	0.0250	60.8
2	12.4	0.058	37.0	0.0595	-25.6	0.0292	64.4
3	16.9	0.057	38.9	0.0670	-25.6	0.0314	64.4
4	21.4	0.059	43.5	0.0718	-24.0	0.0338	66.0
5	25.9	0.064	68.1	0.0476	-16.4	0.0327	73.6

Filtered Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.071	39.0	0.0054	53.9	0.0012	143.9
2	12.4	0.074	38.5	0.0067	58.2	0.0023	148.2
3	16.9	0.073	40.4	0.0062	57.8	0.0022	147.8
4	21.4	0.075	43.6	0.0066	60.8	0.0021	150.8
5	25.9	0.075	65.0	0.0076	63.6	0.0033	153.6

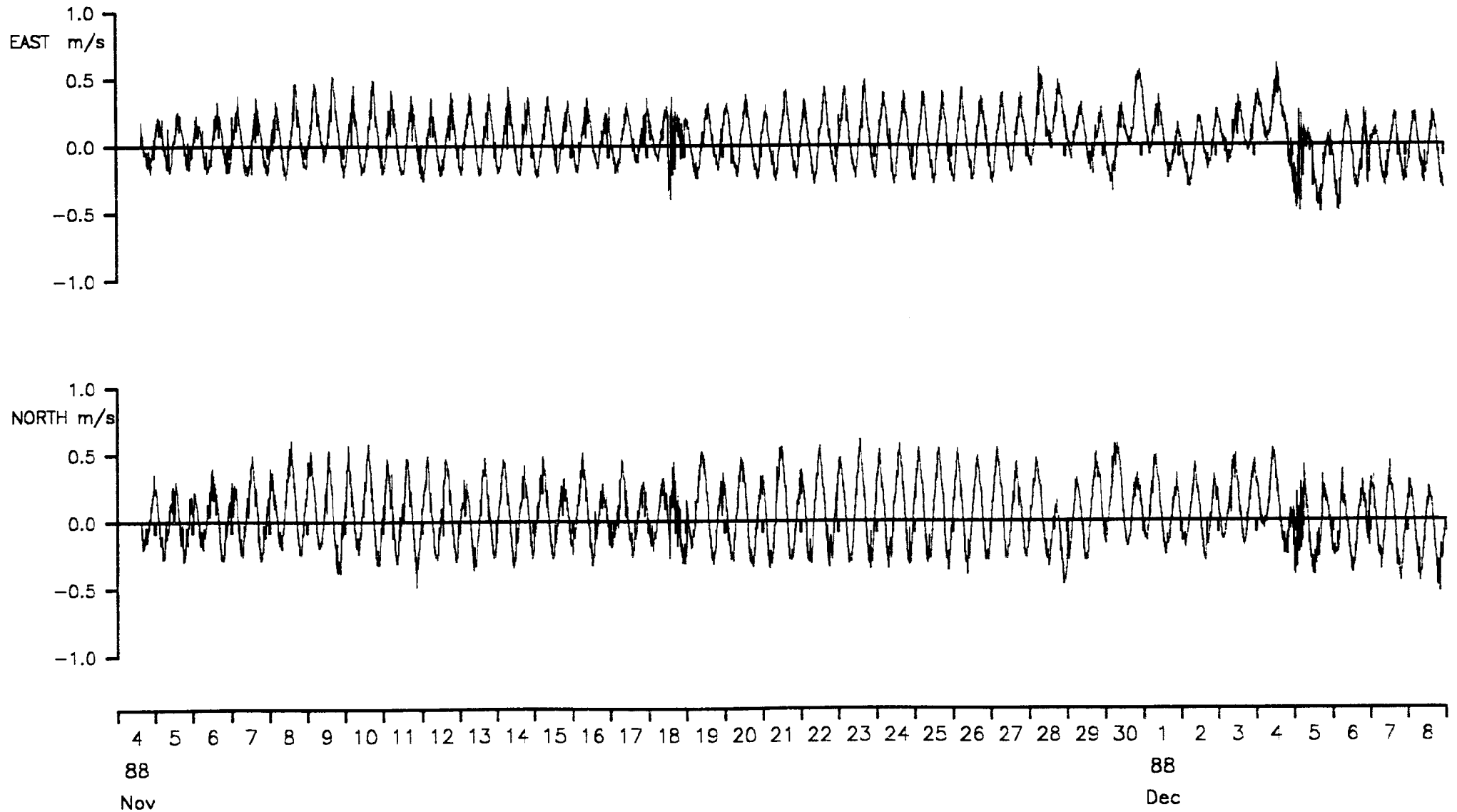
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0004 Rig no. C39DC Depth of water(m) 31.0

Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

Position 53 29.81N 02 59.92E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



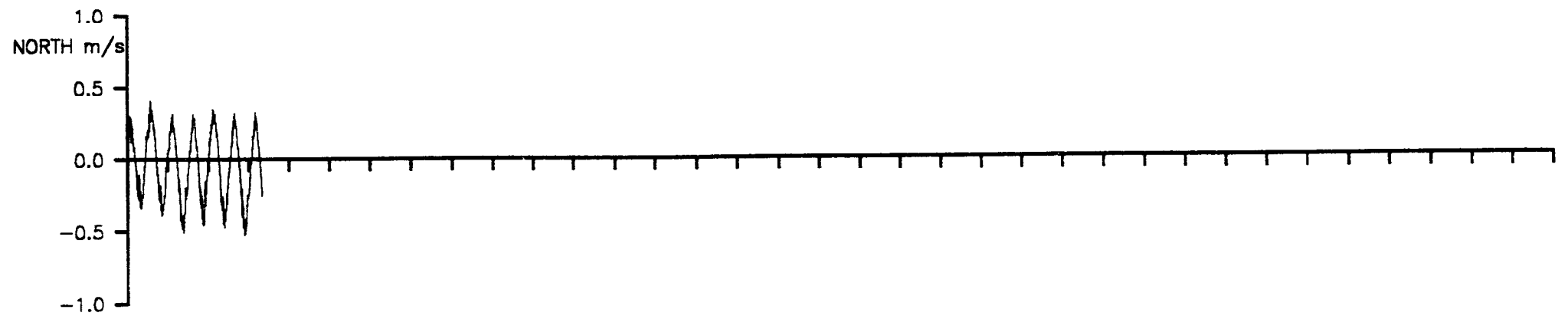
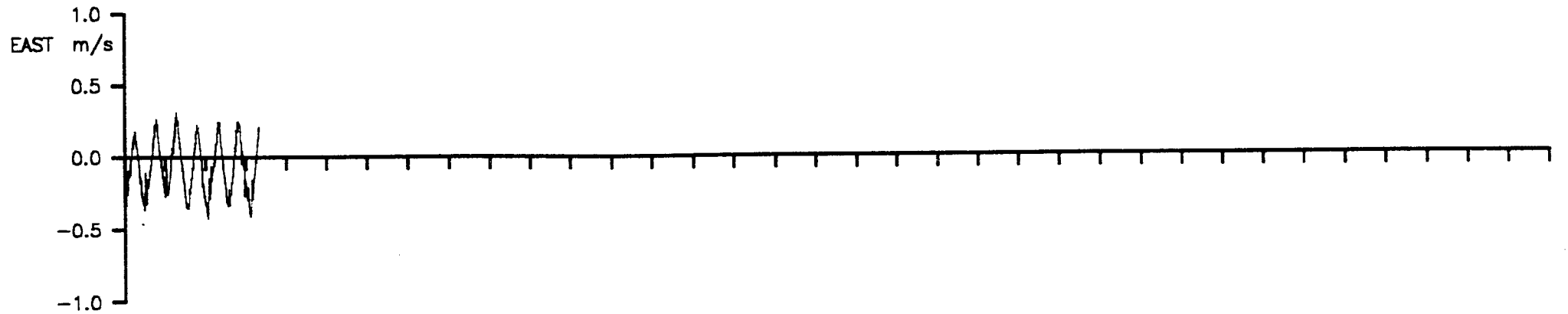
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0004 Rig no. C39DC Depth of water(m) 31.0

Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

Position 53 29.81N 02 59.92E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12

88

Dec

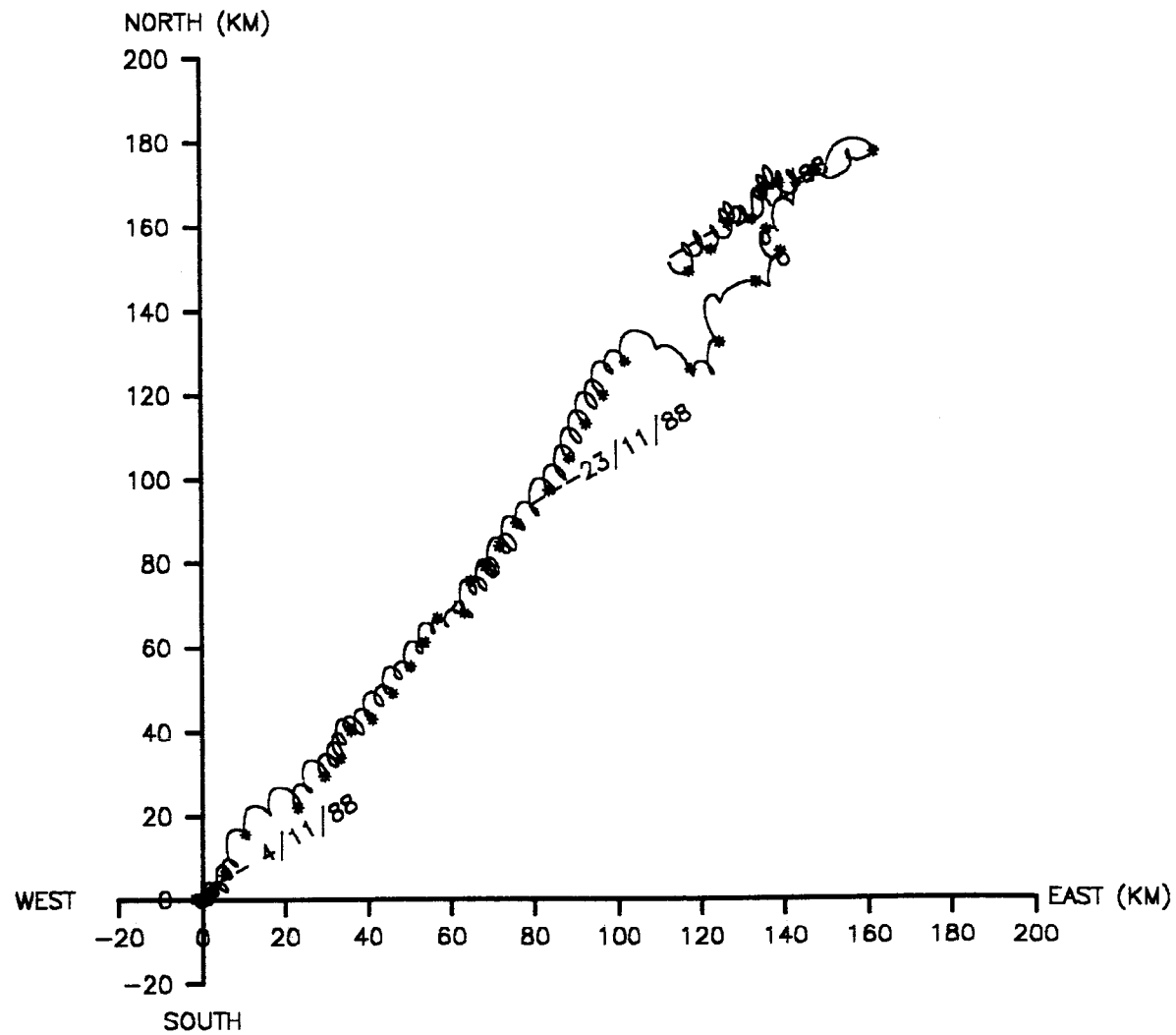
VECTOR PLOT

Meter no. 0004 Rig no. C39DC Depth of water(m) 31.0

Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

Position 53 29.81N 02 59.92E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0004 C39DC2 A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0349	0.34872483E-01	0.18674177E+00
Northings	0.0463	0.53813670E-01	0.23197764E+00
Speed	0.2795	0.13932910E-01	0.11803770E+00

Vector mean speed 0.0579  
 Vector Mean Direction 37.0

Maximum ten values

Eastings

Northings

0.601	0.574	0.552	0.548	0.543	0.607	0.603	0.601	0.576	0.574
0.539	0.534	0.534	0.531	0.529	0.571	0.570	0.569	0.565	0.562

Minimum ten values

Eastings

Northings

-0.455	-0.464	-0.466	-0.470	-0.480	-0.478	-0.482	-0.486	-0.488	-0.493
-0.484	-0.492	-0.492	-0.500	-0.501	-0.496	-0.508	-0.519	-0.526	-0.532

Maximum speeds

0.661	0.614	0.612	0.607	0.606	0.603	0.602	0.593	0.592	0.587
0.587	0.584	0.581	0.576	0.575	0.572	0.572	0.570	0.568	0.567
0.563	0.562	0.561	0.561	0.559	0.558	0.558	0.557	0.556	0.554
0.554	0.553	0.553	0.551	0.551	0.550	0.550	0.550	0.549	0.549
0.548	0.548	0.547	0.547	0.546	0.546	0.545	0.545	0.545	0.544
0.544	0.543	0.542	0.541	0.541	0.541	0.540	0.540	0.540	0.539
0.539	0.538	0.538	0.537	0.537	0.536	0.536	0.536	0.535	0.535
0.534	0.534	0.533	0.533	0.532	0.532	0.532	0.532	0.531	0.531
0.531	0.529	0.528	0.528	0.528	0.528	0.527	0.527	0.527	0.525
0.525	0.525	0.525	0.524	0.524	0.523	0.523	0.522	0.522	0.522

Variance ellipse statistics

Maximum variance	0.5948E-01	Direction	-25.6
Minimum variance	0.2920E-01	Direction	64.4
Total variance	0.8869E-01	Ratio of variances	0.4909E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		13.7
Average direction. maxdir	+PI/2 to maxdir -PI/2		171.2



Statistics for DP0004 C39DC2F A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0460	0.54422207E-02	0.73771358E-01
Northings	0.0578	0.34783981E-02	0.58977947E-01
Speed	0.1079	0.26700911E-02	0.51672924E-01

Vector mean speed 0.0738  
 Vector Mean Direction 38.5

Maximum ten values									
Eastings					Northings				
0.224	0.221	0.208	0.204	0.200	0.203	0.192	0.177	0.174	0.171
0.199	0.185	0.176	0.167	0.159	0.158	0.155	0.141	0.140	0.130

Minimum ten values									
Eastings					Northings				
-0.063	-0.066	-0.070	-0.075	-0.082	-0.064	-0.067	-0.069	-0.072	-0.076
-0.098	-0.143	-0.157	-0.184	-0.196	-0.079	-0.081	-0.090	-0.091	-0.102

Maximum speeds									
0.280	0.259	0.250	0.239	0.225	0.222	0.221	0.220	0.211	0.206
0.204	0.196	0.195	0.186	0.180	0.178	0.176	0.174	0.174	0.174
0.172	0.156	0.155	0.153	0.152	0.150	0.144	0.136	0.136	0.132
0.129	0.129	0.127	0.125	0.122	0.112	0.111	0.111	0.111	0.106
0.106	0.105	0.105	0.104	0.104	0.104	0.103	0.102	0.101	0.101
0.101	0.100	0.100	0.097	0.097	0.096	0.096	0.095	0.094	0.094
0.092	0.092	0.091	0.091	0.090	0.090	0.090	0.089	0.089	0.088
0.088	0.088	0.087	0.087	0.087	0.086	0.083	0.082	0.082	0.081
0.080	0.080	0.079	0.079	0.079	0.078	0.077	0.075	0.074	0.074
0.074	0.074	0.073	0.073	0.072	0.072	0.072	0.072	0.072	0.072

Variance ellipse statistics

Maximum variance	0.6670E-02	Direction	58.2
Minimum variance	0.2250E-02	Direction	148.2
Total variance	0.8921E-02	Ratio of variances	0.3374E+00
Average direction. maxdir -PI/2 to maxdir +PI/2			-17.7
Average direction. maxdir +PI/2 to maxdir -PI/2			198.6

**Meter information details for 6443**

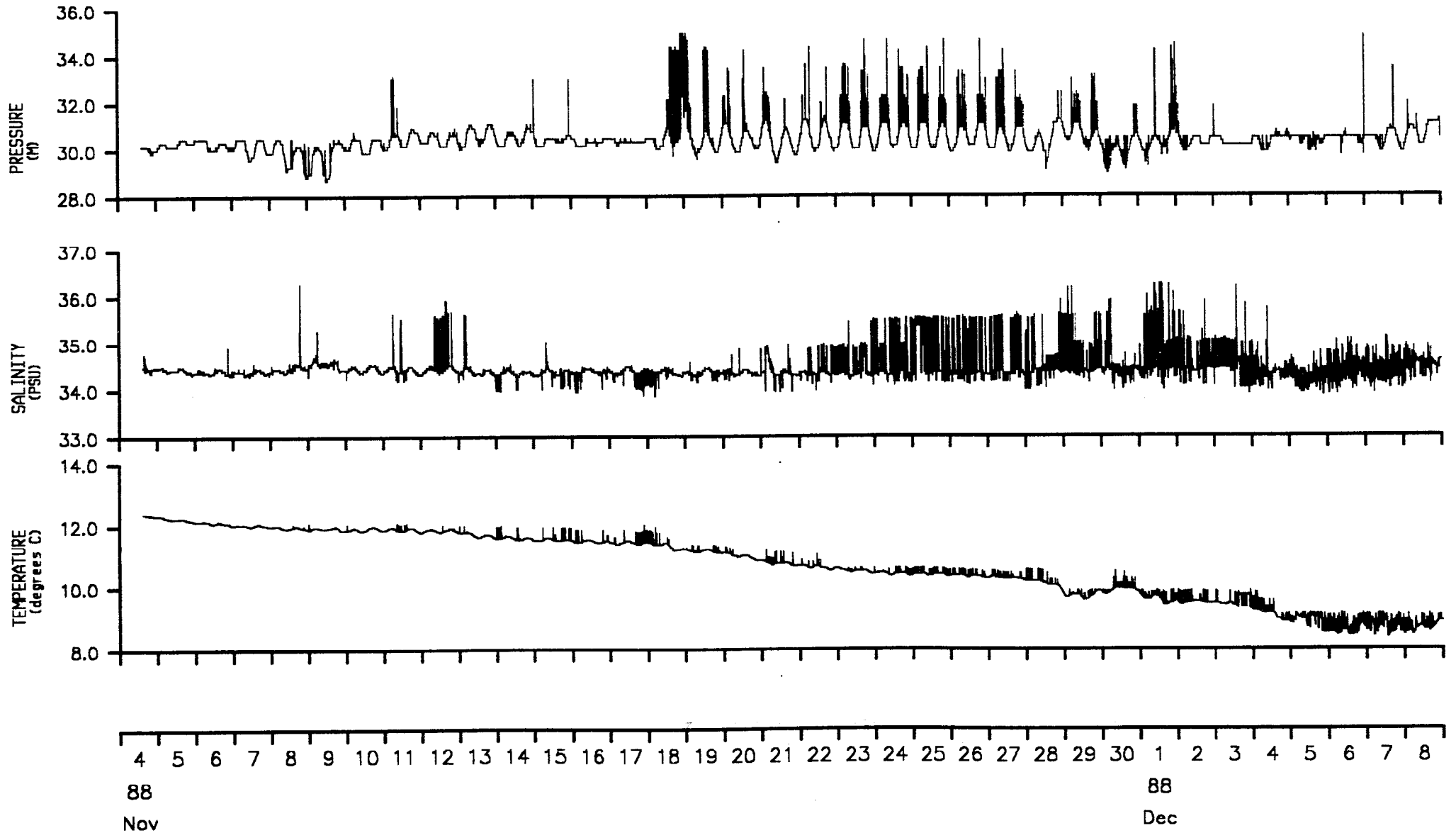
Rig No	:	C39DC
Meter No	:	6443
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	03-NOV-88 13:30:00
Meter stopped	:	12-DEC-88 14:10:00
Period switched on	:	39.0 days
Period of good data	:	37.9 days
Total number of scans	:	5461
Timing error	:	None
Comments	:	Spikes present in parameter data

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C39DC Depth of water(m) 31.0

Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

Position 53 29.81N 02 59.92E Meter Height(m) 0.8

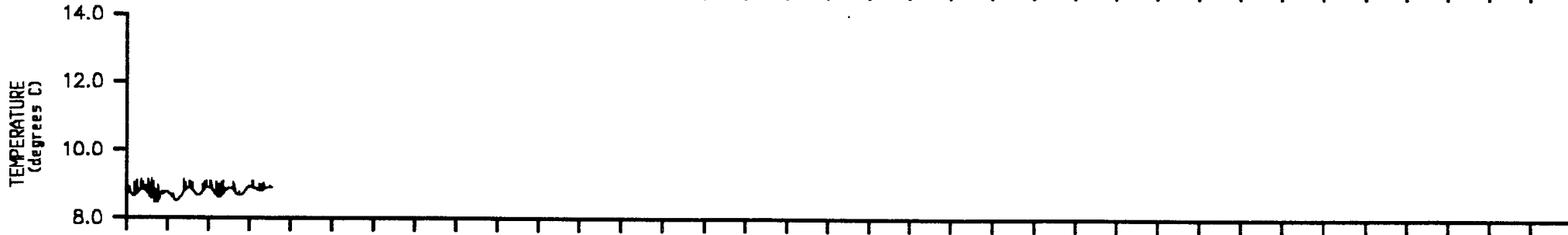
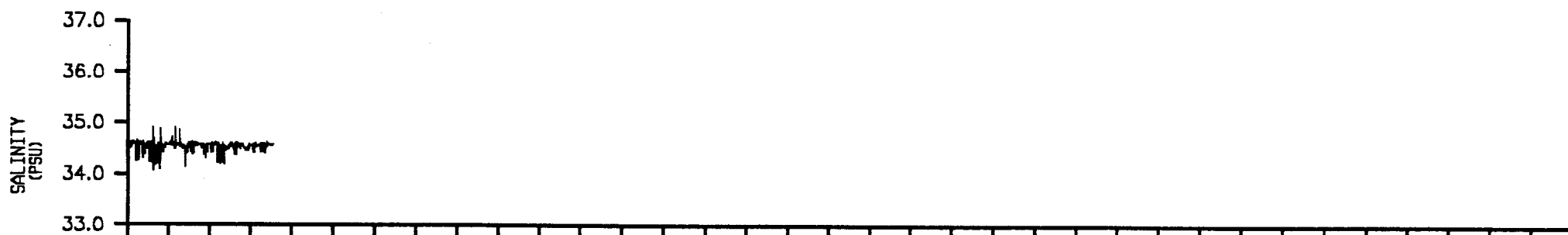
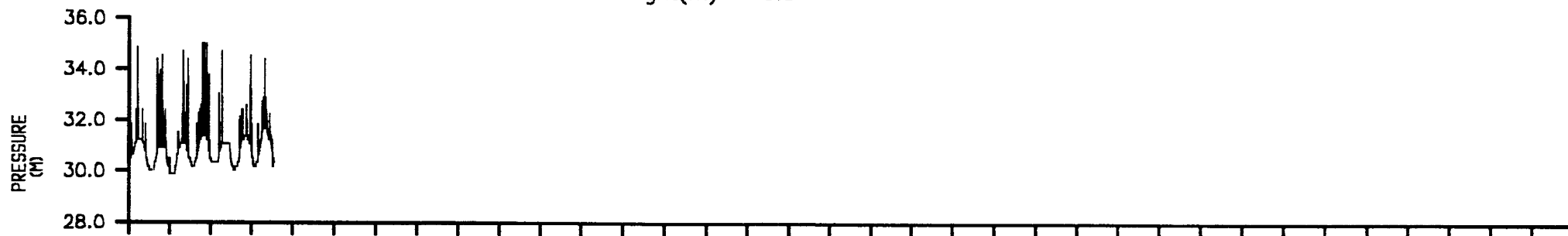


TEMPERATURE, SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C39DC Depth of water(m) 31.0

Start/End 1988/11/04 AT 15:30:00 1988/12/12 AT 13:30:00

Position 53 29.81N 02 59.92E Meter Height(m) 0.8



9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12

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Dec

**Rig information details for C41DC**

Position Latitude	:	53 29.81N
Position Longitude	:	02 59.96E
Water depth	:	31.0 m
Deployed on cruise	:	C41
Recovered on cruise	:	C44
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	12-DEC-88 16:50:00
Rig recovered on	:	25-JAN-89 07:52:00
Period of deployment	:	43.6 days
Comments	:	Launch and recovery successful

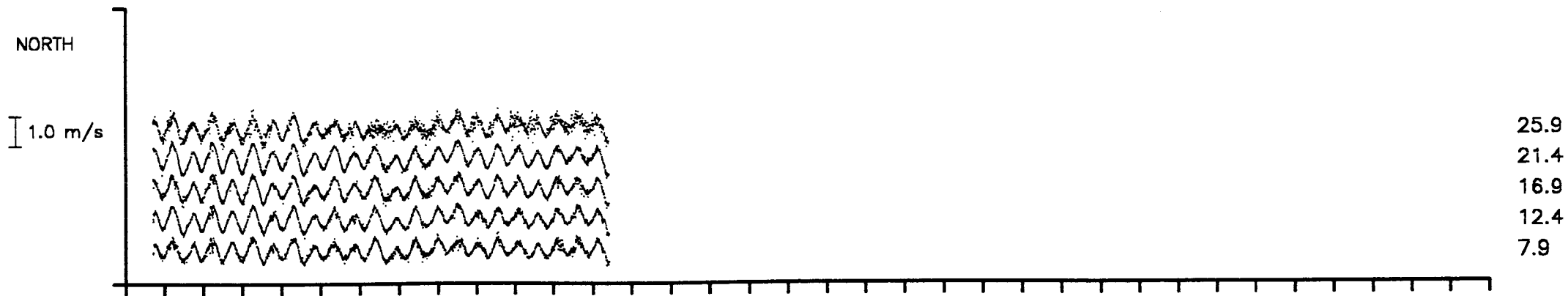
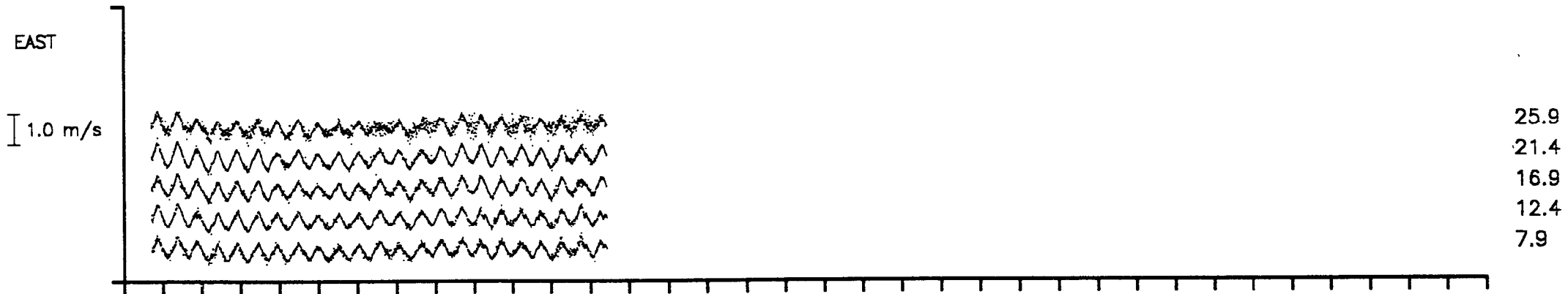
**Meter information details for 0001**

Rig No	:	C41DC
Meter No	:	0001
Frame angle correction	:	179.3 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	12-DEC-88 16:49:29
Time of last valid scan	:	24-DEC-88 09:59:19
Period of good data	:	11.6 days      short record
Total number of scans	:	1673
Timing error	:	10 seconds fast
Comments	:	Seven increments of 30 minutes instead of 10 minutes every 219 scans

VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0001 Rig no. C41DC Depth of water(m) 31.0  
Start/End 1988/12/12 AT 16:50:00 1989/01/25 AT 07:52:00  
Position 53 29.81N 02 59.96E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



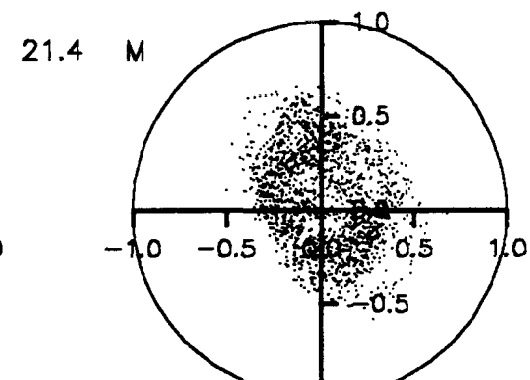
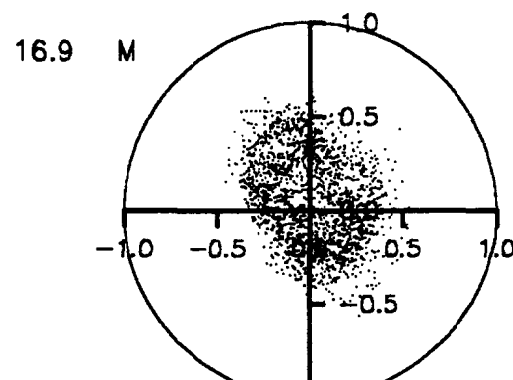
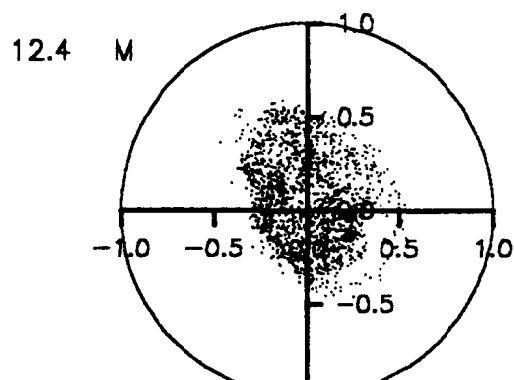
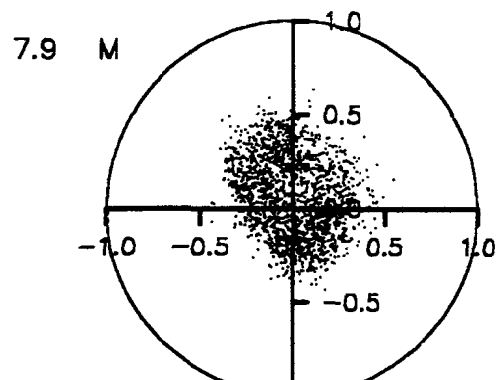
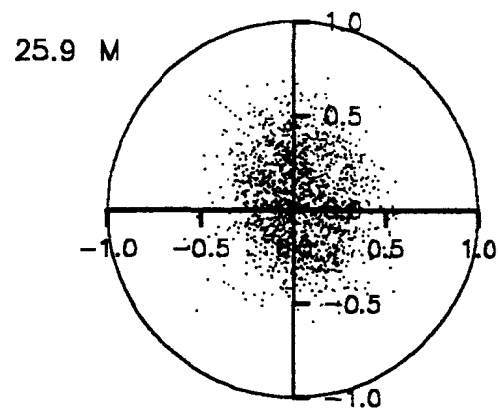
12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

88

Dec

SCATTER PLOT

Meter no. 0001 Rig no. C41DC Depth of water(m) 31.0  
Start/End 1988/12/12 AT 16:50:00 1989/01/25 AT 07:52:00  
Position 53 29.81N 02 59.96E 7.9 Base Ht 4.5 Gap Ht





STICK TIME SERIES PLOT

Meter no. 0001 Rig no. C41DC Depth of water(m) 31.0  
Start/End 1988/12/12 AT 16:50:00 1989/01/25 AT 07:52:00  
Position 53 29.81N 02 59.96E 7.9 Base Ht 4.5 Gap Ht

————— Bin Ht (m)  
Scale 0.1 m/s



15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

88

Dec

STATISTICS FOR DP0001 C41DC

Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.071	-3.4	0.0469	-31.6	0.0260	58.4
2	12.4	0.068	2.6	0.0587	-25.6	0.0307	64.4
3	16.9	0.067	9.9	0.0652	-29.1	0.0317	60.9
4	21.4	0.066	14.7	0.0740	-26.0	0.0363	64.0
5	25.9	0.063	29.5	0.0575	-13.6	0.0356	76.4

Filtered Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.068	-17.9	0.0051	40.8	0.0008	130.8
2	12.4	0.061	-10.3	0.0065	30.9	0.0005	120.9
3	16.9	0.063	-4.1	0.0064	34.4	0.0009	124.4
4	21.4	0.060	-2.1	0.0082	32.0	0.0012	122.0
5	25.9	0.032	-1.7	0.0089	39.0	0.0003	129.0

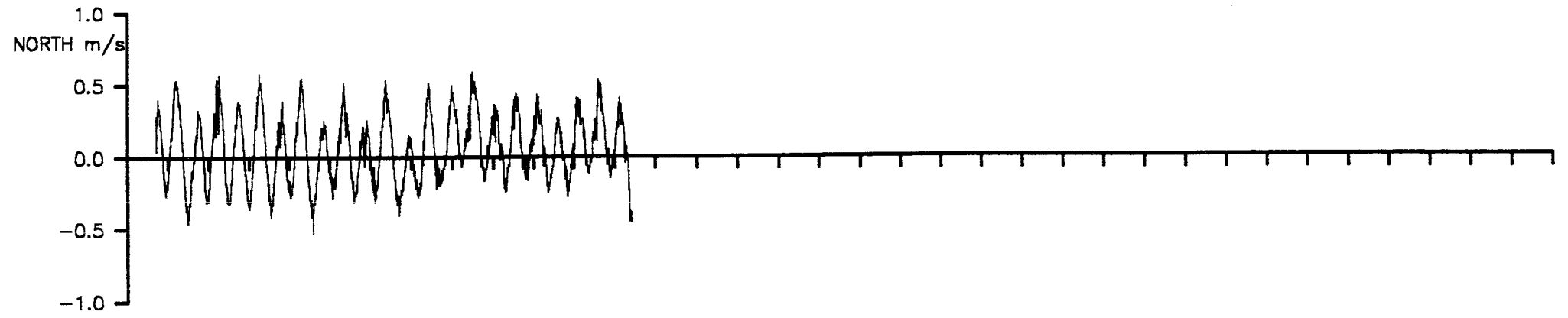
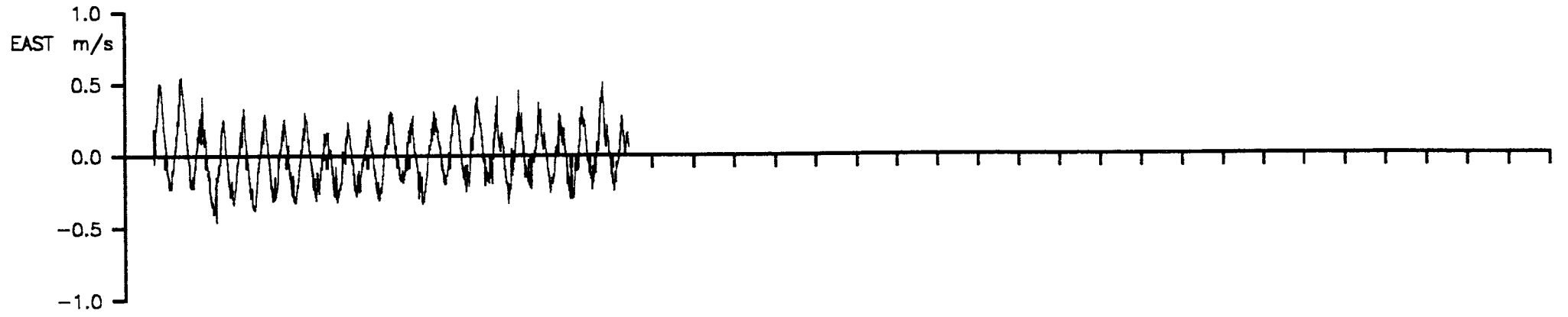
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0001 Rig no. C41DC Depth of water(m) 31.0

Start/End 1988/12/12 AT 16:50:00 1989/01/25 AT 07:52:00

Position 53 29.81N 02 59.96E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

88  
Dec

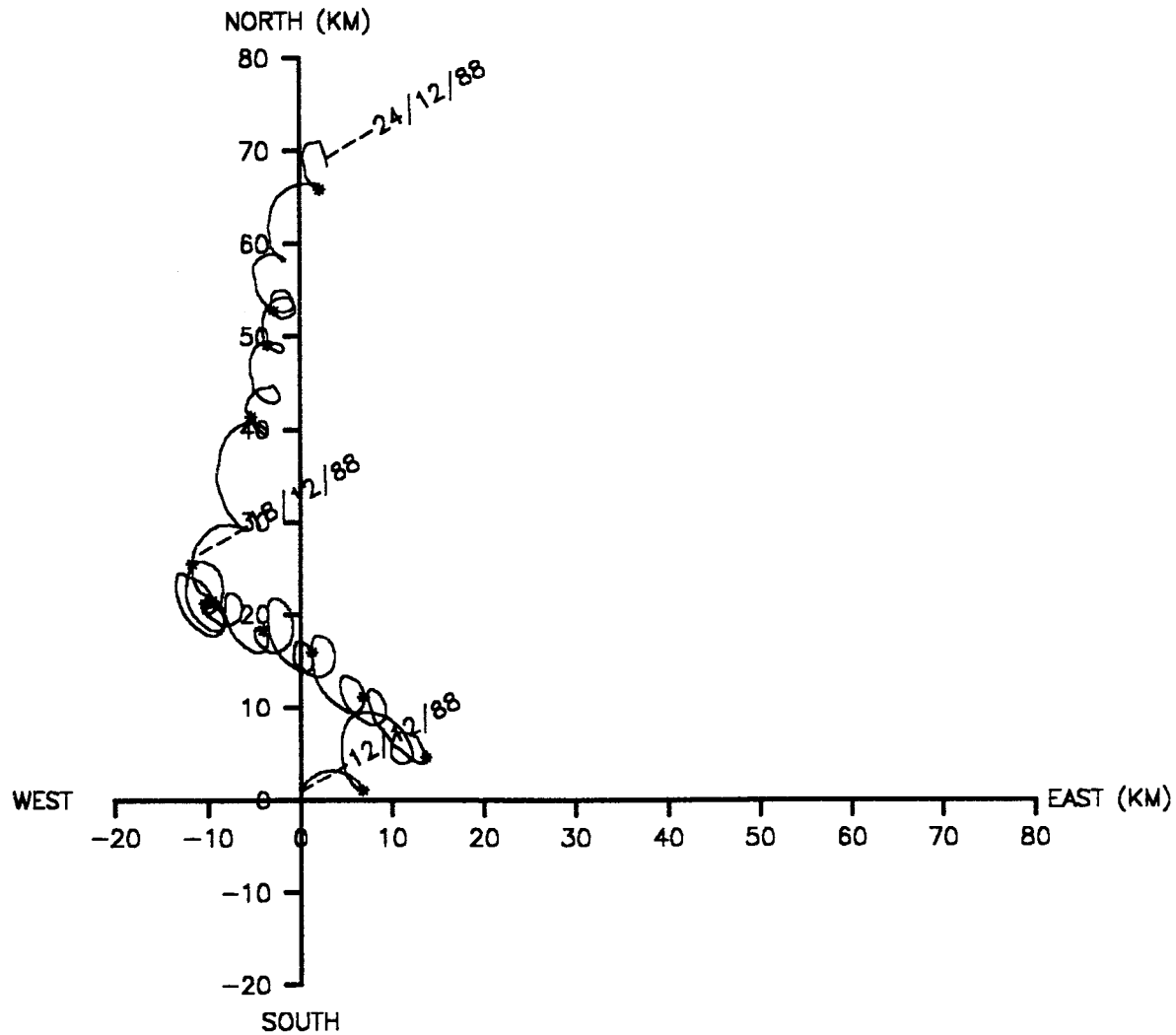
VECTOR PLOT

Meter no. 0001 Rig no. C41DC Depth of water(m) 31.0

Start/End 1988/12/12 AT 16:50:00 1989/01/25 AT 07:52:00

Position 53 29.81N 02 59.96E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0001 C41DC2 A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0031	0.35892114E-01	0.18945217E+00
Northings	0.0675	0.53444751E-01	0.23118114E+00
Speed	0.2827	0.13913043E-01	0.11795354E+00

Vector mean speed 0.0676  
 Vector Mean Direction 2.6

Maximum ten values									
Eastings					Northings				
0.539	0.531	0.519	0.519	0.513	0.584	0.571	0.569	0.567	0.558
0.502	0.502	0.501	0.501	0.501	0.548	0.544	0.539	0.538	0.536

Minimum ten values									
Eastings					Northings				
-0.356	-0.359	-0.360	-0.363	-0.366	-0.414	-0.417	-0.421	-0.432	-0.435
-0.372	-0.383	-0.388	-0.407	-0.463	-0.436	-0.453	-0.458	-0.461	-0.532

Maximum speeds									
0.647	0.636	0.636	0.614	0.601	0.598	0.598	0.594	0.587	0.571
0.571	0.567	0.563	0.562	0.560	0.560	0.554	0.553	0.552	0.551
0.550	0.549	0.548	0.547	0.547	0.541	0.541	0.541	0.541	0.540
0.540	0.534	0.533	0.533	0.532	0.532	0.532	0.532	0.532	0.531
0.530	0.530	0.530	0.529	0.529	0.529	0.529	0.528	0.528	0.527
0.526	0.523	0.523	0.522	0.522	0.522	0.522	0.521	0.519	0.518
0.517	0.517	0.516	0.515	0.515	0.513	0.511	0.511	0.511	0.511
0.510	0.509	0.508	0.508	0.507	0.507	0.506	0.505	0.504	0.503
0.503	0.502	0.502	0.502	0.502	0.500	0.499	0.499	0.498	0.498
0.497	0.496	0.496	0.496	0.495	0.493	0.492	0.492	0.492	0.491

Variance ellipse statistics

Maximum variance	0.5867E-01	Direction	-25.6
Minimum variance	0.3066E-01	Direction	64.4
Total variance	0.8934E-01	Ratio of variances	0.5226E+00
Average direction. maxdir -PI/2 to maxdir +PI/2			9.4
Average direction. maxdir +PI/2 to maxdir -PI/2			172.7

Statistics for DP0001 C41DG2F A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	-0.0110	0.20982025E-02	0.45806140E-01
Northings	0.0605	0.49263351E-02	0.70187807E-01
Speed	0.0829	0.37902235E-02	0.61564788E-01

Vector mean speed 0.0615  
 Vector Mean Direction -10.3

Maximum ten values					Northings				
Eastings									
0.078	0.069	0.066	0.045	0.043	0.201	0.200	0.171	0.166	0.136
0.026	0.010	-0.002	-0.004	-0.014	0.110	0.105	0.044	0.043	0.042

Minimum ten values					Northings				
Eastings									
-0.035	-0.046	-0.047	-0.048	-0.050	0.029	0.026	0.021	0.019	0.013
-0.051	-0.055	-0.059	-0.065	-0.066	0.013	0.001	-0.009	-0.022	-0.029

Maximum speeds									
0.214	0.213	0.184	0.172	0.143	0.113	0.105	0.074	0.070	0.069
0.067	0.061	0.060	0.054	0.054	0.053	0.051	0.041	0.032	0.030
0.023	0.022	0.002							

Variance ellipse statistics

Maximum variance	0.6504E-02	Direction	30.9
Minimum variance	0.5201E-03	Direction	120.9
Total variance	0.7025E-02	Ratio of variances	0.7997E-01
Average direction. maxdir	-PI/2 to maxdir +PI/2		-44.1
Average direction. maxdir	+PI/2 to maxdir -PI/2		234.2

**Meter information details for 6443**

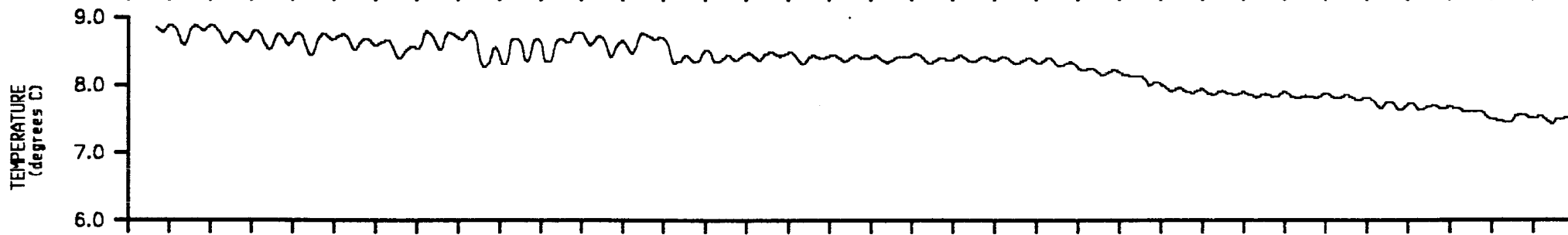
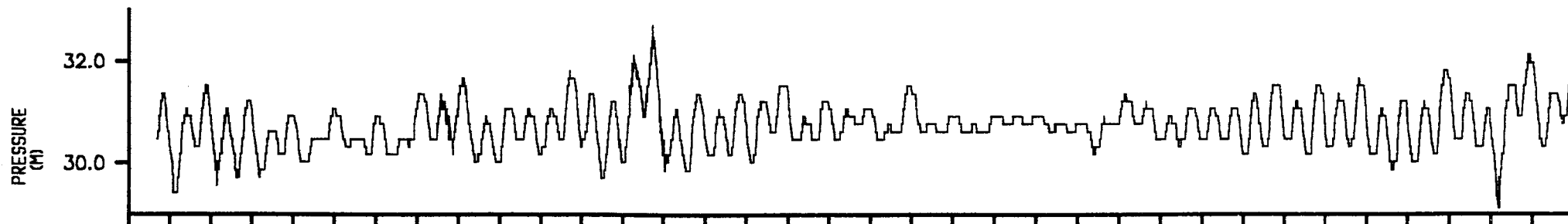
Rig No	:	C41DC
Meter No	:	6443
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	12-DEC-88 14:40:00
Meter stopped	:	25-JAN-89 14:30:47
Period switched on	:	44.0 days
Period of good data	:	43.6 days
Total number of scans	:	6283
Timing error	:	47 seconds slow
Comments	:	Good record obtained

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C41DC Depth of water(m) 31.0

Start/End 1988/12/12 AT 16:50:00 1989/01/25 AT 07:52:00

Position 53 29.81N 02 59.96E Meter Height(m) 0.8



12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

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Dec

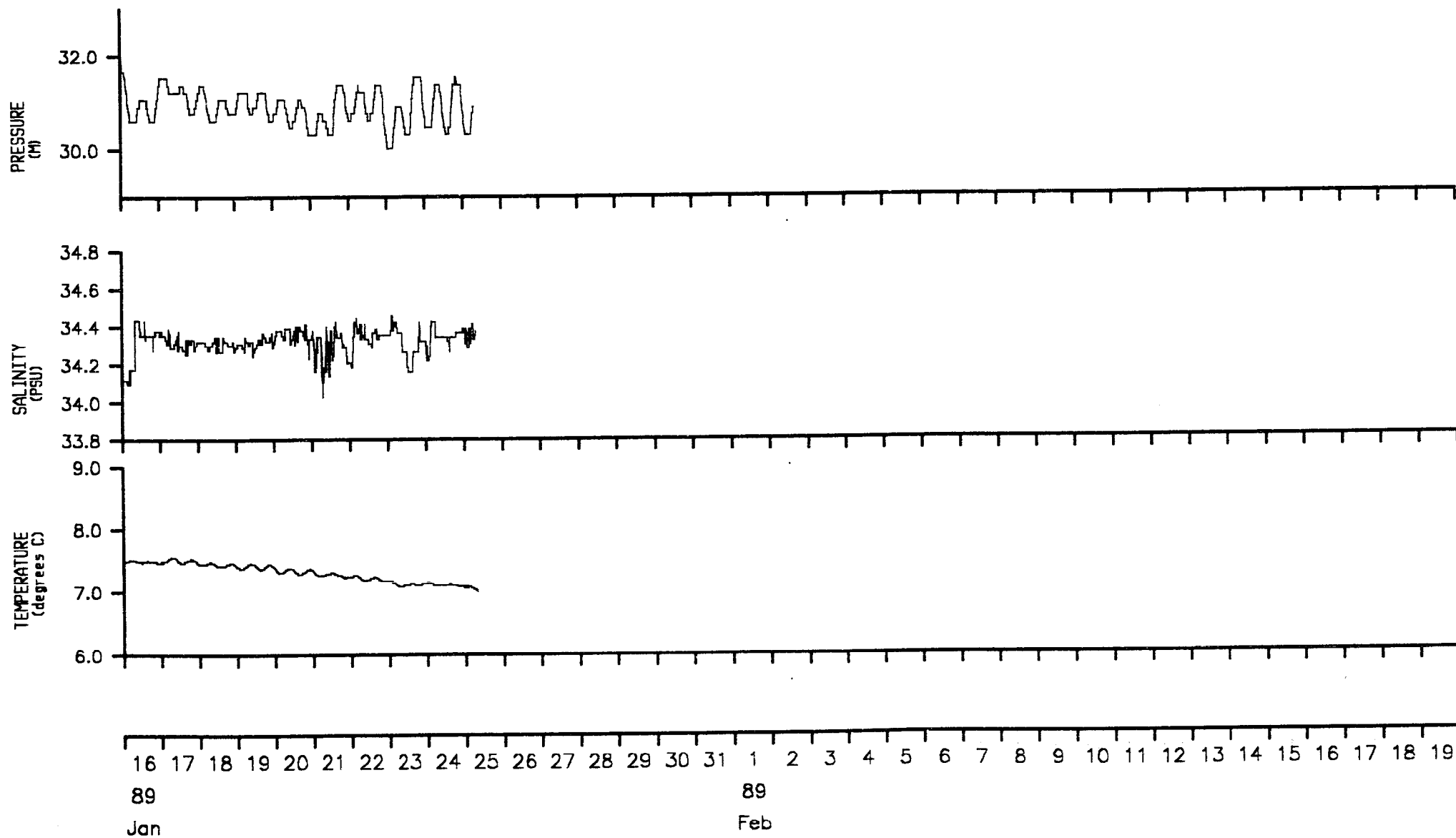


TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C41DC Depth of water(m) 31.0

Start/End 1988/12/12 AT 16:50:00 1989/01/25 AT 07:52:00

Position 53 29.81N 02 59.96E Meter Height(m) 0.8



**Rig information details for C45DC**

Position Latitude	:	53 29.79N
Position Longitude	:	03 00.00E
Water depth	:	31.0 m
Deployed on cruise	:	C45
Recovered on cruise	:	BONENTE
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	31-JAN-89 19:10:00
Rig recovered on	:	05-MAR-89 09:25:00
Period of deployment	:	32.6 days
Comments	:	Recoverd on BONENTE not CHALLENGER

**Meter information details for 0001**

Rig No	:	C45DC
Meter No	:	0001
Frame angle correction	:	183.3 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	31-JAN-89 18:09:27
Time of last valid scan	:	05-MAR-89 09:19:15
Period of good data	:	32.3 days      short record
Total number of scans	:	4651
Timing error	:	12 seconds fast
Comments	:	Twenty-one increments of 30 minutes instead of 10 minutes every 219 scans

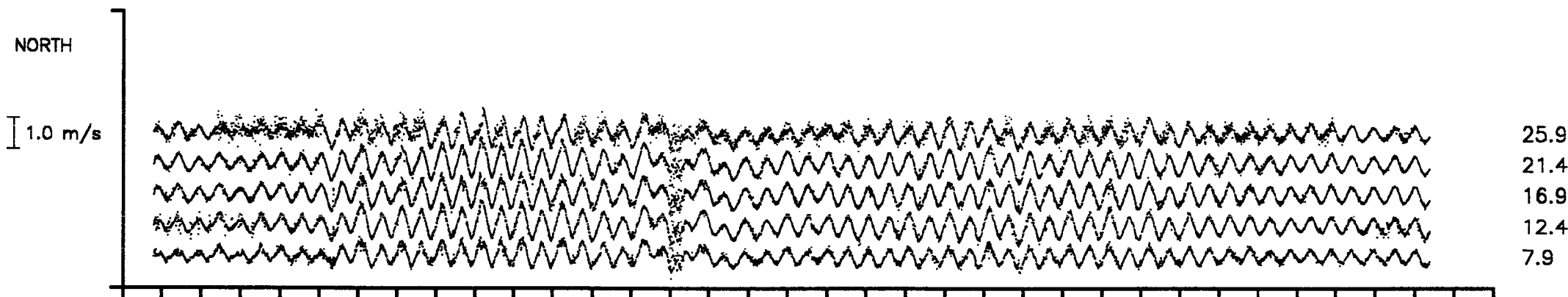
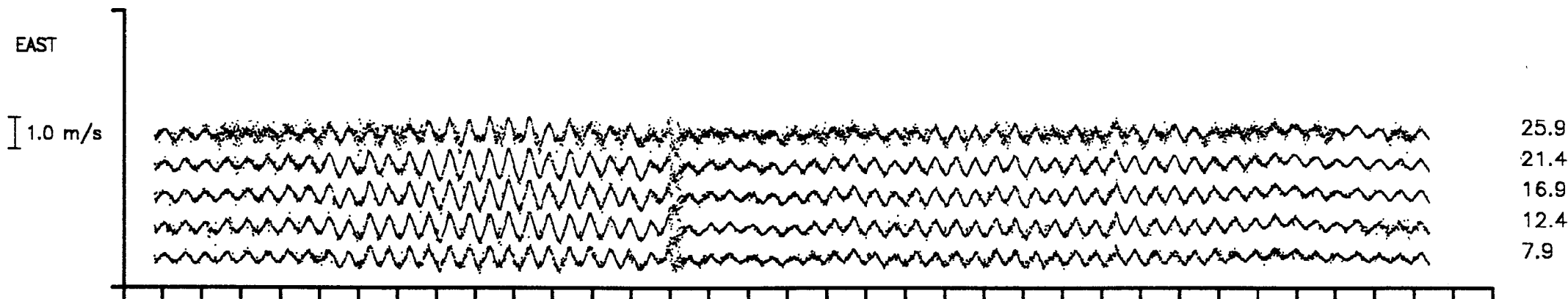
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0001 Rig no. C45DC Depth of water(m) 31.0

Start/End 1989/01/31 AT 19:10:00 1989/03/05 AT 09:25:00

Position 53 29.79N 03 00.00E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



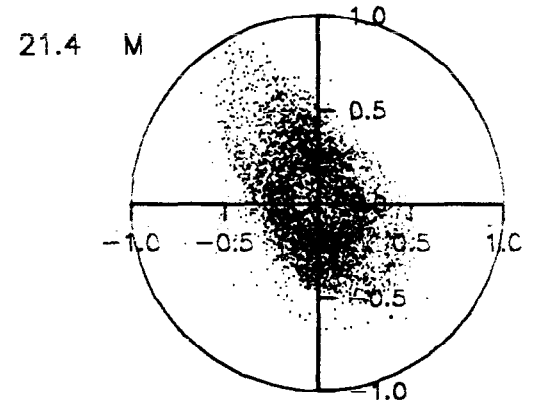
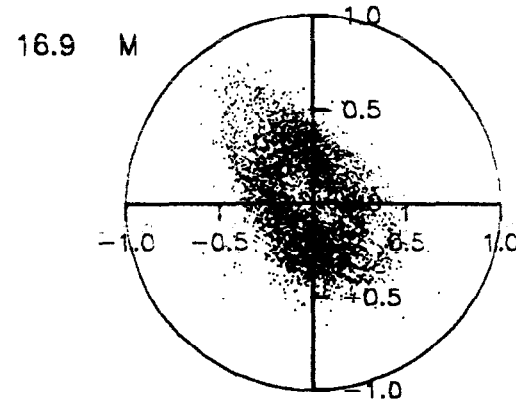
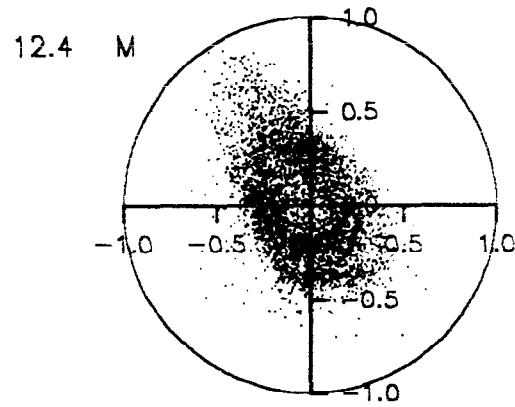
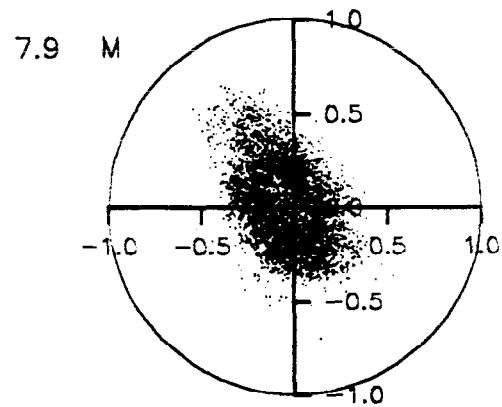
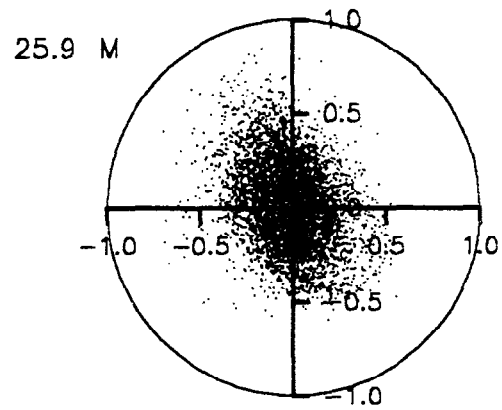
31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 1 2 3 4 5 6  
89 89 89  
Jan Feb Mar

SCATTER PLOT

Meter no. 0001 Rig no. C45DC Depth of water(m) 31.0

Start/End 1989/01/31 AT 19:10:00 1989/03/05 AT 09:25:00

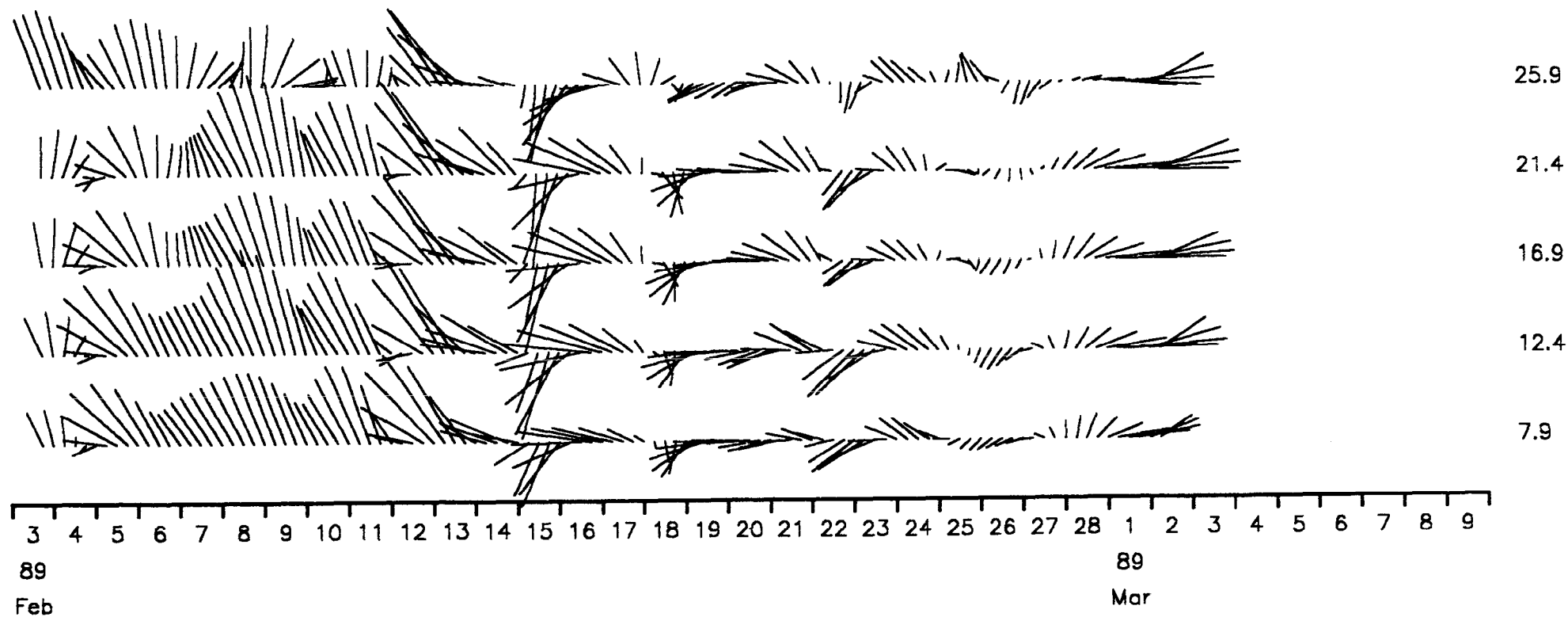
Position 53 29.79N 03 00.00E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0001 Rig no. C45DC Depth of water(m) 31.0  
Start/End 1989/01/31 AT 19:10:00 1989/03/05 AT 09:25:00  
Position 53 29.79N 03 00.00E 7.9 Base Ht 4.5 Gap Ht

— Bin Ht (m)  
Scale 0.1 m/s



STATISTICS FOR DP0001 C45DC

Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.048	-62.2	0.0514	-27.9	0.0189	62.1
2	12.4	0.052	-58.0	0.0825	-25.6	0.0287	64.4
3	16.9	0.037	-46.8	0.0748	-28.2	0.0272	61.8
4	21.4	0.035	-37.8	0.0819	-26.6	0.0279	63.4
5	25.9	0.030	-35.6	0.0582	-23.8	0.0259	66.2

Filtered Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.051	-59.4	0.0028	-9.1	0.0019	80.9
2	12.4	0.054	-55.7	0.0042	-13.7	0.0031	76.3
3	16.9	0.040	-47.2	0.0034	-68.0	0.0028	22.0
4	21.4	0.038	-39.1	0.0041	-38.9	0.0031	51.1
5	25.9	0.028	-35.8	0.0028	-1.8	0.0023	88.2

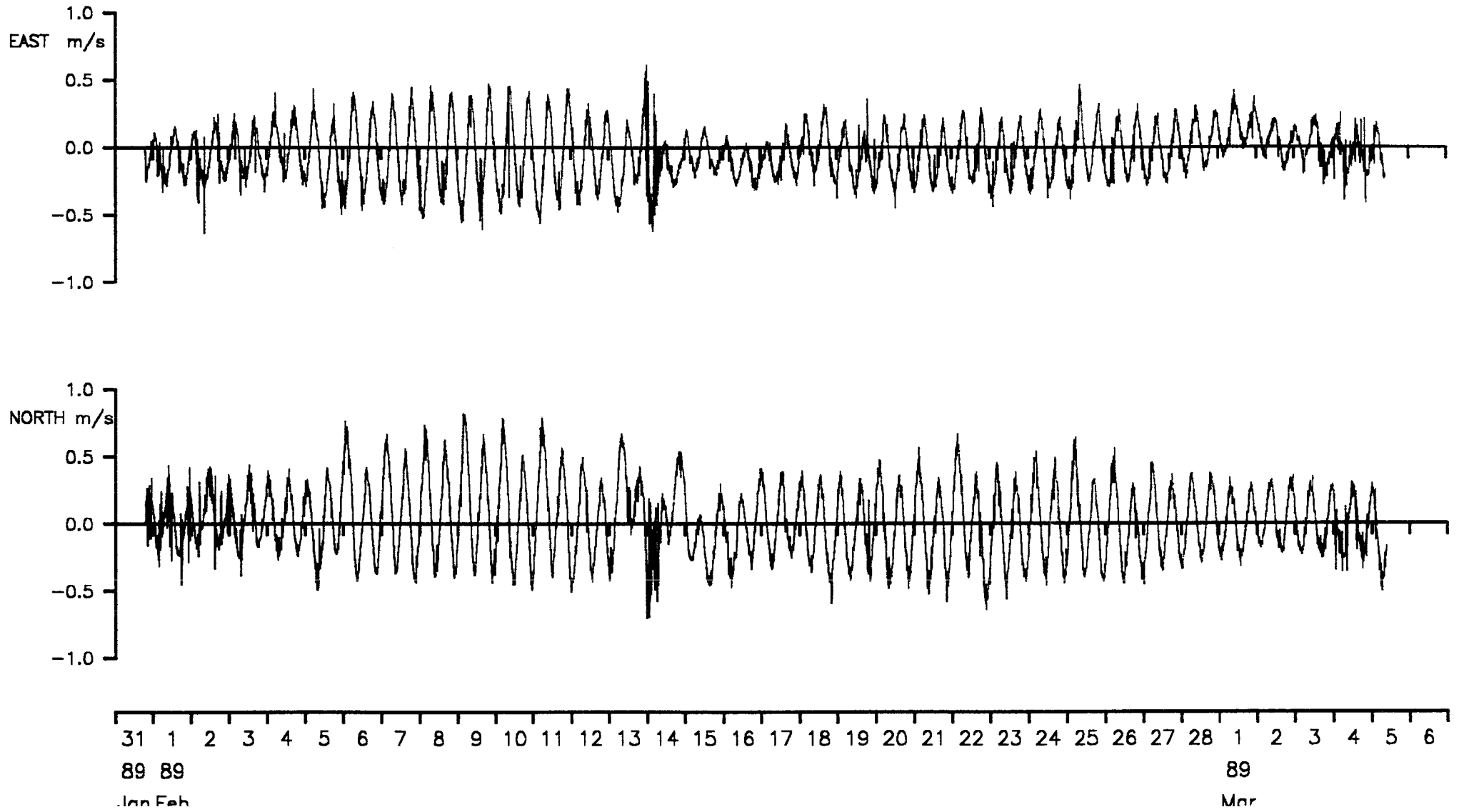
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0001 Rig no. C45DC Depth of water(m) 31.0

Start/End 1989/01/31 AT 19:10:00 1989/03/05 AT 09:25:00

Position 53 29.79N 03 00.00E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth

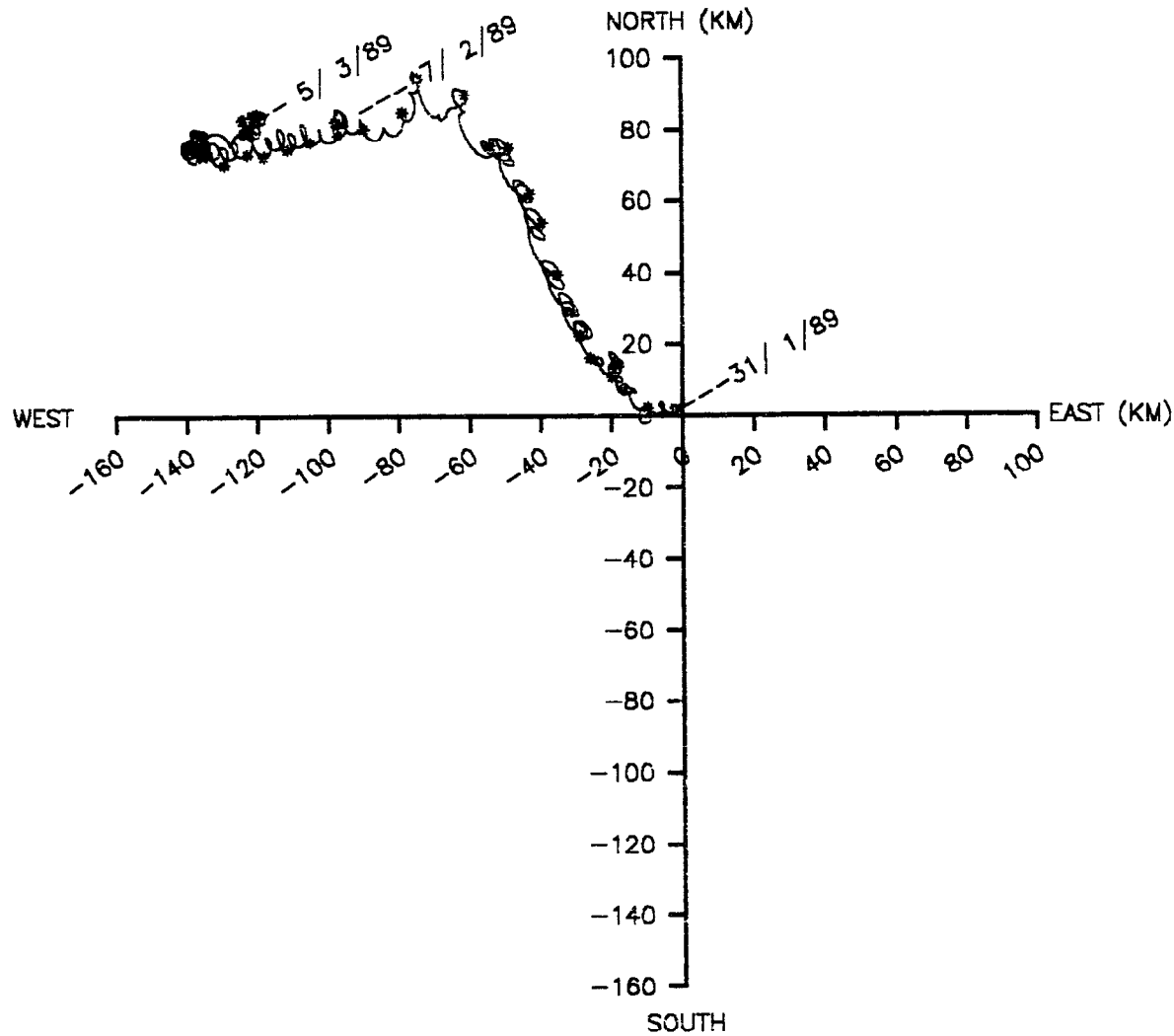




VECTOR PLOT

Meter no. 0001 Rig no. C45DC Depth of water(m) 31.0  
Start/End 1989/01/31 AT 19:10:00 1989/03/05 AT 09:25:00

Position 53 29.79N 03 00.00E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)  
Bin closest to depth average



Statistics for DP0001 C45DC2 A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	-0.0442	0.38798288E-01	0.19697279E+00
Northings	0.0277	0.72481513E-01	0.26922393E+00
Speed	0.3072	0.19640695E-01	0.14014524E+00

Vector mean speed 0.0522  
 Vector Mean Direction -58.0

Maximum ten values

Eastings					Northings				
0.619	0.566	0.522	0.504	0.491	0.824	0.815	0.814	0.795	0.788
0.465	0.463	0.453	0.447	0.446	0.787	0.786	0.783	0.777	0.771

Minimum ten values

Eastings					Northings				
-0.543	-0.553	-0.558	-0.561	-0.565	-0.574	-0.575	-0.580	-0.592	-0.593
-0.578	-0.589	-0.607	-0.619	-0.636	-0.601	-0.639	-0.692	-0.693	-0.700

Maximum speeds

0.979	0.946	0.908	0.894	0.890	0.886	0.883	0.880	0.870	0.869
0.868	0.855	0.853	0.849	0.849	0.849	0.845	0.844	0.840	0.826
0.818	0.817	0.814	0.811	0.809	0.806	0.805	0.798	0.796	0.790
0.782	0.782	0.780	0.779	0.779	0.776	0.775	0.774	0.774	0.773
0.771	0.768	0.766	0.766	0.763	0.762	0.761	0.760	0.759	0.754
0.753	0.749	0.745	0.743	0.742	0.742	0.741	0.741	0.736	0.735
0.734	0.733	0.730	0.730	0.729	0.727	0.726	0.725	0.725	0.723
0.721	0.718	0.717	0.717	0.716	0.716	0.713	0.713	0.710	0.706
0.704	0.703	0.702	0.700	0.697	0.695	0.693	0.692	0.690	0.690
0.689	0.687	0.684	0.681	0.679	0.679	0.678	0.677	0.677	0.677

Variance ellipse statistics

Maximum variance 0.8255E-01	Direction	-25.6
Minimum variance 0.2873E-01	Direction	64.4
Total variance 0.1113E+00	Ratio of variances	0.3480E+00
Average direction. maxdir -PI/2 to maxdir +PI/2		2.9
Average direction. maxdir +PI/2 to maxdir -PI/2		186.7

statistics for DP0001 C45DC2F A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	-0.0445	0.32019103E-02	0.56585424E-01
Northings	0.0303	0.41259415E-02	0.64233482E-01
Speed	0.0906	0.19679549E-02	0.44361636E-01

Vector mean speed 0.0538  
 Vector Mean Direction -55.7

Maximum ten values

Eastings					Northings				
0.152	0.148	0.133	0.119	0.100	0.175	0.167	0.166	0.163	0.147
0.077	0.067	0.042	0.023	0.018	0.141	0.141	0.136	0.127	0.124

Minimum ten values

Eastings					Northings				
-0.109	-0.109	-0.109	-0.110	-0.116	-0.049	-0.049	-0.058	-0.061	-0.076
-0.119	-0.121	-0.136	-0.141	-0.147	-0.078	-0.086	-0.098	-0.136	-0.144

Maximum speeds

0.191	0.184	0.178	0.172	0.168	0.160	0.159	0.155	0.152	0.152
0.152	0.149	0.148	0.147	0.146	0.146	0.143	0.139	0.139	0.138
0.136	0.135	0.133	0.130	0.129	0.127	0.125	0.123	0.117	0.116
0.113	0.113	0.112	0.112	0.112	0.110	0.110	0.108	0.105	0.105
0.101	0.101	0.099	0.098	0.097	0.097	0.096	0.095	0.095	0.093
0.092	0.092	0.091	0.088	0.088	0.087	0.085	0.084	0.083	0.083
0.082	0.081	0.076	0.076	0.075	0.075	0.074	0.073	0.072	0.072
0.071	0.071	0.070	0.070	0.070	0.070	0.065	0.065	0.065	0.064
0.061	0.059	0.058	0.057	0.053	0.048	0.041	0.040	0.040	0.040
0.039	0.038	0.038	0.036	0.033	0.032	0.029	0.026	0.026	0.025

Variance ellipse statistics

Maximum variance	0.4184E-02	Direction	-13.7
Minimum variance	0.3144E-02	Direction	76.3
Total variance	0.7328E-02	Ratio of variances	0.7514E+00
Average direction. maxdir	-PI/2 to maxdir	+PI/2	-19.0
Average direction. maxdir	+PI/2 to maxdir	-PI/2	210.4

**Meter information details for 6443**

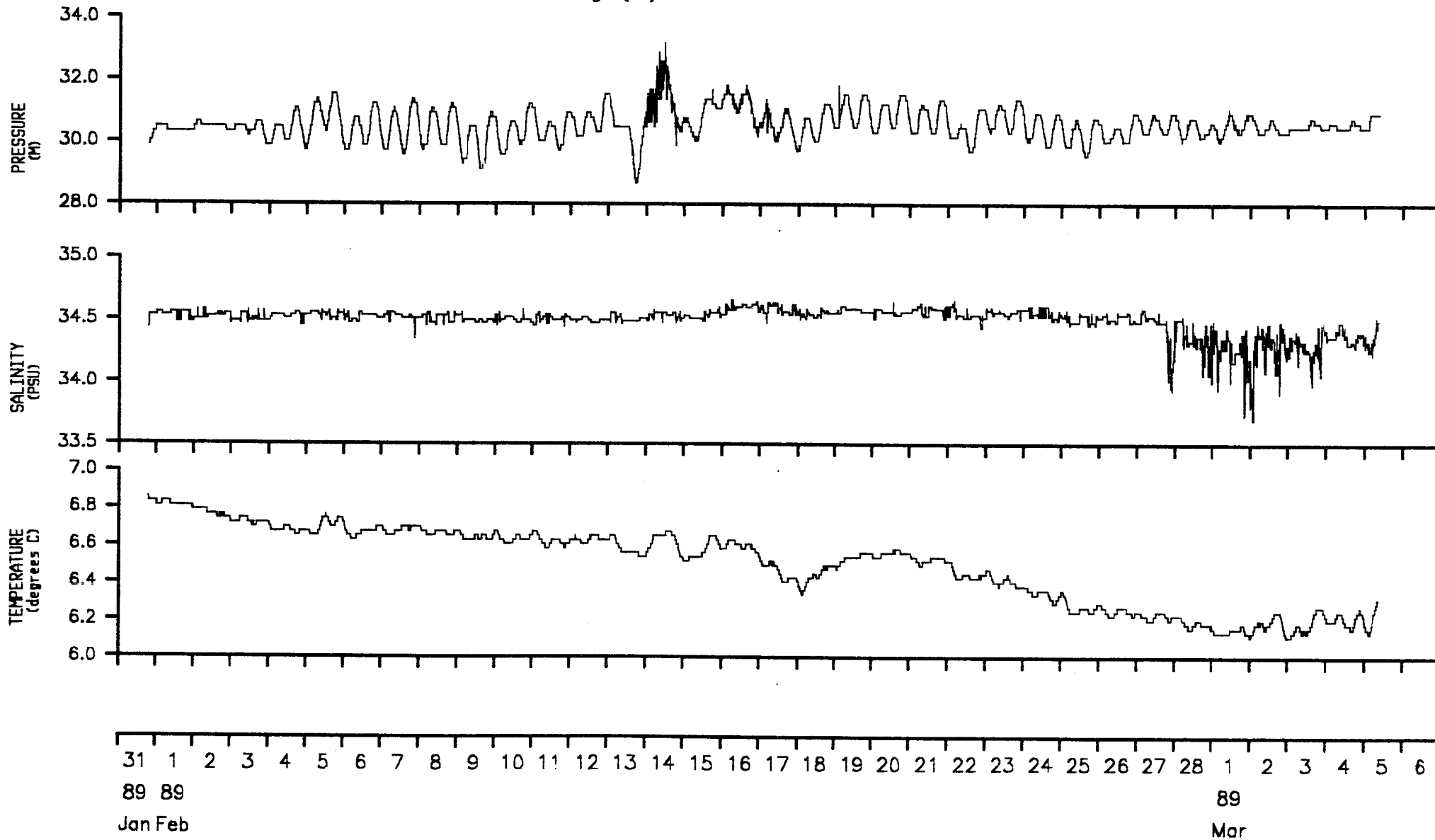
Rig No	:	C45DC
Meter No	:	6443
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	31-JAN-89 14:40:00
Meter stopped	:	07-MAR-89 22:10:00
Period switched on	:	35.3 days
Period of good data	:	32.6 days
Total number of scans	:	4694
Timing error	:	None
Comments	:	Good record obtained

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C45DC Depth of water(m) 31.0

Start/End 1989/01/31 AT 19:10:00 1989/03/05 AT 09:25:00

Position 53 29.79N 03 00.00E Meter Height(m) 0.8



**Rig information details for C47DC**

Position Latitude	:	53 29.61N
Position Longitude	:	03 00.08E
Water depth	:	31.0 m
Deployed on cruise	:	C47
Recovered on cruise	:	C49
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	04-MAR-89 17:00:00
Rig recovered on	:	01-APR-89 15:47:00
Period of deployment	:	27.9 days
Comments	:	Launch and recovery successful

**Meter information details for 0002**

Rig No	:	C47DC
Meter No	:	0002
Frame angle correction	:	323.7 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	03-MAR-89 20:39:20
Time of last valid scan	:	22-MAR-89 12:59:16
Period of good data	:	17.8 days      short record
Total number of scans	:	2568
Timing error	:	4 seconds fast
Comments	:	Recording malfunction occurred in data after 12:59 on the 22-MAR-89

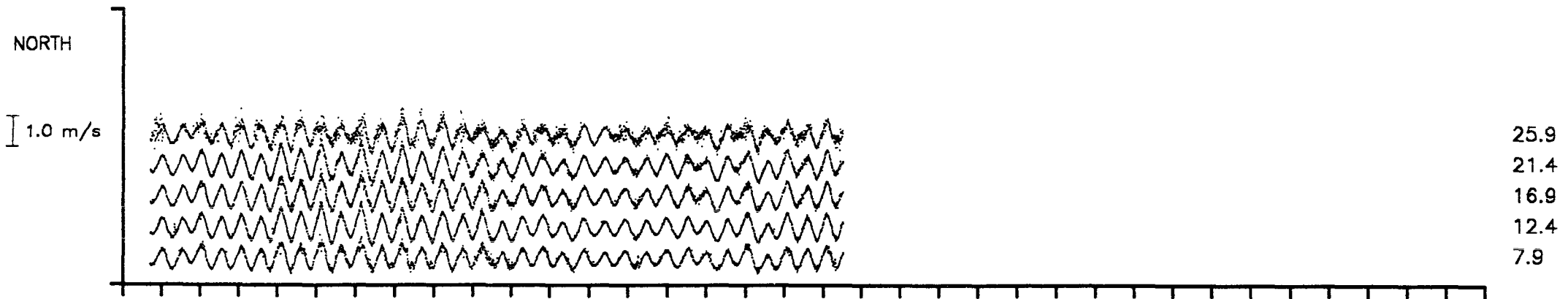
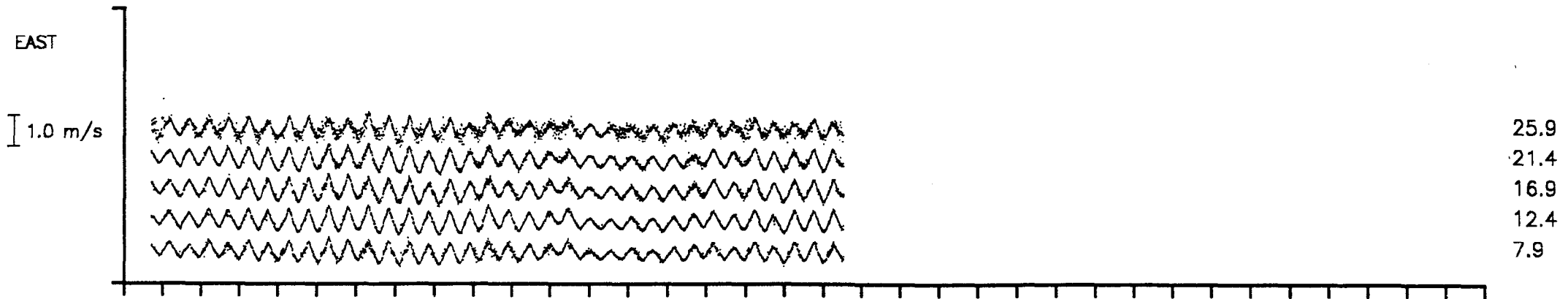
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0002 Rig no. C47DC Depth of water(m) 31.0

Start/End 1989/03/04 AT 17:00:00 1989/04/01 AT 15:47:00

Position 53 29.61N 03 00.08E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7  
89 89  
Mar Apr

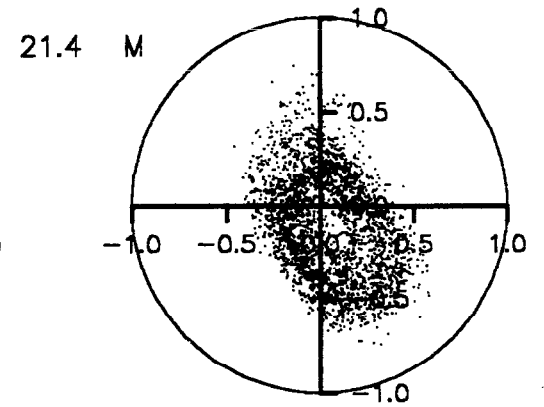
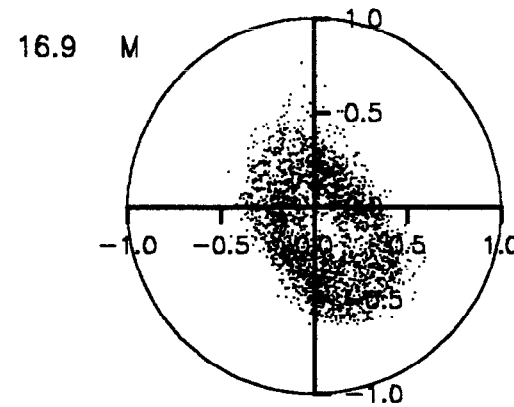
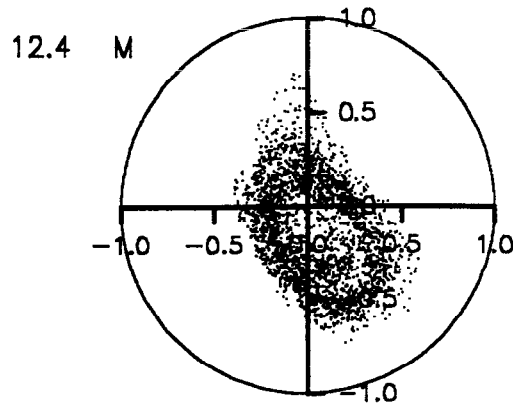
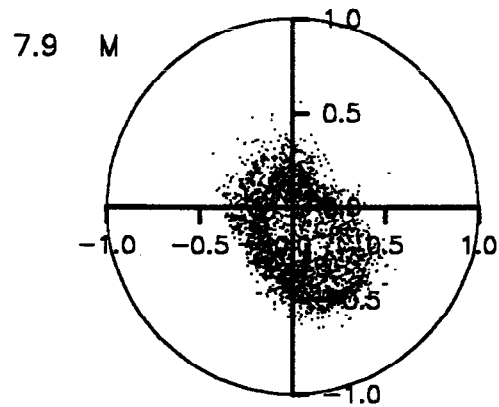
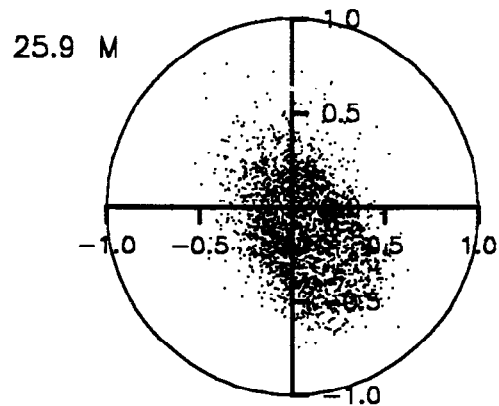


SCATTER PLOT

Meter no. 0002 Rig no. C47DC Depth of water(m) 31.0

Start/End 1989/03/04 AT 17:00:00 1989/04/01 AT 15:47:00

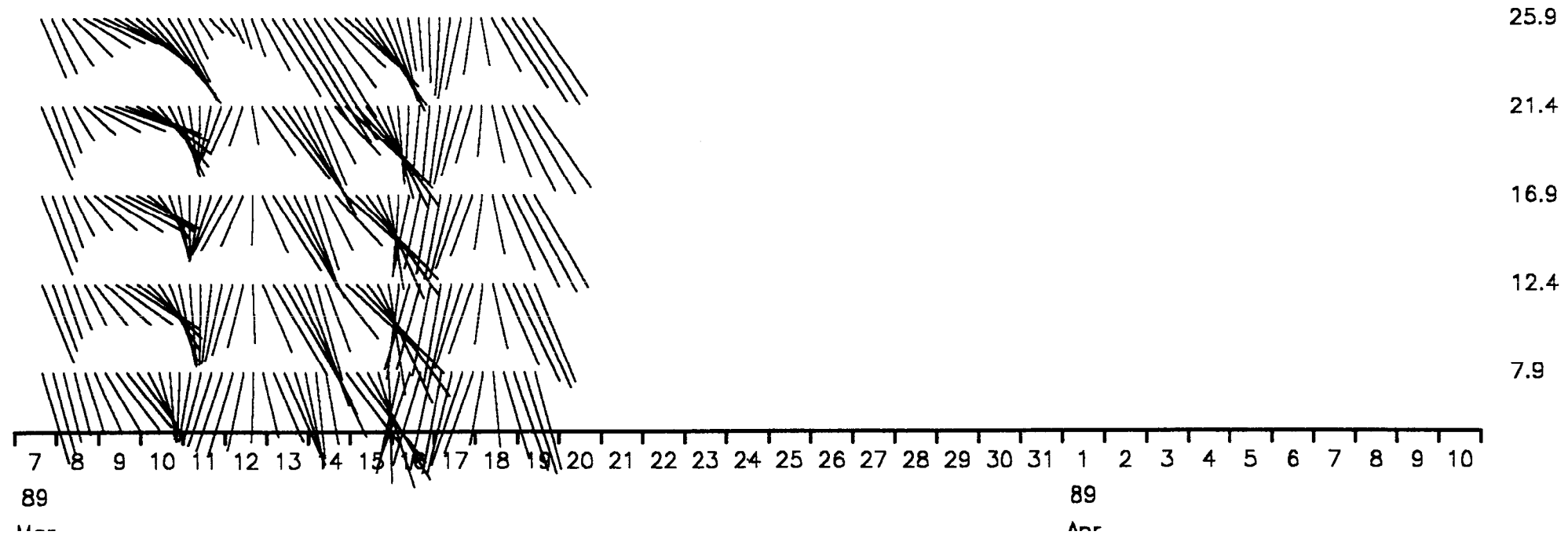
Position 53 29.61N 03 00.08E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0002 Rig no. C47DC Depth of water(m) 31.0  
Start/End 1989/03/04 AT 17:00:00 1989/04/01 AT 15:47:00  
Position 53 29.61N 03 00.08E 7.9 Base Ht 4.5 Gap Ht

————— Bin Ht (m)  
Scale 0.1 m/s



STATISTICS FOR DP0002 C47DC

Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.146	168.3	0.0614	-27.3	0.0273	62.7
2	12.4	0.143	160.8	0.0838	-25.6	0.0321	64.4
3	16.9	0.126	157.4	0.0791	-24.8	0.0328	65.2
4	21.4	0.124	151.9	0.0853	-24.2	0.0330	65.8
5	25.9	0.119	146.3	0.0683	-25.4	0.0300	64.6

Filtered Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.136	172.3	0.0022	80.9	0.0008	170.9
2	12.4	0.137	163.3	0.0030	-84.8	0.0016	5.2
3	16.9	0.117	161.5	0.0030	-87.7	0.0012	2.3
4	21.4	0.116	155.9	0.0027	-82.6	0.0014	7.4
5	25.9	0.119	149.7	0.0027	-42.5	0.0011	47.5

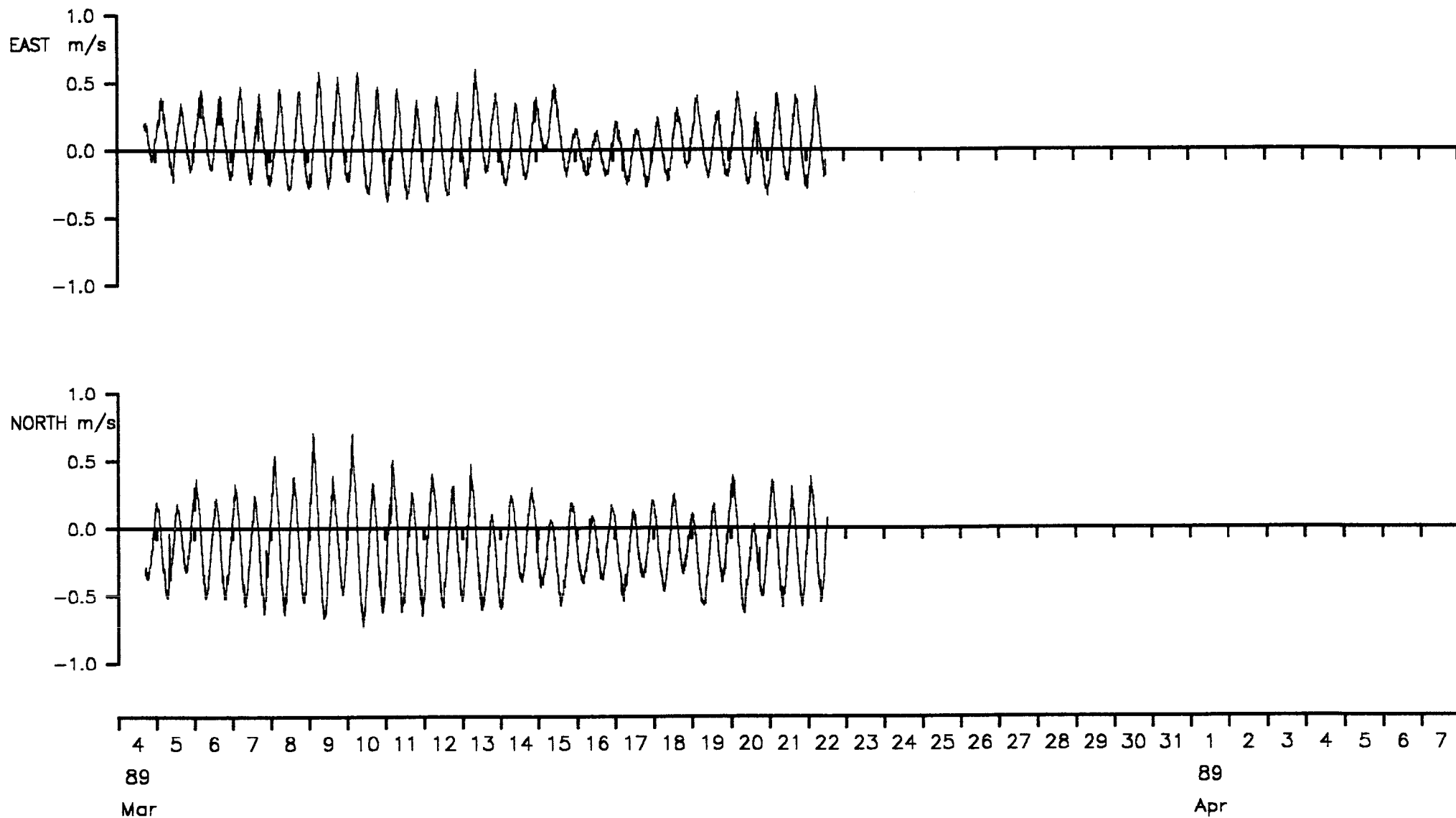
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0002 Rig no. C47DC Depth of water(m) 31.0

Start/End 1989/03/04 AT 17:00:00 1989/04/01 AT 15:47:00

Position 53 29.61N 03 00.08E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



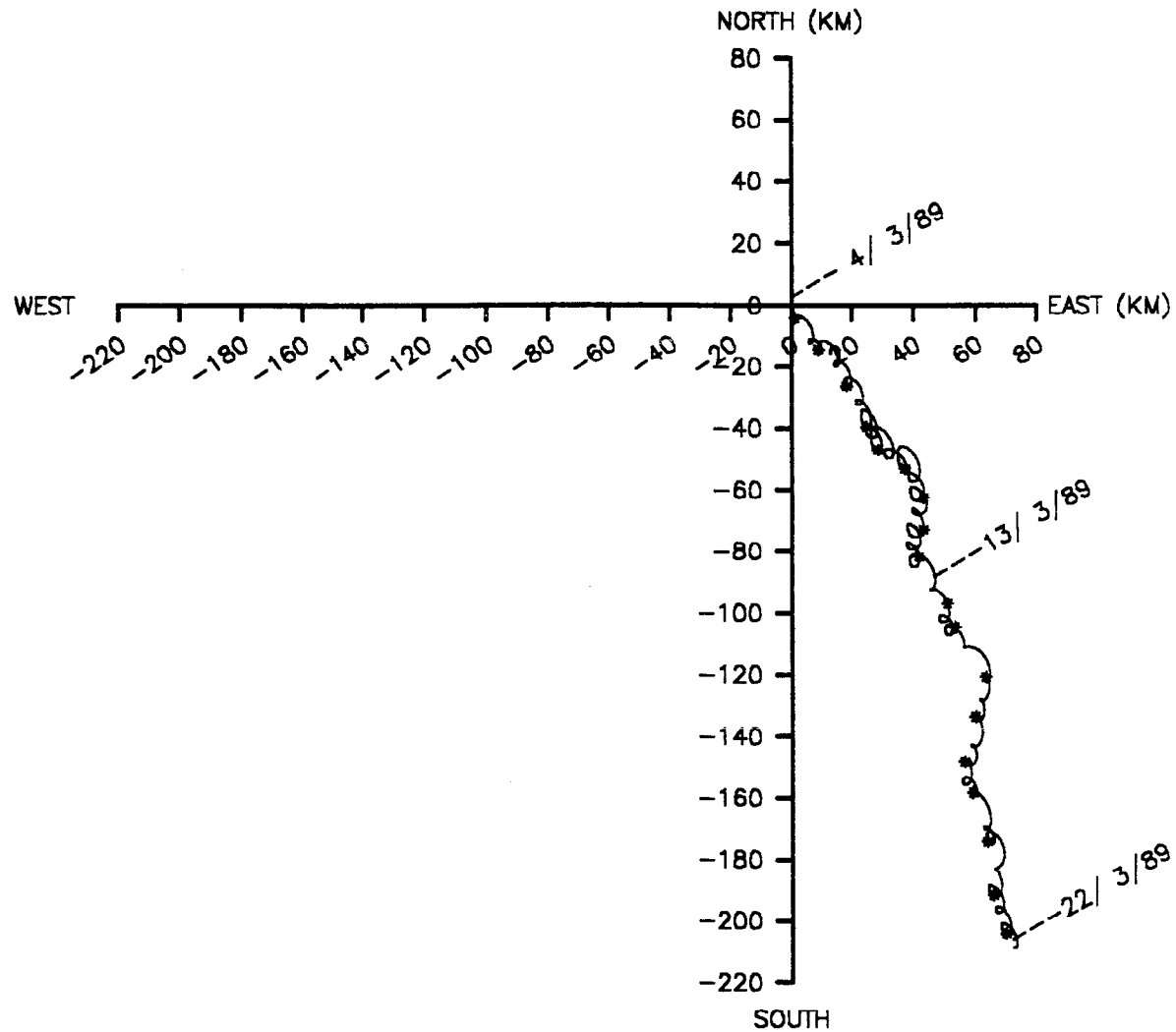
VECTOR PLOT

Meter no. 0002 Rig no. C47DC Depth of water(m) 31.0

Start/End 1989/03/04 AT 17:00:00 1989/04/01 AT 15:47:00

Position 53 29.61N 03 00.08E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0002 C47DC2 A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0470	0.41759130E-01	0.20435053E+00
Northings	-0.1354	0.74144423E-01	0.27229476E+00
Speed	0.3370	0.22873983E-01	0.15124142E+00

Vector mean speed 0.1434  
 Vector Mean Direction 160.8

Maximum ten values									
Eastings					Northings				
0.590	0.576	0.572	0.570	0.552	0.703	0.694	0.683	0.674	0.632
0.549	0.548	0.542	0.542	0.538	0.627	0.626	0.615	0.603	0.583

Minimum ten values									
Eastings					Northings				
-0.363	-0.363	-0.372	-0.373	-0.374	-0.651	-0.652	-0.653	-0.661	-0.667
-0.375	-0.385	-0.386	-0.387	-0.388	-0.668	-0.675	-0.677	-0.721	-0.731

Maximum speeds									
0.777	0.758	0.757	0.750	0.738	0.737	0.731	0.723	0.719	0.719
0.714	0.707	0.706	0.700	0.696	0.695	0.695	0.693	0.692	0.690
0.689	0.688	0.687	0.687	0.686	0.682	0.681	0.680	0.678	0.674
0.673	0.671	0.670	0.670	0.668	0.667	0.664	0.664	0.662	0.661
0.658	0.657	0.657	0.657	0.657	0.657	0.656	0.655	0.655	0.655
0.653	0.653	0.653	0.652	0.650	0.649	0.645	0.645	0.645	0.642
0.641	0.641	0.641	0.639	0.638	0.638	0.637	0.636	0.636	0.633
0.633	0.633	0.632	0.631	0.631	0.630	0.630	0.628	0.627	0.627
0.626	0.626	0.625	0.624	0.623	0.623	0.620	0.620	0.619	0.619
0.618	0.617	0.617	0.617	0.616	0.616	0.616	0.616	0.615	0.615

Variance ellipse statistics

Maximum variance 0.8377E-01	Direction	-25.6
Minimum variance 0.3213E-01	Direction	64.4
Total variance 0.1159E+00	Ratio of variances	0.3835E+00
Average direction. maxdir -PI/2 to maxdir +PI/2		10.1
Average direction. maxdir +PI/2 to maxdir -PI/2		184.0

statistics for DP0002 C47DC2F A

oppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0394	0.29579939E-02	0.54387443E-01
Northings	-0.1316	0.15941376E-02	0.39926652E-01
Speed	0.1473	0.16702376E-02	0.40868539E-01

Vector mean speed 0.1374  
 Vector Mean Direction 163.3

Maximum ten values									
Eastings					Northings				
0.148	0.139	0.118	0.115	0.107	-0.067	-0.068	-0.069	-0.069	-0.069
0.105	0.104	0.095	0.092	0.092	-0.076	-0.076	-0.092	-0.092	-0.092

Minimum ten values									
Eastings					Northings				
-0.026	-0.029	-0.030	-0.031	-0.035	-0.165	-0.165	-0.166	-0.176	-0.186
-0.038	-0.040	-0.041	-0.044	-0.046	-0.190	-0.197	-0.201	-0.206	-0.220

Maximum speeds									
0.245	0.235	0.228	0.221	0.219	0.212	0.193	0.188	0.183	0.180
0.179	0.168	0.168	0.167	0.162	0.161	0.158	0.150	0.150	0.150
0.149	0.143	0.141	0.140	0.138	0.137	0.135	0.133	0.133	0.130
0.129	0.125	0.125	0.124	0.124	0.121	0.119	0.117	0.116	0.113
0.109	0.103	0.102	0.100	0.097	0.088	0.082	0.079		

Variance ellipse statistics

Maximum variance	0.2970E-02	Direction	-84.8
Minimum variance	0.1582E-02	Direction	5.2
Total variance	0.4552E-02	Ratio of variances	0.5329E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		0.0
Average direction. maxdir	+PI/2 to maxdir -PI/2		237.7

**Rig information details for C49DC**

Position Latitude	:	53 29.34N
Position Longitude	:	03 00.00E
Water depth	:	31.0 m
Deployed on cruise	:	C49
Recovered on cruise	:	C51
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	01-APR-89 20:21:00
Rig recovered on	:	30-APR-89 18:05:00
Period of deployment	:	28.9 days
Comments	:	Launch and recovery successful



**Meter information details for 0001**

Rig No	:	C49DC
Meter No	:	0001
Frame angle correction	:	200.8 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	01-APR-89 18:59:27
Time of last valid scan	:	30-APR-89 17:59:14
Period of good data	:	28.6 days      short record
Total number of scans	:	4125
Timing error	:	13 seconds fast
Comments	:	Eighteen increments of 30 minutes instead of 10 minutes every 219 scans

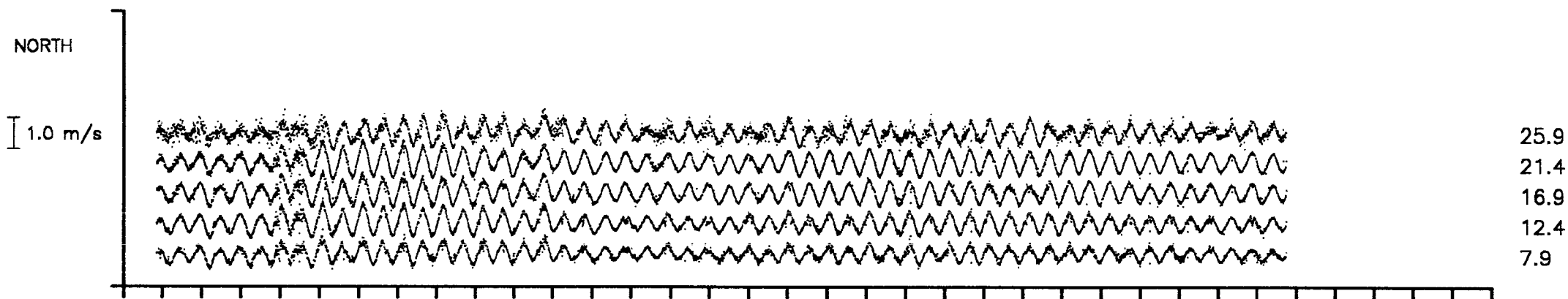
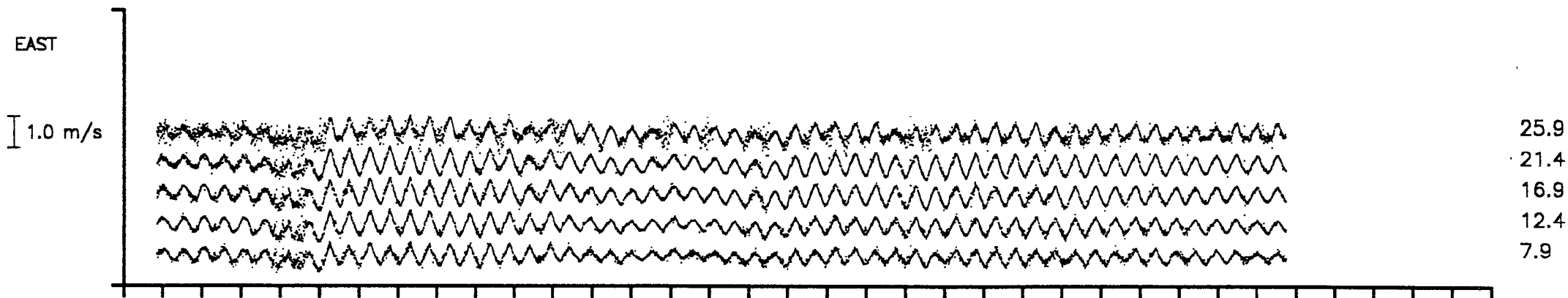
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0001 Rig no. C49DC Depth of water(m) 31.0

Start/End 1989/04/01 AT 20:21:00 1989/04/30 AT 18:05:00

Position 53 29.34N 03 00.00E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5

89

Apr

89

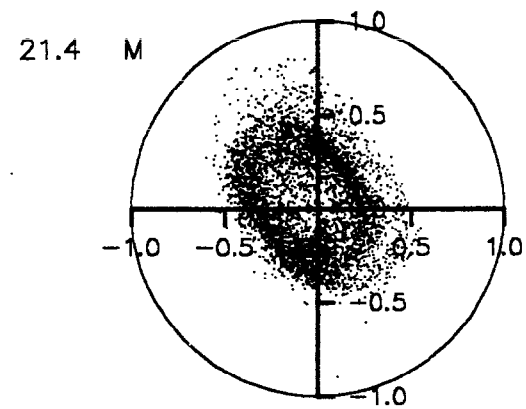
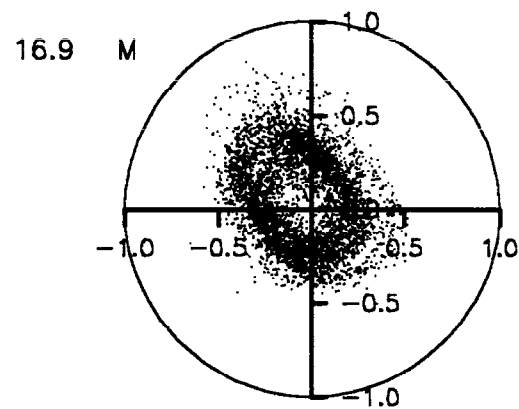
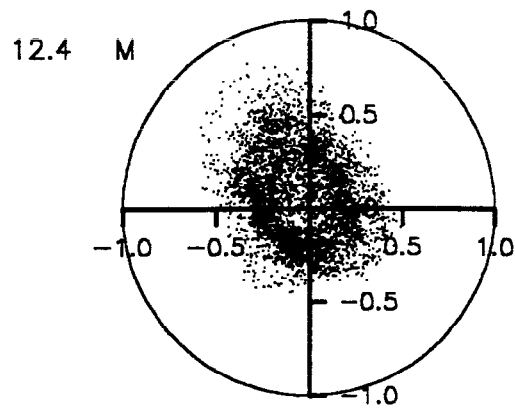
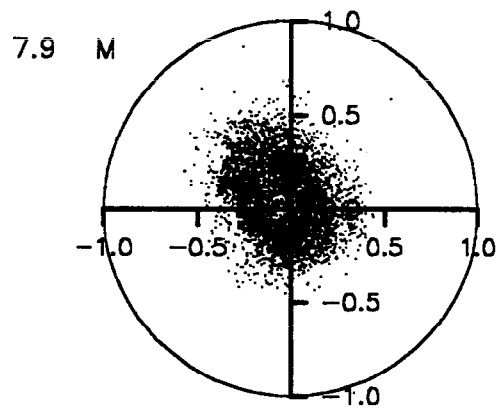
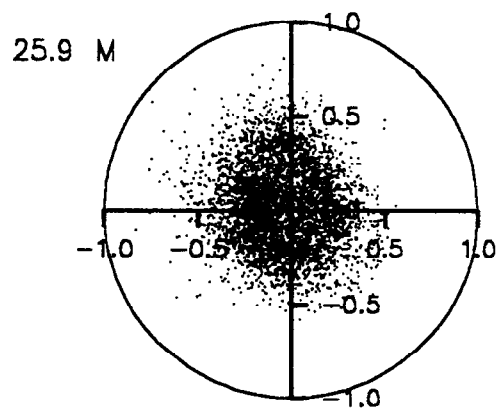
May

SCATTER PLOT

Meter no. 0001 Rig no. C49DC Depth of water(m) 31.0

Start/End 1989/04/01 AT 20:21:00 1989/04/30 AT 18:05:00

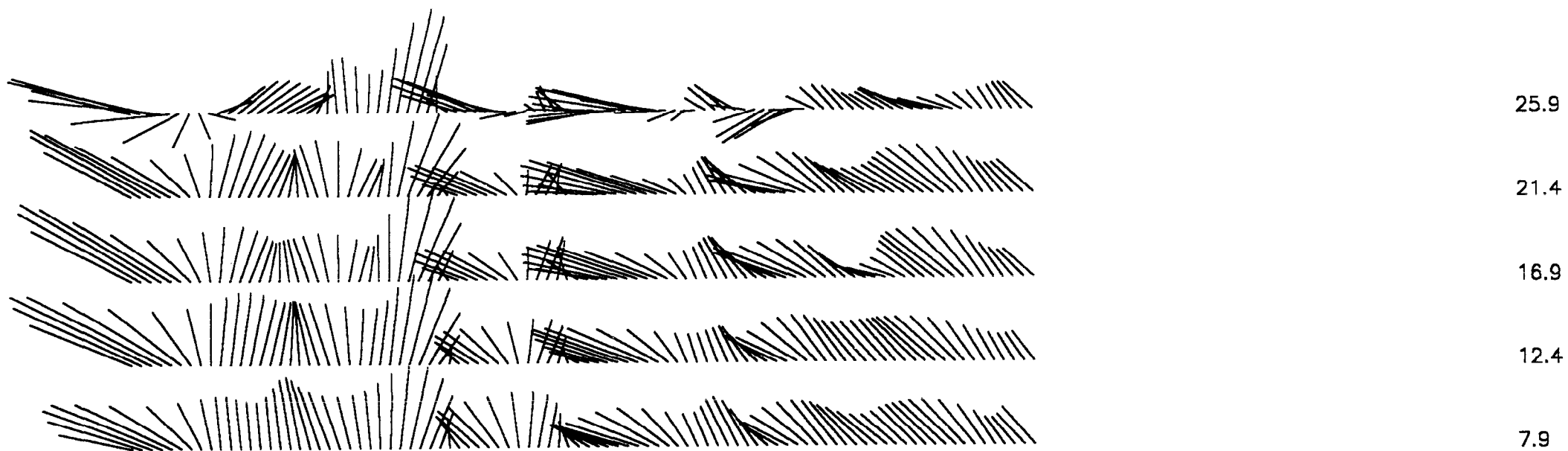
Position 53 29.34N 03 00.00E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0001 Rig no. C49DC Depth of water(m) 31.0  
Start/End 1989/04/01 AT 20:21:00 1989/04/30 AT 18:05:00  
Position 53 29.34N 03 00.00E 7.9 Base Ht 4.5 Gap Ht

————— Bin Ht (m)  
Scale 0.1 m/s



4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8

89

Apr

89

May

STATISTICS FOR DP0001 C49DC

Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.080	-38.0	0.0428	-29.9	0.0251	60.1
2	12.4	0.082	-34.1	0.0600	-25.6	0.0340	64.4
3	16.9	0.081	-41.1	0.0658	-30.3	0.0385	59.7
4	21.4	0.078	-41.4	0.0744	-27.7	0.0433	62.3
5	25.9	0.056	-58.4	0.0527	-26.2	0.0400	63.8

Filtered Statistics

For all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.091	-35.2	0.0025	72.0	0.0004	162.0
2	12.4	0.091	-32.9	0.0041	83.0	0.0010	173.0
3	16.9	0.089	-42.0	0.0043	85.6	0.0008	175.6
4	21.4	0.086	-42.6	0.0049	81.8	0.0008	171.8
5	25.9	0.059	-58.4	0.0057	74.9	0.0016	164.9

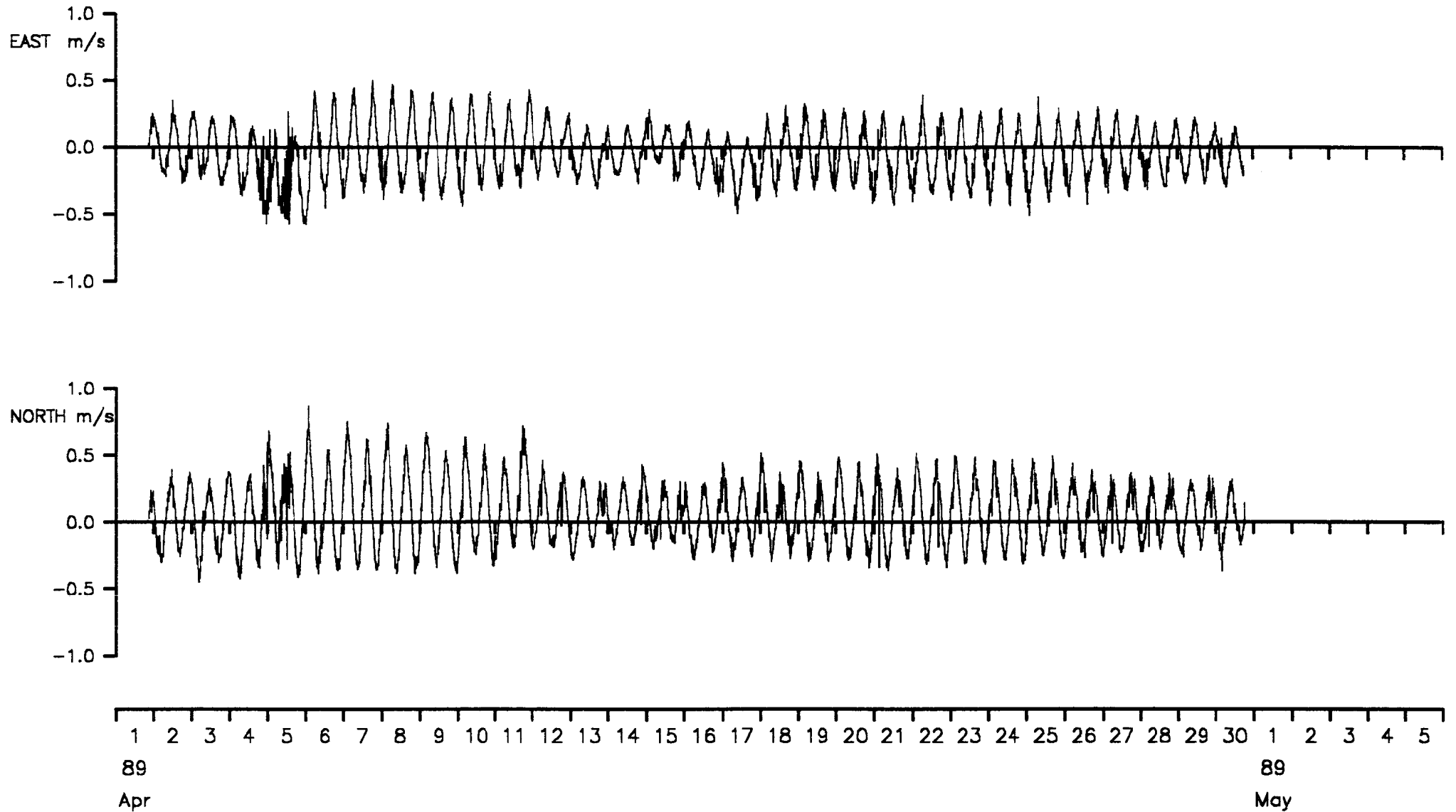
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0001 Rig no. C49DC Depth of water(m) 31.0

Start/End 1989/04/01 AT 20:21:00 1989/04/30 AT 18:05:00

Position 53 29.34N 03 00.00E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



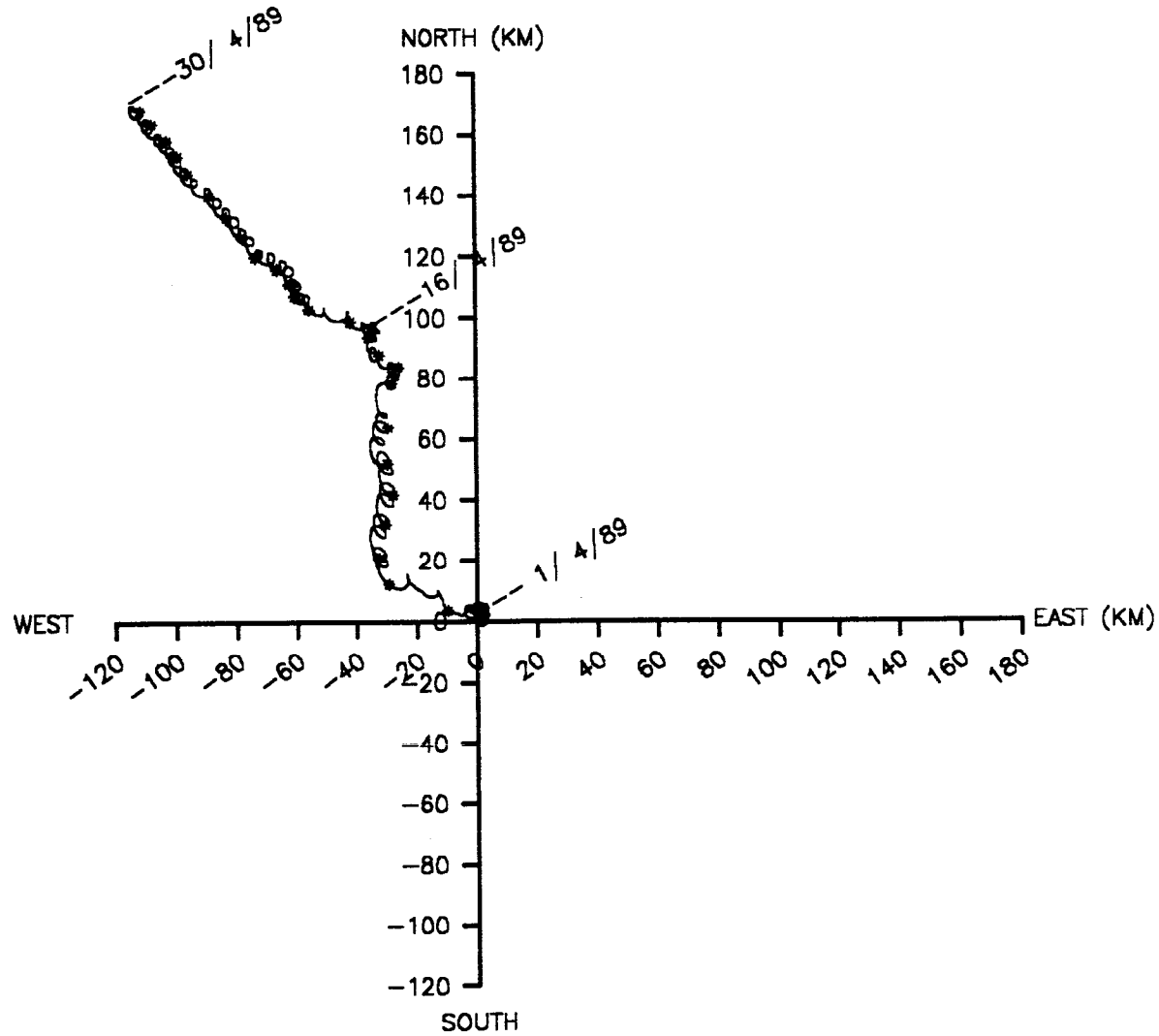
VECTOR PLOT

Meter no. 0001 Rig no. C49DC Depth of water(m) 31.0

Start/End 1989/04/01 AT 20:21:00 1989/04/30 AT 18:05:00

Position 53 29.34N 03 00.00E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0001 C49DC2 A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	-0.0458	0.38867380E-01	0.19714808E+00
Northings	0.0676	0.55159204E-01	0.23485988E+00
Speed	0.2924	0.15208852E-01	0.12332416E+00

Vector mean speed 0.0816  
 Vector Mean Direction -34.1

Maximum ten values									
Eastings					Northings				
0.493	0.465	0.454	0.452	0.448	0.867	0.769	0.752	0.748	0.739
0.446	0.441	0.441	0.435	0.428	0.722	0.716	0.712	0.709	0.708

Minimum ten values									
Eastings					Northings				
-0.548	-0.551	-0.552	-0.556	-0.558	-0.406	-0.407	-0.412	-0.414	-0.415
-0.563	-0.568	-0.570	-0.571	-0.578	-0.421	-0.422	-0.424	-0.446	-0.450

Maximum speeds									
0.958	0.838	0.823	0.790	0.786	0.784	0.783	0.781	0.781	0.779
0.774	0.774	0.751	0.745	0.741	0.730	0.728	0.727	0.726	0.726
0.725	0.724	0.723	0.723	0.720	0.709	0.707	0.698	0.697	0.692
0.689	0.689	0.688	0.688	0.686	0.685	0.681	0.679	0.679	0.675
0.675	0.667	0.666	0.664	0.662	0.662	0.661	0.655	0.653	0.652
0.652	0.651	0.651	0.650	0.649	0.649	0.646	0.645	0.644	0.642
0.642	0.641	0.641	0.637	0.636	0.634	0.633	0.633	0.627	0.626
0.624	0.624	0.623	0.622	0.618	0.618	0.614	0.613	0.609	0.608
0.607	0.605	0.605	0.603	0.602	0.601	0.601	0.599	0.598	0.597
0.595	0.593	0.593	0.591	0.589	0.589	0.588	0.586	0.585	0.585

Variance ellipse statistics

Maximum variance	0.6004E-01	Direction	-25.6
Minimum variance	0.3399E-01	Direction	64.4
Total variance	0.9403E-01	Ratio of variances	0.5660E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		5.6
Average direction. maxdir	+PI/2 to maxdir -PI/2		184.1



Statistics for DP0001 C49DC2F A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	-0.0495	0.40889941E-02	0.63945234E-01
Northings	0.0766	0.10089641E-02	0.31764202E-01
Speed	0.1058	0.22052687E-02	0.46960287E-01

Vector mean speed 0.0912  
 Vector Mean Direction -32.9

Maximum ten values

Eastings					Northings				
0.056	0.055	0.043	0.036	0.028	0.160	0.159	0.138	0.134	0.128
0.027	0.026	0.026	0.026	0.025	0.128	0.125	0.123	0.123	0.121

Minimum ten values

Eastings					Northings				
-0.131	-0.143	-0.154	-0.165	-0.168	0.042	0.041	0.039	0.037	0.028
-0.183	-0.195	-0.231	-0.241	-0.254	0.027	0.027	0.026	0.019	0.017

Maximum speeds

0.282	0.271	0.254	0.226	0.197	0.178	0.176	0.166	0.166	0.162
0.161	0.155	0.145	0.139	0.134	0.130	0.129	0.126	0.124	0.121
0.120	0.119	0.119	0.119	0.116	0.116	0.115	0.114	0.114	0.113
0.113	0.113	0.113	0.112	0.112	0.110	0.108	0.106	0.104	0.104
0.104	0.103	0.103	0.102	0.102	0.102	0.101	0.100	0.100	0.098
0.098	0.098	0.097	0.095	0.095	0.094	0.093	0.092	0.092	0.092
0.091	0.091	0.087	0.086	0.080	0.080	0.079	0.077	0.075	0.074
0.072	0.071	0.070	0.070	0.070	0.068	0.065	0.064	0.062	0.061
0.058	0.058	0.056	0.056	0.054	0.053	0.052	0.048	0.041	0.041
0.029	0.027								

Variance ellipse statistics

Maximum variance	0.4137E-02	Direction	83.0
Minimum variance	0.9614E-03	Direction	173.0
Total variance	0.5098E-02	Ratio of variances	0.2324E+00
Average direction. maxdir -PI/2 to maxdir +PI/2			-71.8
Average direction. maxdir +PI/2 to maxdir -PI/2			232.8

**Meter information details for 6443**

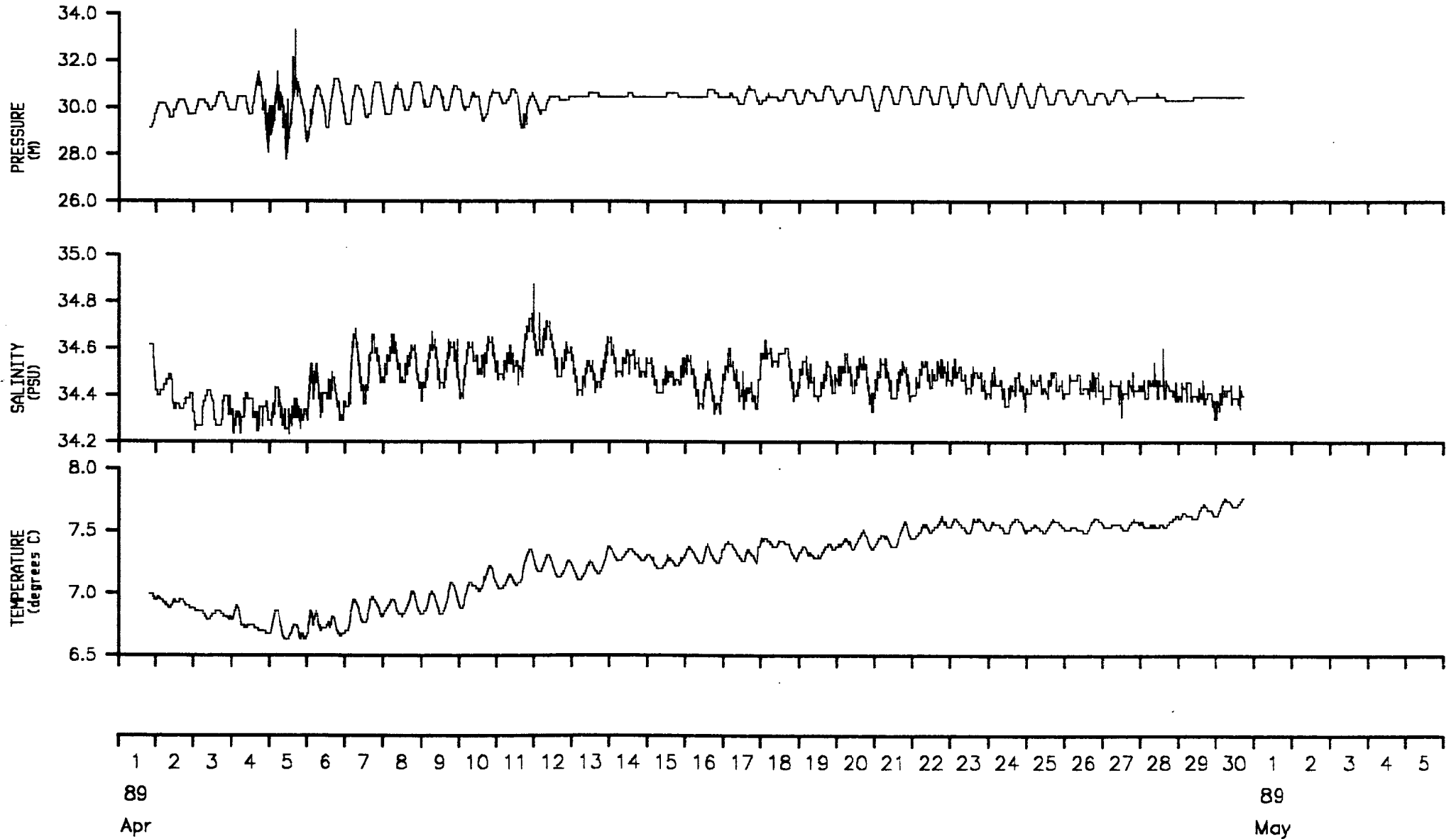
Rig No	:	C49DC
Meter No	:	6443
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	01-APR-89 14:10:00
Meter stopped	:	01-MAY-89 15:30:34
Period switched on	:	30.1 days
Period of good data	:	28.9 days
Total number of scans	:	4162
Timing error	:	34 seconds slow
Comments	:	Good record obtained

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C49DC Depth of water(m) 31.0

Start/End 1989/04/01 AT 20:21:00 1989/04/30 AT 18:05:00

Position 53 29.34N 03 00.00E Meter Height(m) 0.8



**Rig information details for C51DC**

Position Latitude	:	53 29.31N
Position Longitude	:	02 59.29E
Water depth	:	31.0 m
Deployed on cruise	:	C51
Recovered on cruise	:	C53
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	30-APR-89 18:39:00
Rig recovered on	:	29-MAY-89 13:20:00
Period of deployment	:	28.8 days
Comments	:	Launch and recovery successful

**Meter information details for 0002**

Rig No	:	C51DC
Meter No	:	0002
Frame angle correction	:	-41.3 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	30-APR-89 16:39:27
Time of last valid scan	:	27-MAY-89 11:59:19
Period of good data	:	26.7 days      short record
Total number of scans	:	3849
Timing error	:	8 seconds fast
Comments	:	Good record obtained

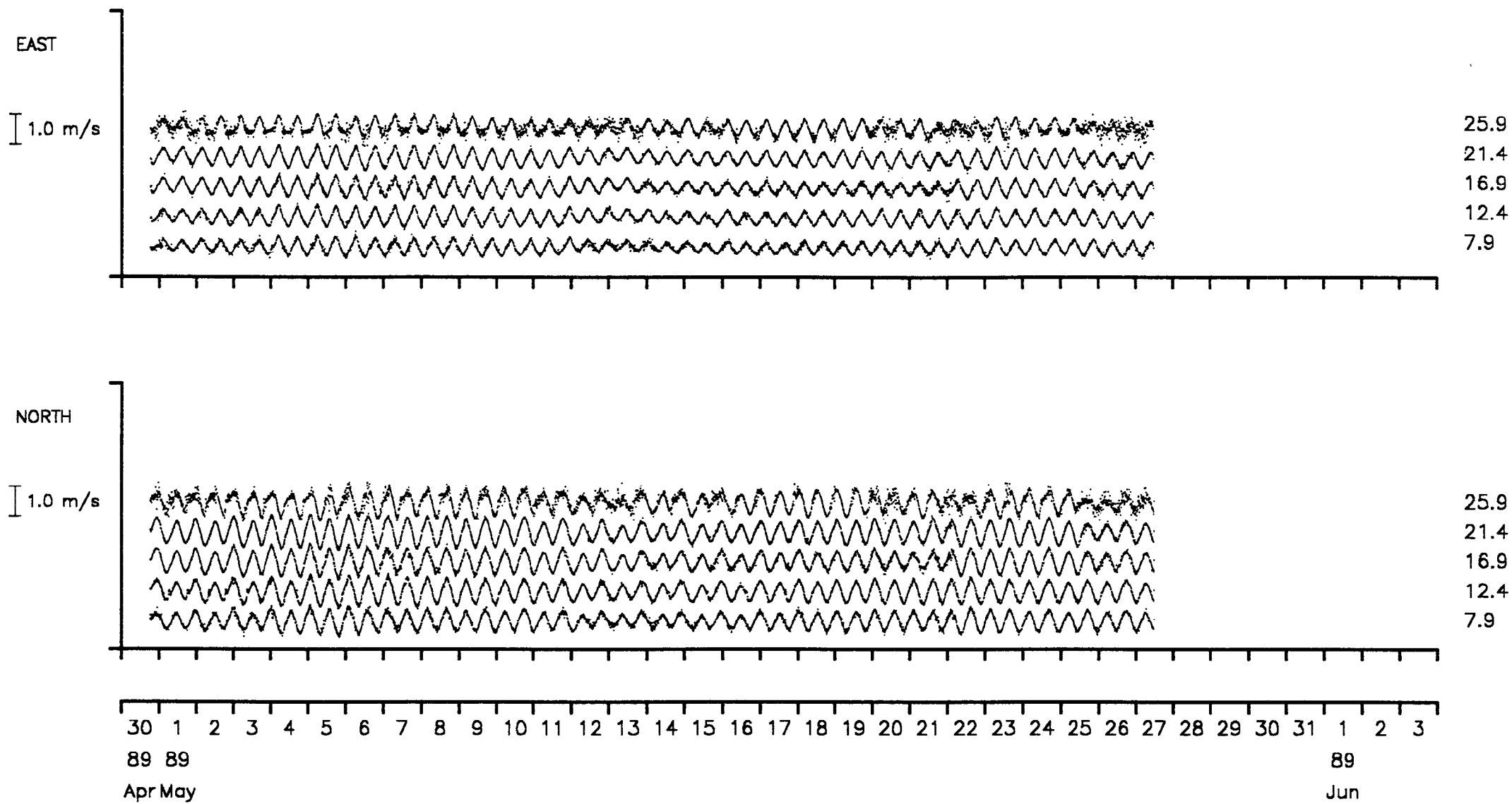
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0002 Rig no. C51DC Depth of water(m) 31.0

Start/End 1989/04/30 AT 18:39:00 1989/05/29 AT 13:20:00

Position 53 29.31N 02 59.29E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)

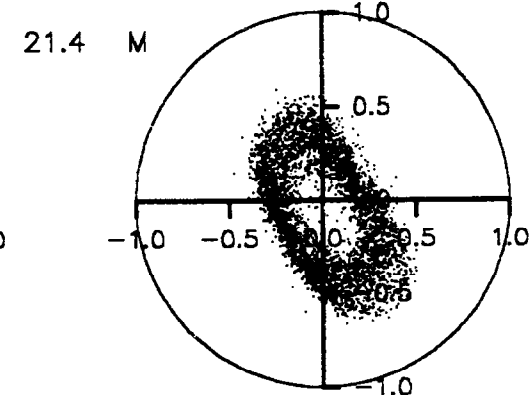
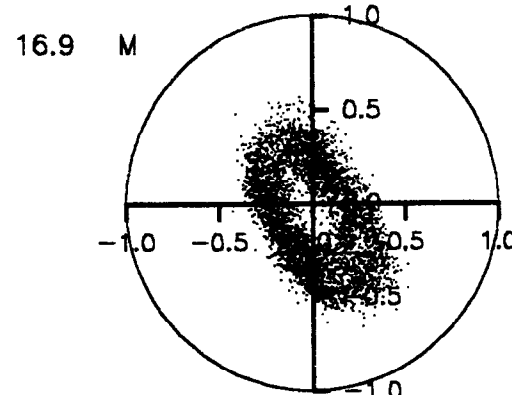
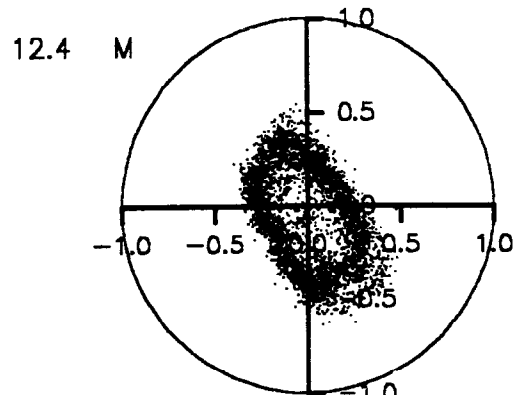
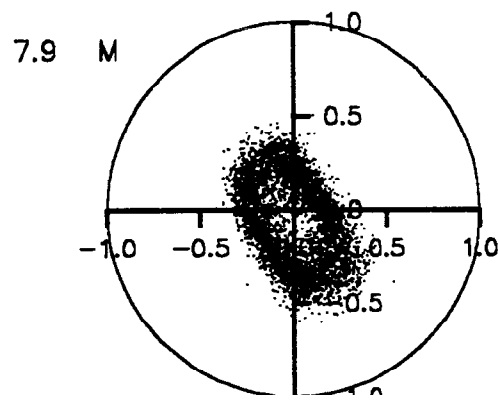
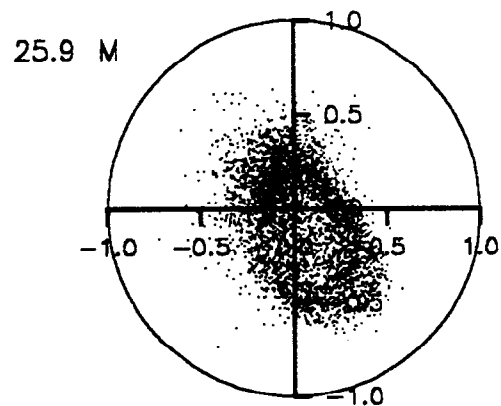


SCATTER PLOT

Meter no. 0002 Rig no. C51DC Depth of water(m) 31.0

Start/End 1989/04/30 AT 18:39:00 1989/05/29 AT 13:20:00

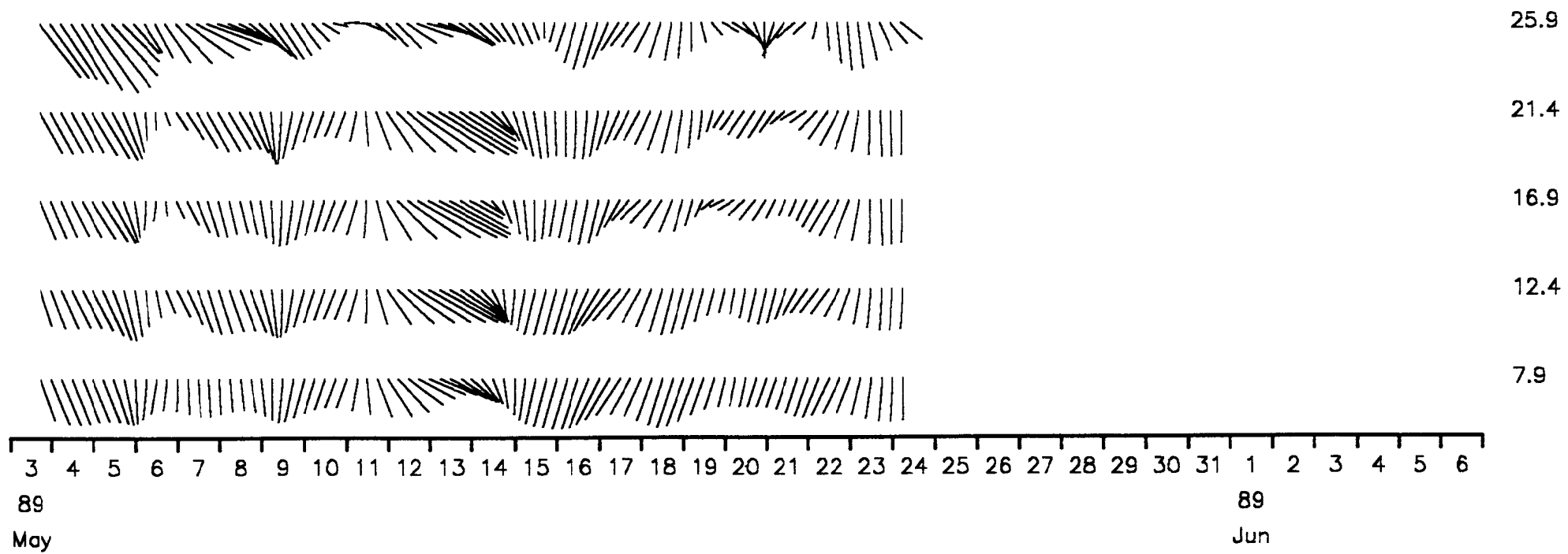
Position 53 29.31N 02 59.29E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0002 Rig no. C51DC Depth of water(m) 31.0  
Start/End 1989/04/30 AT 18:39:00 1989/05/29 AT 13:20:00  
Position 53 29.31N 02 59.29E 7.9 Base Ht 4.5 Gap Ht

— Bin Ht (m)  
Scale 0.1 m/s





STATISTICS FOR DP0002 C51DC

Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.062	-179.2	0.0623	-25.8	0.0217	64.2
2	12.4	0.058	176.1	0.0787	-25.6	0.0266	64.4
3	16.9	0.053	172.0	0.0777	-26.0	0.0270	64.0
4	21.4	0.059	167.5	0.0956	-25.8	0.0320	64.2
5	25.9	0.055	149.1	0.0809	-26.8	0.0297	63.2

Filtered Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.061	-178.9	0.0008	73.5	0.0001	163.5
2	12.4	0.060	175.5	0.0011	89.9	0.0001	179.9
3	16.9	0.052	173.1	0.0012	-81.7	0.0003	8.3
4	21.4	0.059	168.4	0.0014	-78.8	0.0003	11.2
5	25.9	0.054	149.7	0.0012	-77.5	0.0006	12.5

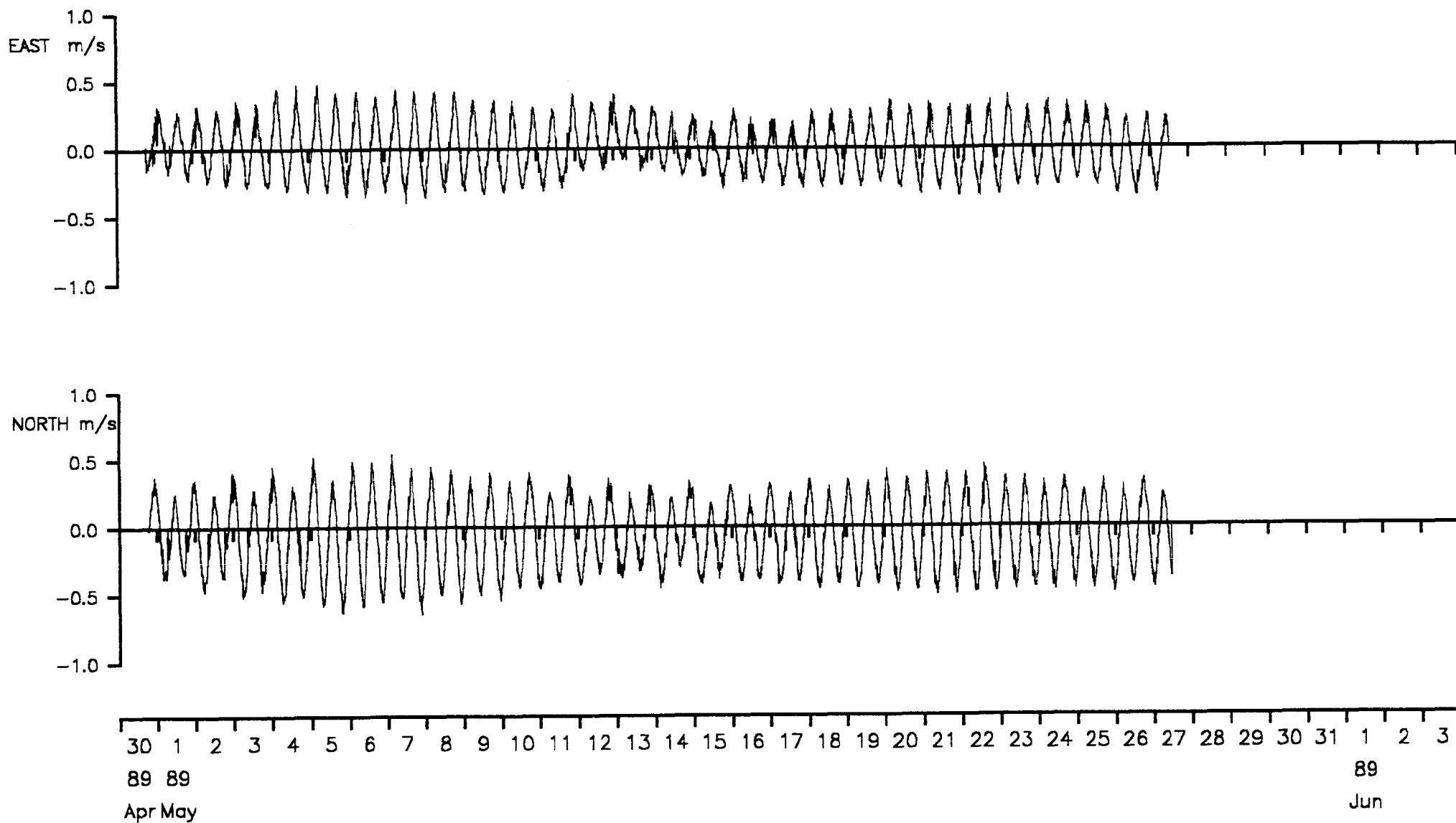
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0002 Rig no. C51DC Depth of water(m) 31.0

Start/End 1989/04/30 AT 18:39:00 1989/05/29 AT 13:20:00

Position 53 29.31N 02 59.29E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



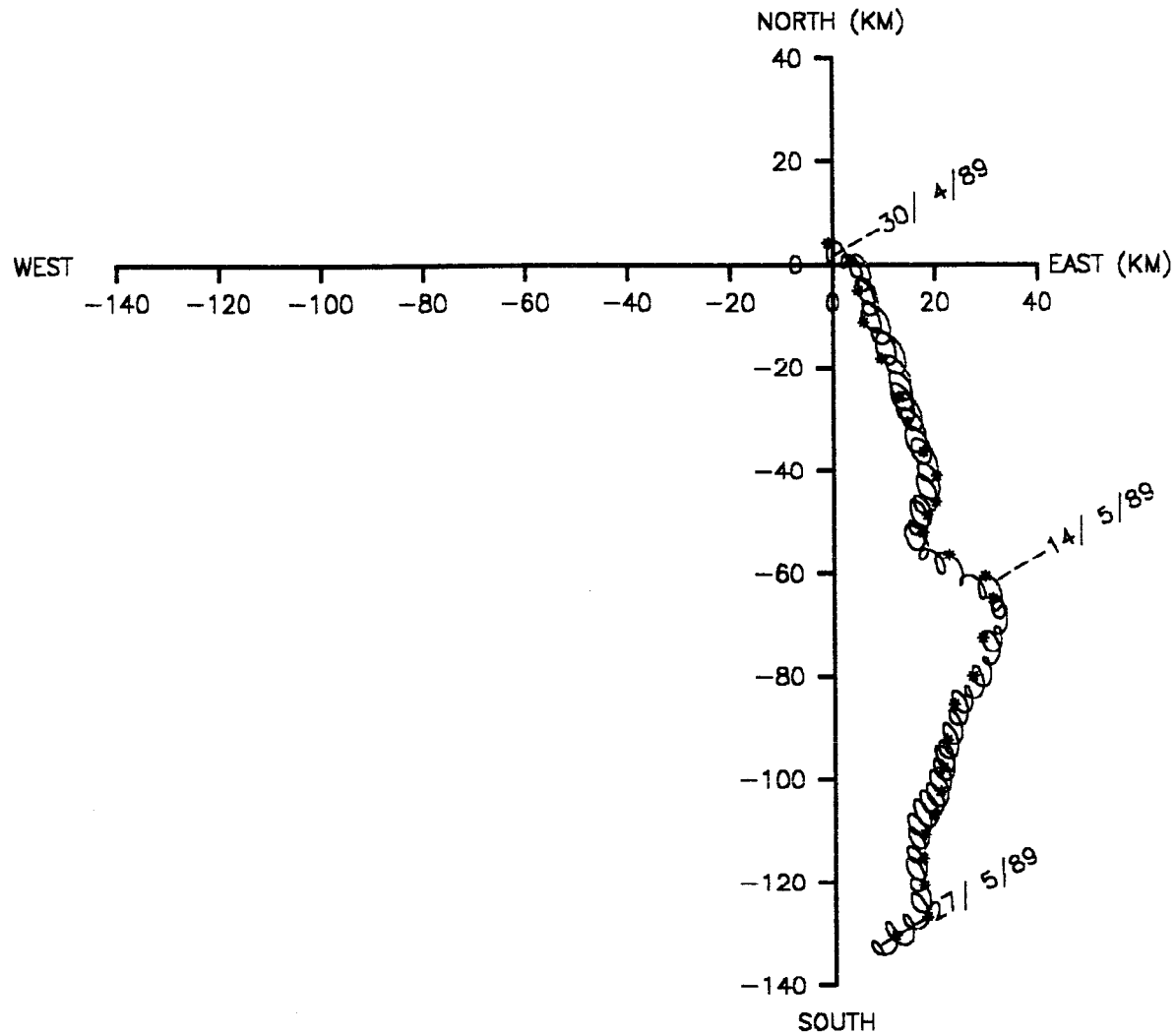
VECTOR PLOT

Meter no. 0002 Rig no. C51DC Depth of water(m) 31.0

Start/End 1989/04/30 AT 18:39:00 1989/05/29 AT 13:20:00

Position 53 29.31N 02 59.29E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0002 C51DC2 A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0039	0.36308251E-01	0.19054717E+00
Northings	-0.0578	0.68903863E-01	0.26249552E+00
Speed	0.3110	0.11823595E-01	0.10873634E+00

Vector mean speed 0.0580  
 Vector Mean Direction 176.1

Maximum ten values

Eastings					Northings				
0.480	0.476	0.469	0.467	0.454	0.539	0.516	0.506	0.503	0.496
0.446	0.445	0.439	0.437	0.436	0.487	0.480	0.480	0.478	0.477

Minimum ten values

Eastings					Northings				
-0.351	-0.354	-0.356	-0.357	-0.357	-0.577	-0.579	-0.580	-0.582	-0.582
-0.360	-0.361	-0.361	-0.365	-0.397	-0.583	-0.589	-0.627	-0.628	-0.640

Maximum speeds

0.680	0.645	0.637	0.632	0.621	0.620	0.615	0.615	0.611	0.610
0.609	0.607	0.607	0.604	0.603	0.601	0.600	0.597	0.597	0.596
0.596	0.596	0.596	0.590	0.590	0.589	0.589	0.588	0.587	0.587
0.586	0.586	0.585	0.585	0.583	0.583	0.583	0.582	0.581	0.580
0.579	0.578	0.578	0.577	0.577	0.577	0.576	0.576	0.575	0.575
0.575	0.574	0.572	0.571	0.570	0.569	0.568	0.567	0.567	0.567
0.567	0.566	0.566	0.565	0.563	0.562	0.560	0.560	0.560	0.560
0.559	0.559	0.559	0.557	0.557	0.557	0.556	0.556	0.556	0.554
0.554	0.554	0.554	0.554	0.554	0.553	0.553	0.552	0.552	0.551
0.551	0.551	0.551	0.550	0.550	0.549	0.549	0.548	0.547	0.547

Variance ellipse statistics

Maximum variance	0.7866E-01	Direction	-25.6
Minimum variance	0.2655E-01	Direction	64.4
Total variance	0.1052E+00	Ratio of variances	0.3376E+00
Average direction, maxdir -PI/2 to maxdir +PI/2			5.8
Average direction, maxdir +PI/2 to maxdir -PI/2			184.3

Statistics for DP0002 C51DC2F A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0047	0.11111349E-02	0.33333689E-01
Northings	-0.0597	0.14371442E-03	0.11988096E-01
Speed	0.0677	0.24434831E-03	0.15631646E-01

Vector mean speed 0.0599  
 Vector Mean Direction 175.5

Maximum ten values									
Eastings					Northings				
0.097	0.095	0.092	0.088	0.079	-0.037	-0.039	-0.039	-0.040	-0.040
0.077	0.061	0.059	0.040	0.038	-0.041	-0.042	-0.042	-0.043	-0.043

Minimum ten values									
Eastings					Northings				
-0.026	-0.027	-0.029	-0.030	-0.032	-0.075	-0.075	-0.075	-0.076	-0.076
-0.033	-0.040	-0.040	-0.045	-0.045	-0.076	-0.078	-0.080	-0.082	-0.084

Maximum speeds									
0.111	0.109	0.107	0.103	0.095	0.095	0.087	0.086	0.083	0.082
0.081	0.081	0.080	0.079	0.079	0.079	0.078	0.078	0.078	0.078
0.077	0.077	0.077	0.076	0.076	0.076	0.075	0.075	0.075	0.075
0.073	0.073	0.073	0.072	0.071	0.070	0.070	0.070	0.069	0.069
0.069	0.069	0.069	0.068	0.068	0.067	0.065	0.064	0.064	0.063
0.062	0.062	0.061	0.060	0.060	0.059	0.059	0.058	0.057	0.057
0.056	0.056	0.055	0.055	0.054	0.054	0.053	0.052	0.052	0.052
0.051	0.049	0.049	0.049	0.049	0.048	0.047	0.045	0.045	0.045
0.042	0.040	0.040							

Variance ellipse statistics

Maximum variance	0.1111E-02	Direction	89.9
Minimum variance	0.1436E-03	Direction	179.9
Total variance	0.1255E-02	Ratio of variances	0.1293E+00
Average direction. maxdir -PI/2 to maxdir +PI/2			62.1
Average direction. maxdir +PI/2 to maxdir -PI/2			108.3

**Meter information details for 9633**

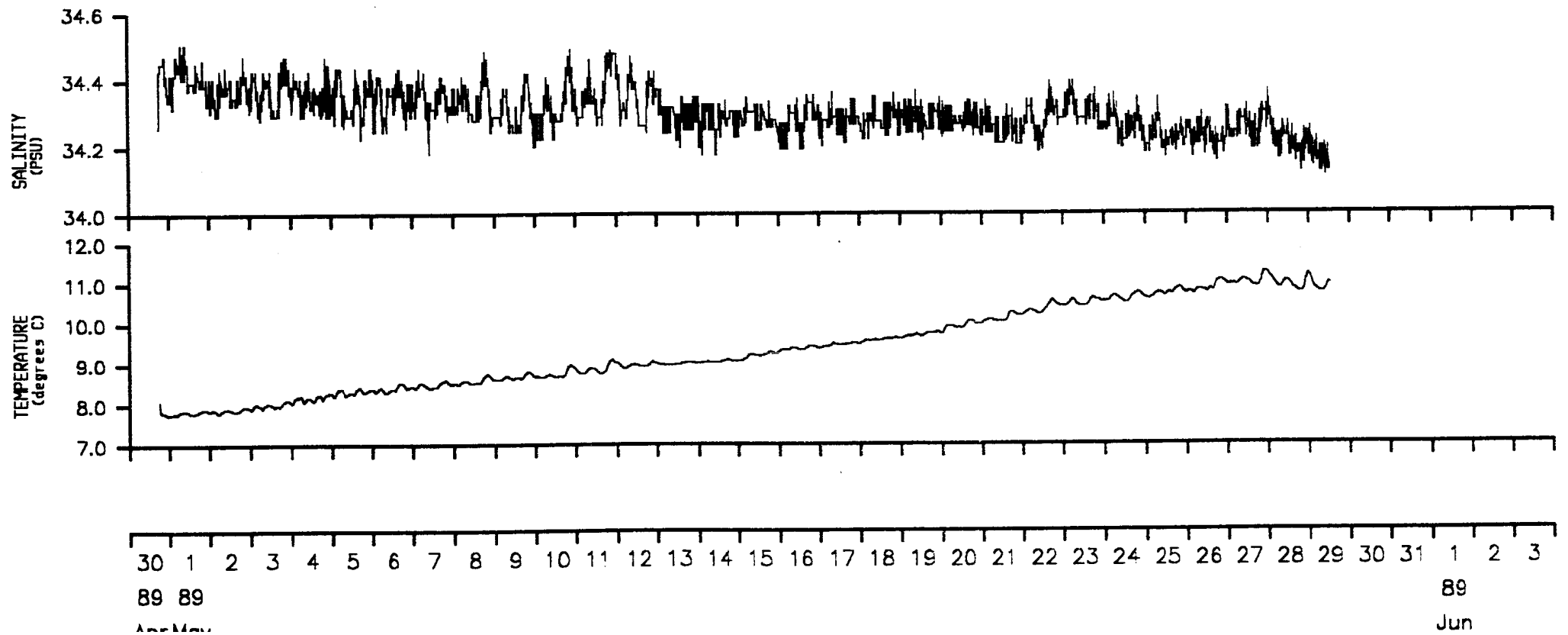
Rig No	:	C51DC
Meter No	:	9633
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AS
Meter started	:	30-APR-89 02:30:00
Meter stopped	:	02-JUNE-89 00:40:00
Period switched on	:	32.9 days
Period of good data	:	28.8 days
Total number of scans	:	4144
Timing error	:	None
Comments	:	Good record obtained No PRESSURE sensor fitted to meter

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 9633 Rig no. C51DC Depth of water(m) 31.0

Start/End 1989/04/30 AT 18:39:00 1989/05/29 AT 13:20:00

Position 53 29.31N 02 59.29E Meter Height(m) 0.8



**Rig information details for C53DC**

Position Latitude	:	53 30.01N
Position Longitude	:	03 00.32E
Water depth	:	31.0 m
Deployed on cruise	:	C53
Recovered on cruise	:	C55
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	29-MAY-89 16:17:00
Rig recovered on	:	27-JUNE-89 08:18:00
Period of deployment	:	28.7 days
Comments	:	Launch and recovery successful



**Rig information details for C39DC**

Position Latitude	:	53 29.81N
Position Longitude	:	02 59.92E
Water depth	:	31.0 m
Deployed on cruise	:	C39
Recovered on cruise	:	C41
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	04-NOV-88 15:30:00
Rig recovered on	:	12-DEC-88 13:30:00
Period of deployment	:	37.9 days
Comments	:	Frame moves during deployment

**Rig information details for C53DC**

Position Latitude	:	53 30.01N
Position Longitude	:	03 00.32E
Water depth	:	31.0 m
Deployed on cruise	:	C53
Recovered on cruise	:	C55
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	29-MAY-89 16:17:00
Rig recovered on	:	27-JUNE-89 08:18:00
Period of deployment	:	28.7 days
Comments	:	Launch and recovery successful

**Meter information details for 0004**

Rig No	:	C53DC
Meter No	:	0004
Frame angle correction	:	353.6 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	29-MAY-89 09:39:16
Meter stopped	:	27-JUNE-89 09:49:12
Period switched on	:	29.0 days
Period of good data	:	28.7 days
Total number of scans	:	4128
Timing error	:	4 seconds fast
Comments	:	Good record obtained. However incorrect hexadecimal was present which had to be changed. e.g F7's instead of FF's

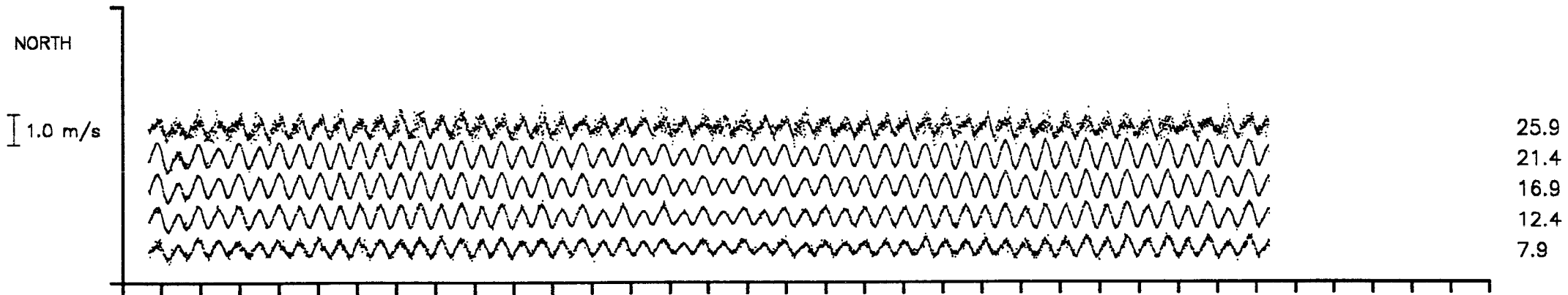
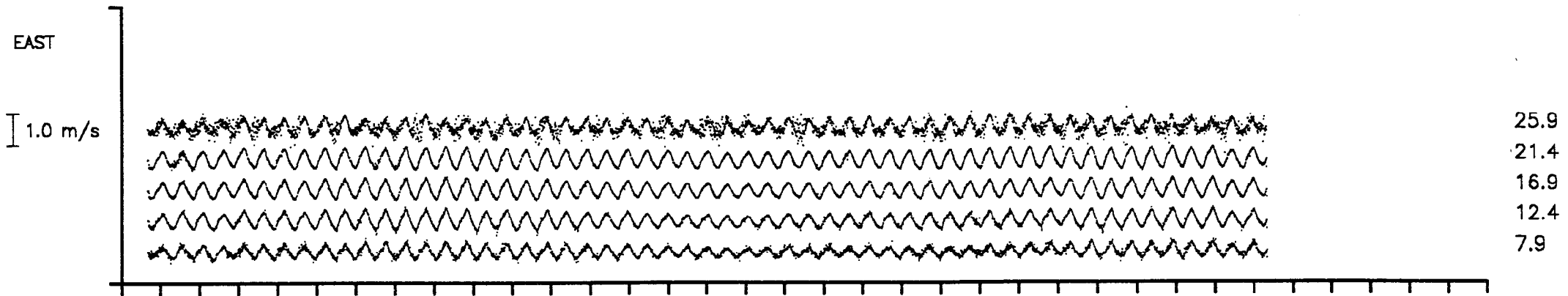
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0004 Rig no. C53DC Depth of water(m) 31.0

Start/End 1989/05/29 AT 16:17:00 1989/06/27 AT 08:18:00

Position 53 30.01N 03 00.32E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



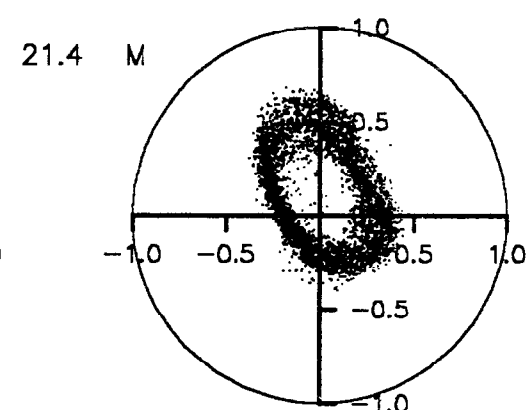
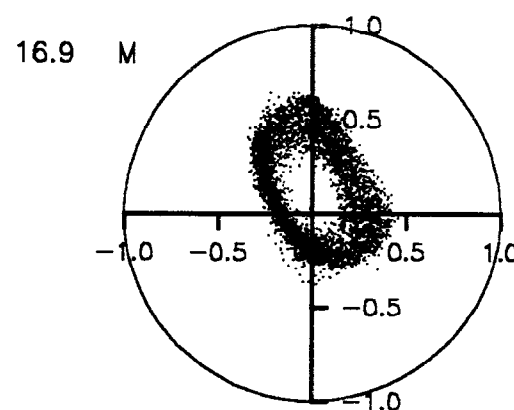
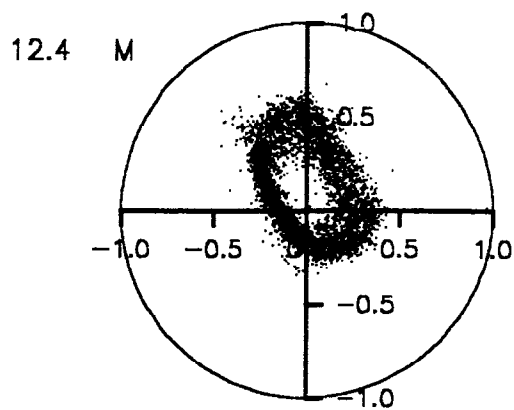
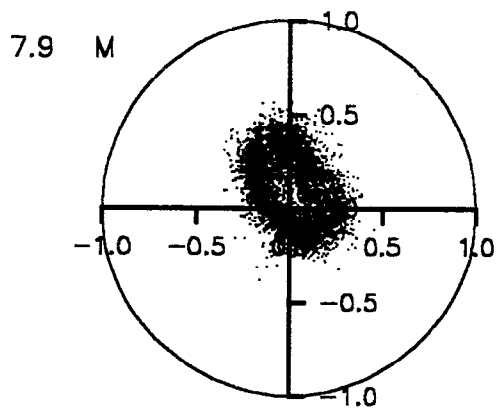
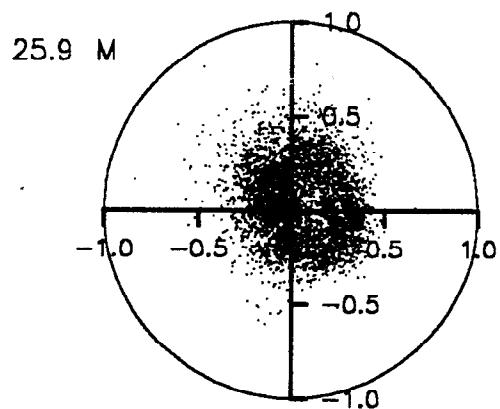
29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2  
89 89 89  
May Jun Jul

SCATTER PLOT

Meter no. 0004 Rig no. C53DC Depth of water(m) 31.0

Start/End 1989/05/29 AT 16:17:00 1989/06/27 AT 08:18:00

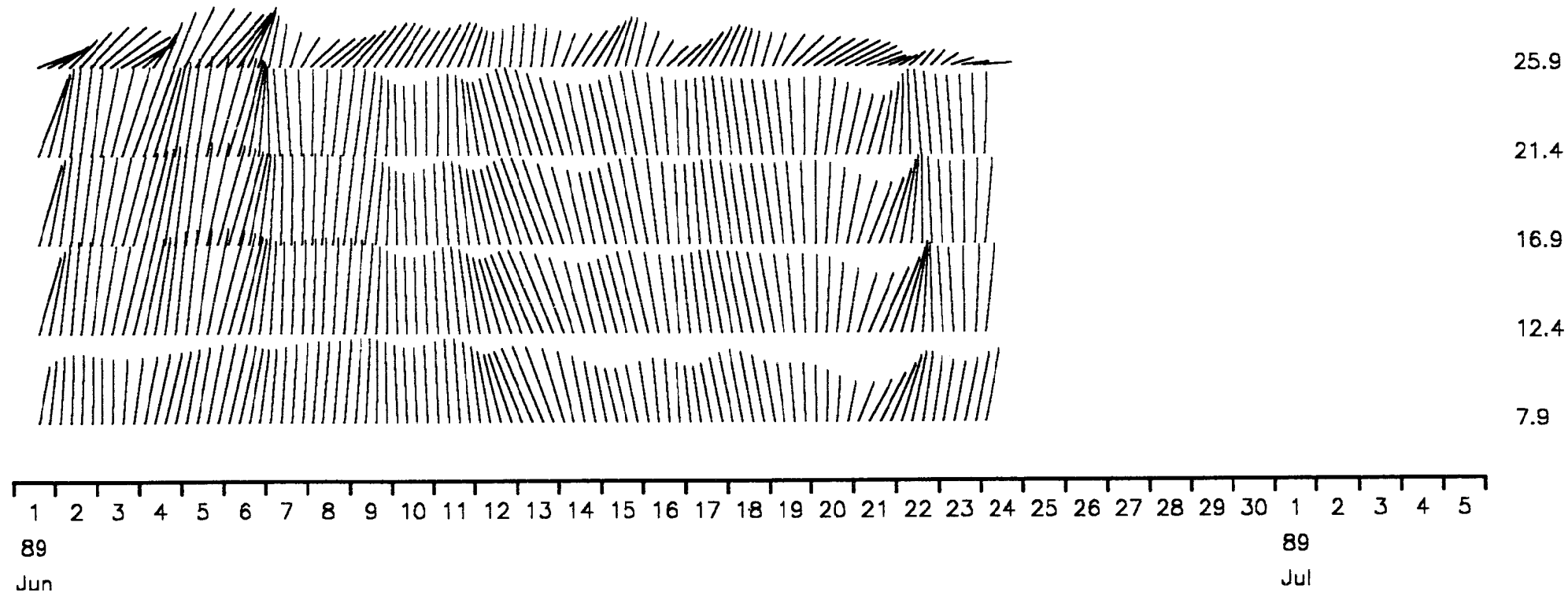
Position 53 30.01N 03 00.32E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0004 Rig no. C53DC Depth of water(m) 31.0  
Start/End 1989/05/29 AT 16:17:00 1989/06/27 AT 08:18:00  
Position 53 30.01N 03 00.32E 7.9 Base Ht 4.5 Gap Ht

— Bin Ht (m)  
Scale 0.1 m/s



TATISTICS FOR DP0004 C53DC

tatistics  
or all good data bins

DCP in umber	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.110	1.4	0.0373	-27.6	0.0170	62.4
2	12.4	0.138	0.9	0.0631	-25.6	0.0269	64.4
3	16.9	0.138	1.8	0.0707	-25.3	0.0310	64.7
4	21.4	0.133	2.0	0.0778	-26.1	0.0355	63.9
5	25.9	0.066	38.8	0.0428	-32.7	0.0327	57.3

iltered Statistics  
or all good data bins

DCP in umber	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.113	0.4	0.0005	-81.7	0.0003	8.3
2	12.4	0.141	0.1	0.0008	71.1	0.0002	161.1
3	16.9	0.140	0.8	0.0007	75.0	0.0002	165.0
4	21.4	0.136	1.1	0.0007	73.3	0.0002	163.3
5	25.9	0.069	37.1	0.0005	-10.1	0.0004	79.9

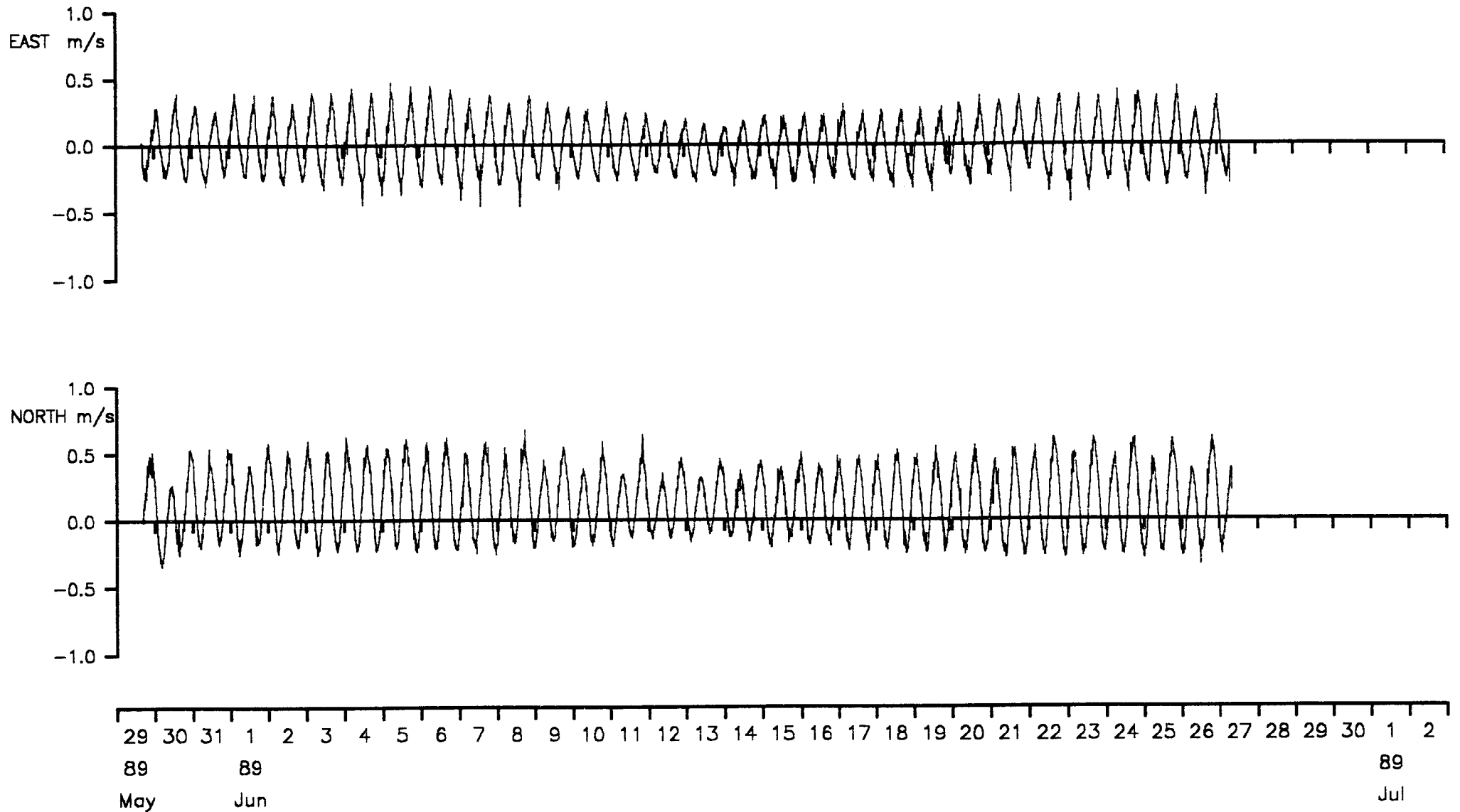
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0004 Rig no. C53DC Depth of water(m) 31.0

Start/End 1989/05/29 AT 16:17:00 1989/06/27 AT 08:18:00

Position 53 30.01N 03 00.32E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth





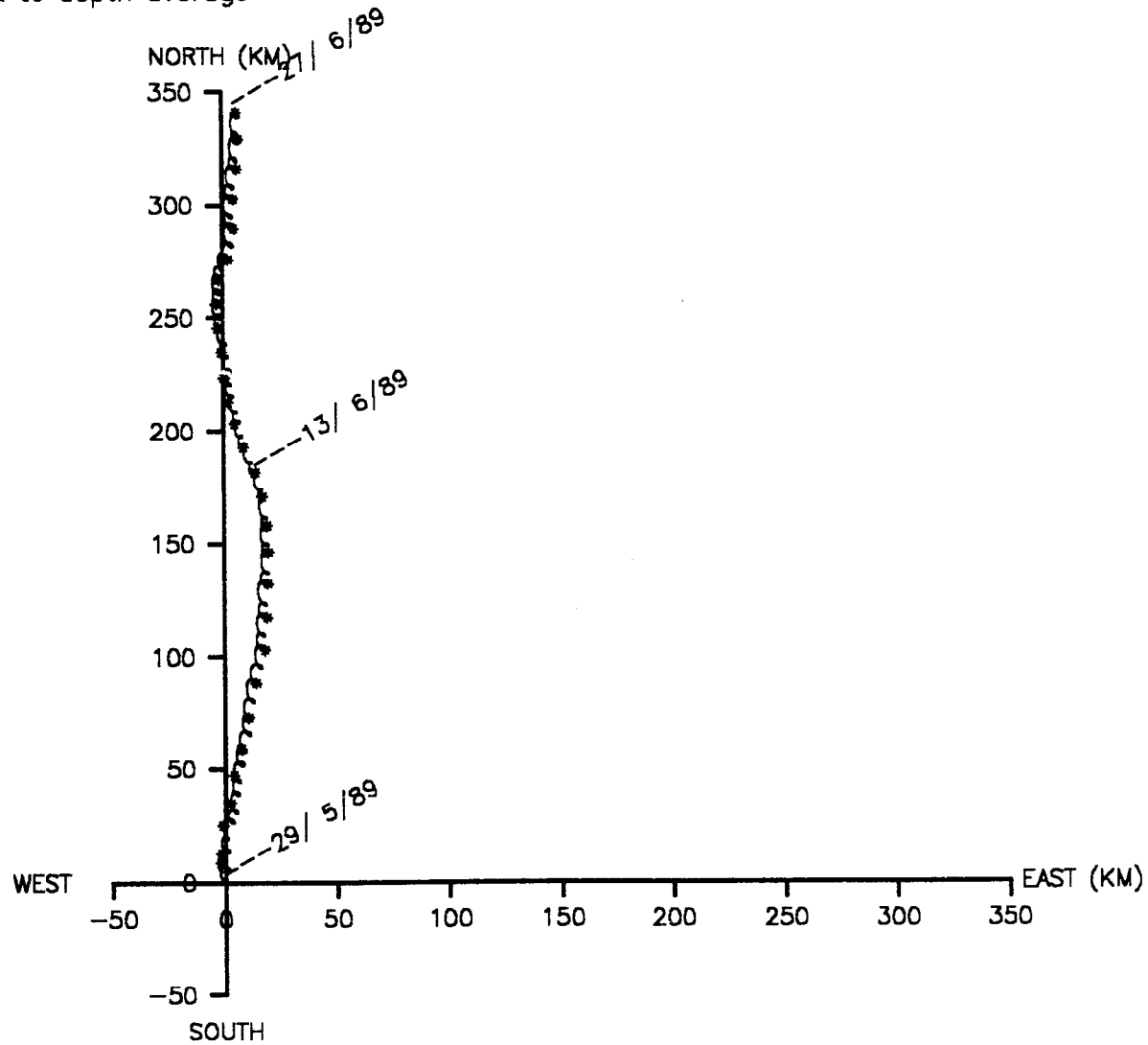
VECTOR PLOT

Meter no. 0004 Rig no. C53DC Depth of water(m) 31.0

Start/End 1989/05/29 AT 16:17:00 1989/06/27 AT 08:18:00

Position 53 30.01N 03 00.32E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0004 C53DC2 A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0022	0.33598315E-01	0.18329847E+00
Northings	0.1380	0.56325193E-01	0.23732924E+00
Speed	0.3060	0.15296549E-01	0.12367916E+00

Vector mean speed 0.1380

Vector Mean Direction 0.9

Maximum ten values

Eastings					Northings				
0.463	0.438	0.438	0.428	0.427	0.669	0.630	0.619	0.612	0.612
0.420	0.415	0.413	0.411	0.404	0.608	0.608	0.603	0.603	0.603

Minimum ten values

Eastings					Northings				
-0.374	-0.381	-0.388	-0.399	-0.399	-0.287	-0.296	-0.301	-0.307	-0.308
-0.410	-0.434	-0.444	-0.457	-0.459	-0.310	-0.325	-0.325	-0.336	-0.345

Maximum speeds

0.700	0.677	0.658	0.653	0.646	0.641	0.640	0.633	0.631	0.631
0.628	0.623	0.620	0.612	0.612	0.611	0.609	0.606	0.606	0.604
0.604	0.604	0.603	0.601	0.599	0.598	0.596	0.596	0.596	0.596
0.595	0.594	0.591	0.589	0.589	0.589	0.588	0.588	0.586	0.585
0.584	0.583	0.583	0.582	0.582	0.581	0.581	0.581	0.580	0.579
0.579	0.579	0.578	0.578	0.577	0.577	0.577	0.576	0.575	0.575
0.574	0.574	0.573	0.573	0.573	0.573	0.572	0.572	0.572	0.571
0.571	0.571	0.570	0.570	0.569	0.569	0.569	0.568	0.567	0.566
0.566	0.566	0.566	0.565	0.565	0.565	0.564	0.564	0.564	0.563
0.562	0.562	0.562	0.560	0.560	0.559	0.559	0.558	0.558	0.558

Variance ellipse statistics

Maximum variance	0.6306E-01	Direction	-25.6
Minimum variance	0.2686E-01	Direction	64.4
Total variance	0.8992E-01	Ratio of variances	0.4260E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		10.2
Average direction. maxdir	+PI/2 to maxdir -PI/2		171.0

Statistics for DP0004 C53DC2F A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0002	0.72691659E-03	0.26961390E-01
Northings	0.1408	0.27666823E-03	0.16633347E-01
Speed	0.1434	0.25878986E-03	0.16086947E-01

Vector mean speed 0.1408  
 Vector Mean Direction 0.1

Maximum ten values									
Eastings					Northings				
0.049	0.049	0.047	0.044	0.042	0.176	0.176	0.174	0.174	0.171
0.041	0.040	0.038	0.037	0.036	0.168	0.167	0.163	0.163	0.161

Minimum ten values									
Eastings					Northings				
-0.034	-0.034	-0.035	-0.041	-0.043	0.123	0.123	0.120	0.117	0.117
-0.049	-0.051	-0.055	-0.056	-0.058	0.116	0.108	0.106	0.098	0.098

Maximum speeds									
0.180	0.179	0.178	0.175	0.174	0.172	0.168	0.168	0.165	0.162
0.162	0.161	0.161	0.160	0.159	0.159	0.158	0.157	0.157	0.155
0.155	0.155	0.154	0.154	0.153	0.153	0.153	0.152	0.152	0.150
0.150	0.150	0.149	0.149	0.148	0.147	0.147	0.147	0.146	0.145
0.145	0.144	0.143	0.142	0.141	0.141	0.141	0.141	0.141	0.140
0.140	0.140	0.140	0.139	0.139	0.138	0.138	0.138	0.136	0.136
0.135	0.135	0.135	0.134	0.134	0.134	0.133	0.133	0.132	0.132
0.132	0.131	0.131	0.131	0.130	0.130	0.129	0.128	0.128	0.128
0.127	0.127	0.125	0.124	0.121	0.120	0.119	0.117	0.108	0.107
0.103									

Variance ellipse statistics

Maximum variance	0.7864E-03	Direction	71.1
Minimum variance	0.2171E-03	Direction	161.1
Total variance	0.1003E-02	Ratio of variances	0.2761E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		-70.0
Average direction. maxdir	+PI/2 to maxdir -PI/2		267.6

**Rig information details for C55DC**

Position Latitude	:	53 30.17N
Position Longitude	:	03 00.26E
Water depth	:	31.0 m
Deployed on cruise	:	C55
Recovered on cruise	:	C57
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	27-JUNE-89 09:54:00
Rig recovered on	:	27-JULY-89 13:12:00
Period of deployment	:	30.1 days
Comments	:	Launch and recovery successful

**Meter information details for 0003**

Rig No	:	C55DC
Meter No	:	0003
Frame angle correction	:	306.6 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	27-JUNE-89 05:15:00
Time of last valid scan	:	10-JULY-89 04:25:00
Period of good data	:	12.8 days      short record
Total number of scans	:	1840
Timing error	:	None
Comments	:	Manually recorded start and stop times used due to timing channel malfunction

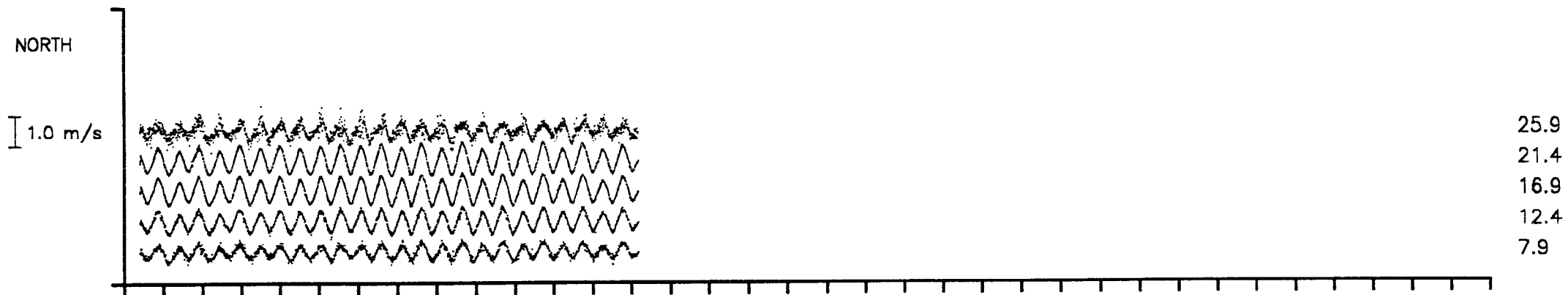
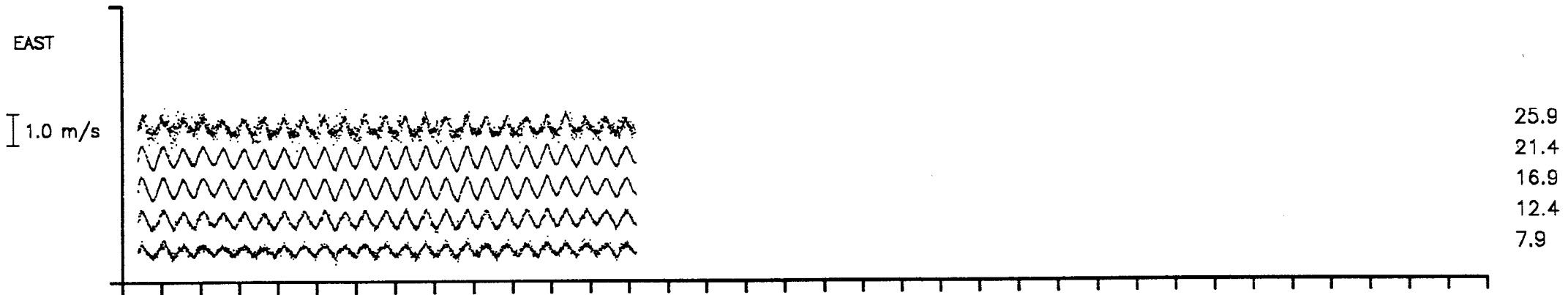
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0003 Rig no. C55DC Depth of water(m) 31.0

Start/End 1989/06/27 AT 09:54:00 1989/07/27 AT 13:12:00

Position 53 30.17N 03 00.26E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

89 89

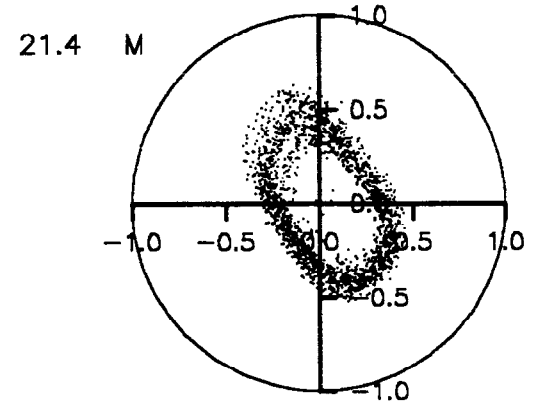
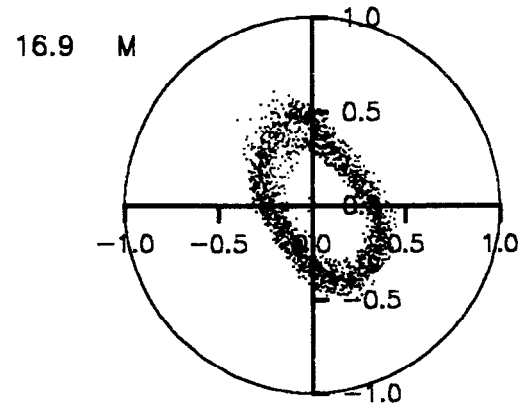
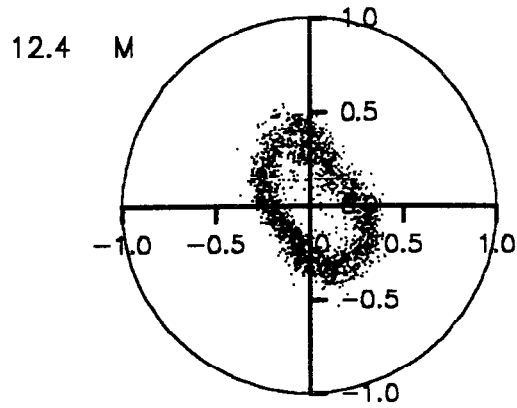
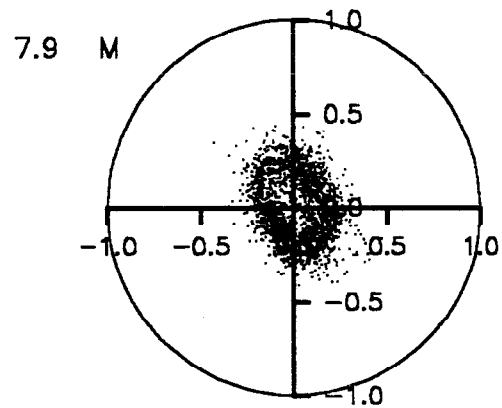
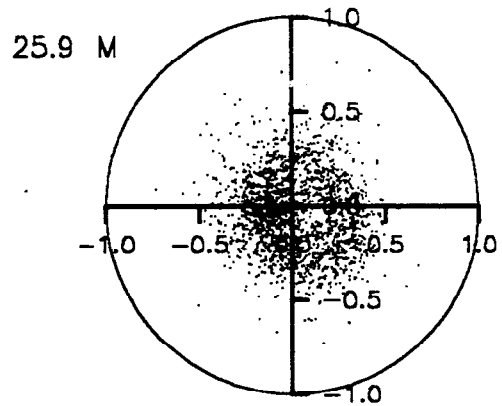
Jun Jul

SCATTER PLOT

Meter no. 0003 Rig no. C55DC Depth of water(m) 31.0

Start/End 1989/06/27 AT 09:54:00 1989/07/27 AT 13:12:00

Position 53 30.17N 03 00.26E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0003 Rig no. C55DC Depth of water(m) 31.0

Start/End 1989/06/27 AT 09:54:00 1989/07/27 AT 13:12:00

Position 53 30.17N 03 00.26E 7.9 Base Ht 4.5 Gap Ht

————— Bin Ht (m)  
Scale 0.1 m/s



30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3  
89 89 89  
Jun Jul Aug



STATISTICS FOR DP0003 C55DC

Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.020	59.9	0.0332	-20.1	0.0167	69.9
2	12.4	0.025	72.0	0.0689	-25.6	0.0267	64.4
3	16.9	0.037	76.6	0.0941	-25.4	0.0356	64.6
4	21.4	0.039	79.8	0.1021	-24.6	0.0392	65.4
5	25.9	0.038	143.7	0.0480	-42.3	0.0381	47.7

Filtered Statistics  
for all good data bins

ADCP Bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.016	42.2	0.0001	9.4	0.0000	99.4
2	12.4	0.016	40.7	0.0002	-1.5	0.0001	88.5
3	16.9	0.023	53.0	0.0003	-9.4	0.0002	80.6
4	21.4	0.022	48.6	0.0003	-6.0	0.0002	84.0
5	25.9	0.035	161.2	0.0003	4.0	0.0002	94.0

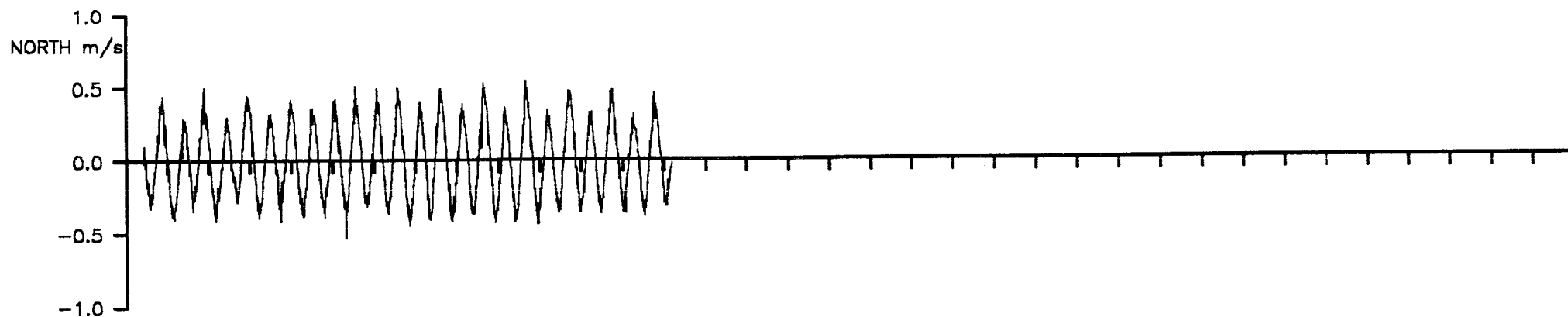
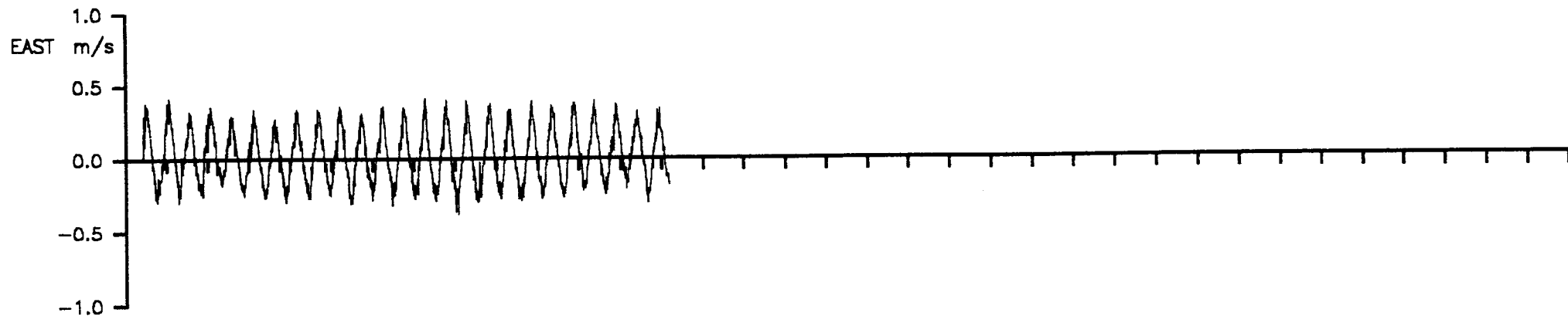
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0003 Rig no. C55DC Depth of water(m) 31.0

Start/End 1989/06/27 AT 09:54:00 1989/07/27 AT 13:12:00

Position 53 30.17N 03 00.26E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31  
89 89  
Jun Jul

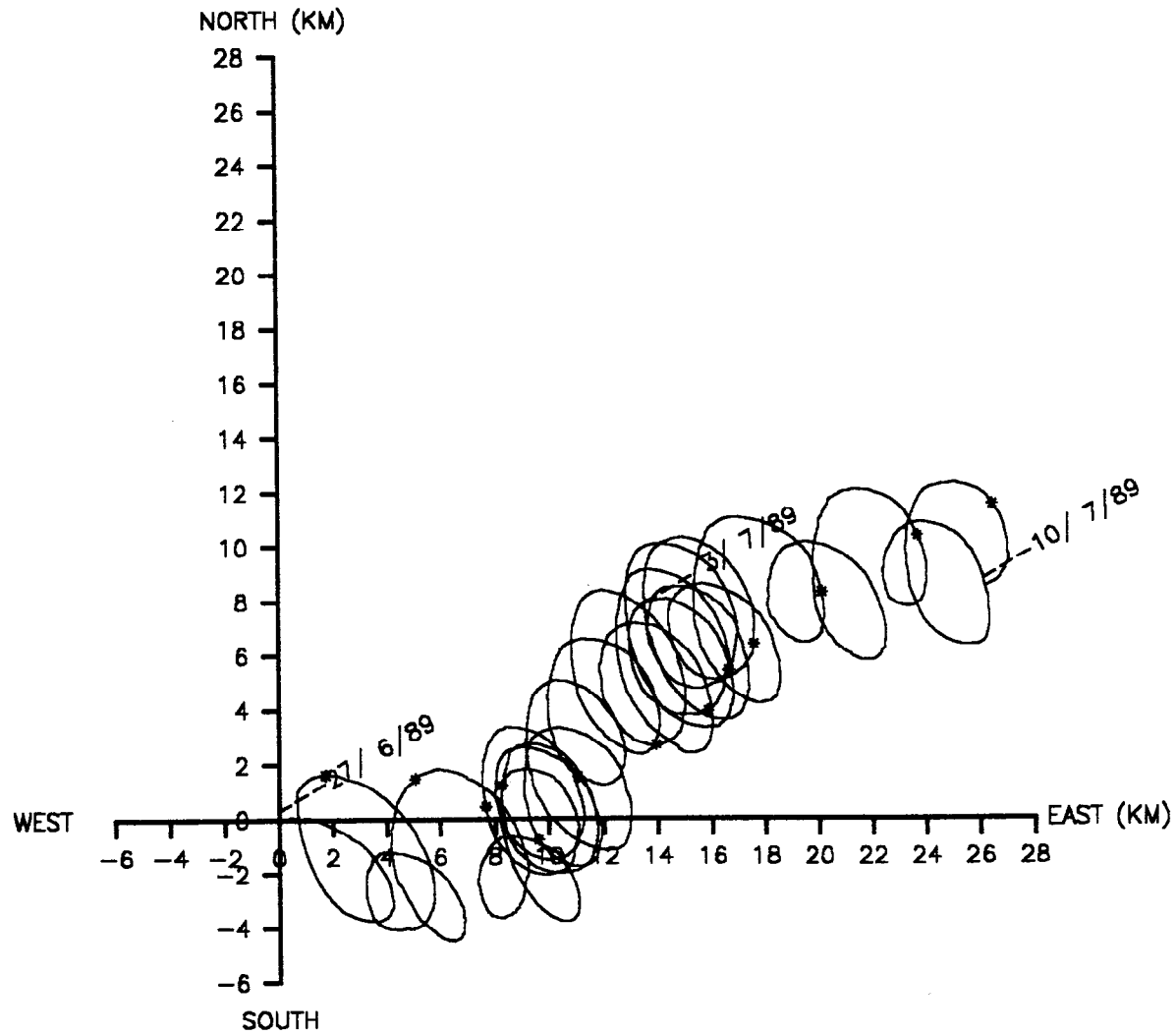
VECTOR PLOT

Meter no. 0003 Rig no. C55DC Depth of water(m) 31.0

Start/End 1989/06/27 AT 09:54:00 1989/07/27 AT 13:12:00

Position 53 30.17N 03 00.26E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0003 C55DC2 A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0237	0.34563866E-01	0.18591350E+00
Northings	0.0077	0.60984813E-01	0.24695098E+00
Speed	0.2973	0.77110715E-02	0.87812662E-01

Vector mean speed 0.0249  
 Vector Mean Direction 72.0

Maximum ten values

Eastings

Northings

0.410	0.404	0.397	0.391	0.391	0.540	0.523	0.510	0.506	0.493
0.388	0.388	0.387	0.378	0.378	0.491	0.489	0.489	0.489	0.487

Minimum ten values

Eastings

Northings

-0.304	-0.306	-0.307	-0.308	-0.309	-0.419	-0.419	-0.419	-0.420	-0.426
-0.312	-0.314	-0.325	-0.367	-0.385	-0.435	-0.439	-0.445	-0.475	-0.534

Maximum speeds

0.558	0.555	0.540	0.540	0.539	0.515	0.515	0.515	0.514	0.514
0.513	0.511	0.506	0.505	0.505	0.503	0.501	0.501	0.500	0.499
0.494	0.491	0.491	0.489	0.489	0.489	0.489	0.489	0.488	0.487
0.483	0.483	0.478	0.477	0.477	0.476	0.475	0.473	0.473	0.473
0.473	0.471	0.468	0.466	0.466	0.465	0.464	0.464	0.462	0.462
0.460	0.459	0.458	0.458	0.458	0.458	0.458	0.458	0.455	0.453
0.451	0.451	0.451	0.450	0.450	0.450	0.450	0.449	0.449	0.449
0.448	0.448	0.448	0.448	0.448	0.447	0.447	0.447	0.447	0.446
0.446	0.446	0.446	0.445	0.444	0.444	0.444	0.444	0.443	0.443
0.443	0.442	0.442	0.441	0.441	0.440	0.440	0.439	0.439	0.439

Variance ellipse statistics

Maximum variance	0.6889E-01	Direction	-25.6
Minimum variance	0.2666E-01	Direction	64.4
Total variance	0.9555E-01	Ratio of variances	0.3869E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		9.8
Average direction. maxdir	+PI/2 to maxdir -PI/2		177.8

tatistics for DP0003 C55DC2F A

oppler bin number 2

	Mean	Variance	Standard deviation
astings	0.0103	0.93671115E-04	0.96783824E-02
orthings	0.0119	0.18052796E-03	0.13436068E-01
peed	0.0195	0.13551940E-03	0.11641283E-01

Vector mean speed 0.0157  
 Vector Mean Direction 40.7

Maximum ten values

Eastings

Northings

0.025	0.024	0.024	0.021	0.020	0.046	0.045	0.036	0.034	0.022
0.019	0.018	0.017	0.016	0.015	0.019	0.019	0.013	0.013	0.013

Minimum ten values

Eastings

Northings

0.007	0.007	0.007	0.005	0.005	0.005	0.003	0.002	0.002	0.001
0.005	0.004	-0.006	-0.012	-0.013	0.001	0.000	0.000	-0.001	-0.003

Maximum speeds

0.048	0.046	0.041	0.035	0.032	0.027	0.024	0.023	0.022	0.021
0.020	0.019	0.019	0.018	0.017	0.015	0.015	0.015	0.014	0.012
0.010	0.010	0.009	0.008	0.008	0.007	0.007	0.005		

Variance ellipse statistics

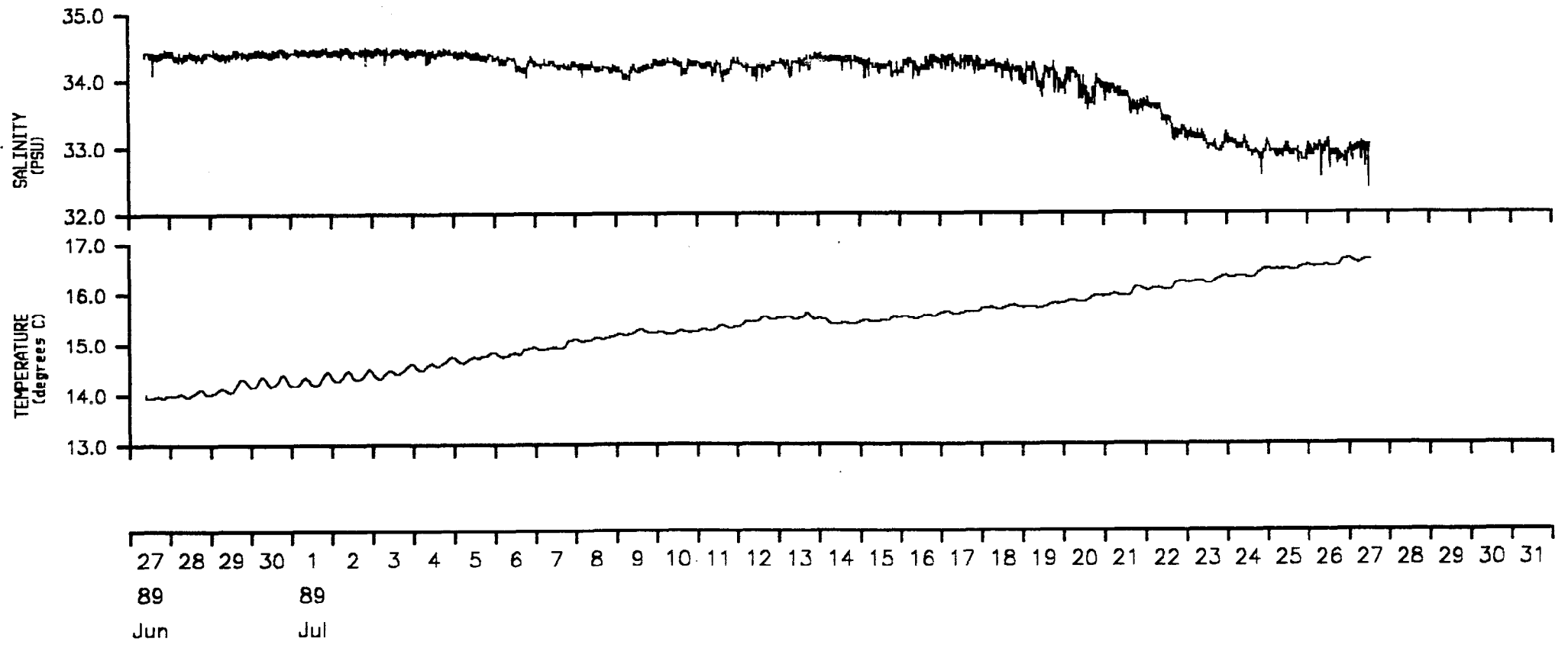
Maximum variance	0.1806E-03	Direction	-1.5
Minimum variance	0.9361E-04	Direction	88.5
Total variance	0.2742E-03	Ratio of variances	0.5184E+00
Average direction. maxdir -PI/2 to maxdir +PI/2			39.1
Average direction. maxdir +PI/2 to maxdir -PI/2			96.7

**Meter information details for 9632**

Rig No	:	C55DC
Meter No	:	9632
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AS
Meter started	:	26-JUNE-89 08:40:00
Meter stopped	:	27-JULY-89 18:20:00
Period switched on	:	31.4 days
Period of good data	:	30.1 days
Total number of scans	:	4340
Timing error	:	None
Comments	:	Good record obtained No PRESSURE sensor fitted to meter

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 9632 Rig no. C55DC Depth of water(m) 31.0  
Start/End 1989/06/27 AT 09:54:00 1989/07/27 AT 13:12:00  
Position 53 30.17N 03 00.26E Meter Height(m) 0.8



**Rig information details for C57DC**

Position Latitude	:	53 29.83N
Position Longitude	:	03 00.70E
Water depth	:	31.0 m
Deployed on cruise	:	C57
Recovered on cruise	:	C59
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	27-JULY-89 15:47:00
Rig recovered on	:	26-AUG-89 08:39:00
Period of deployment	:	29.7 days
Comments	:	Launch and recovery successful



**Meter information details for 0009**

Rig No	:	C57DC
Meter No	:	0009
Frame angle correction	:	22.4 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	27-JULY-89 12:59:14
Meter stopped	:	26-AUG-89 08:29:12
Period switched on	:	29.8 days
Period of good data	:	29.7 days
Total number of scans	:	4277
Timing error	:	2 seconds fast
Comments	:	Good record obtained

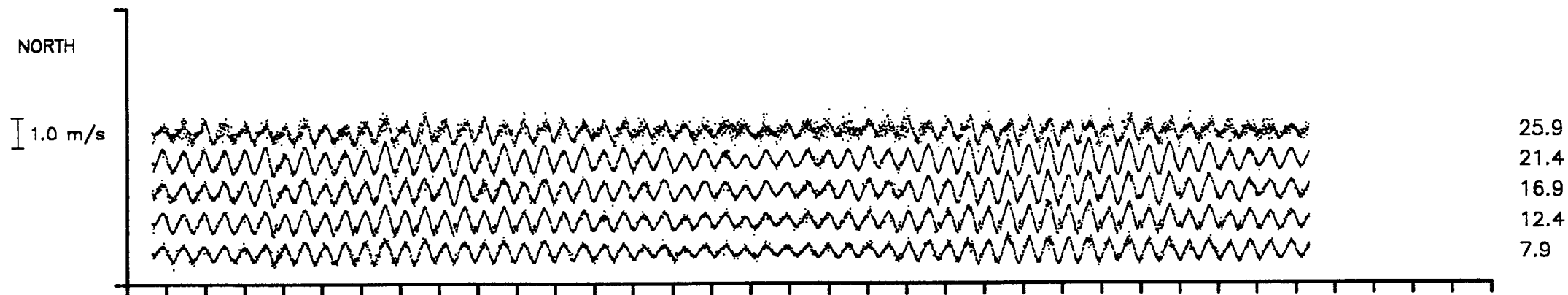
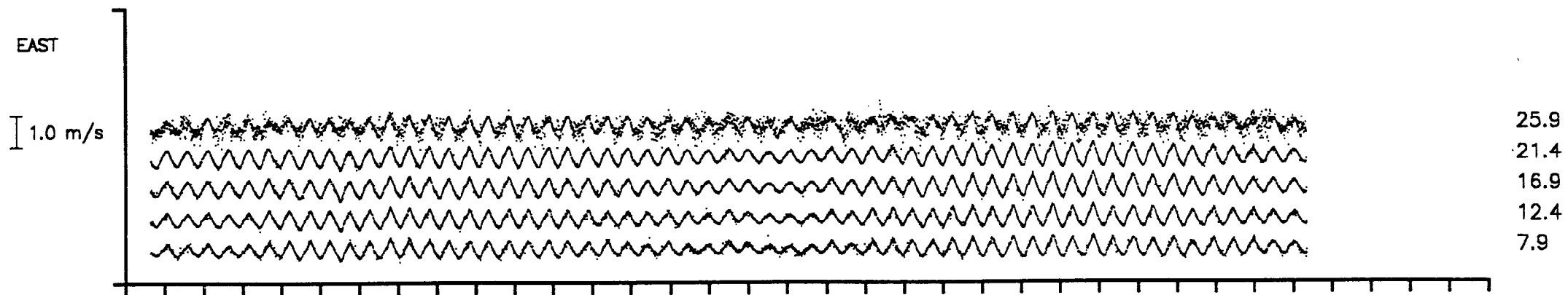
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0009 Rig no. C57DC Depth of water(m) 31.0

Start/End 1989/07/27 AT 15:47:00 1989/08/26 AT 08:39:00

Position 53 29.83N 03 00.70E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



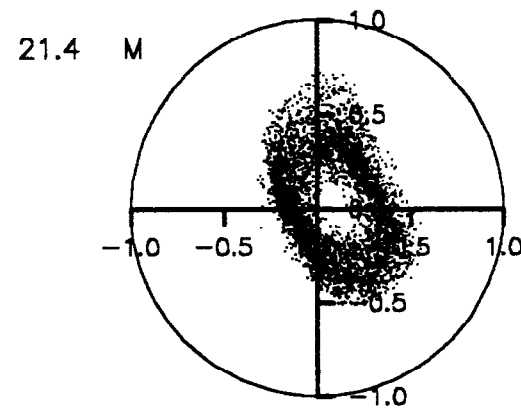
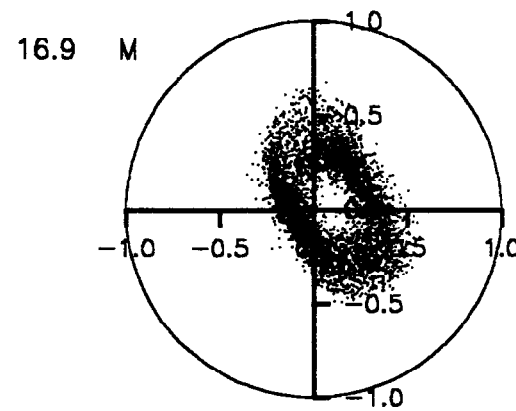
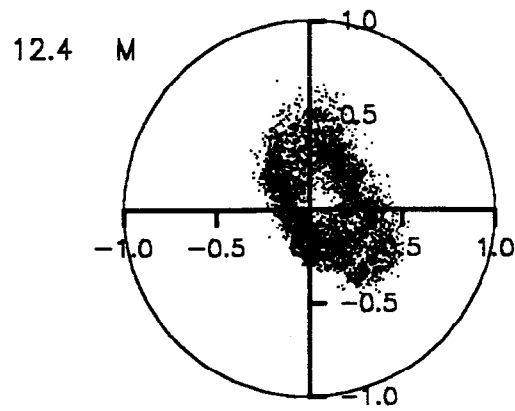
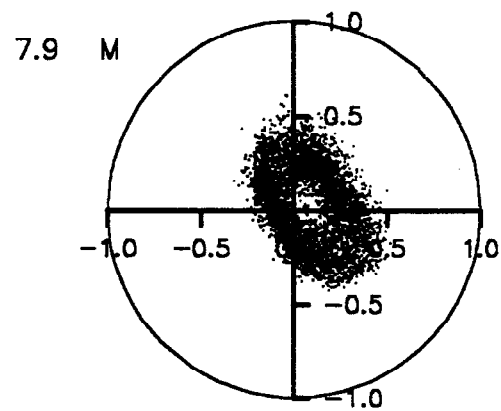
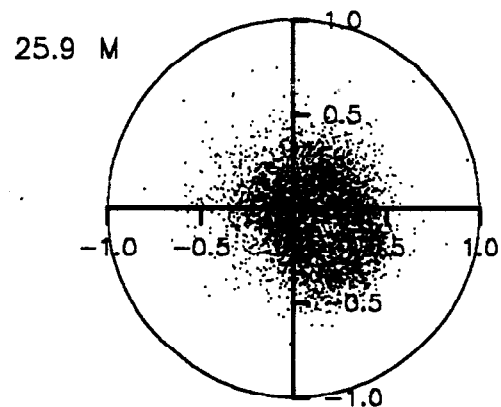
27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30  
89 89  
Jul Aug

SCATTER PLOT

Meter no. 0009 Rig no. C57DC Depth of water(m) 31.0

Start/End 1989/07/27 AT 15:47:00 1989/08/26 AT 08:39:00

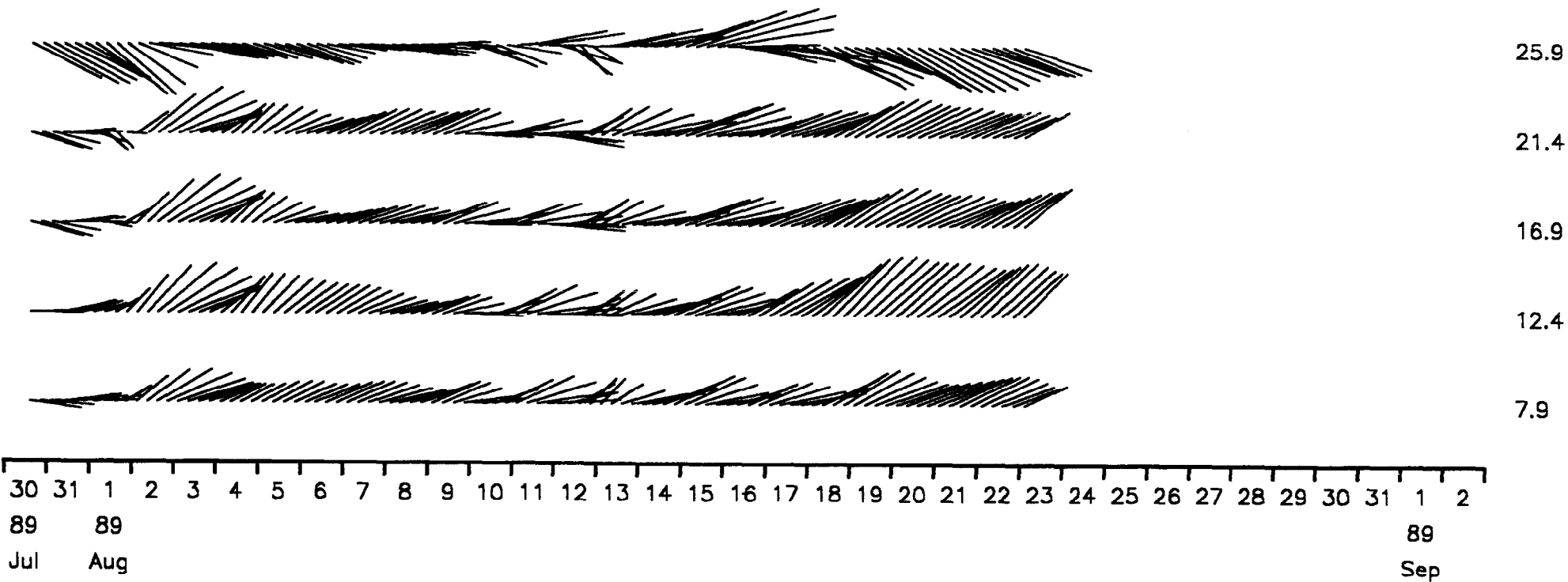
Position 53 29.83N 03 00.70E 7.9 Base Ht 4.5 Gap Ht



STICK TIME SERIES PLOT

Meter no. 0009 Rig no. C57DC Depth of water(m) 31.0  
Start/End 1989/07/27 AT 15:47:00 1989/08/26 AT 08:39:00  
Position 53 29.83N 03 00.70E 7.9 Base Ht 4.5 Gap Ht

— Bin Ht (m)  
Scale 0.1 m/s



STATISTICS FOR DP0009 C57DC

Statistics  
for all good data bins

DCP in umber	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.087	72.0	0.0499	-29.7	0.0215	60.3
2	12.4	0.094	63.2	0.0611	-25.6	0.0248	64.4
3	16.9	0.095	71.6	0.0659	-27.7	0.0295	62.3
4	21.4	0.095	72.9	0.0784	-22.0	0.0334	68.0
5	25.9	0.113	104.4	0.0503	-48.1	0.0370	41.9

Filtered Statistics  
for all good data bins

DCP in umber	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.092	71.5	0.0004	77.8	0.0002	167.8
2	12.4	0.100	62.3	0.0008	19.0	0.0004	109.0
3	16.9	0.100	71.2	0.0006	49.8	0.0004	139.8
4	21.4	0.100	72.2	0.0008	54.5	0.0004	144.5
5	25.9	0.118	102.6	0.0012	32.7	0.0007	122.7

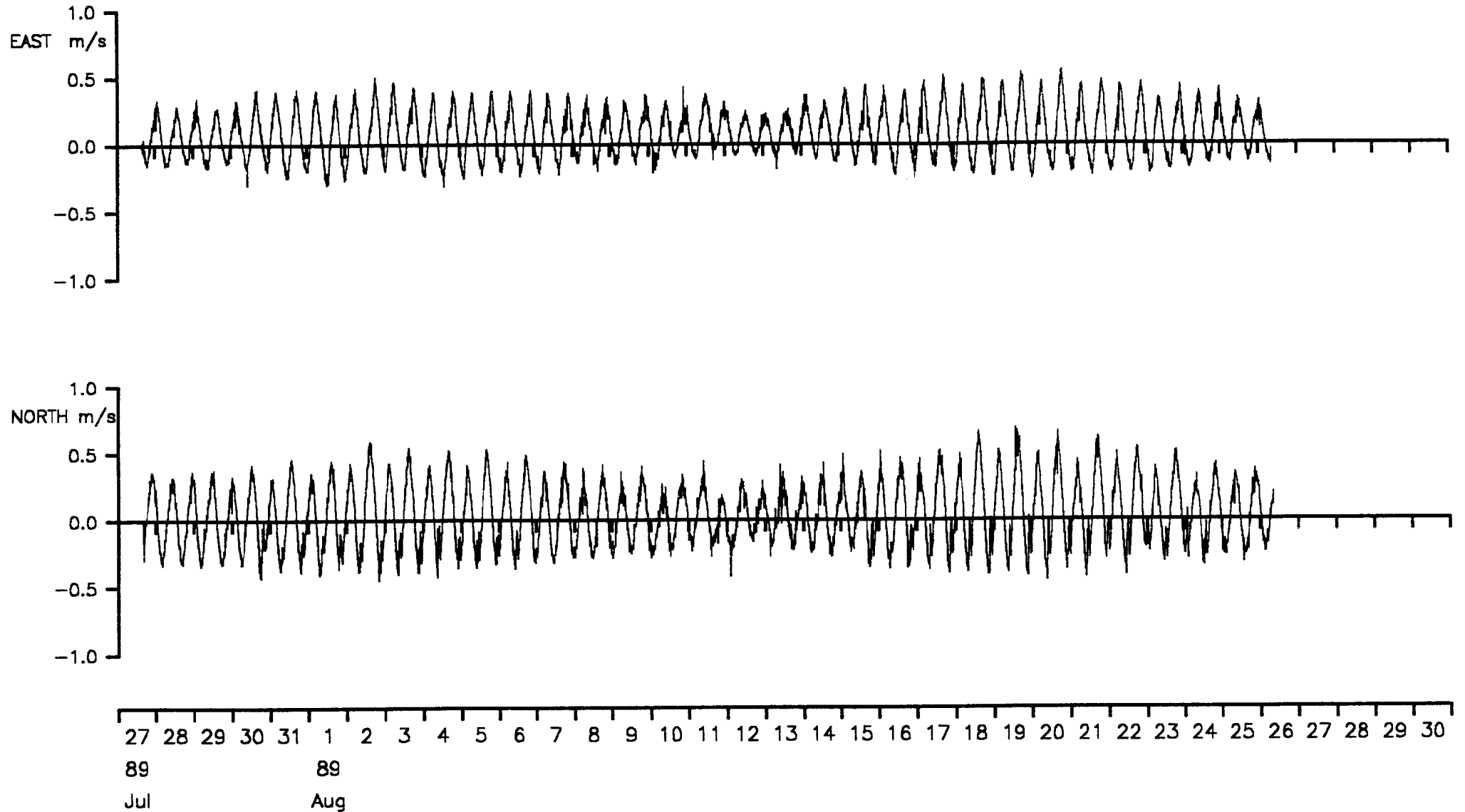
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0009 Rig no. C57DC Depth of water(m) 31.0

Start/End 1989/07/27 AT 15:47:00 1989/08/26 AT 08:39:00

Position 53 29.83N 03 00.70E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



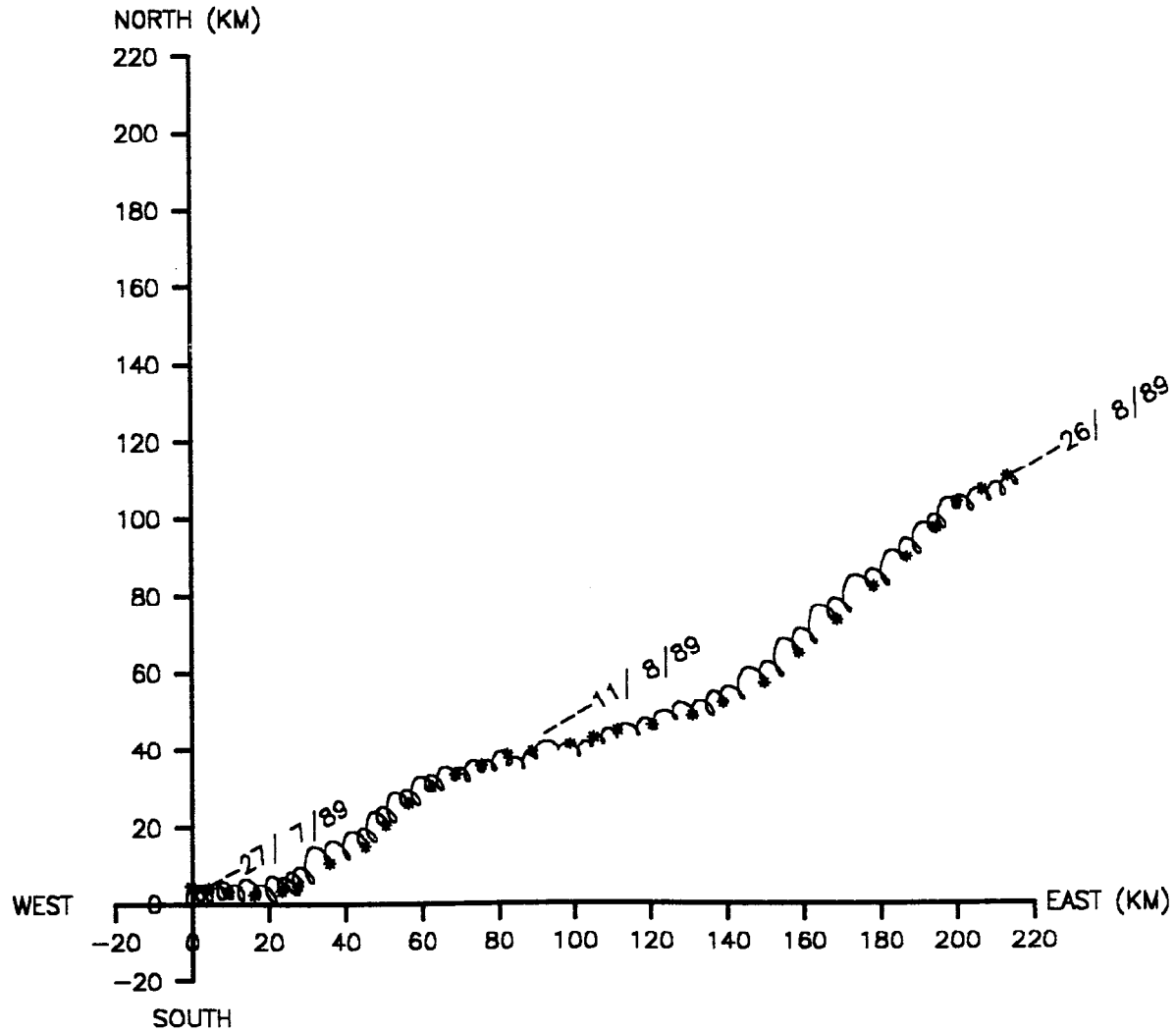
VECTOR PLOT

Meter no. 0009 Rig no. C57DC Depth of water(m) 31.0

Start/End 1989/07/27 AT 15:47:00 1989/08/26 AT 08:39:00

Position 53 29.83N 03 00.70E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0009 C57DC2 A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0839	0.31550437E-01	0.17762434E+00
Northings	0.0424	0.54294944E-01	0.23301268E+00
Speed	0.2828	0.14677033E-01	0.12114877E+00

Vector mean speed 0.0940  
 Vector Mean Direction 63.2

Maximum ten values

Eastings					Northings				
0.548	0.532	0.531	0.514	0.510	0.684	0.661	0.659	0.659	0.648
0.504	0.503	0.501	0.499	0.498	0.642	0.632	0.626	0.623	0.614

Minimum ten values

Eastings					Northings				
-0.267	-0.271	-0.274	-0.276	-0.280	-0.415	-0.417	-0.420	-0.422	-0.423
-0.282	-0.294	-0.299	-0.300	-0.313	-0.428	-0.431	-0.433	-0.446	-0.451

Maximum speeds

0.704	0.664	0.661	0.659	0.649	0.643	0.638	0.633	0.630	0.627
0.625	0.625	0.620	0.618	0.610	0.608	0.605	0.602	0.601	0.598
0.596	0.590	0.587	0.586	0.585	0.585	0.584	0.582	0.581	0.580
0.580	0.580	0.576	0.574	0.574	0.574	0.573	0.571	0.570	0.570
0.566	0.566	0.562	0.562	0.561	0.561	0.561	0.560	0.560	0.560
0.559	0.555	0.554	0.553	0.552	0.552	0.551	0.550	0.548	0.548
0.548	0.547	0.546	0.546	0.546	0.546	0.544	0.542	0.542	0.542
0.541	0.540	0.539	0.539	0.539	0.539	0.539	0.538	0.538	0.538
0.538	0.538	0.537	0.537	0.537	0.537	0.537	0.536	0.535	0.535
0.534	0.534	0.534	0.533	0.533	0.533	0.532	0.531	0.531	0.530

Variance ellipse statistics

Maximum variance 0.6109E-01	Direction	-25.6
Minimum variance 0.2475E-01	Direction	64.4
Total variance 0.8585E-01	Ratio of variances	0.4052E+00
Average direction. maxdir -PI/2 to maxdir +PI/2		20.3
Average direction. maxdir +PI/2 to maxdir -PI/2		167.3



statistics for DP0009 C57DC2F A

oppler bin number 2

	Mean	Variance	Standard deviation
astings	0.0882	0.44231443E-03	0.21031272E-01
orthings	0.0462	0.79685822E-03	0.28228682E-01
peed	0.1025	0.63849264E-03	0.25268409E-01

Vector mean speed 0.0995  
 Vector Mean Direction 62.3

Maximum ten values

Eastings Northings

0.129	0.125	0.123	0.120	0.119	0.100	0.099	0.095	0.095	0.091
0.117	0.116	0.116	0.115	0.115	0.090	0.090	0.089	0.088	0.088

Minimum ten values

Eastings Northings

0.059	0.057	0.056	0.054	0.054	0.012	0.010	0.007	0.003	0.003
0.053	0.052	0.044	0.039	0.037	0.001	0.000	-0.002	-0.002	-0.004

Maximum speeds

0.143	0.143	0.140	0.140	0.139	0.139	0.138	0.138	0.137	0.137
0.137	0.136	0.136	0.136	0.134	0.133	0.132	0.131	0.131	0.130
0.130	0.130	0.129	0.128	0.125	0.125	0.124	0.124	0.122	0.121
0.119	0.119	0.118	0.117	0.117	0.117	0.115	0.112	0.109	0.109
0.109	0.108	0.108	0.108	0.105	0.103	0.097	0.095	0.095	0.094
0.093	0.090	0.087	0.087	0.086	0.086	0.086	0.086	0.086	0.086
0.086	0.085	0.085	0.085	0.084	0.084	0.084	0.084	0.084	0.084
0.083	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082
0.081	0.081	0.081	0.081	0.079	0.078	0.074	0.072	0.072	0.069
0.066	0.056	0.055	0.045	0.042					

Variance ellipse statistics

Maximum variance	0.8447E-03	Direction	19.0
Minimum variance	0.3944E-03	Direction	109.0
Total variance	0.1239E-02	Ratio of variances	0.4669E+00
Average direction. maxdir -PI/2 to maxdir +PI/2			44.4
Average direction. maxdir +PI/2 to maxdir -PI/2			0.0

**Meter information details for 6443**

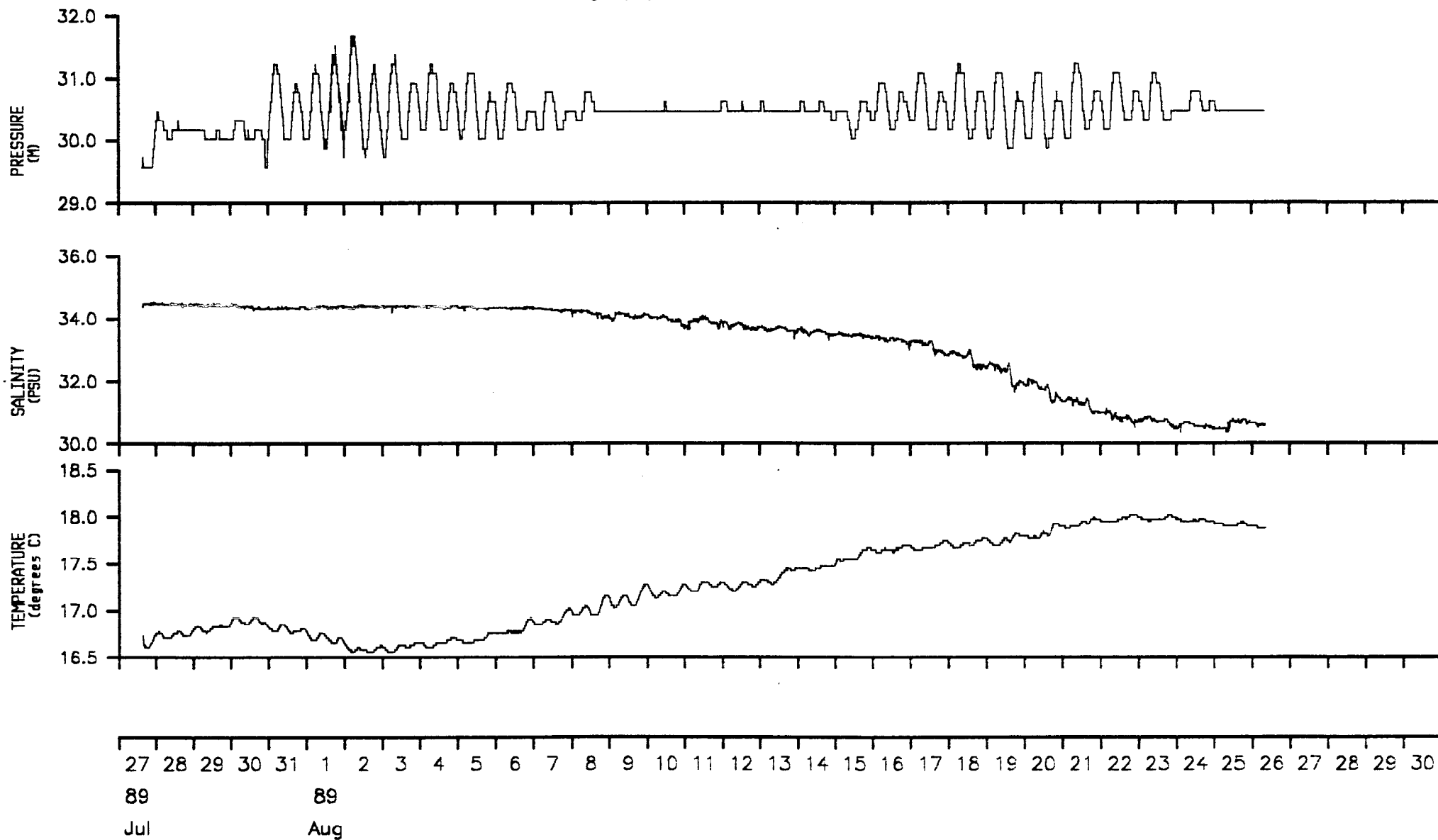
Rig No	:	C57DC
Meter No	:	6443
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AA
Meter started	:	27-JULY-89 00:20:00
Meter stopped	:	26-AUG-89 16:50:20
Period switched on	:	30.7 days
Period of good data	:	29.7 days
Total number of scans	:	4277
Timing error	:	20 seconds slow
Comments	:	Good record obtained

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 6443 Rig no. C57DC Depth of water(m) 31.0

Start/End 1989/07/27 AT 15:47:00 1989/08/26 AT 08:39:00

Position 53 29.83N 03 00.70E Meter Height(m) 0.8



**Rig information details for C59DC**

Position Latitude	:	53 29.70N
Position Longitude	:	03 00.60E
Water depth	:	31.0 m
Deployed on cruise	:	C59
Recovered on cruise	:	C61
Site name identification	:	D
Magnetic deviation	:	3.7 degrees west
Rig deployed on	:	26-AUG-89 10:15:00
Rig recovered on	:	24-SEP-89 06:03:00
Period of deployment	:	28.8 days
Comments	:	Launch and recovery successful

**Meter information details for 0003**

Rig No	:	C59DC
Meter No	:	0003
Frame angle correction	:	378.6 degrees
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Meter type	:	DP
Meter started	:	26-AUG-89 07:09:02
Meter stopped	:	24-SEP-89 06:39:13
Period switched on	:	29.0 days
Period of good data	:	28.8 days
Total number of scans	:	4151
Timing error	:	11 seconds slow
Comments	:	Good record obtained

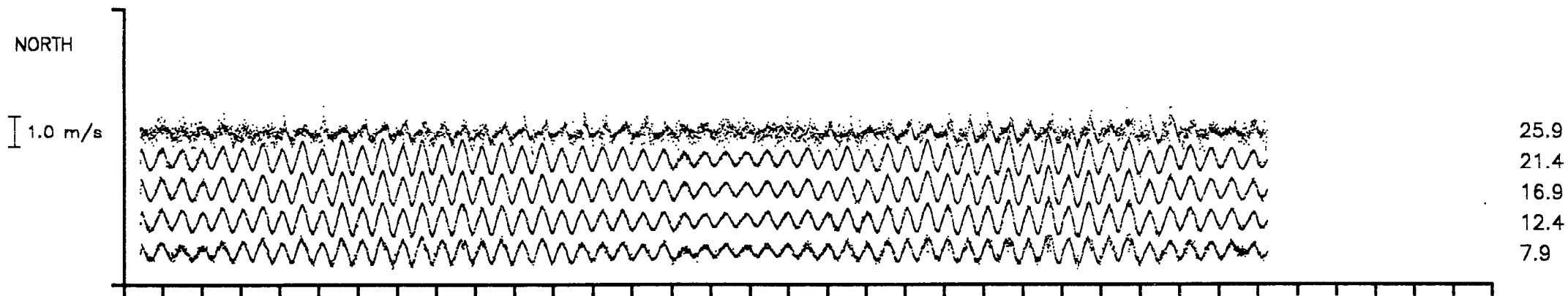
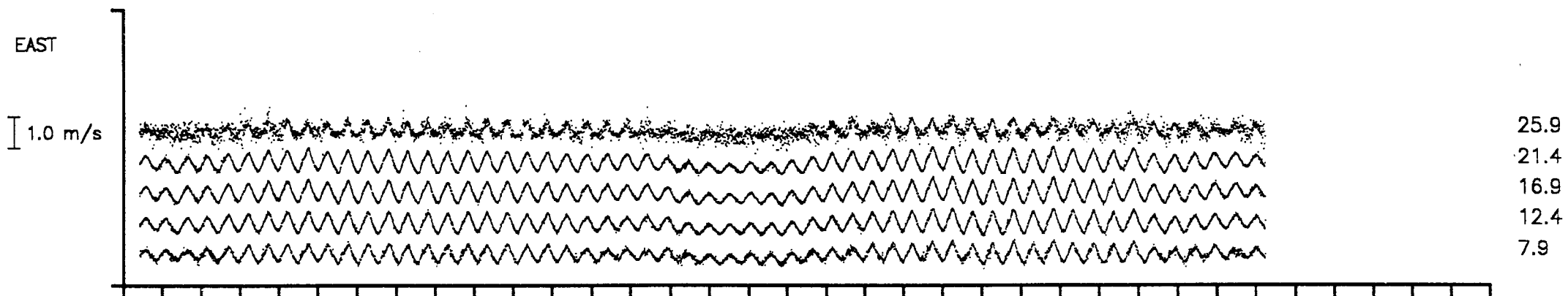
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0003 Rig no. C59DC Depth of water(m) 31.0

Start/End 1989/08/26 AT 10:15:00 1989/09/24 AT 06:03:00

Position 53 29.70N 03 00.60E 7.9 Base Ht 4.5 Gap Ht

Bin Ht (m)



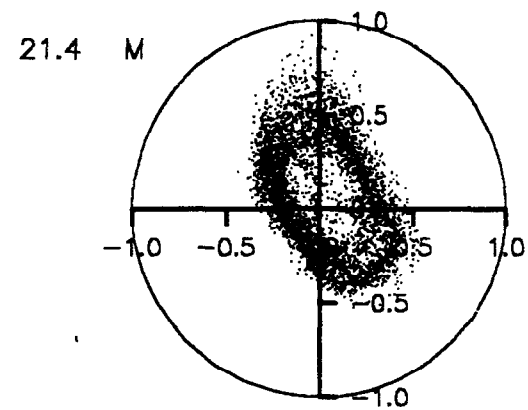
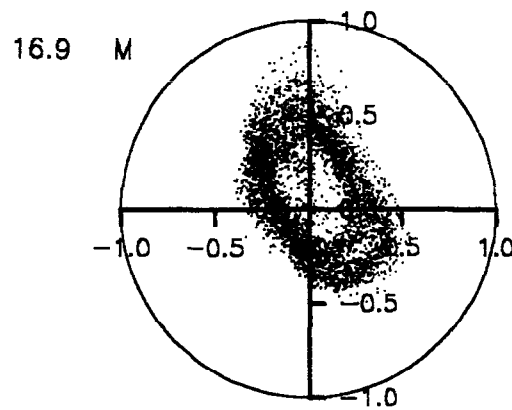
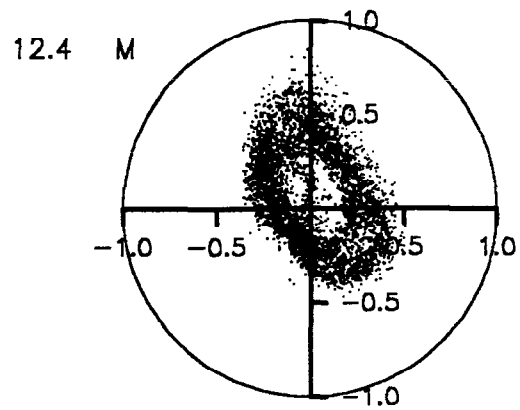
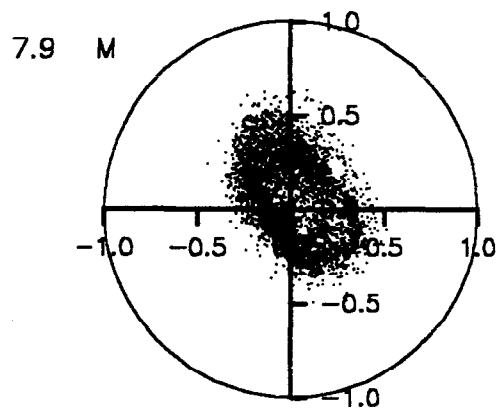
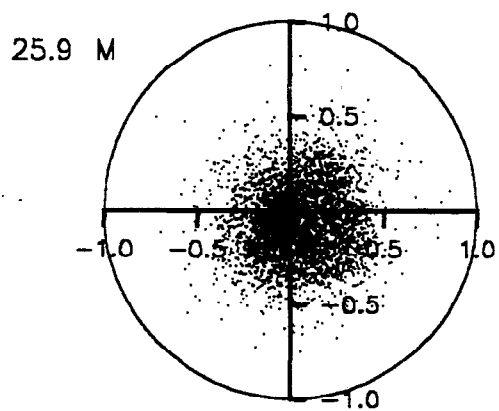
26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29  
89 89

SCATTER PLOT

Meter no. 0003 Rig no. C59DC Depth of water(m) 31.0

Start/End 1989/08/26 AT 10:15:00 1989/09/24 AT 06:03:00

Position 53 29.70N 03 00.60E 7.9 Base Ht 4.5 Gap Ht



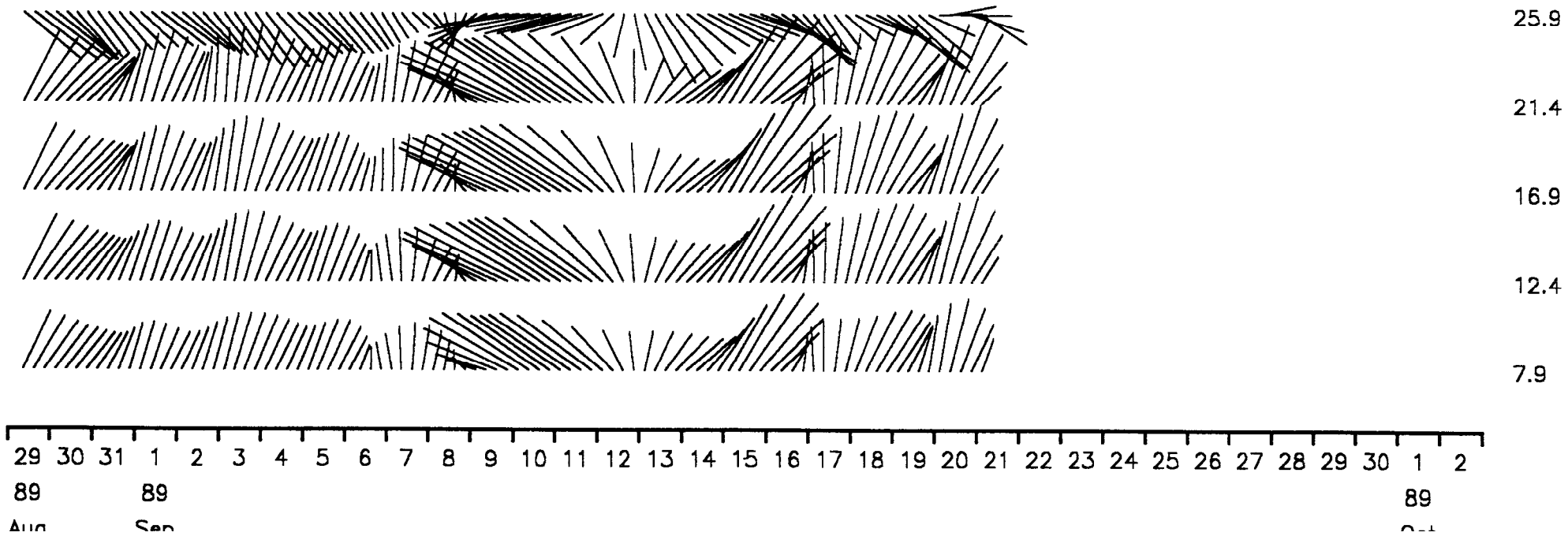
STICK TIME SERIES PLOT

Meter no. 0003 Rig no. C59DC Depth of water(m) 31.0

Start/End 1989/08/26 AT 10:15:00 1989/09/24 AT 06:03:00

Position 53 29.70N 03 00.60E 7.9 Base Ht 4.5 Gap Ht

— Bin Ht (m)  
Scale 0.1 m/s





STATISTICS FOR DP0003 C59DC

Statistics

For all good data bins

ADCP bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.076	7.9	0.0546	-29.6	0.0234	60.4
2	12.4	0.087	7.0	0.0779	-25.6	0.0307	64.4
3	16.9	0.091	7.5	0.0889	-24.8	0.0347	65.2
4	21.4	0.091	9.2	0.0914	-24.2	0.0359	65.8
5	25.9	0.067	145.2	0.0384	48.3	0.0336	138.3

Filtered Statistics

For all good data bins

ADCP bin Number	ADCP Bin Height	Vector Mean Speed	Vector Mean Direction	Maximum Variance	Direction of Maximum Variance	Minimum Variance	Direction of Minimum Variance
1	7.9	0.076	7.2	0.0036	87.5	0.0005	177.5
2	12.4	0.088	6.7	0.0051	87.5	0.0006	177.5
3	16.9	0.091	7.3	0.0057	88.5	0.0006	178.5
4	21.4	0.093	9.2	0.0060	89.4	0.0007	179.4
5	25.9	0.071	145.0	0.0051	-80.9	0.0005	9.1

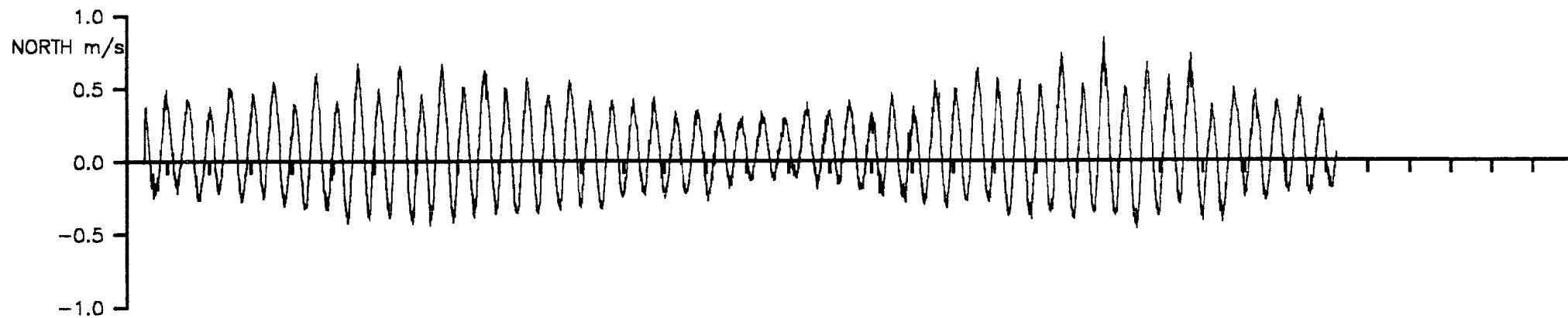
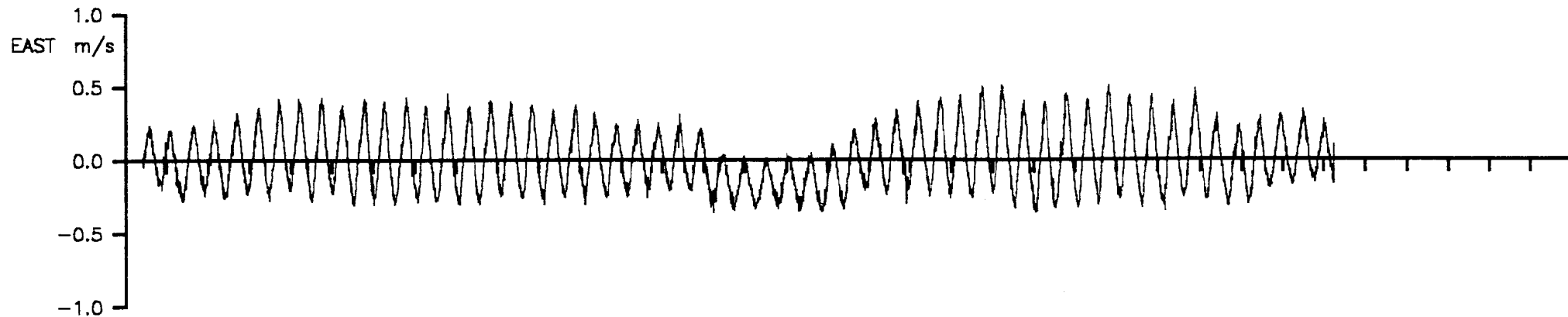
VELOCITY COMPONENT TIME SERIES PLOT

Meter no. 0003 Rig no. C59DC Depth of water(m) 31.0

Start/End 1989/08/26 AT 10:15:00 1989/09/24 AT 06:03:00

Position 53 29.70N 03 00.60E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average depth



26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29  
89 89

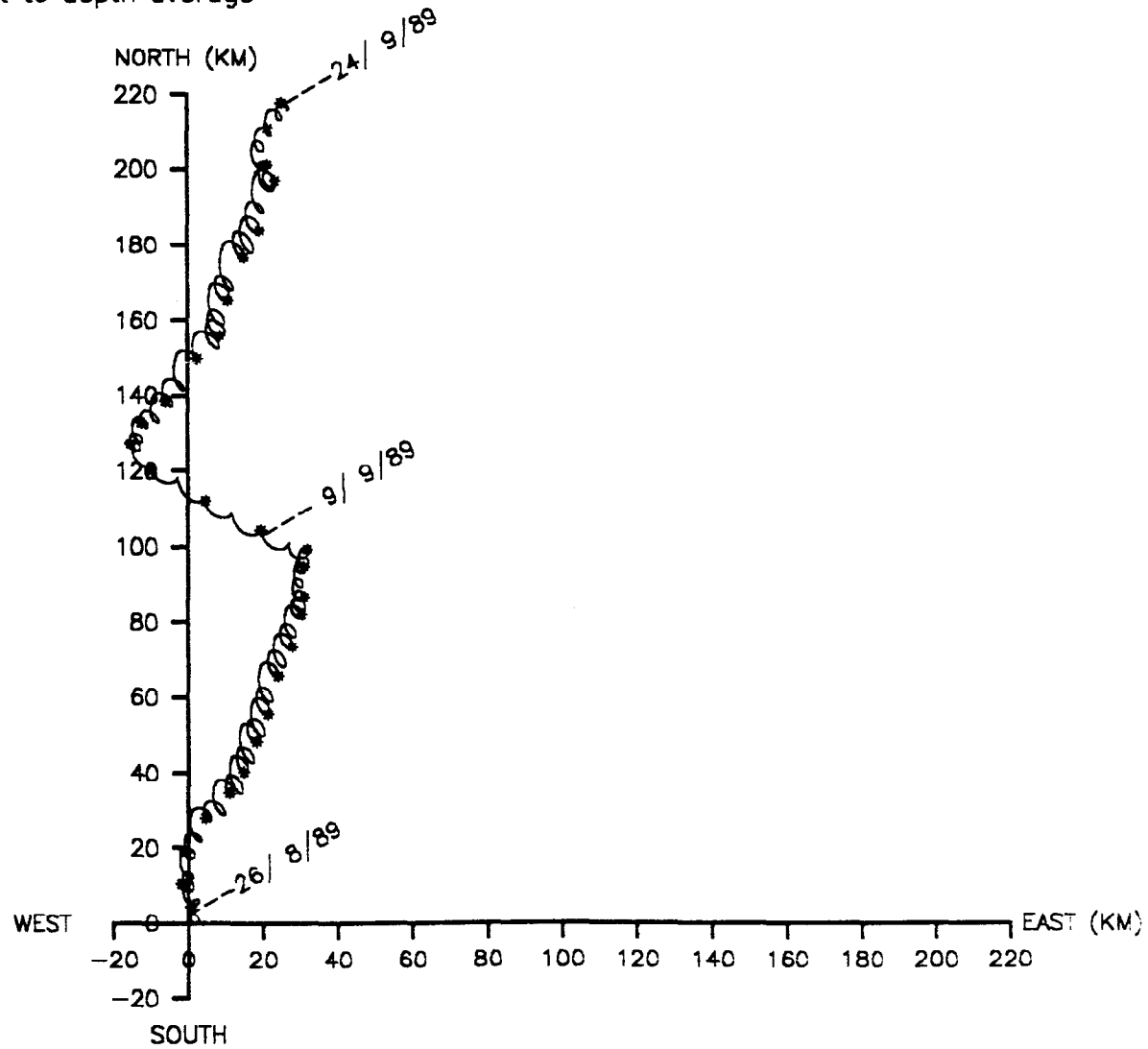
VECTOR PLOT

Meter no. 0003 Rig no. C59DC Depth of water(m) 31.0

Start/End 1989/08/26 AT 10:15:00 1989/09/24 AT 06:03:00

Position 53 29.70N 03 00.60E 7.9 Base Ht 4.5 Gap Ht 12.4 Bin Ht (m)

Bin closest to depth average



Statistics for DP0003 C59DC2 A  
 Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0107	0.39504882E-01	0.19875836E+00
Northings	0.0866	0.69052875E-01	0.26277924E+00
Speed	0.3177	0.15244287E-01	0.12346774E+00

Vector mean speed 0.0872  
 Vector Mean Direction 7.0

Maximum ten values

Eastings					Northings				
0.508	0.502	0.498	0.498	0.496	0.843	0.811	0.802	0.798	0.753
0.493	0.490	0.484	0.484	0.483	0.738	0.735	0.731	0.719	0.706

Minimum ten values

Eastings					Northings				
-0.352	-0.352	-0.353	-0.353	-0.354	-0.415	-0.421	-0.421	-0.422	-0.426
-0.354	-0.354	-0.358	-0.359	-0.361	-0.428	-0.431	-0.436	-0.444	-0.469

Maximum speeds

0.843	0.811	0.808	0.798	0.754	0.744	0.740	0.731	0.726	0.721
0.707	0.707	0.706	0.696	0.693	0.692	0.682	0.677	0.676	0.675
0.674	0.673	0.670	0.669	0.667	0.656	0.648	0.647	0.645	0.644
0.643	0.642	0.638	0.636	0.636	0.636	0.634	0.633	0.633	0.633
0.632	0.631	0.631	0.631	0.628	0.626	0.626	0.625	0.625	0.623
0.622	0.622	0.621	0.621	0.620	0.619	0.619	0.619	0.618	0.617
0.616	0.616	0.614	0.614	0.614	0.613	0.611	0.610	0.610	0.609
0.608	0.608	0.608	0.608	0.607	0.607	0.607	0.606	0.606	0.605
0.604	0.604	0.604	0.604	0.604	0.604	0.601	0.601	0.598	0.596
0.595	0.595	0.594	0.593	0.591	0.590	0.588	0.584	0.584	0.582

Variance ellipse statistics

Maximum variance	0.7790E-01	Direction	-25.6
Minimum variance	0.3065E-01	Direction	64.4
Total variance	0.1086E+00	Ratio of variances	0.3934E+00
Average direction. maxdir	-PI/2 to maxdir	+PI/2	9.1
Average direction. maxdir	+PI/2 to maxdir	-PI/2	176.8

Statistics for DP0003 C59DC2F A

Doppler bin number 2

	Mean	Variance	Standard deviation
Eastings	0.0103	0.51260442E-02	0.71596384E-01
Northings	0.0874	0.59611211E-03	0.24415404E-01
Speed	0.1092	0.15011947E-02	0.38745251E-01

Vector mean speed 0.0880  
 Vector Mean Direction 6.7

Maximum ten values

Eastings					Northings				
0.110	0.103	0.099	0.088	0.074	0.145	0.145	0.144	0.134	0.132
0.073	0.072	0.072	0.069	0.068	0.131	0.129	0.127	0.124	0.121

Minimum ten values

Eastings					Northings				
-0.149	-0.153	-0.156	-0.156	-0.158	0.060	0.056	0.054	0.049	0.048
-0.162	-0.162	-0.166	-0.174	-0.175	0.046	0.042	0.042	0.039	0.037

Maximum speeds

0.195	0.193	0.192	0.191	0.190	0.185	0.184	0.182	0.181	0.178
0.172	0.170	0.168	0.157	0.151	0.149	0.145	0.142	0.139	0.138
0.136	0.134	0.133	0.130	0.125	0.124	0.122	0.120	0.119	0.118
0.117	0.114	0.114	0.113	0.110	0.109	0.108	0.106	0.106	0.105
0.103	0.103	0.102	0.102	0.101	0.100	0.099	0.097	0.096	0.096
0.095	0.095	0.095	0.095	0.095	0.094	0.091	0.090	0.089	0.089
0.088	0.088	0.087	0.087	0.087	0.086	0.086	0.084	0.084	0.083
0.083	0.083	0.082	0.082	0.081	0.079	0.079	0.077	0.077	0.075
0.074	0.073	0.072	0.065	0.061	0.061	0.051	0.050	0.050	0.049
0.049	0.037								

Variance ellipse statistics

Maximum variance	0.5135E-02	Direction	87.5
Minimum variance	0.5875E-03	Direction	177.5
Total variance	0.5722E-02	Ratio of variances	0.1144E+00
Average direction. maxdir	-PI/2 to maxdir +PI/2		-62.9
Average direction. maxdir	+PI/2 to maxdir -PI/2		225.1

**Meter information details for 9632**

Rig No	:	C59DC
Meter No	:	9632
Recording interval	:	600.0 seconds
Meter height from bottom	:	0.8 m
Position of meter on rig	:	A
Meter type	:	AS
Meter started	:	25-AUG-89 09:20:00
Meter stopped	:	24-SEP-89 13:40:00
Period switched on	:	30.2 days
Period of good data	:	28.8 days
Total number of scans	:	4151
Timing error	:	None
Comments	:	Good record obtained

No PRESSURE sensor fitted to meter

TEMPERATURE,SALINITY AND PRESSURE TIME SERIES PLOTS

Meter no. 9632 Rig no. C59DC Depth of water(m) 31.0

Start/End 1989/08/26 AT 10:15:00 1989/09/24 AT 06:03:00

Position 53 29.70N 03 00.60E Meter Height(m) 0.8

