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Reports

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10-1988

**Cross-shoreface Suspended Sediment Transport : A Response to the Interaction of Nearshore and Shelf Processes, Fall 1994 Duck, NC Field Experiment**

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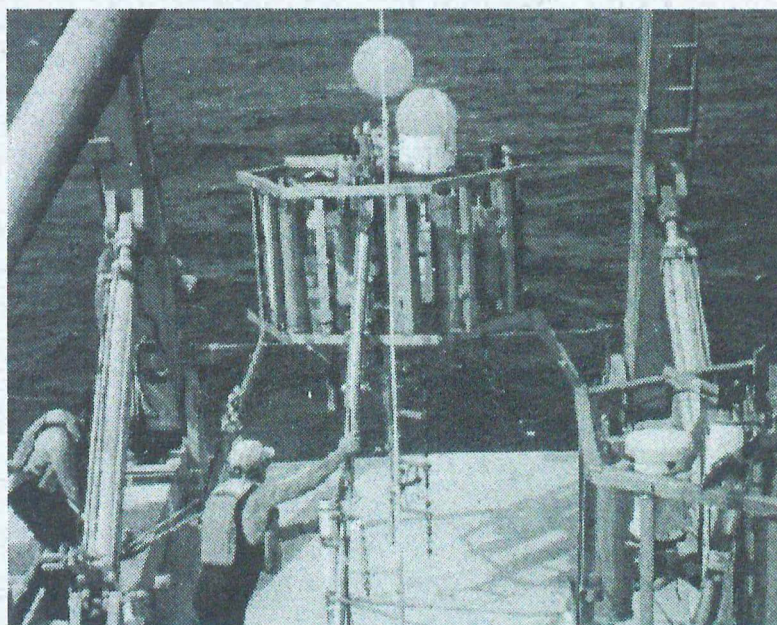
Hepworth, D. A., Friedrichs, C. T., & Brubaker, J. (1988) Cross-shoreface Suspended Sediment Transport : A Response to the Interaction of Nearshore and Shelf Processes, Fall 1994 Duck, NC Field Experiment. Data report (Virginia Institute of Marine Science) ; no. 58.. Virginia Institute of Marine Science, College of William and Mary. <https://doi.org/10.21220/V5KM64>

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# Cross-Shoreface Suspended Sediment Transport

## A Response to the Interaction of Nearshore and Shelf Processes

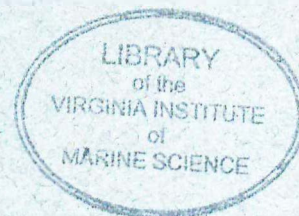
Fall 1994 Duck, N.C. Field Experiment



D. A. Hepworth, C. T. Friedrichs, and J. M. Brubaker

School of Marine Science  
Virginia Institute of Marine Science  
College of William and Mary  
Gloucester Point, Virginia 23062

VIMS Data Report No. 58  
October 1998

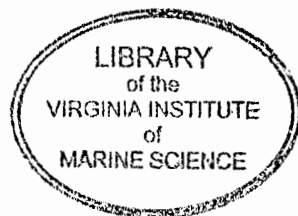


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VIMS  
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no. 58

Research Sponsored by the National Science Foundation  
Grant OCE-9504198

Cross-Shoreface Suspended Sediment Transport  
A Response to the Interaction of Nearshore and Shelf Processes  
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## **Deployment and Recovery**

### *Deployment*

The tripods were assembled, tested and secured onboard the R/V Sea Diver, which left the Little Creek Amphibious Base in Norfolk, Virginia early on 26 September. While underway to the deployment site, the continuous surface water conductivity and temperature survey was run and several CTD casts were made. The tripods were deployed on 26 September and secured to the sea floor with sand anchors by VIMS divers. The R/V Sea Diver then began the series of on/off shore transects at the tripod deployment site for approximately 12 hours. The vessel returned to port on 27 September..

### *Recovery*

The tripod recovery cruise began late on 21 October and repeated the underway data collection scheme of the September cruise. On October 22 divers removed the sand anchors and the tripods were recovered without incident. The on/off shore transects were repeated and transit to port occurred on 23 October.

## **Instrument Calibrations**

Velocity sensors were calibrated after deployment using a re-circulating flume at VIMS. A least squares fit was applied to the calibration data and correction slopes and offsets were determined and used to process the data. Offsets were typically less than 10 centimeters/second and slopes were close to unity. Compass data were converted to degrees true with a -10 degree (westerly) magnetic variation and applied to the velocity components so that,  $U+ = \text{East}$  and  $V+ = \text{North}$  in degrees true.

Sediments collected by settling tube sediment traps attached to the tripods were used to calibrate the OBS sensors. Sediments were split into 2 size fractions. Sensors were calibrated against both fractions and linear calibration coefficients were generated to reflect the size fraction mix collected. Thermistors and conductivity sensors were calibrated in controlled temperature/salinity tanks.

## **Data Return and Availability**

All the instruments listed in Table 1 collected high quality data.. All data sets have undergone preliminary processing and quality checks. One problem with the collective data sets was that some of the loggers' clocks were inaccurate or clock times drifted during the deployment. As a result some data was not collocated in time and also some instruments sampled at slightly different frequencies.

Graphic examples of the data sets and summary information are available at the VIMS Duck website:

<http://www.vims.edu/physical/duck/duck.htm>



Table 1: Data Summary

VIMS Duck 1996  
26 September - 22 October 1996

OFFSHORE TRIPOD (16 m) N 36 11.54 W 75 43.54  
Instruments and Sensors: 635 pressure and velocity  
626 pressure and velocity  
DS conductivity/temperature logger  
ADCP acoustic doppler current profiler

Sensor		Elevation above deck	Samples/ burst	Sampling interval	Bursts every	Number of Bursts	Total Duration
635	press	217cm	2060	1.0sec	2hr	310	618hr
	vel	135	"	"	"	"	"
626	press	204	2060	1.0	2	310	618
626	vel 1	5	"	"	"	"	"
	vel 3	66	"	"	"	"	"
	vel 4	35	"	"	"	"	"
DS	C&T 1	7	1	---	2	310	618
DS	C&T 2	157	1	---	2	310	618
ADCP	vel	250	---	---	6min	6180	618

INSHORE TRIPOD (12 m) N 36 11.49 W 75 44.36  
Instruments and Sensors: 635 pressure and velocity  
626 pressure and velocity  
OBS optical backscatter sensors  
ADVB three axis velocity and altitude  
ABS acoustic backscatter sensors  
DS conductivity/temperature logger  
ADP acoustic doppler profiler

Sensor		Elevation above deck	Samples/ burst	Sampling interval	Bursts every	Number of Bursts	Total Duration
635	press	195cm	2060	1.0sec	2hr	311	620hr
	vel	125	"	"	"	"	"
626	press	185	2060	1.0	2hr	311	620hr
626	vel 1	8	"	"	"	"	"
	vel 2	38	"	"	"	"	"
	vel 3	68	"	"	"	"	"
	vel 4	98	"	"	"	"	"
OBS	C 1	6	2060	1.0	2hr	311	620hr
	C 2	20	"	"	"	"	"
	C 3	36	"	"	"	"	"
	C 4	66	"	"	"	"	"
	C 5	98	"	"	"	"	"
ADVB	vel	19	3500	0.2	2	311	620
ABS	C	88	698	0.2	2	311	620
DS	C&T 1	18	1	---	2	46	90
DS	C&T 2	145	1	---	2	311	620
ADP	vel	240	---	---	2min	18600	620hr

# Order of Figures

## *Offshore Tripod*

Number of Plots

Location of study site	2
<b><u>Summary Plots - Whole Deployment</u></b>	
Depth, wave height, wave period, current speed, and current heading	1
Velocity components at 3 elevations	1
Stickplot of velocities at 3 elevations	1
Salinity and temperature at 2 elevations	1
Water column velocity magnitudes in 5 day segments	5
Water column velocity headings in 5 day segments	5
<b><u>Data Plots at 2 Day Intervals</u></b>	
Depth and velocity components	13
Pressure and velocity components at 3 elevations	13

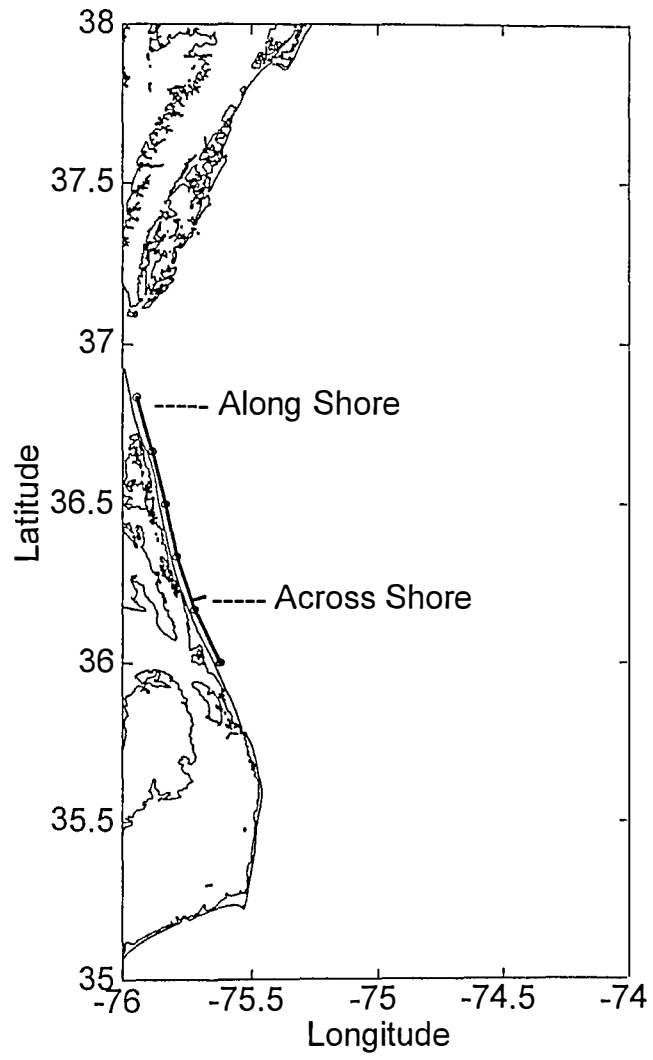
## *Inshore Tripod*

Location of inshore and offshore tripods	1
<b><u>Summary Plots - Whole Deployment</u></b>	
Depth, wave height, wave period, current speed, and current heading	1
Velocity components at 4 elevations	1
Stickplot of velocities at 3 elevations	1
Three component velocity, return signal strengths, and distance to bed	1
Suspended sediment concentrations at 5 elevations and temperature at 1 elevation	1
Near bed suspended sediment concentrations	1
Salinity and temperature at 2 elevations	1
Water column velocity magnitudes in 5 day segments	5
Water column velocity headings in 5 day segments	5
<b><u>Data Plots - at 2 Day Intervals</u></b>	
Depth and velocity components	13
Pressure and velocity components at 4 elevations	13
Three component velocities, return signal strengths, and distance to bed	13
Suspended sediment concentrations at 5 elevations	13
Near bed suspended sediment concentrations	13

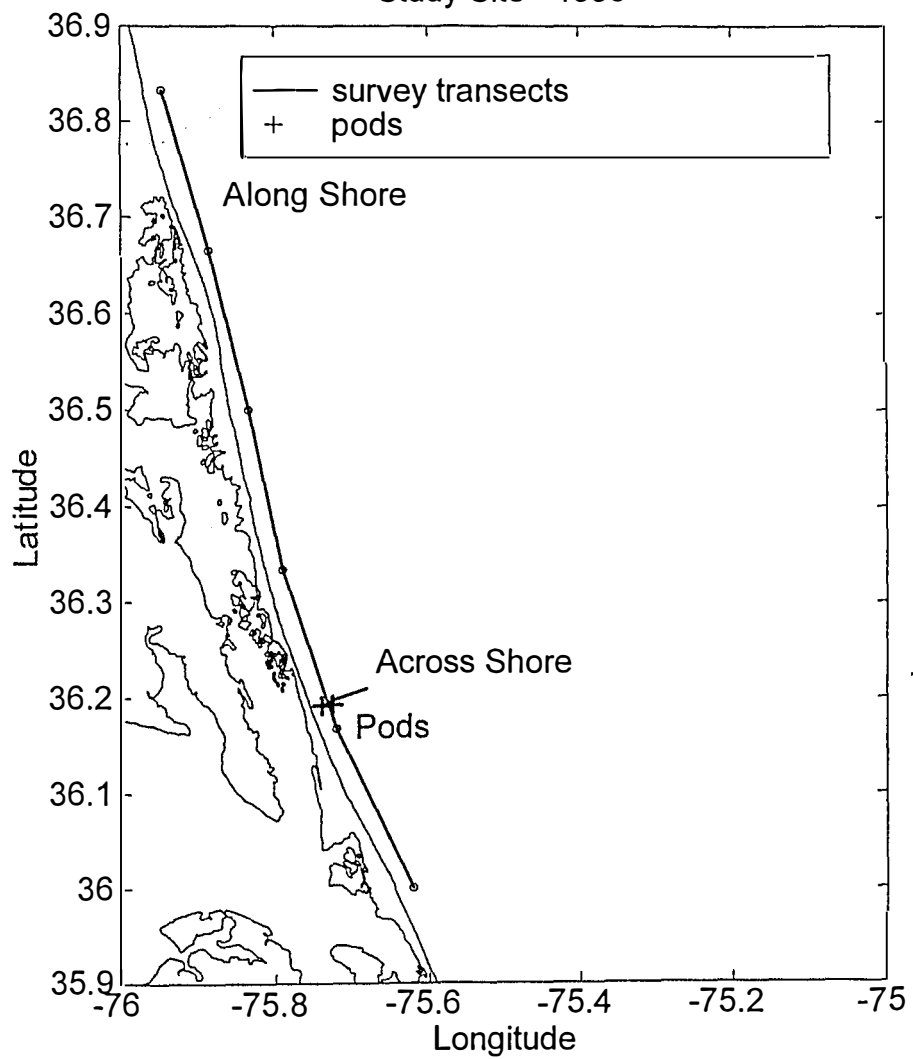
## *CTD and ADCP Surveys*

Location of survey transect	1
<b><u>September</u></b>	
Along coast water column salinity and temperature on 26 September 1996	1
Across shore water column salinity and temperature on 26 and 27 September 1996	6
Across shore transect water column currents on 26 and 27 September 1996	7
<b><u>October</u></b>	
Along coast water column salinity and temperature on 22 October 1996	1
Across shore water column salinity and temperature on 22 and 23 October 1996	7
Across shore transect water column currents on 22 and 23 October 1996	7

CTD & ADCP Transects - 1996

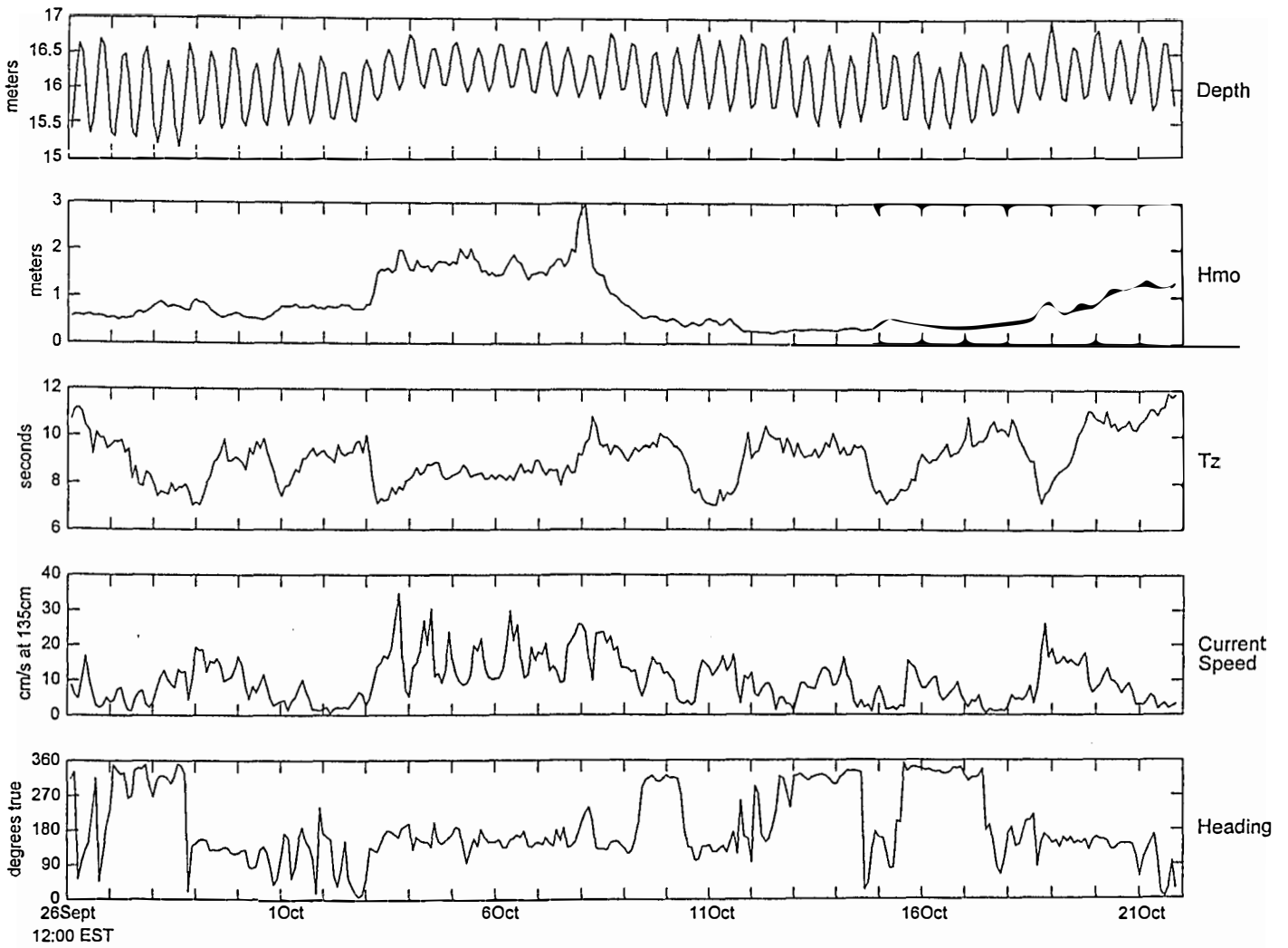


Study Site - 1996



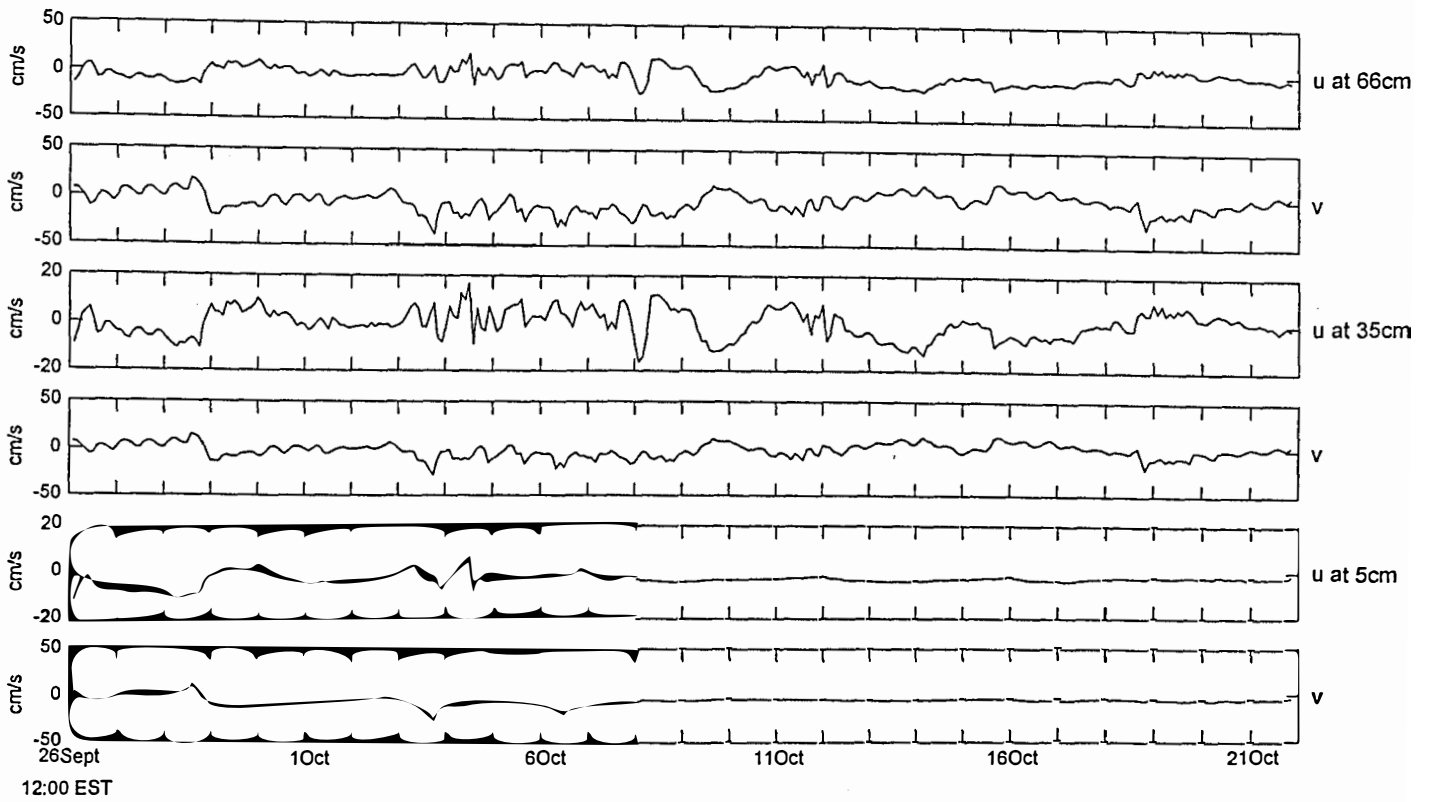


### 635 Data from Duck96A Offshore Pod



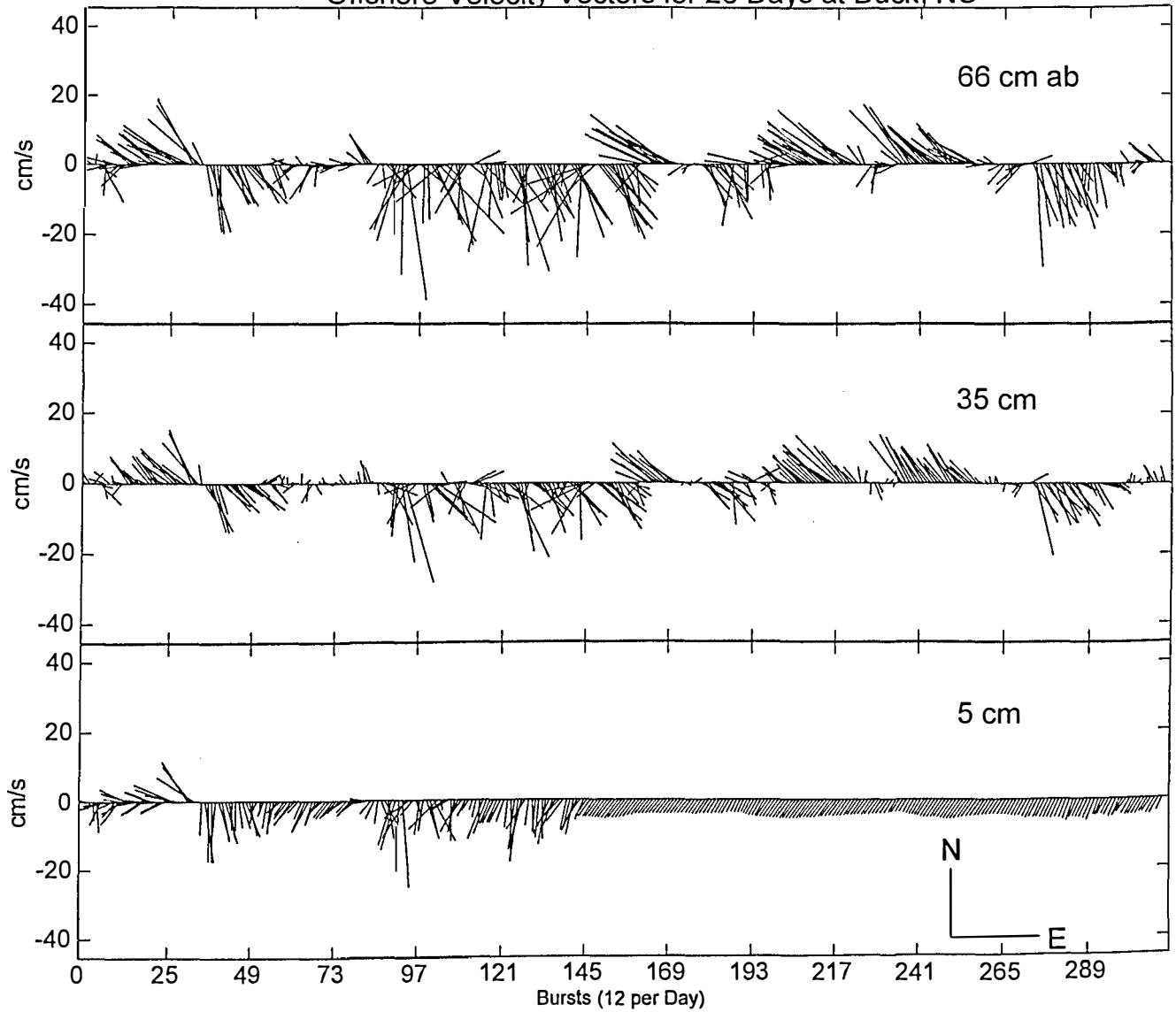
26 September - 22 October 1996

# 626 Velocity Profile Data from Duck96A Offshore Pod

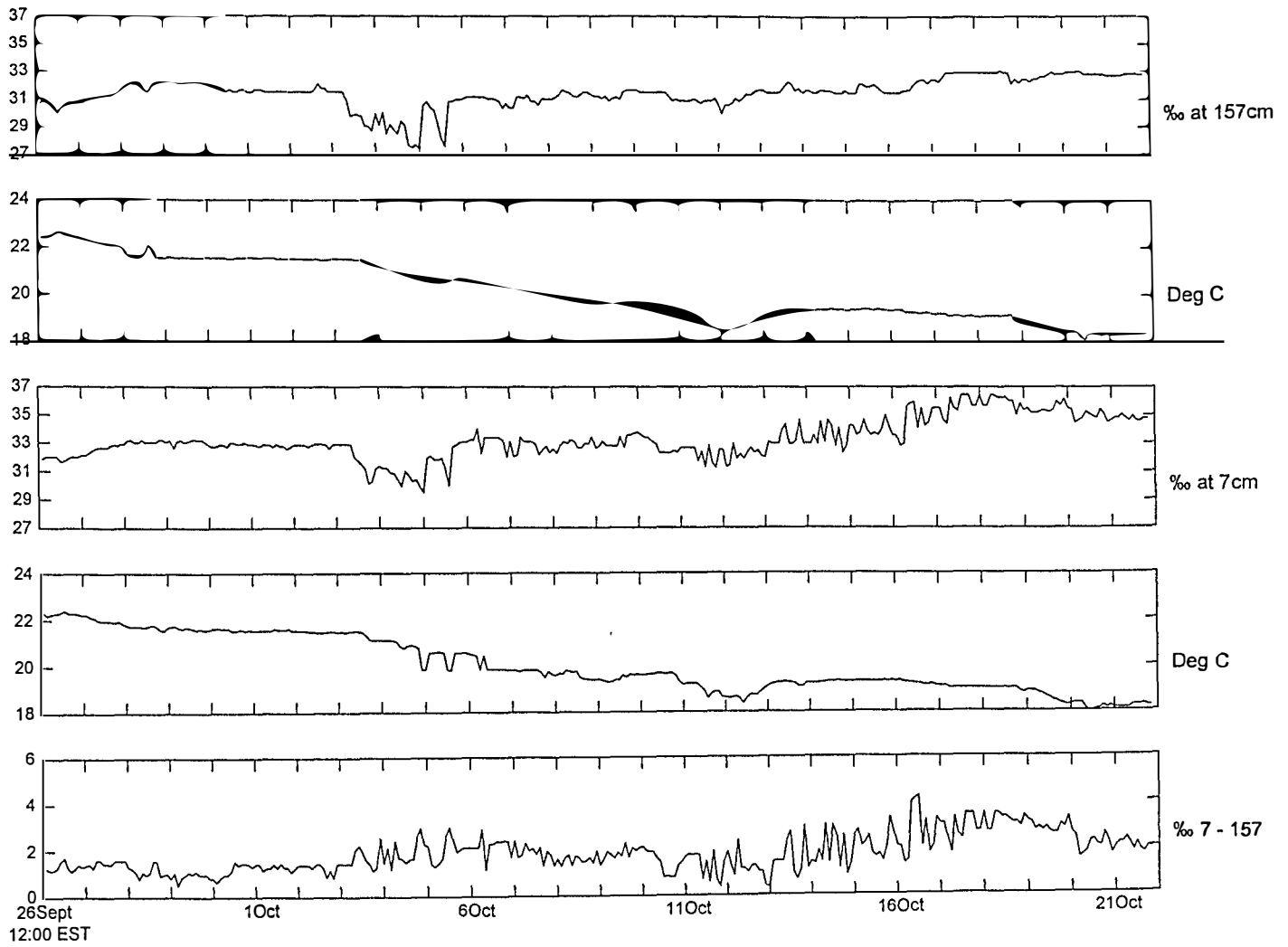


26 September - 22 October 1996

### Offshore Velocity Vectors for 26 Days at Duck, NC



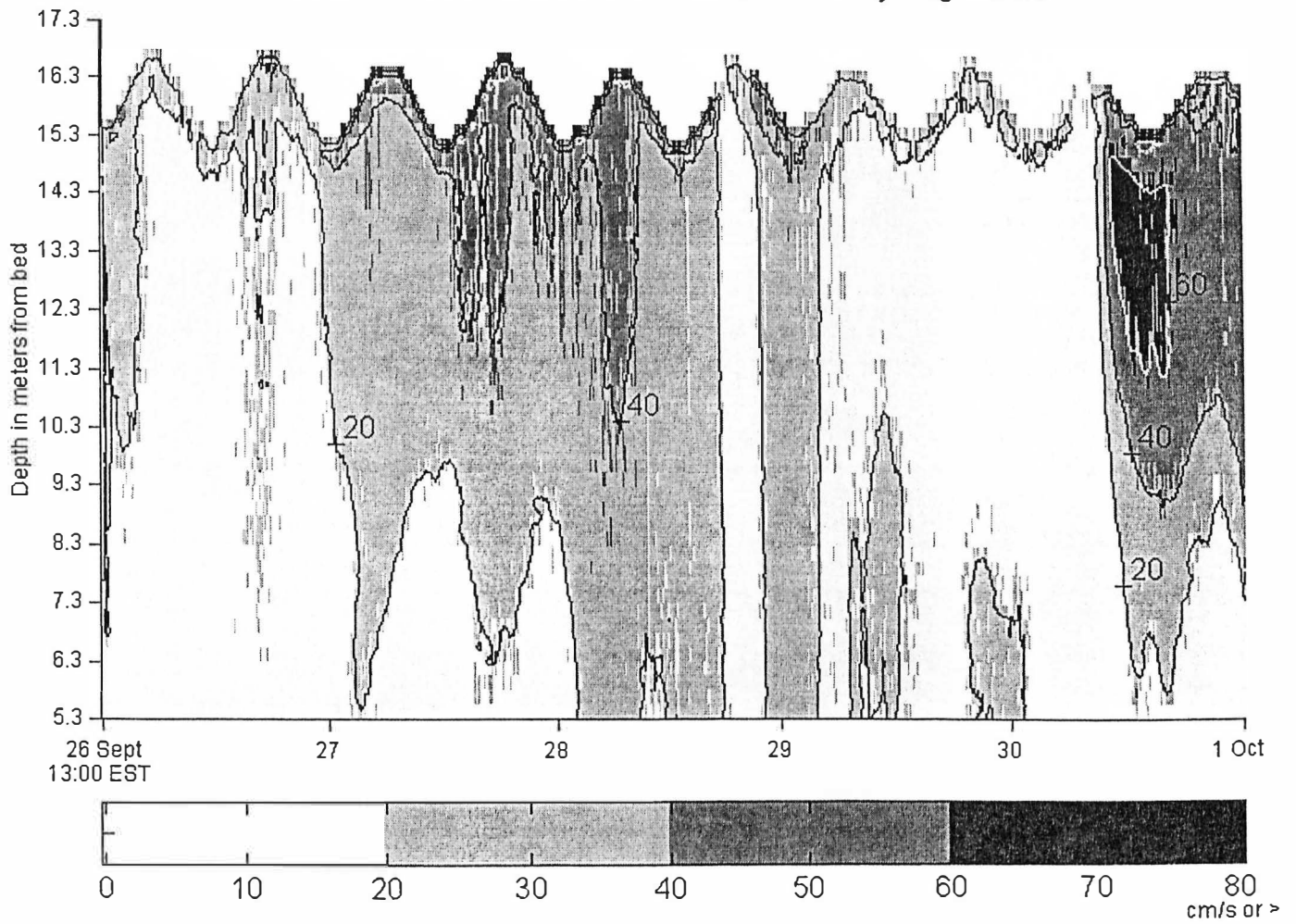
### Datasonde Data from Duck96A Offshore Pod



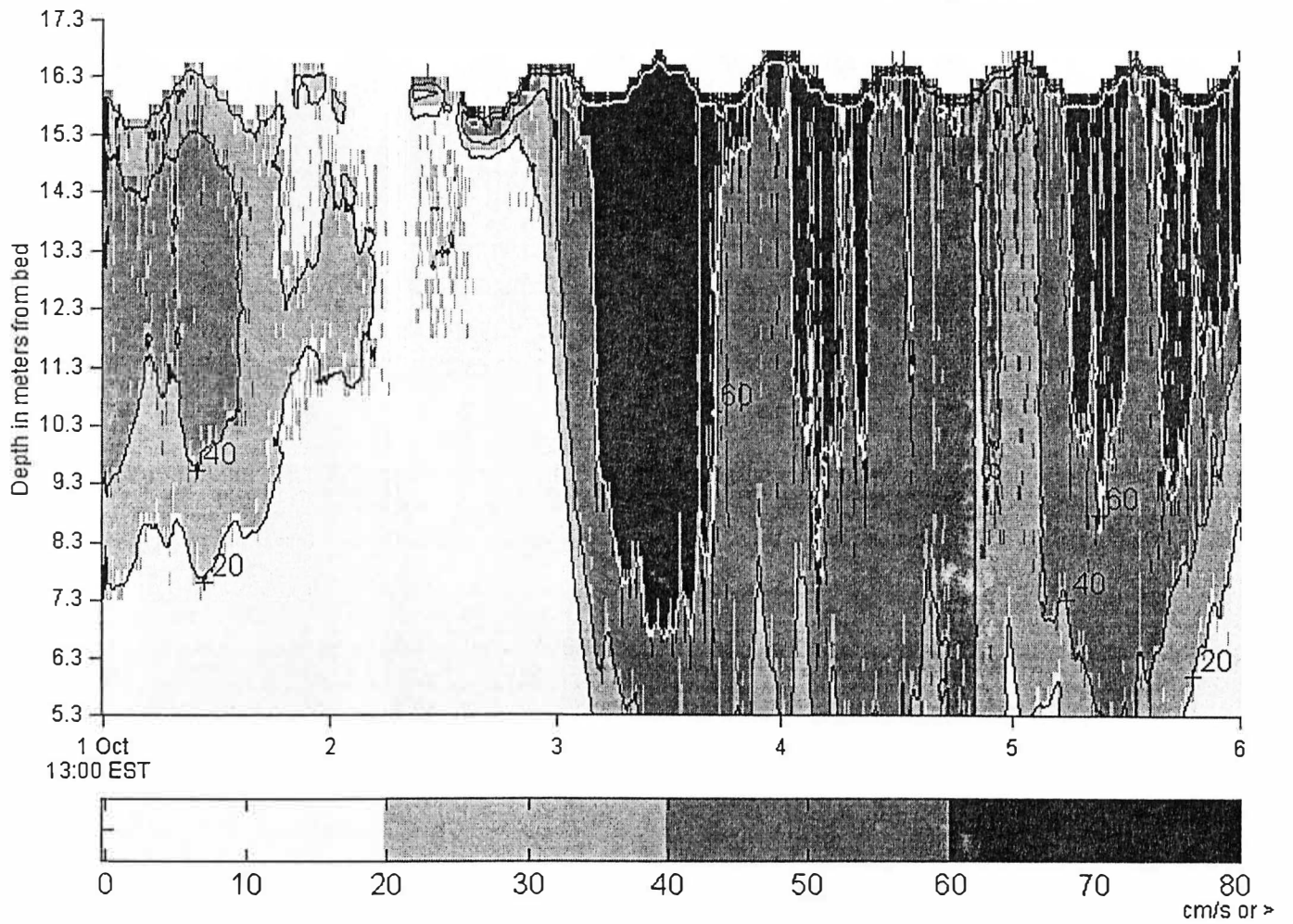
26 September - 22 October 1996



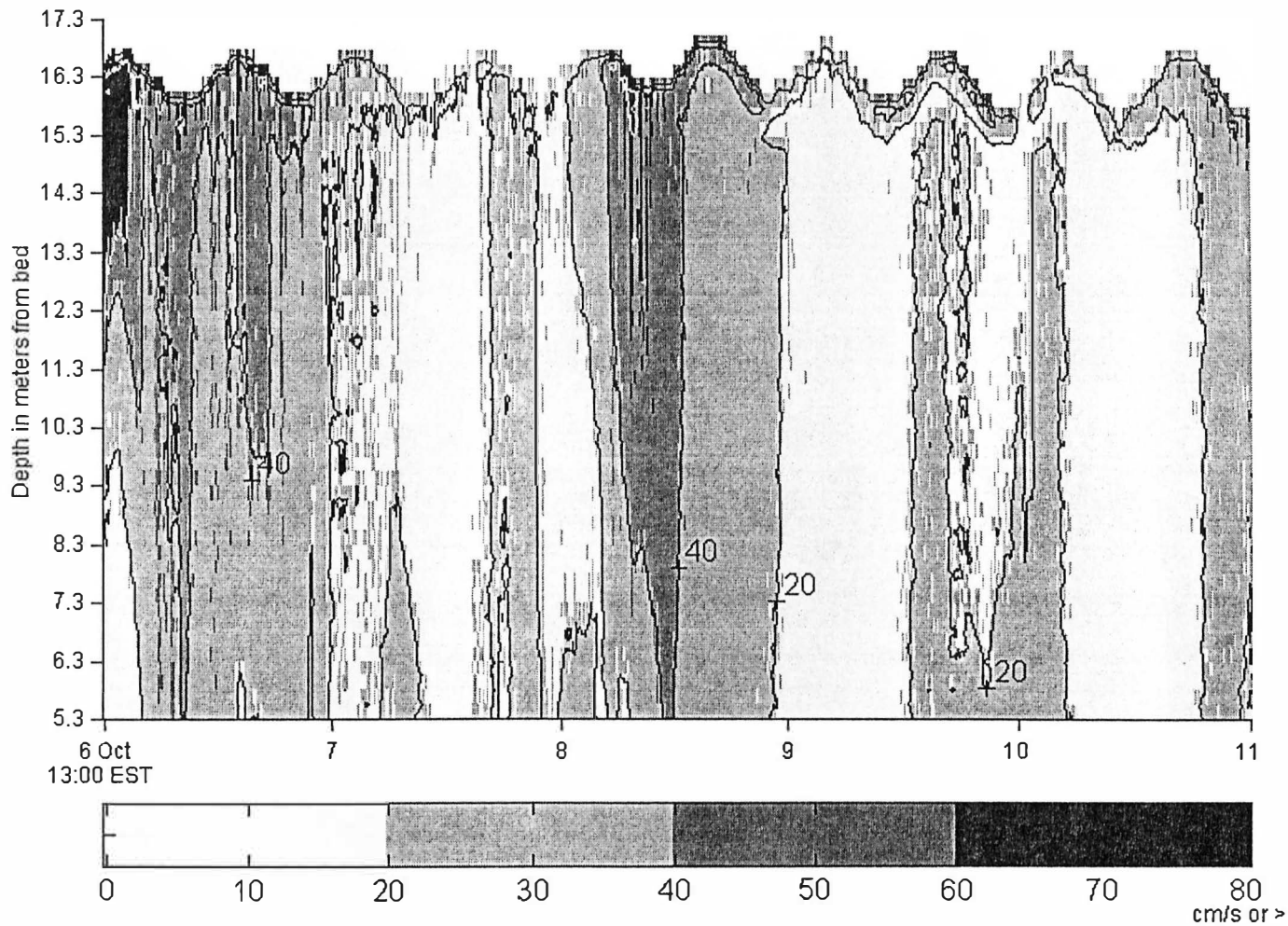
### Offshore Pod Duck96A - Water Column Velocity Magnitudes



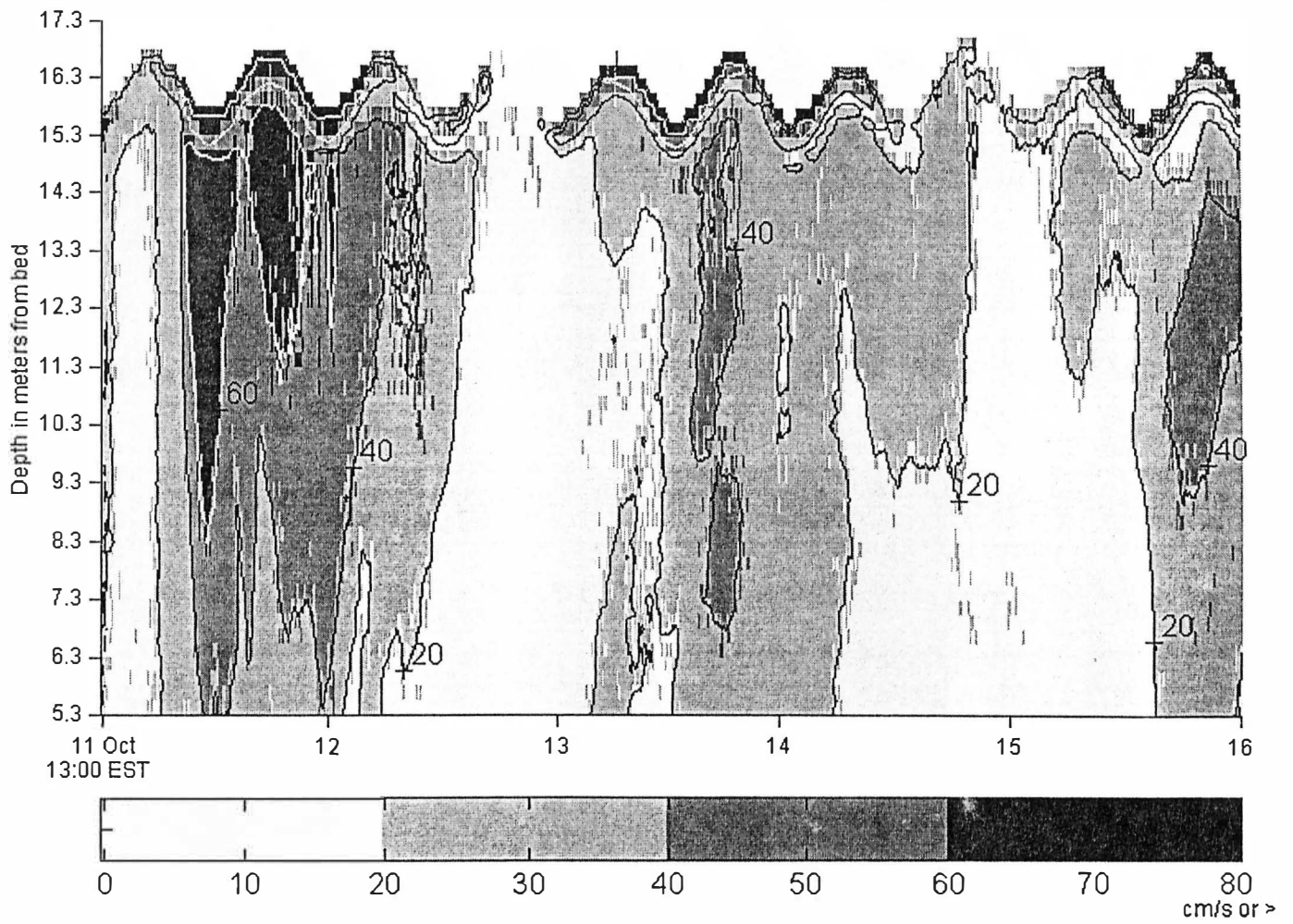
# Offshore Pod Duck96A - Water Column Velocity Magnitudes



# Offshore Pod Duck96A - Water Column Velocity Magnitudes

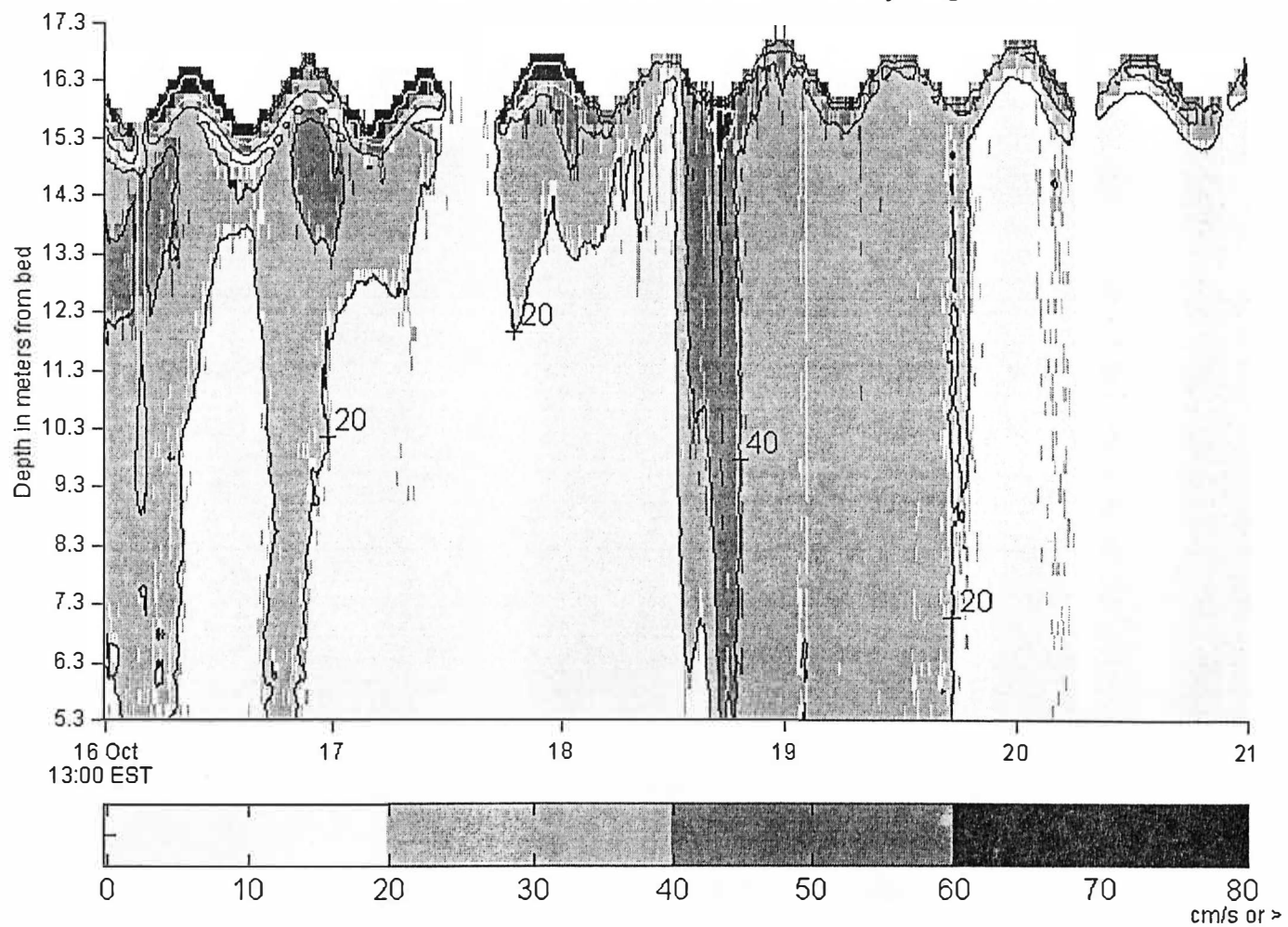


# Offshore Pod Duck96A - Water Column Velocity Magnitudes

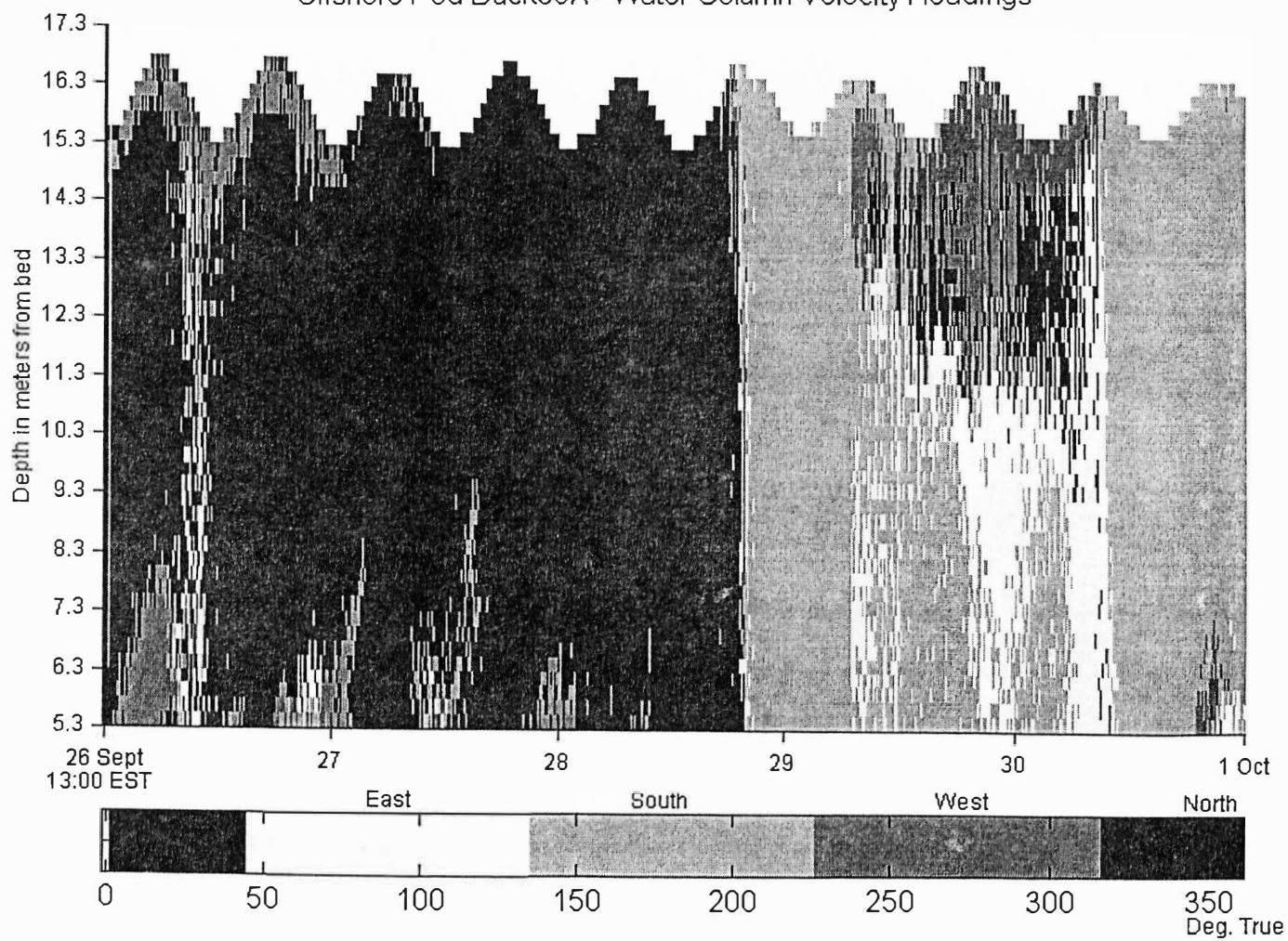




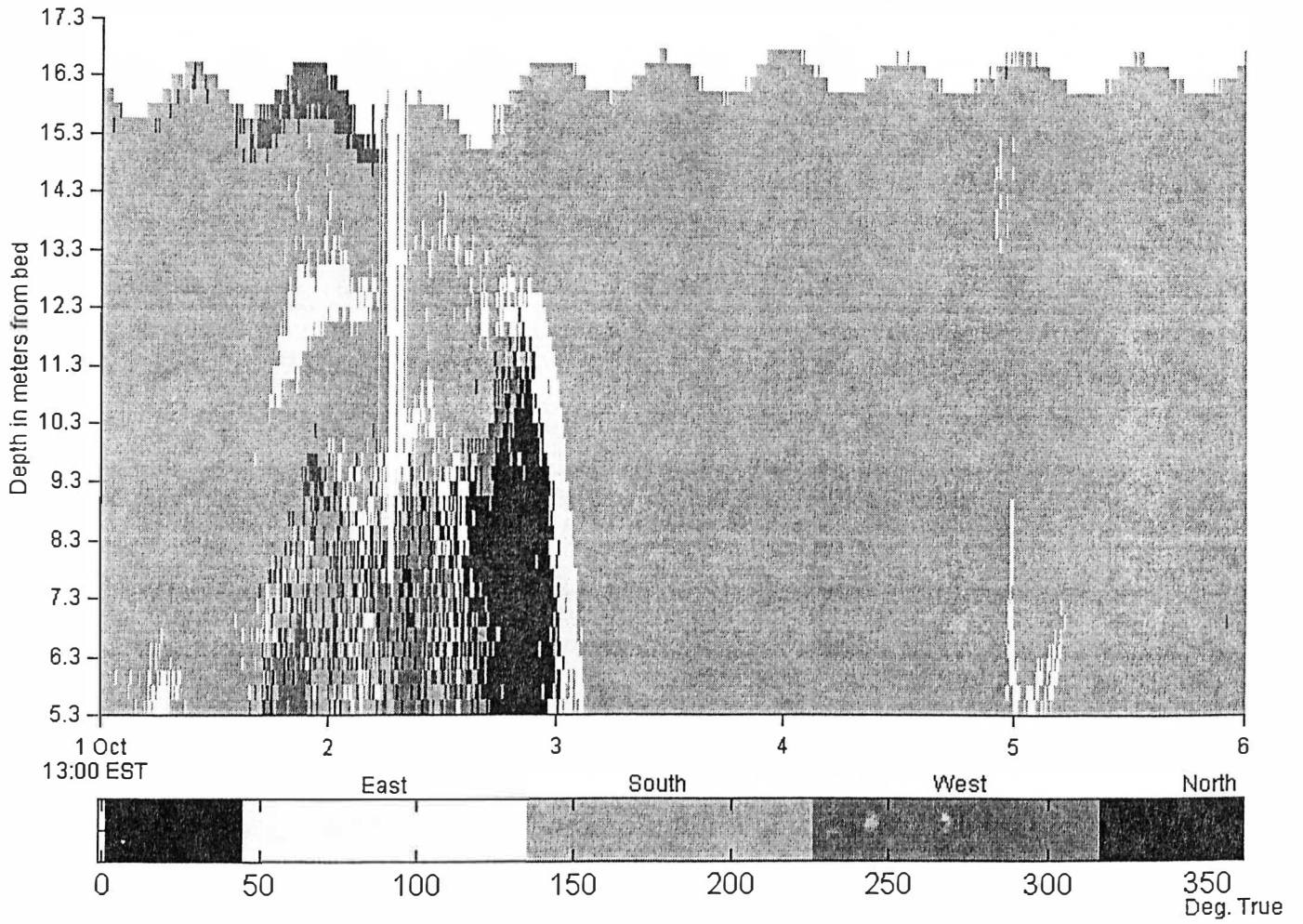
### Offshore Pod Duck96A - Water Column Velocity Magnitudes



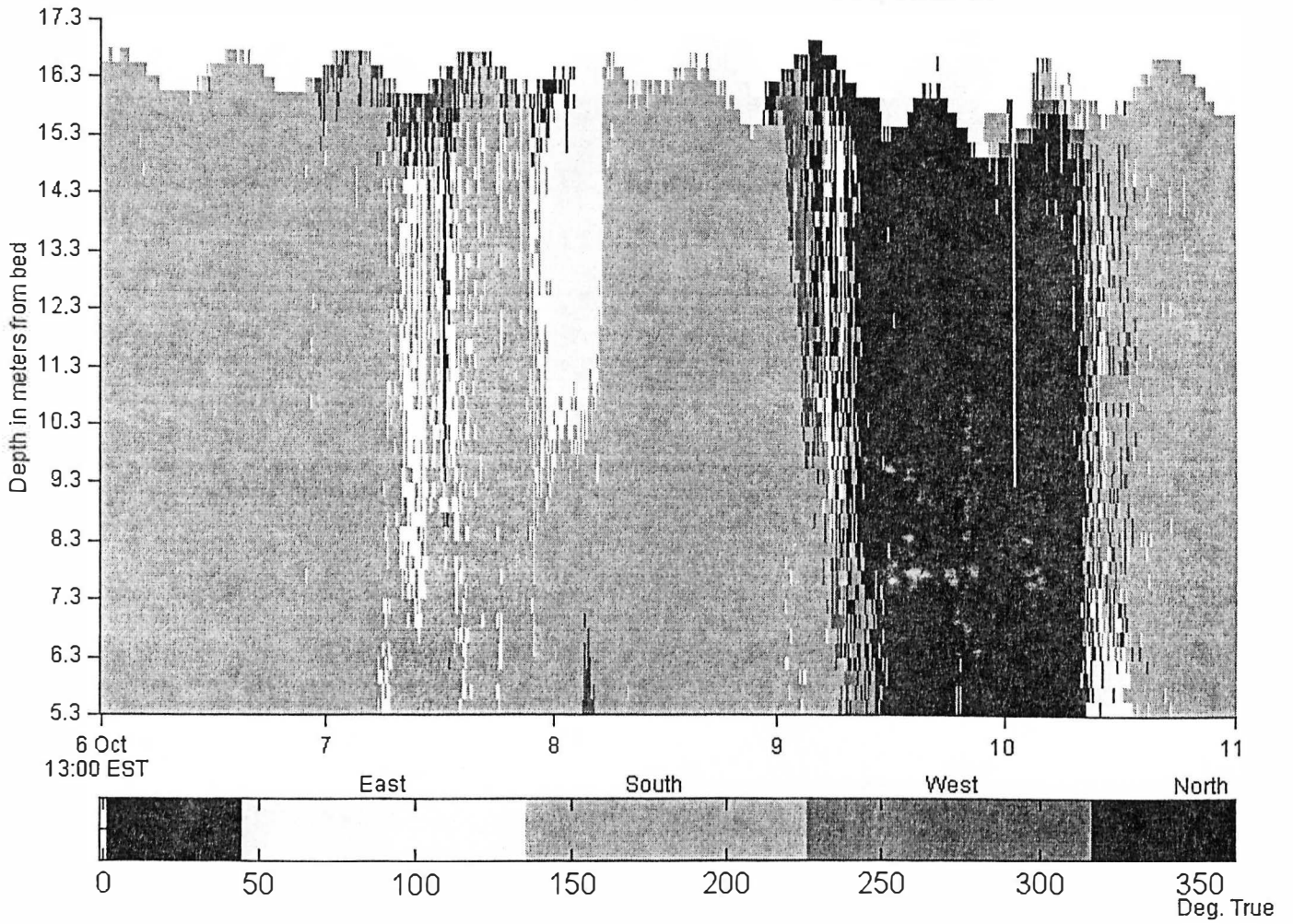
### Offshore Pod Duck96A - Water Column Velocity Headings



# Offshore Pod Duck96A - Water Column Velocity Headings

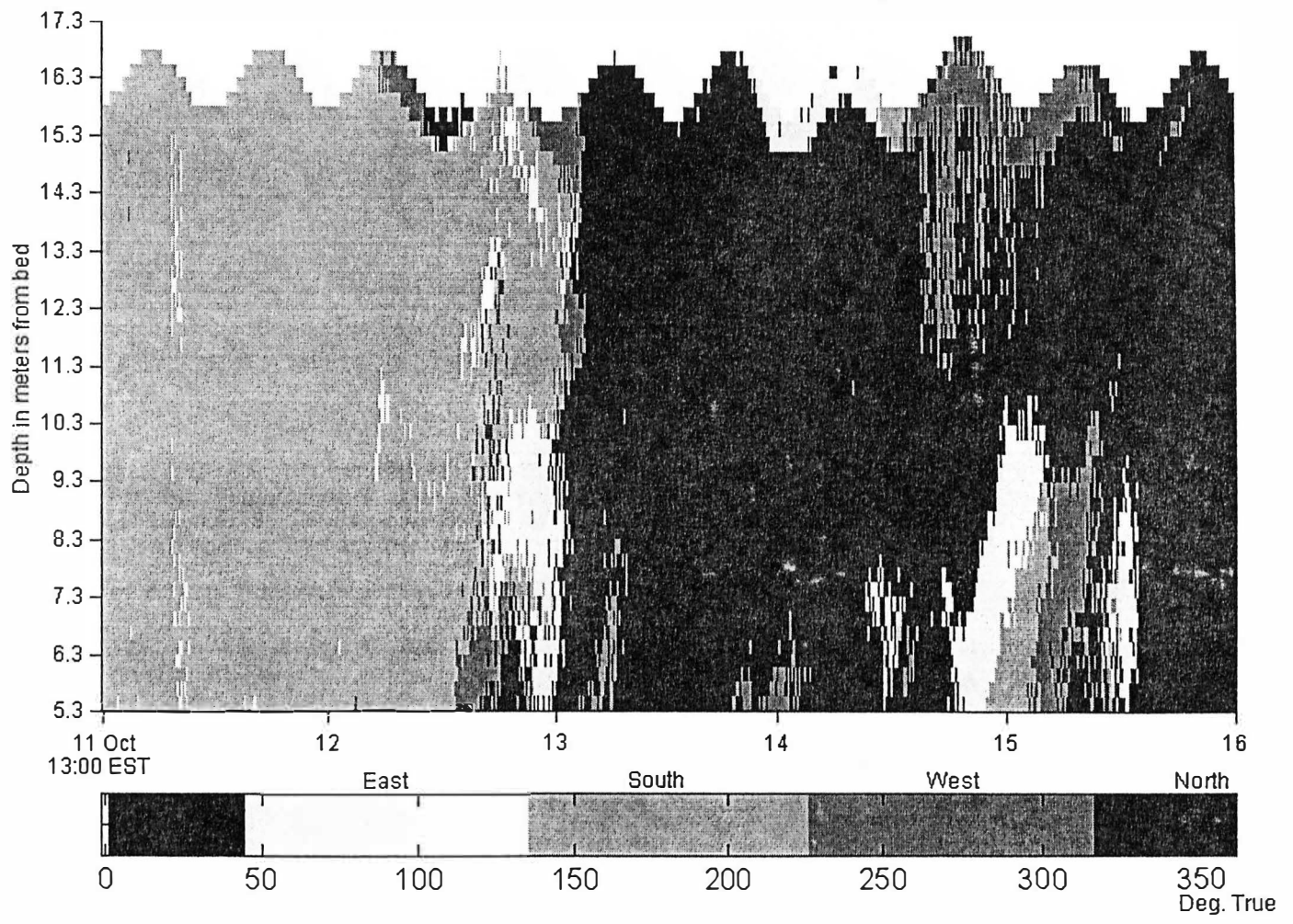


# Offshore Pod Duck96A - Water Column Velocity Headings

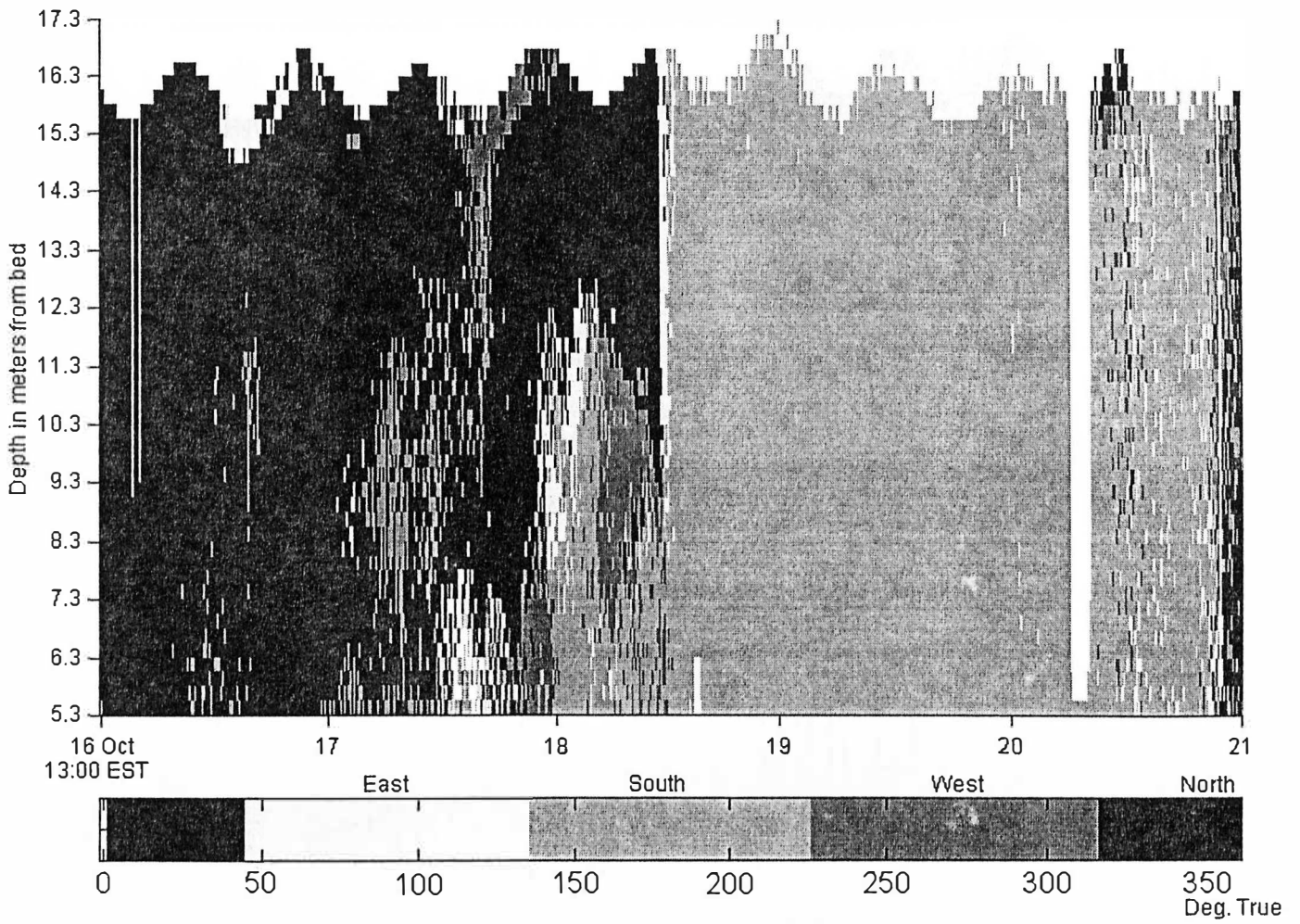




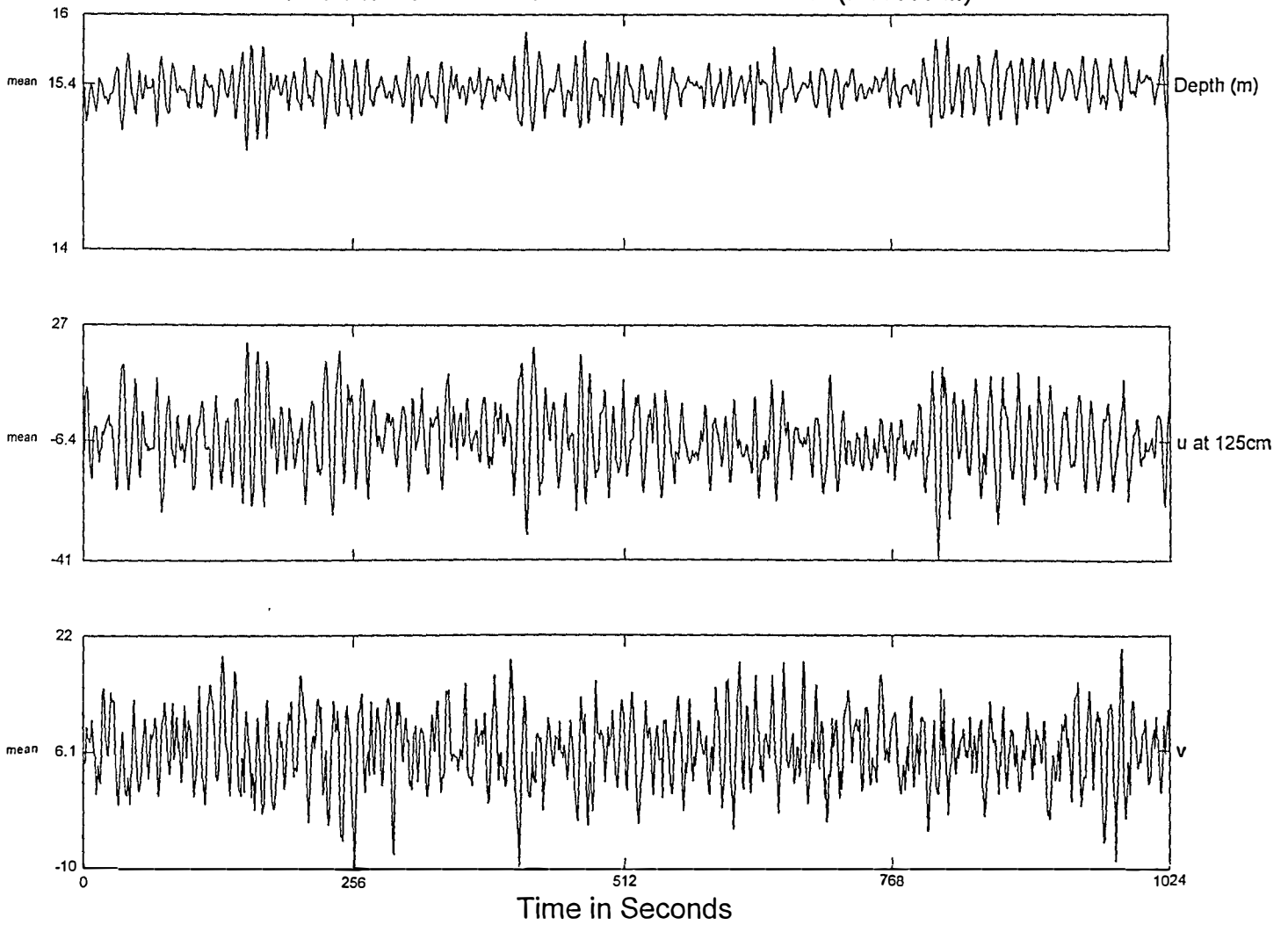
# Offshore Pod Duck96A - Water Column Velocity Headings



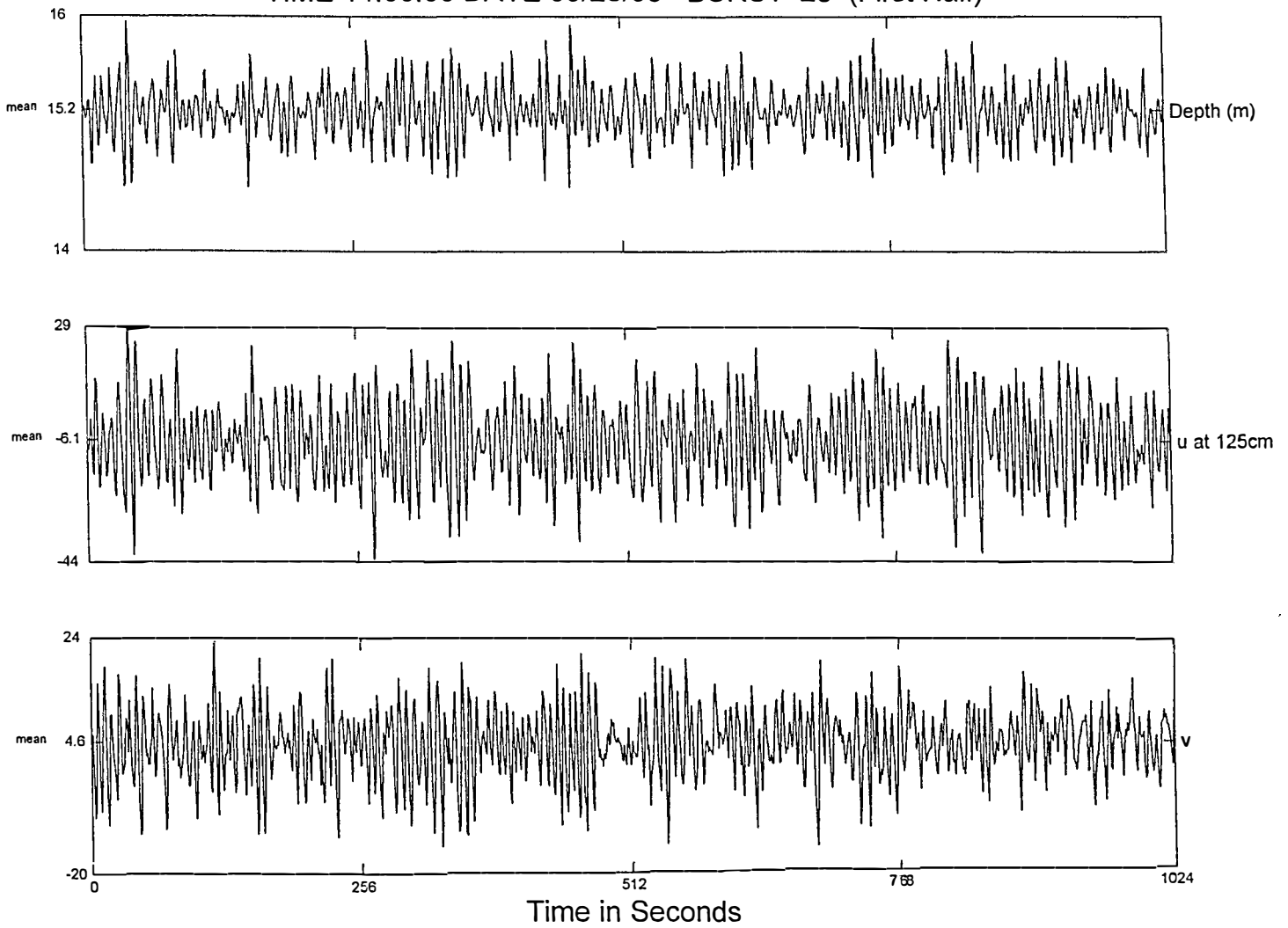
# Offshore Pod Duck96A - Water Column Velocity Headings



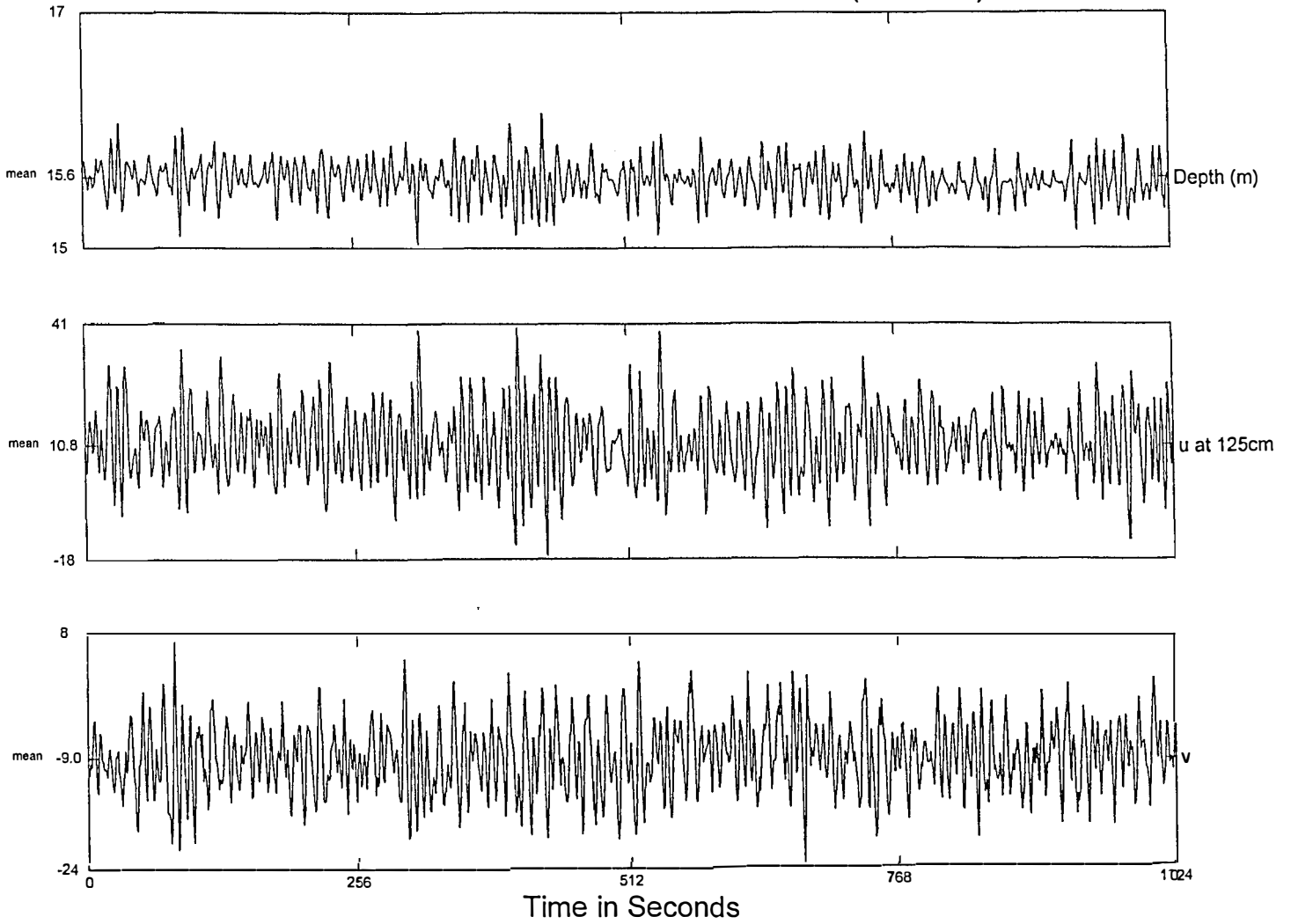
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TIME 14:00:00 DATE 09/26/96 BURST 1 (First Half)



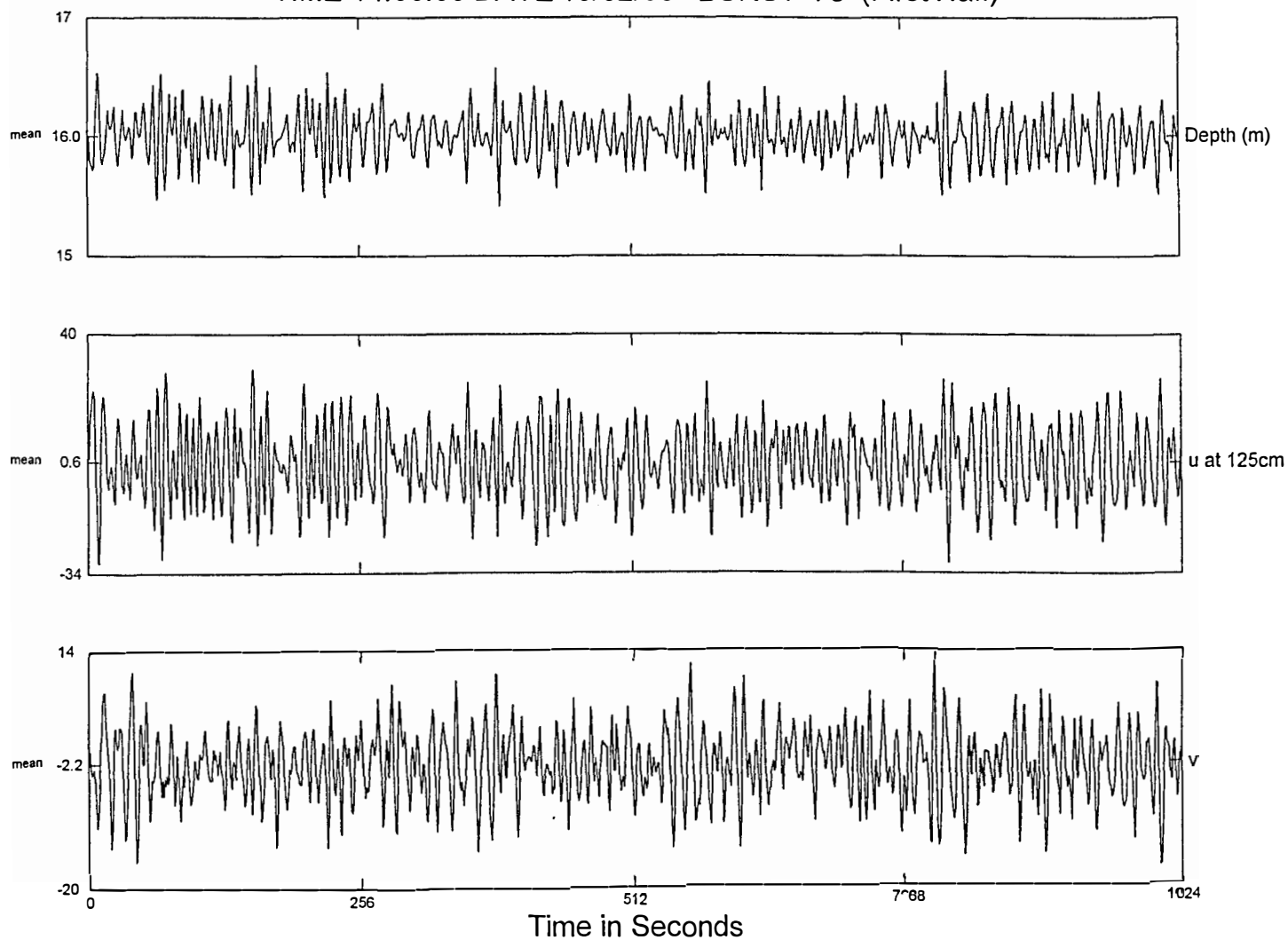
Offshore Pod - 635 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 09/28/96 BURST 25 (First Half)



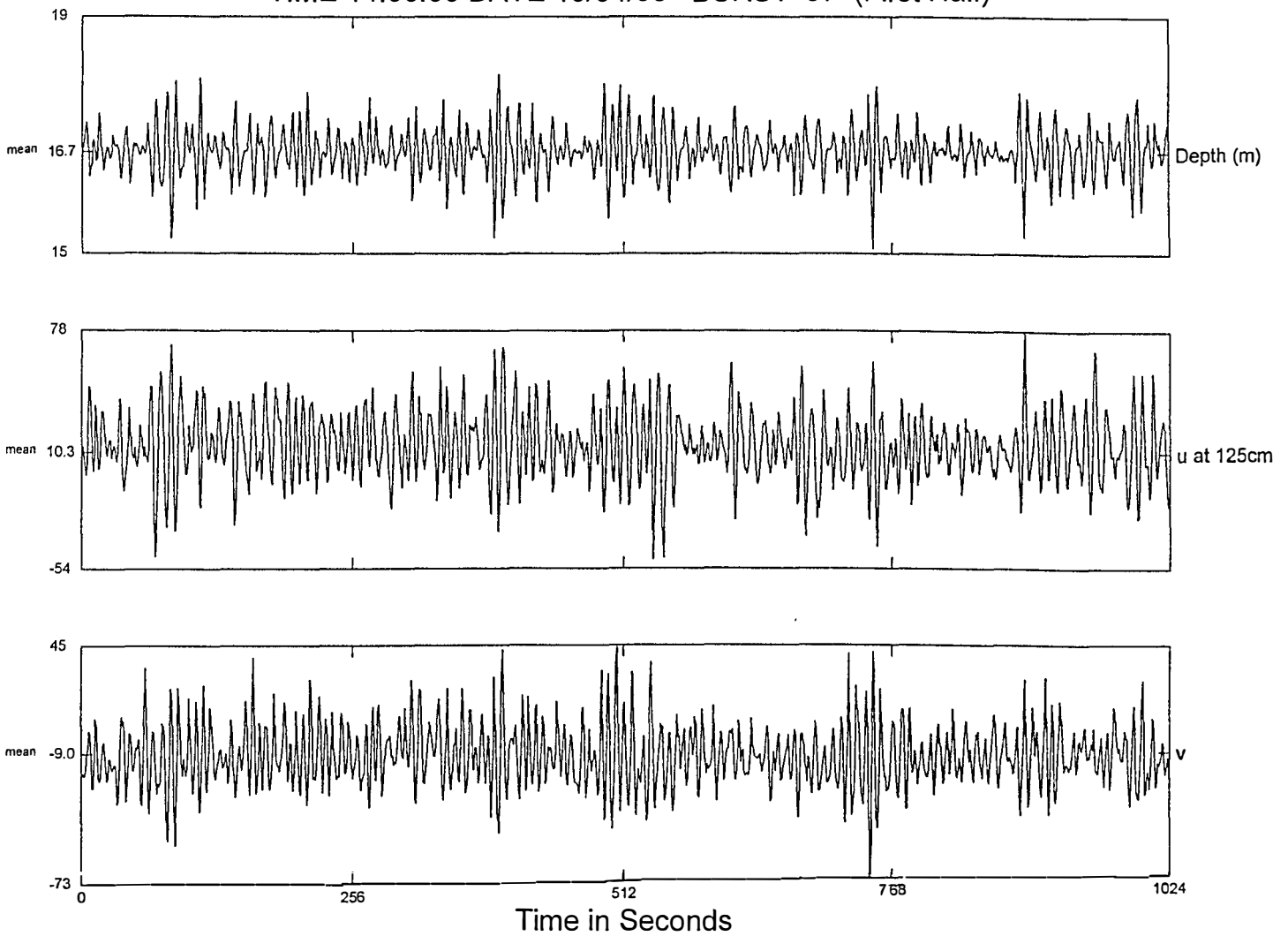
Offshore Pod - 635 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 09/30/96 BURST 49 (First Half)



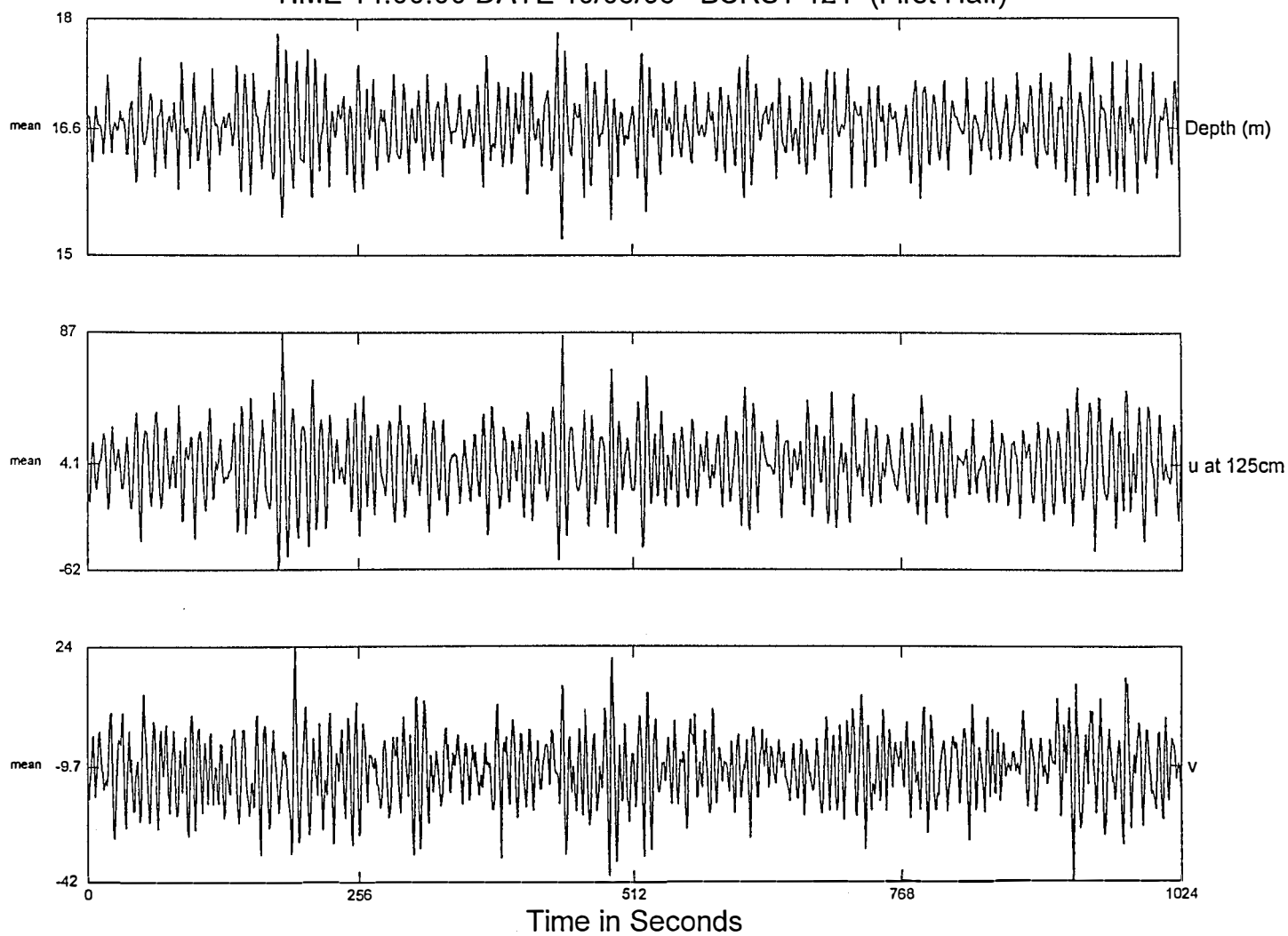
Offshore Pod - 635 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/02/96 BURST 73 (First Half)



Offshore Pod - 635 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/04/96 BURST 97 (First Half)

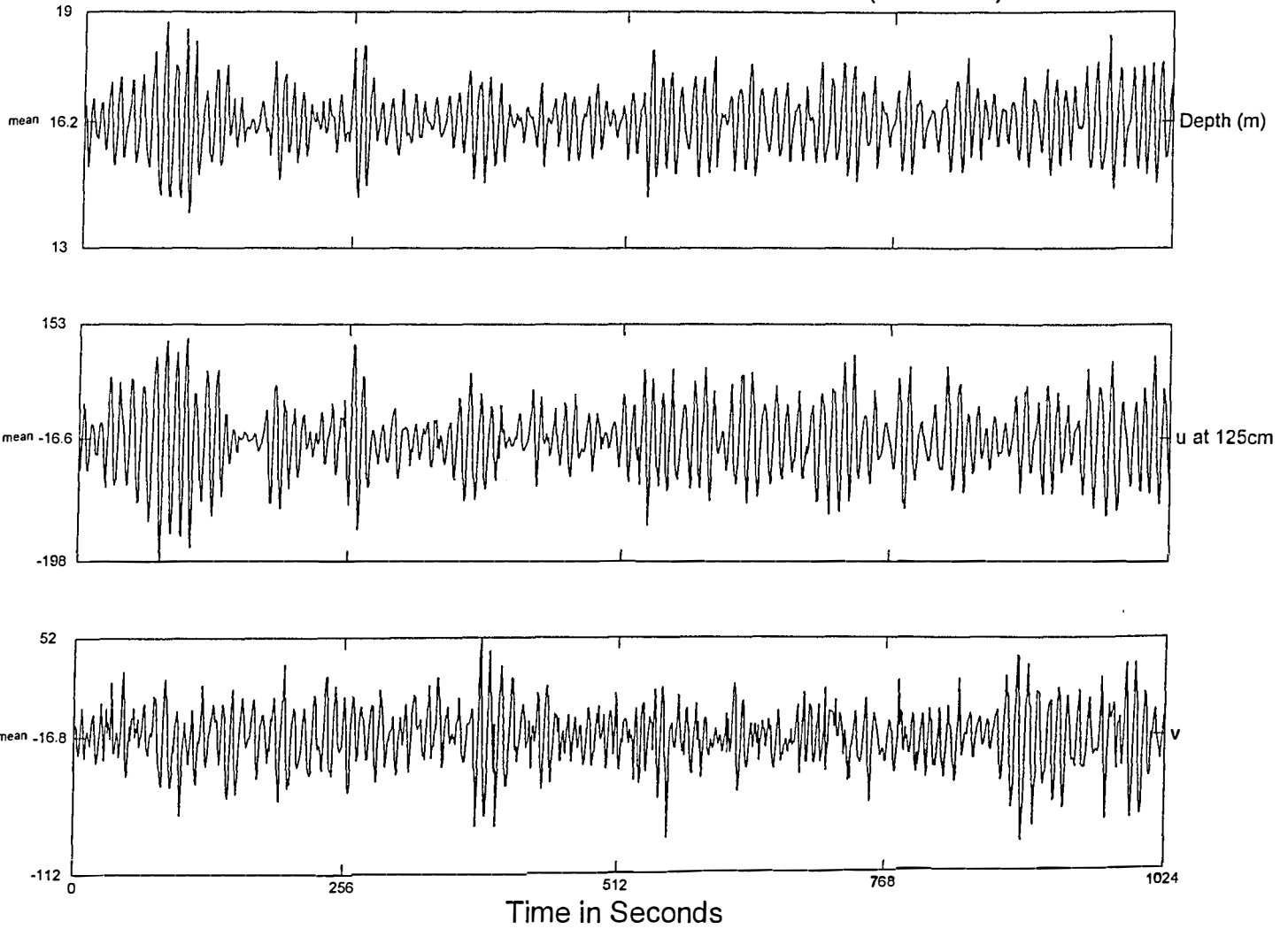


Offshore Pod - 635 Burst Data from Duck96A (u +East v +North in cm/s)  
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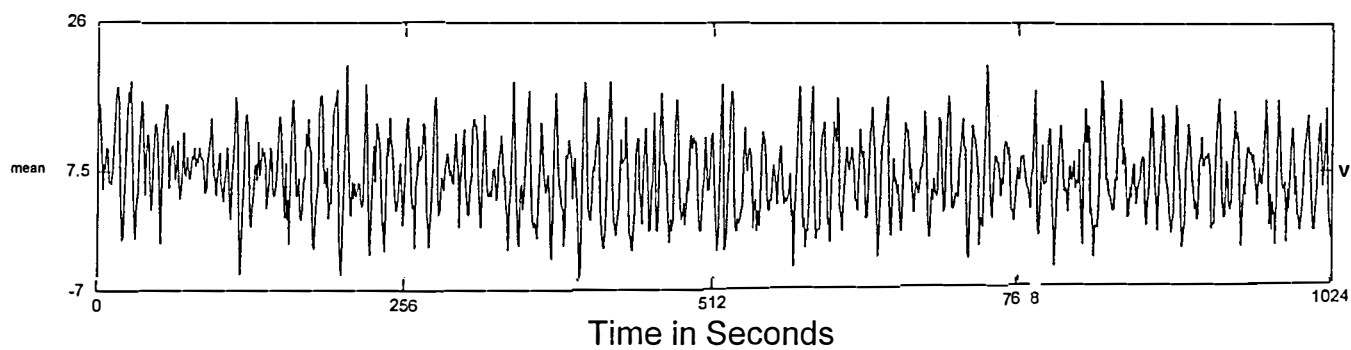
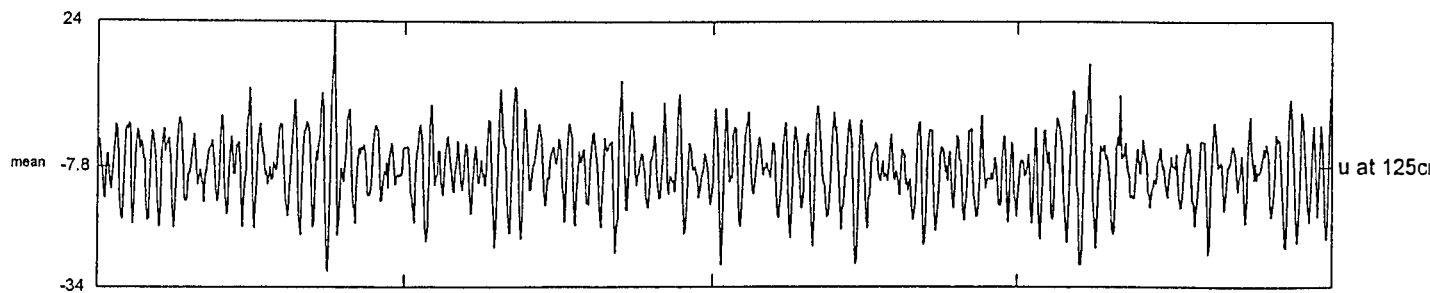
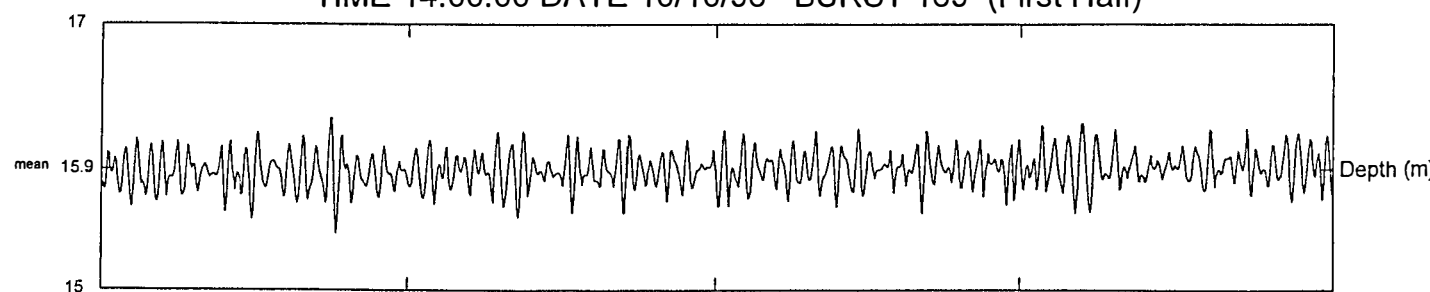




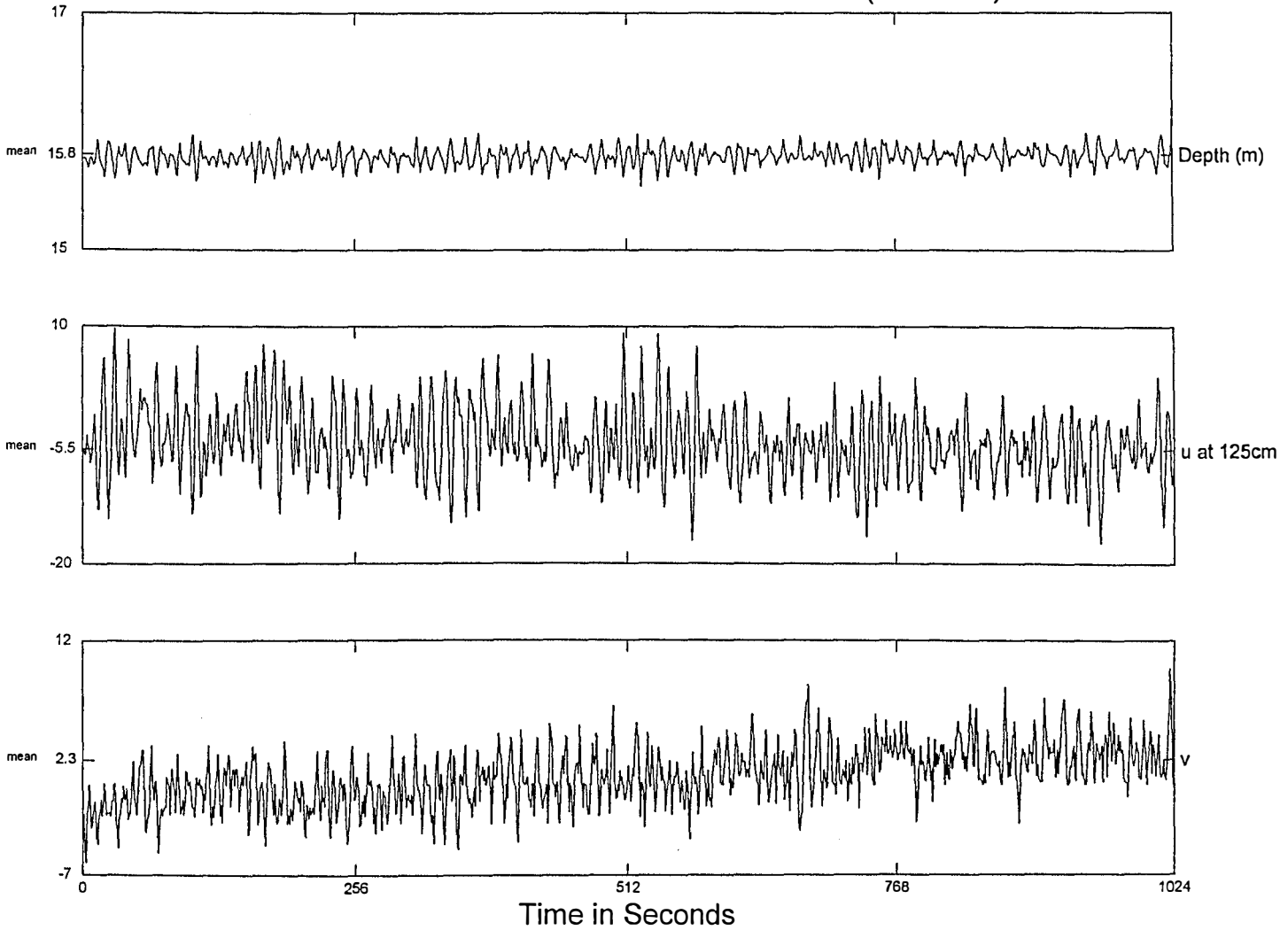
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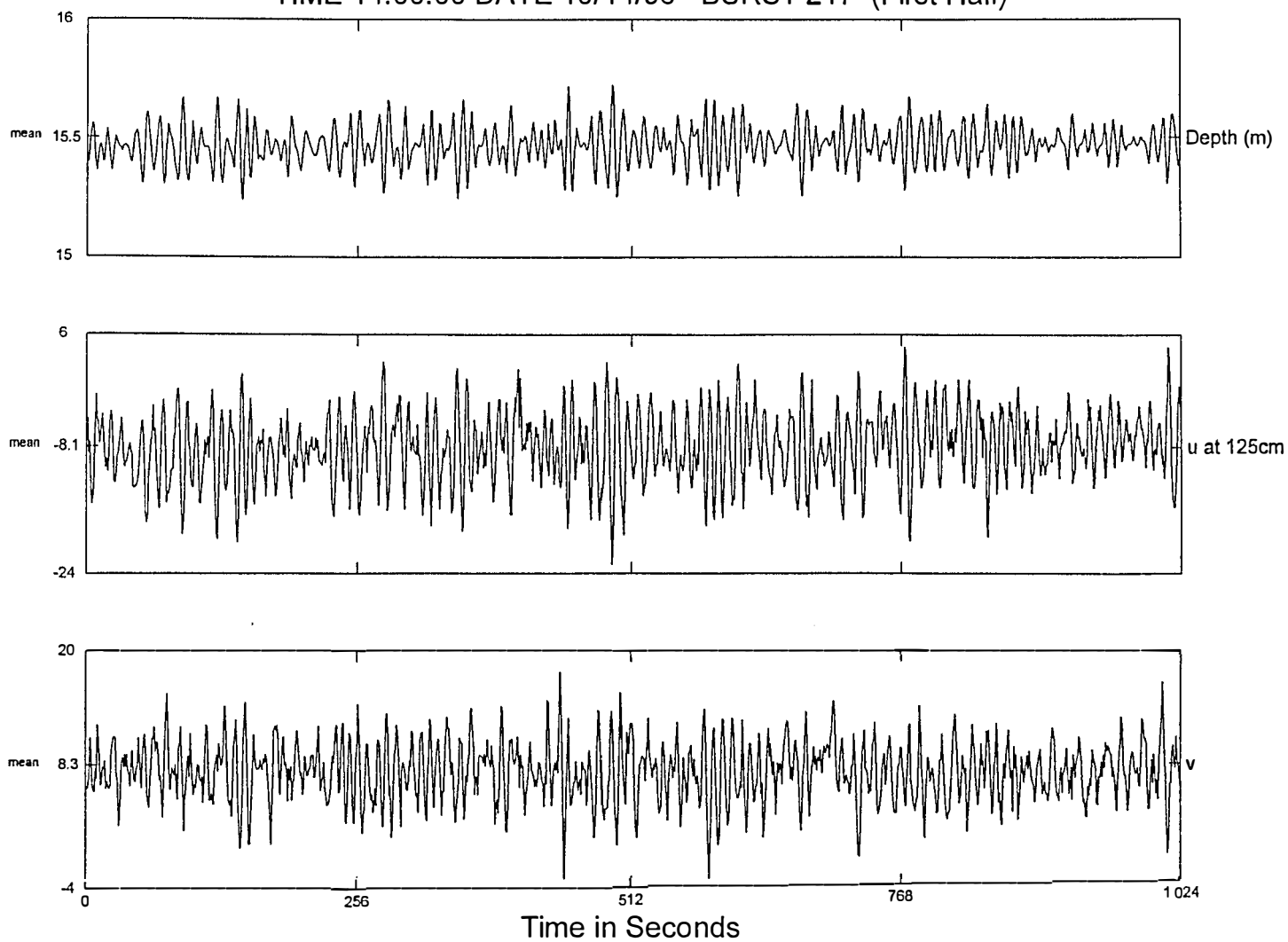
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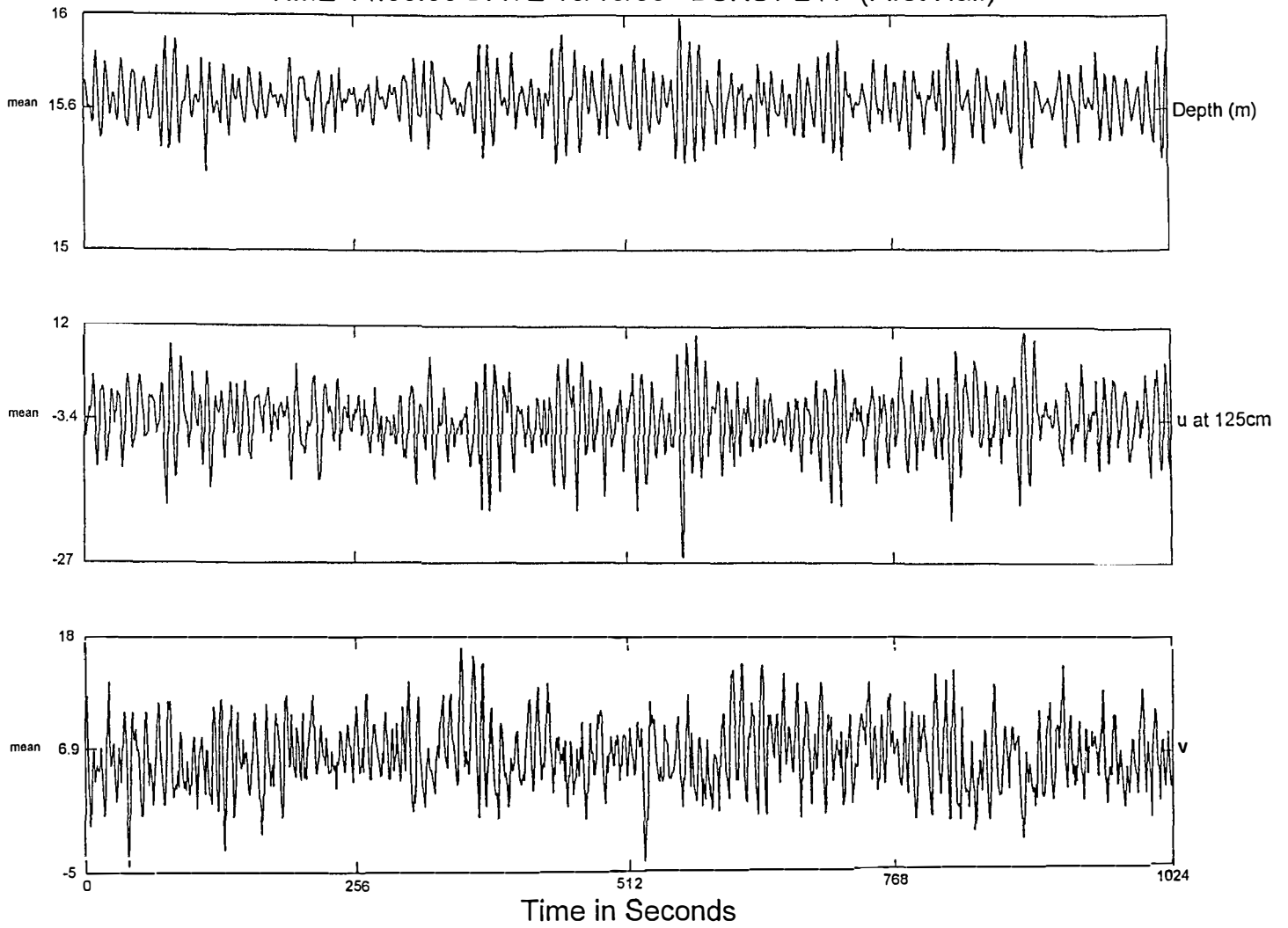
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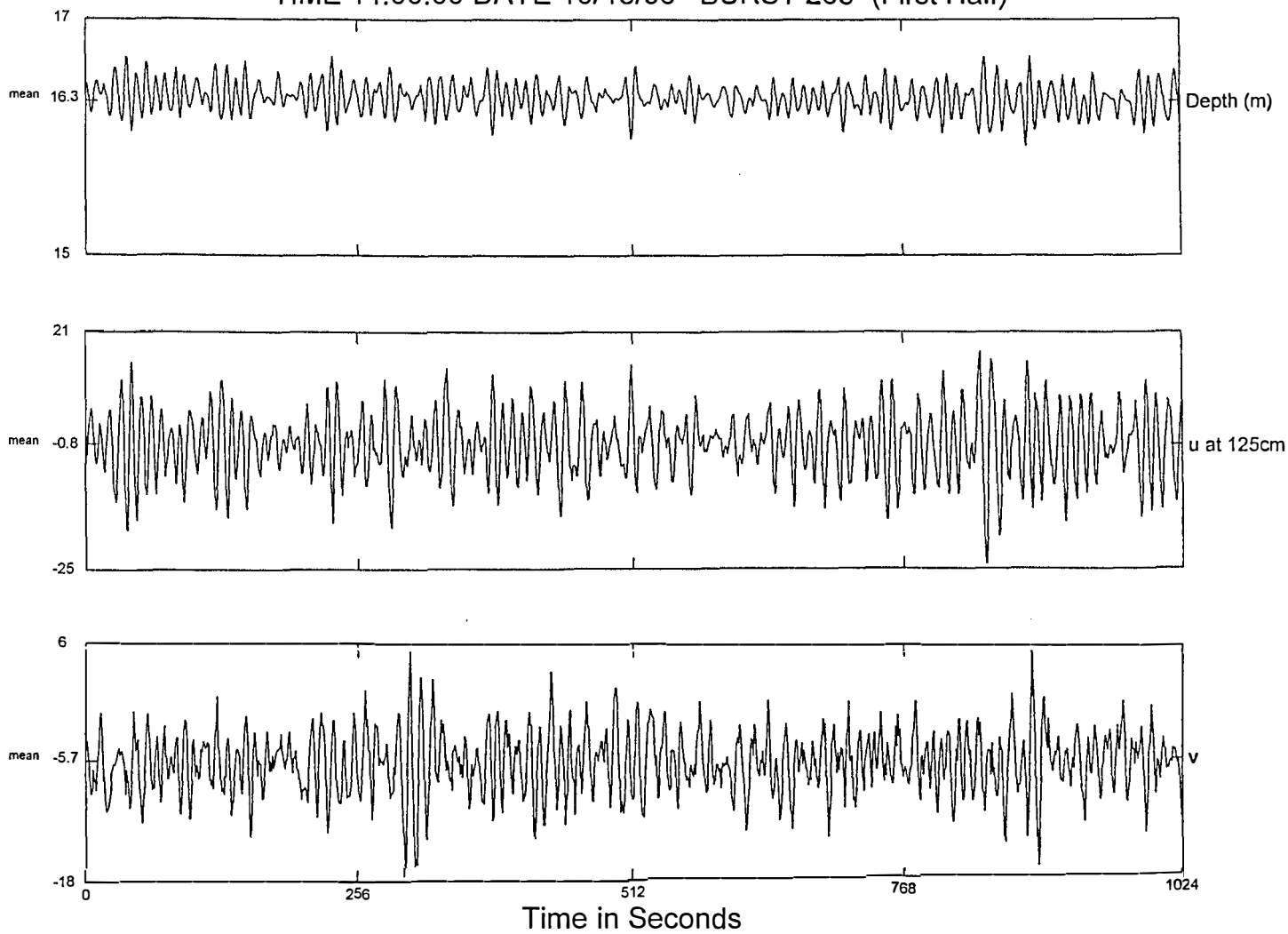
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TIME 14:00:00 DATE 10/14/96 BURST 217 (First Half)



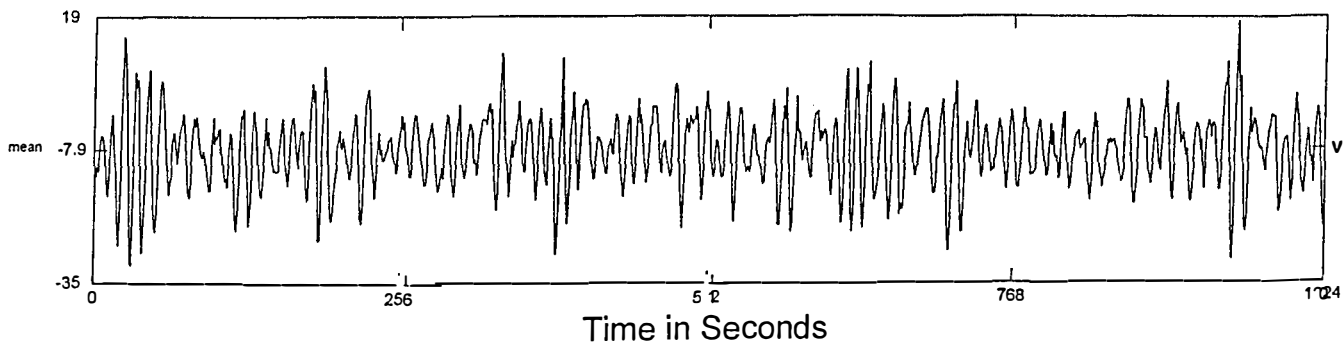
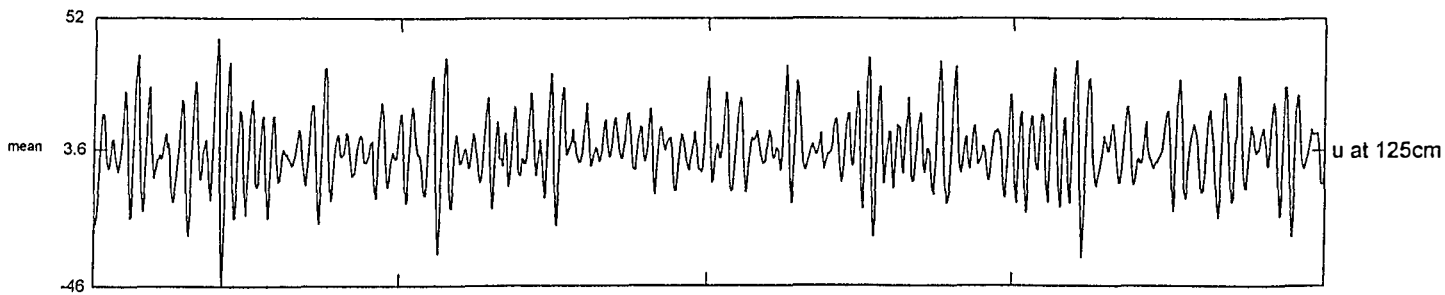
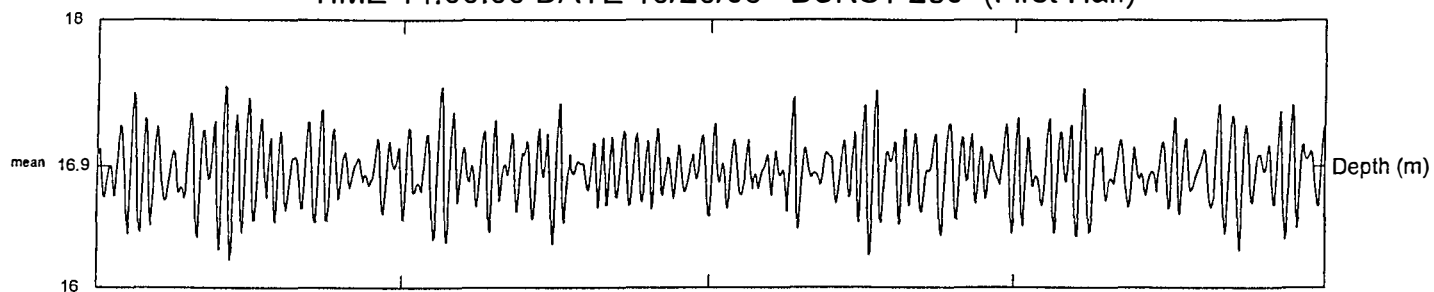
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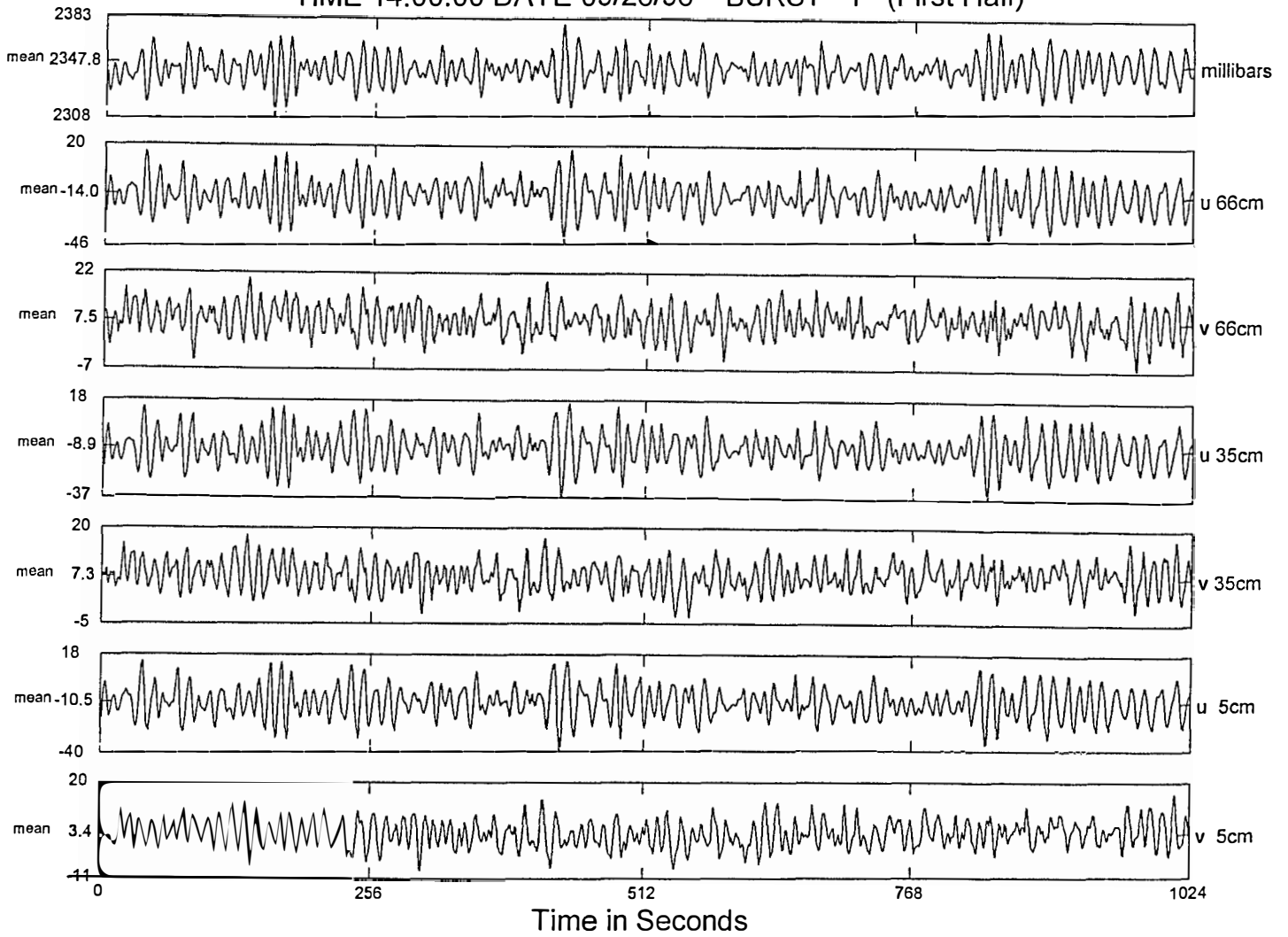
Offshore Pod - 635 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/18/96 BURST 265 (First Half)



Offshore Pod - 635 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/20/96 BURST 289 (First Half)

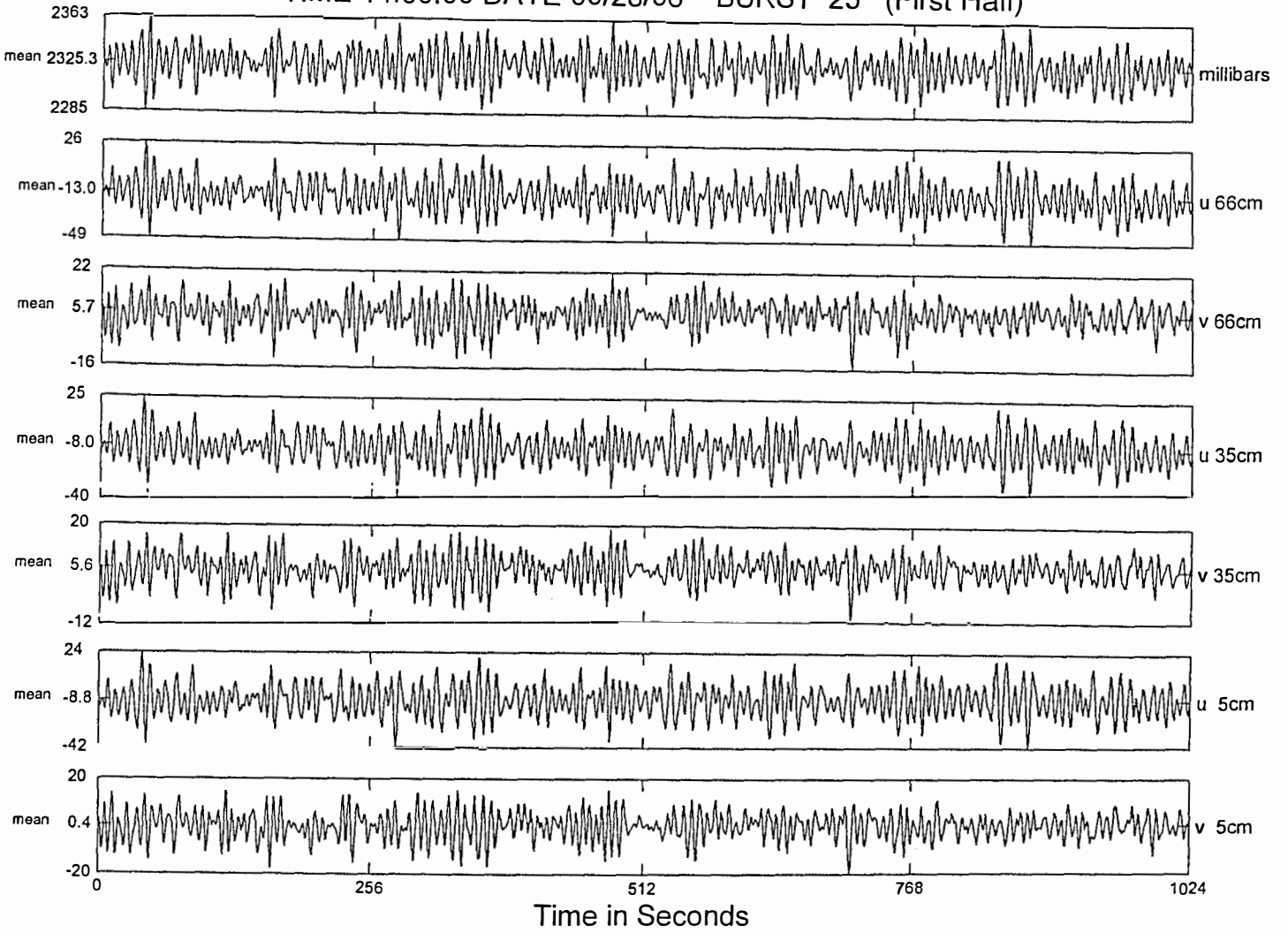


Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
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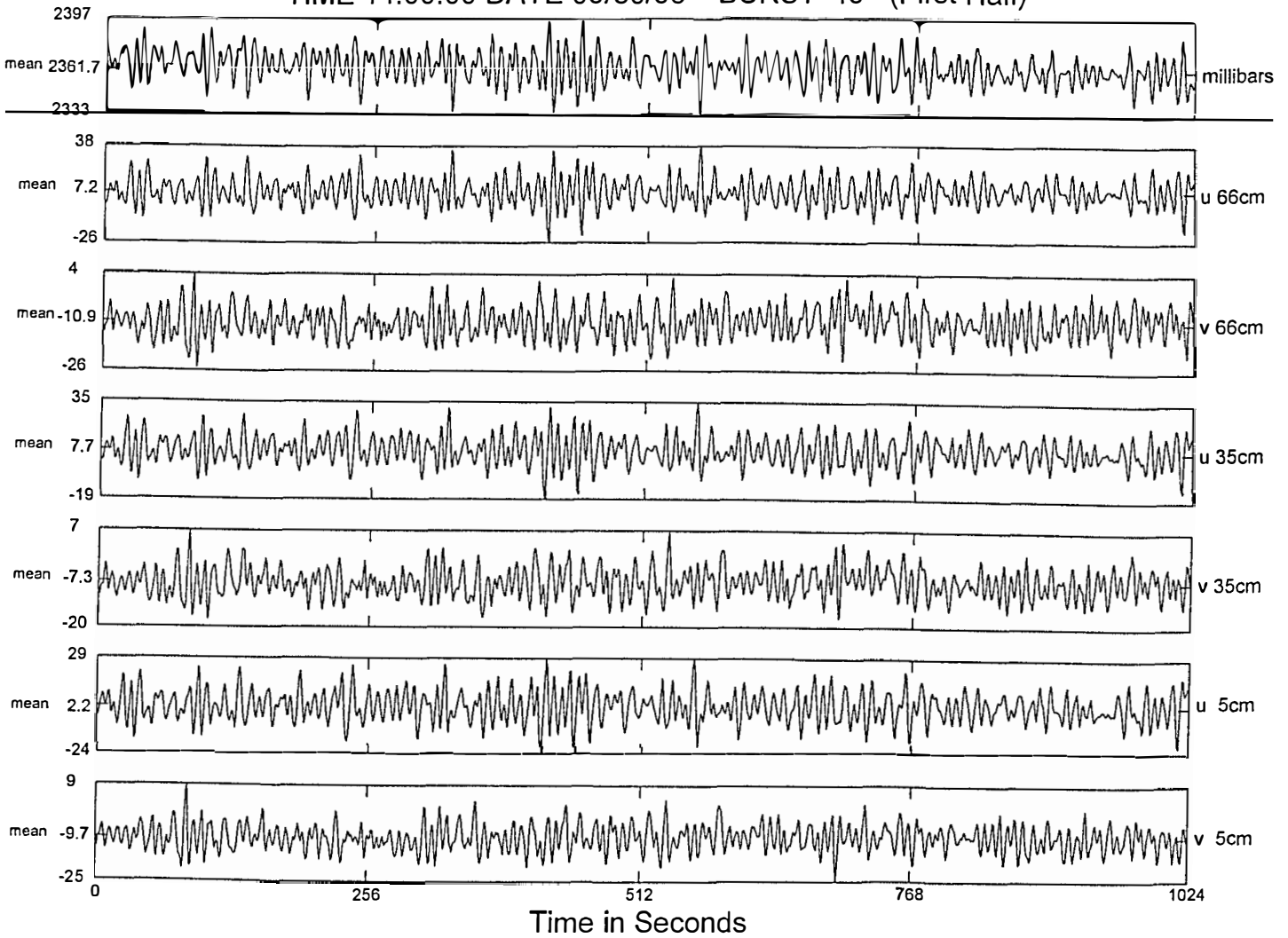




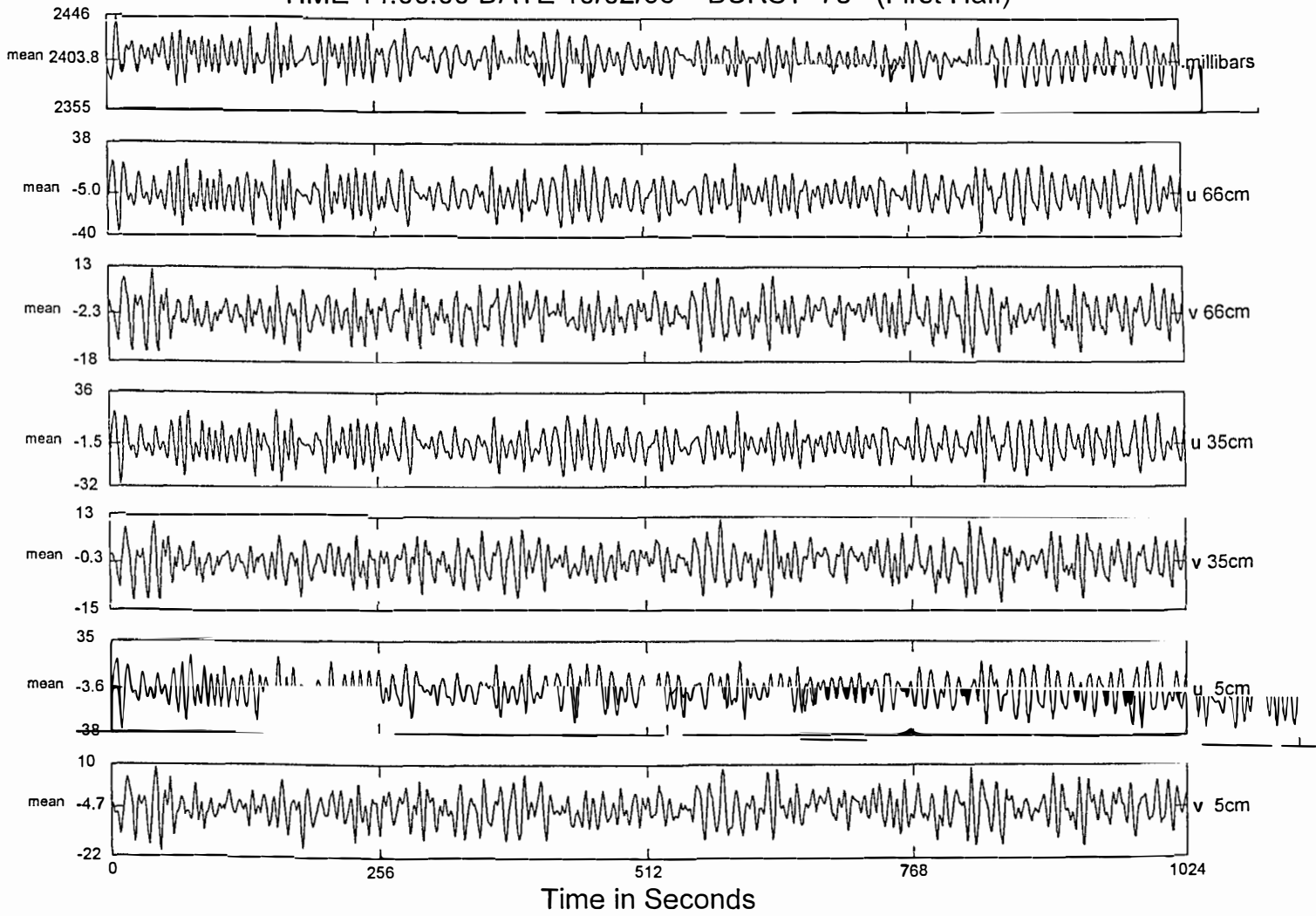
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 09/28/96 BURST 25 (First Half)



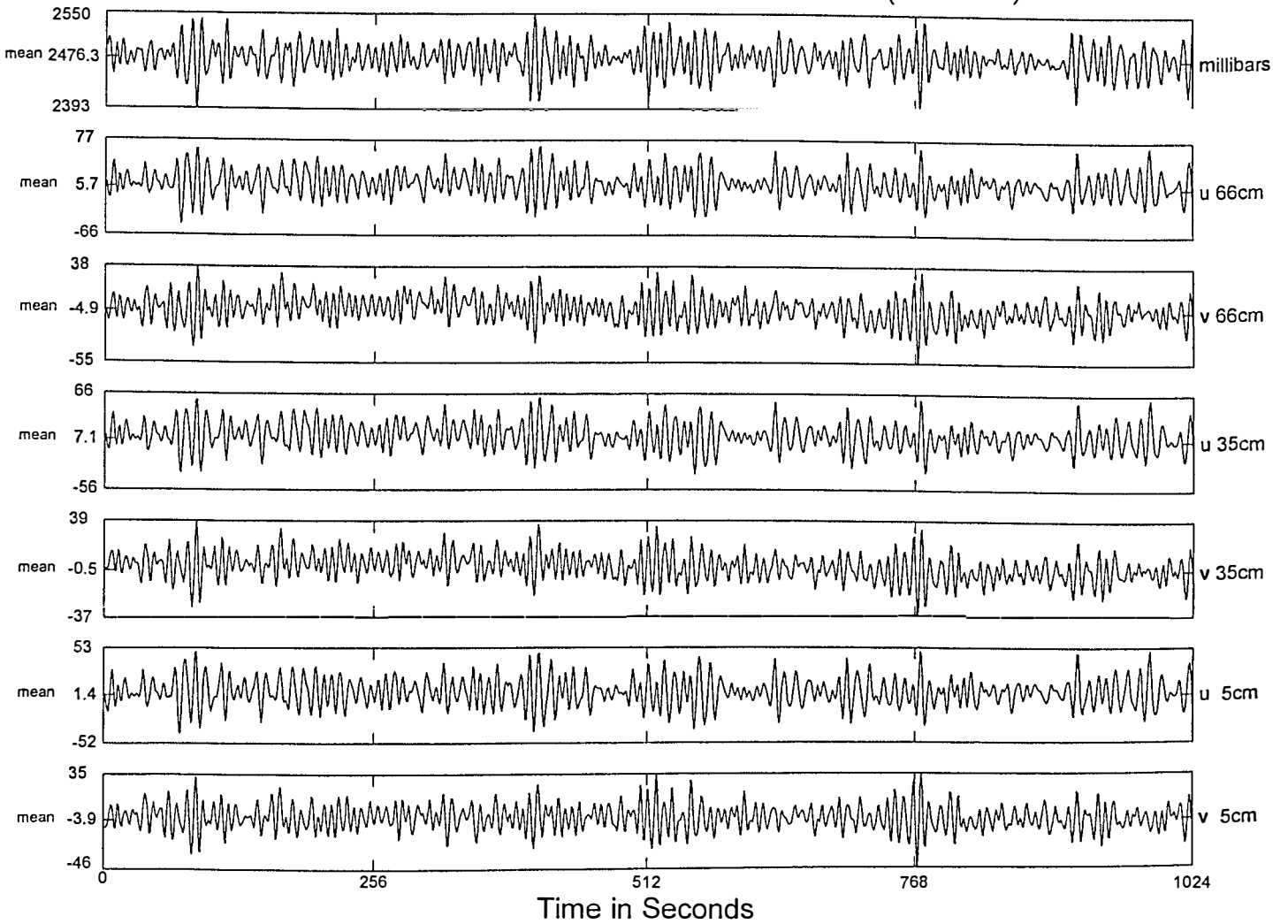
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
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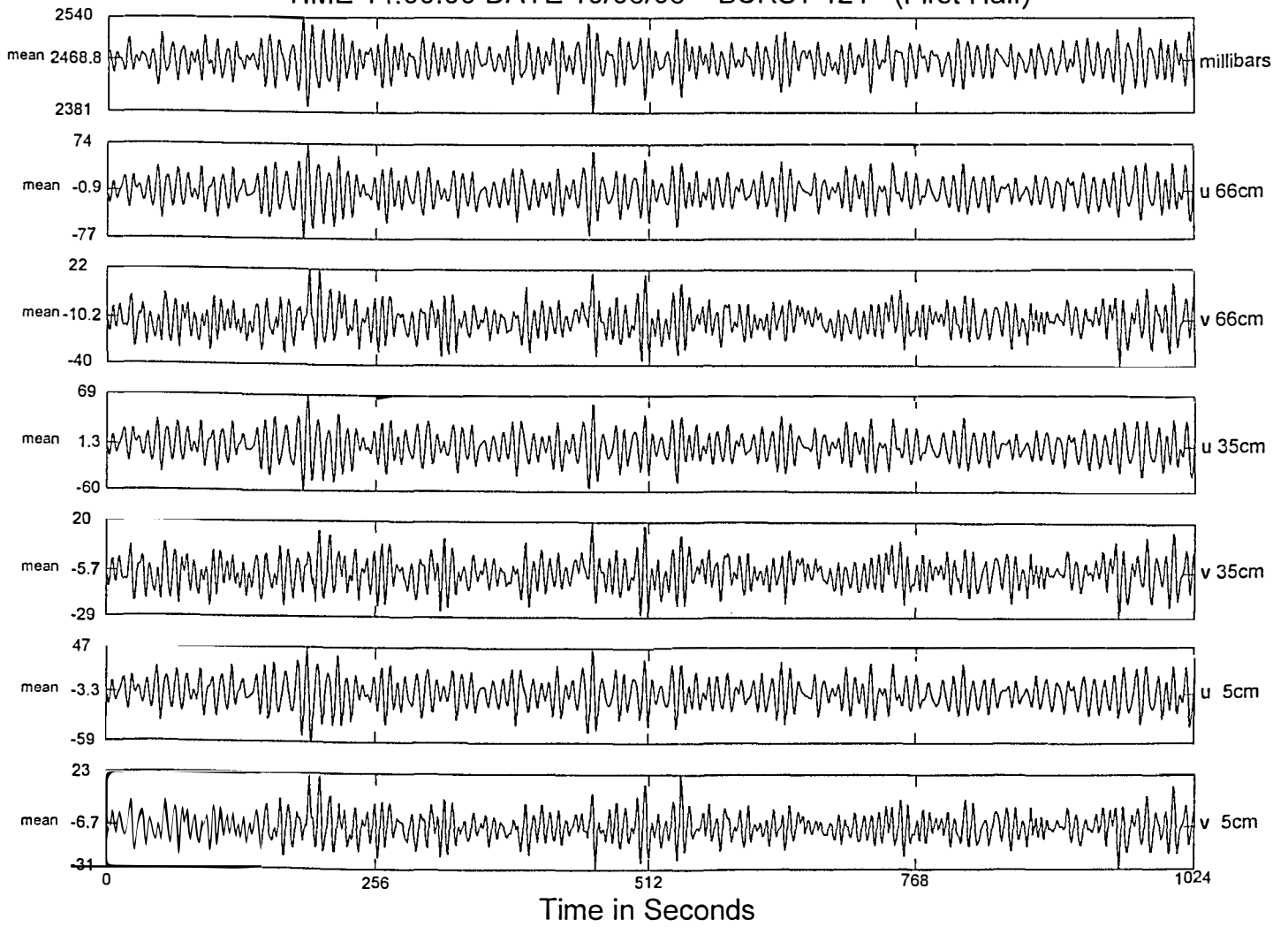
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
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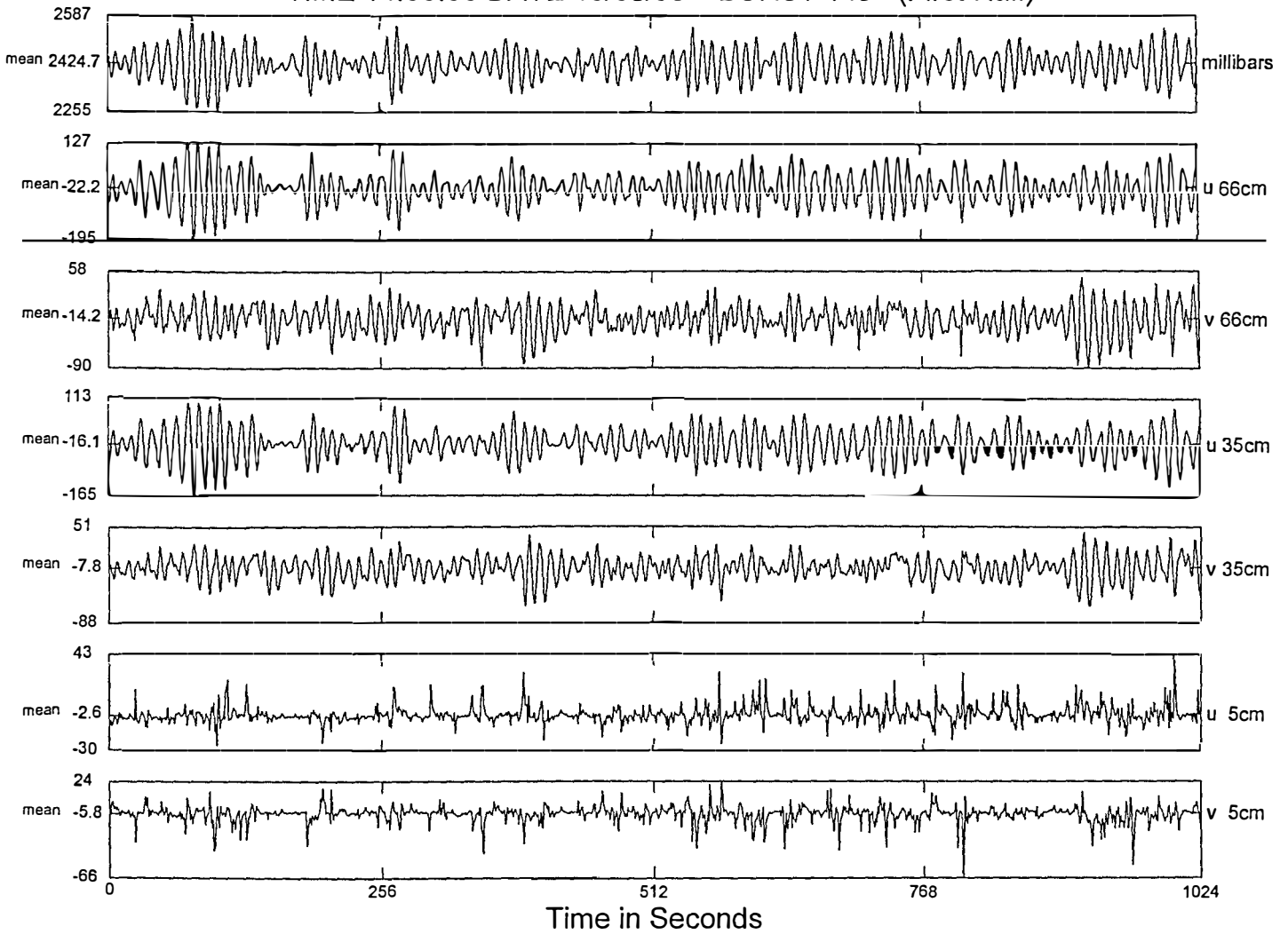
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/04/96 BURST 97 (First Half)



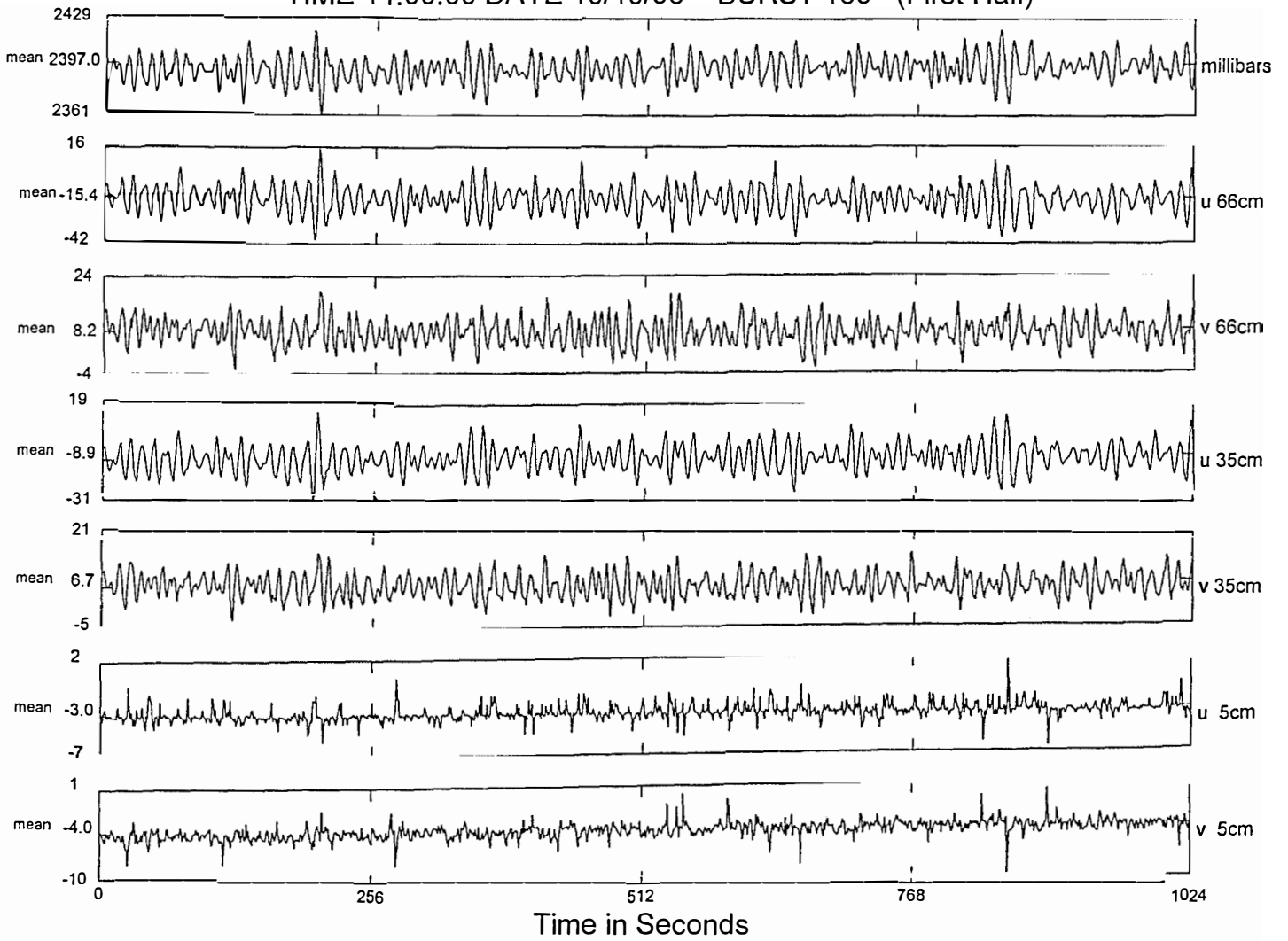
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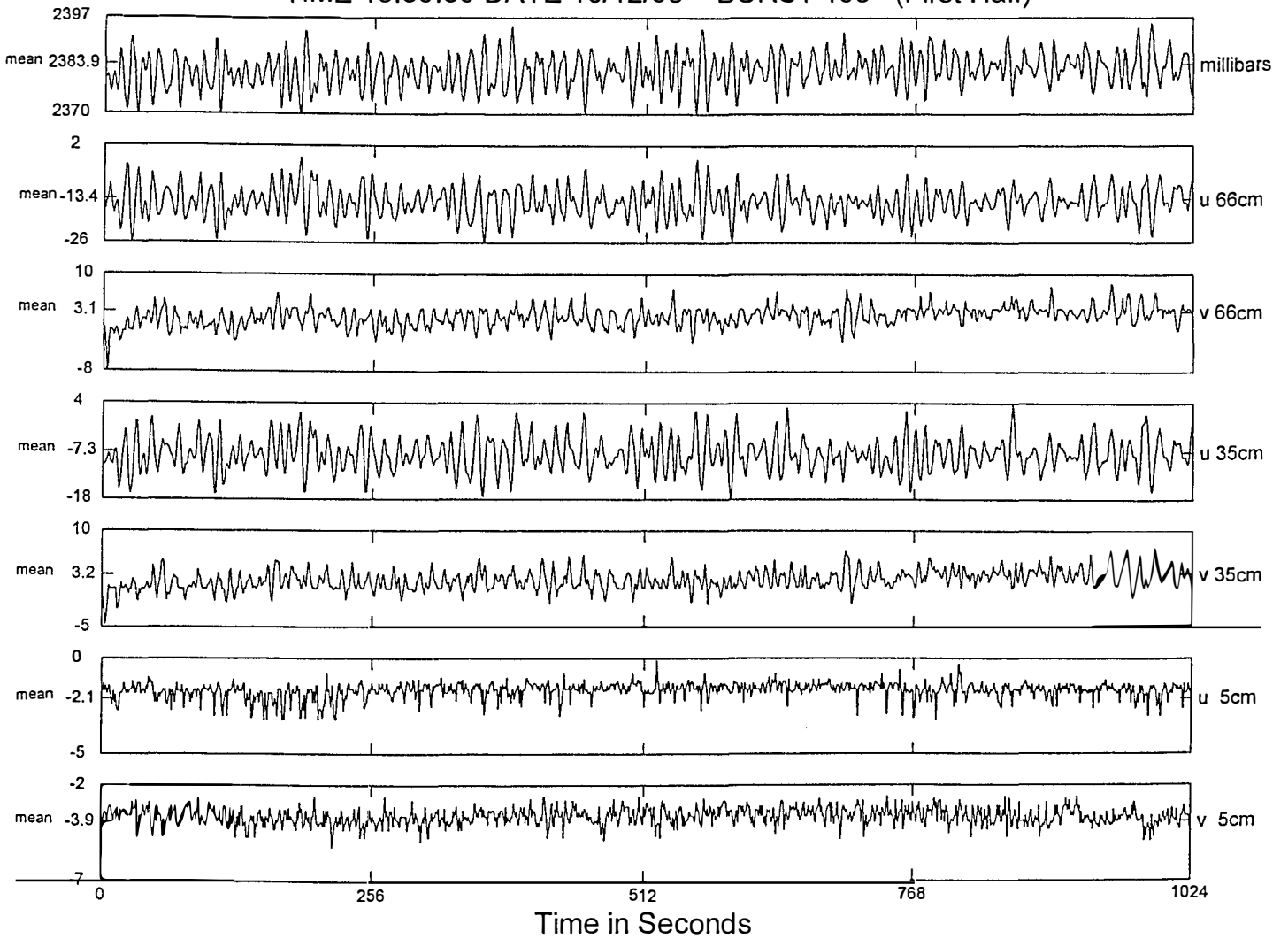
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/08/96 BURST 145 (First Half)



Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
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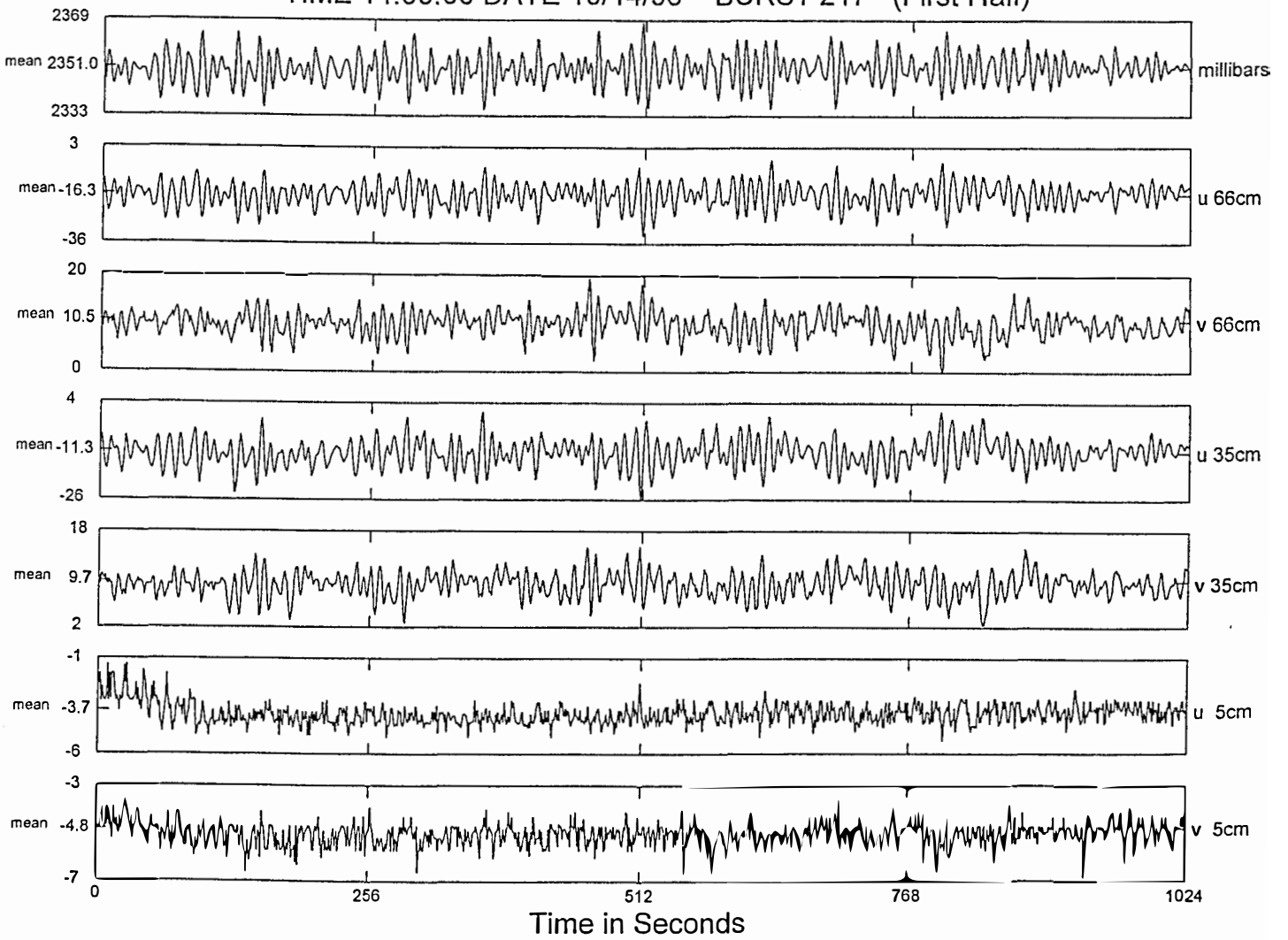


Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
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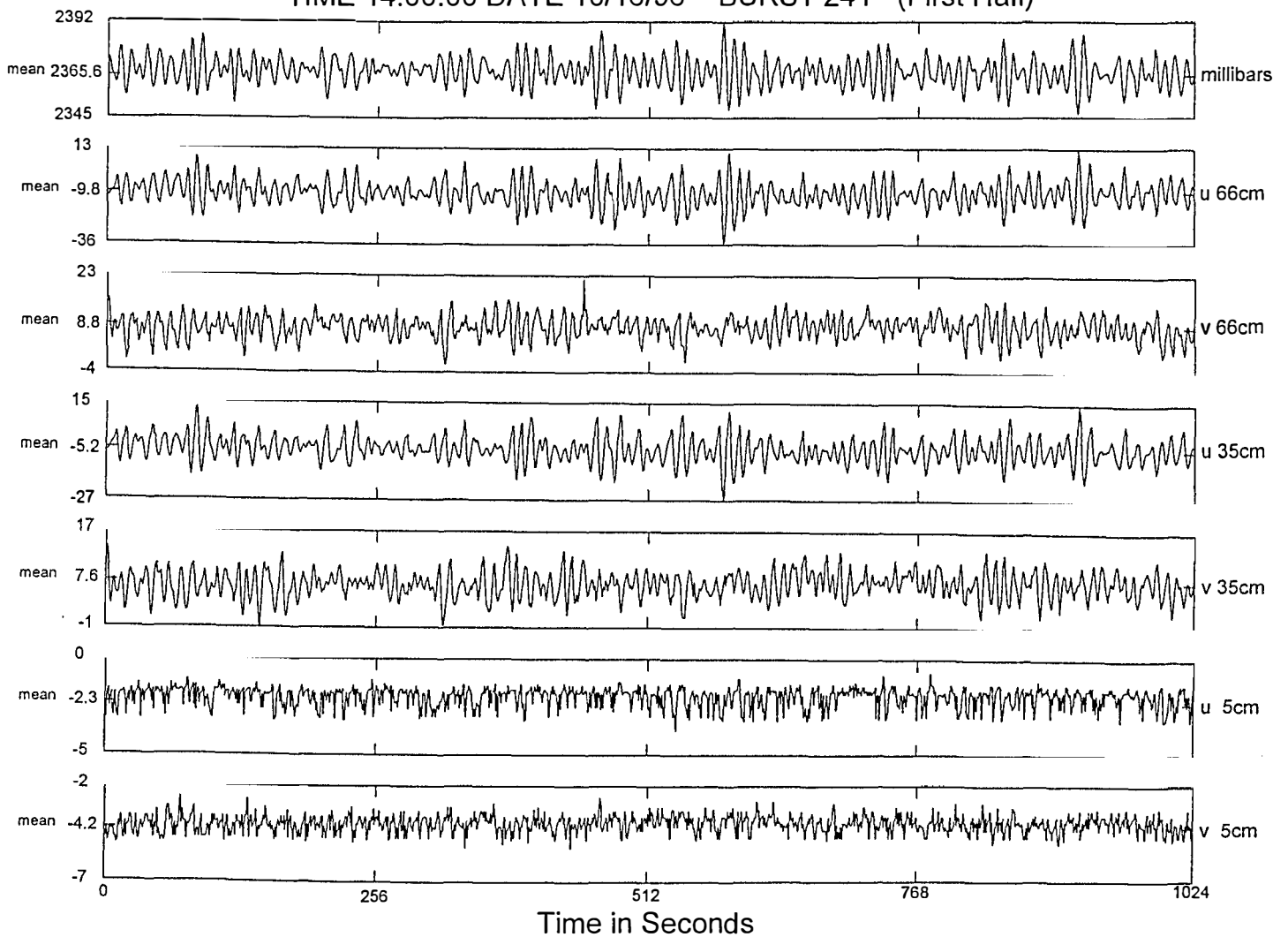




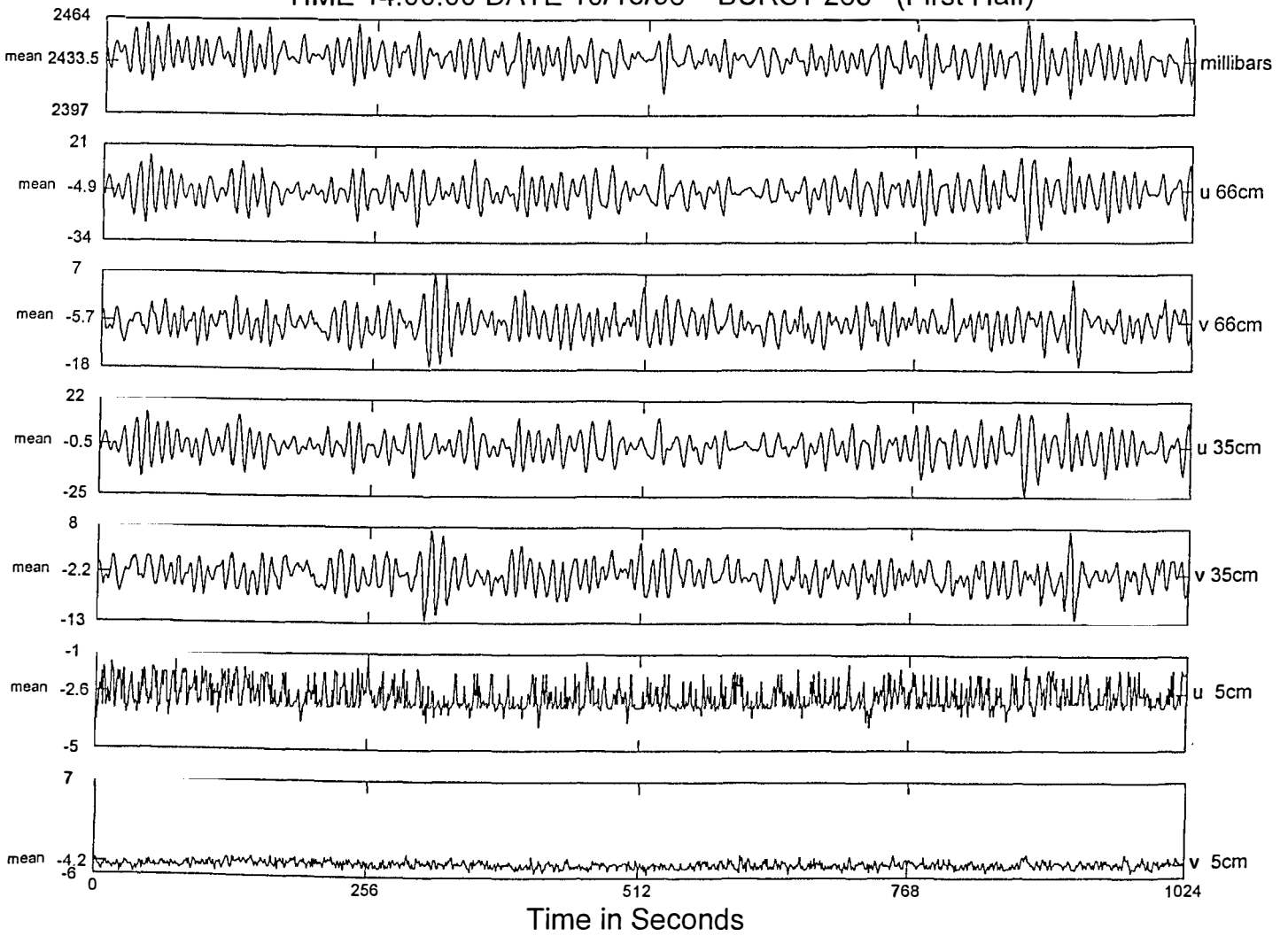
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/14/96 BURST 217 (First Half)



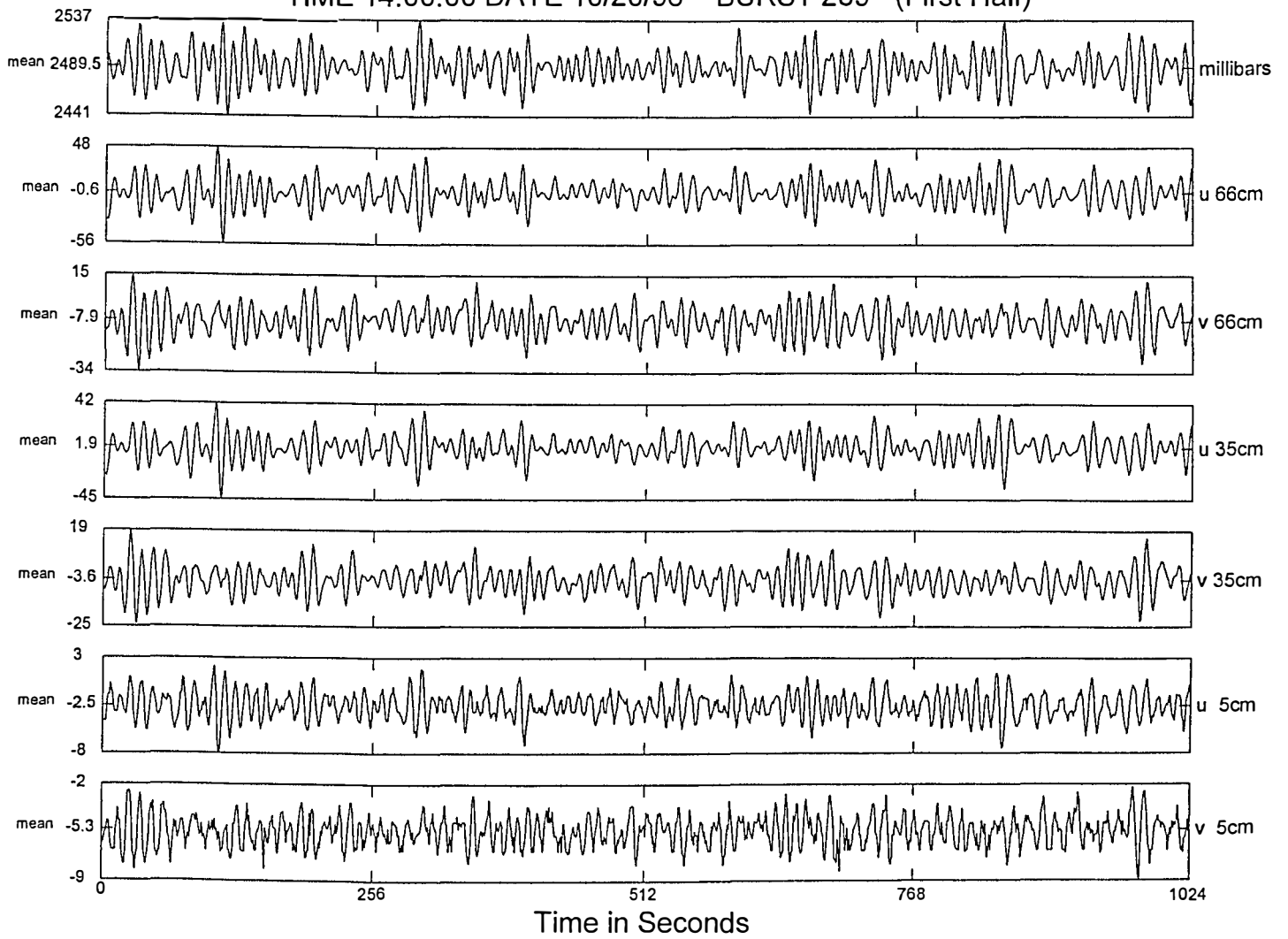
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/16/96 BURST 241 (First Half)



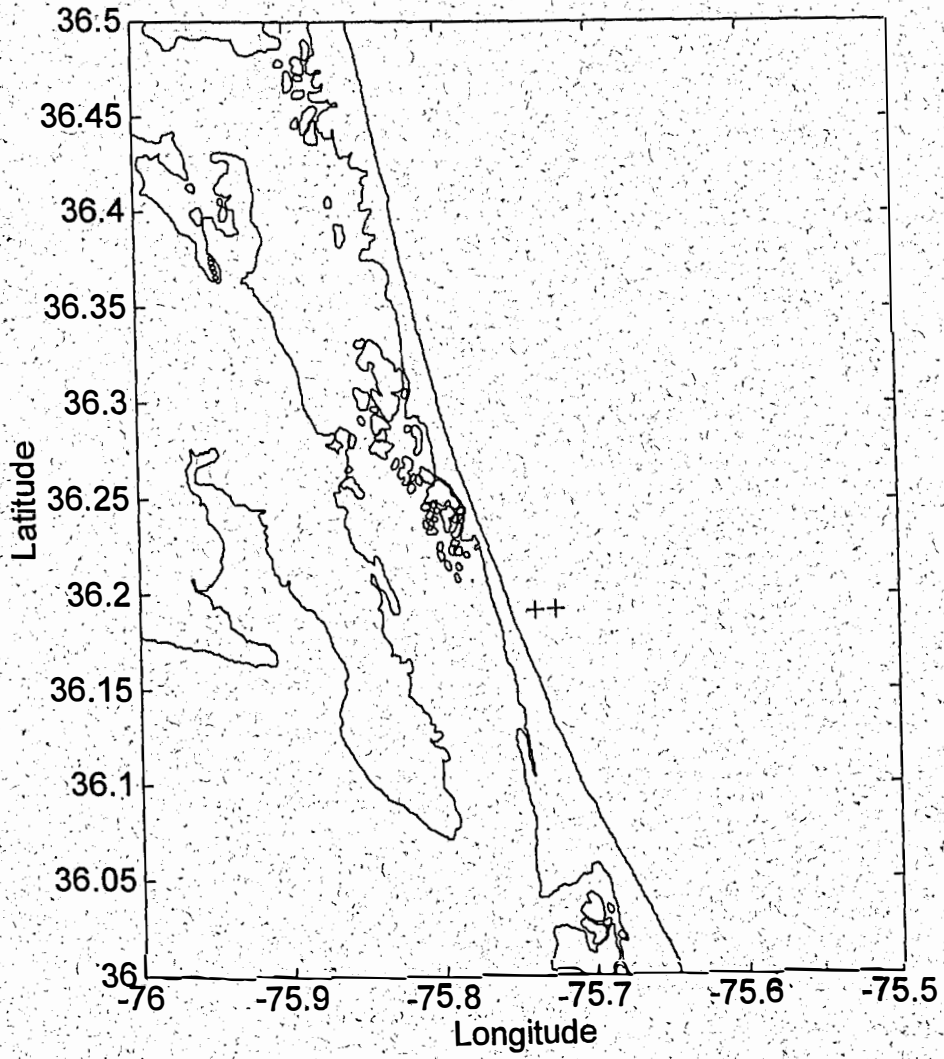
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/18/96 BURST 265 (First Half)



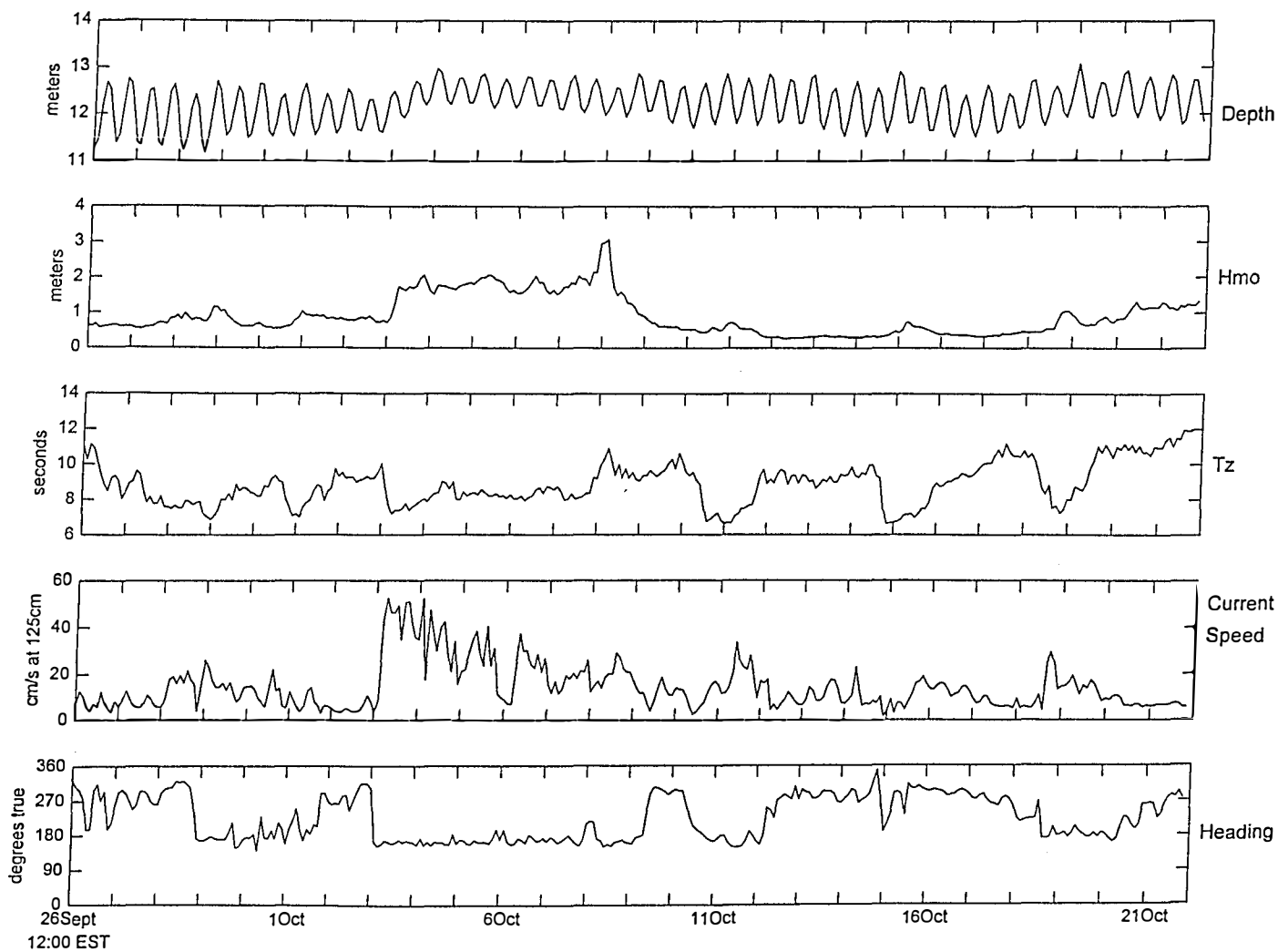
Offshore Pod - 626 Burst Data from Duck96A (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/20/96 BURST 289 (First Half)



Location of Inshore and Offshore Pods - 1996

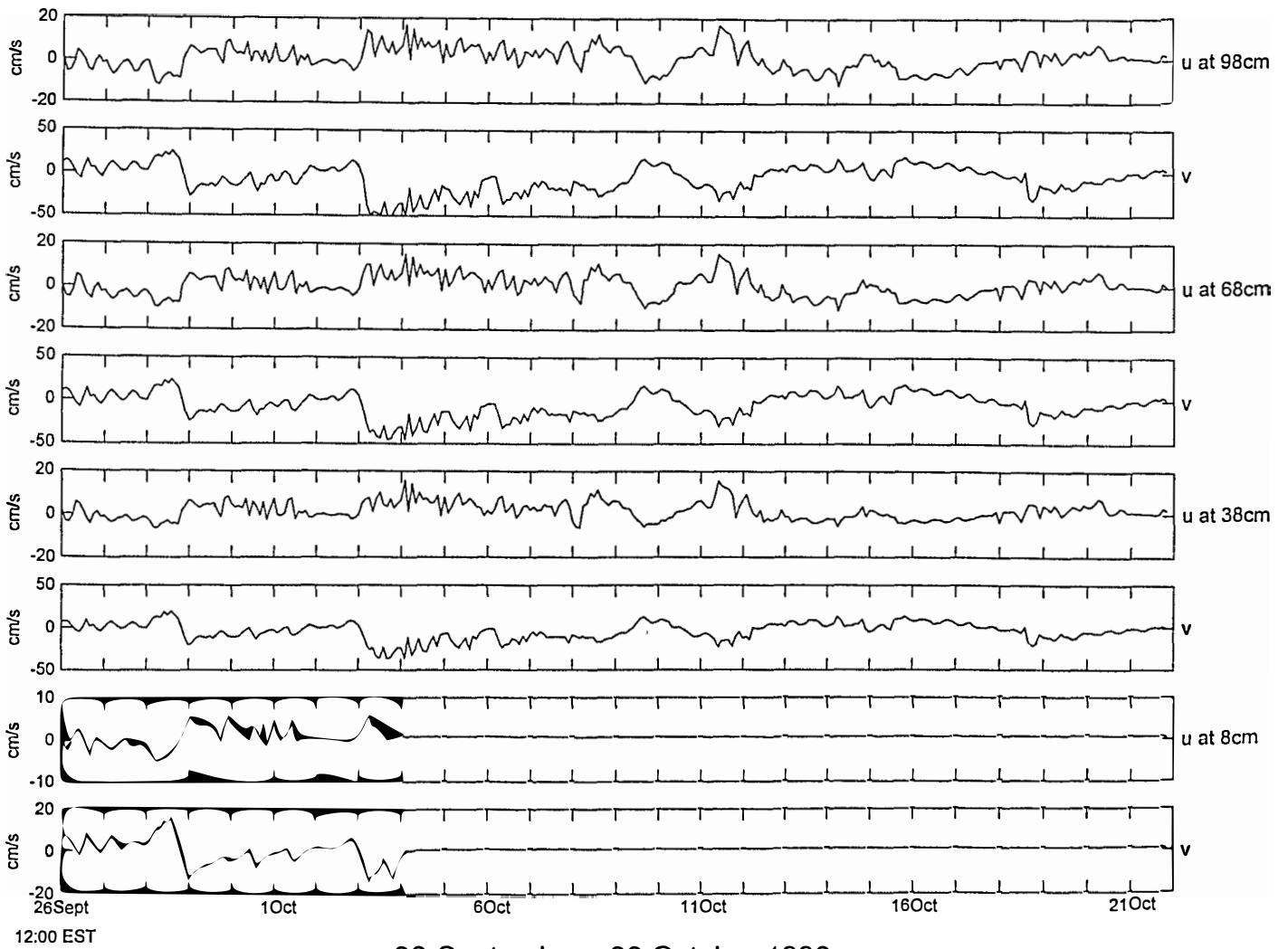


635 Data from Duck96A Inshore Pod Sept/Oct 1996



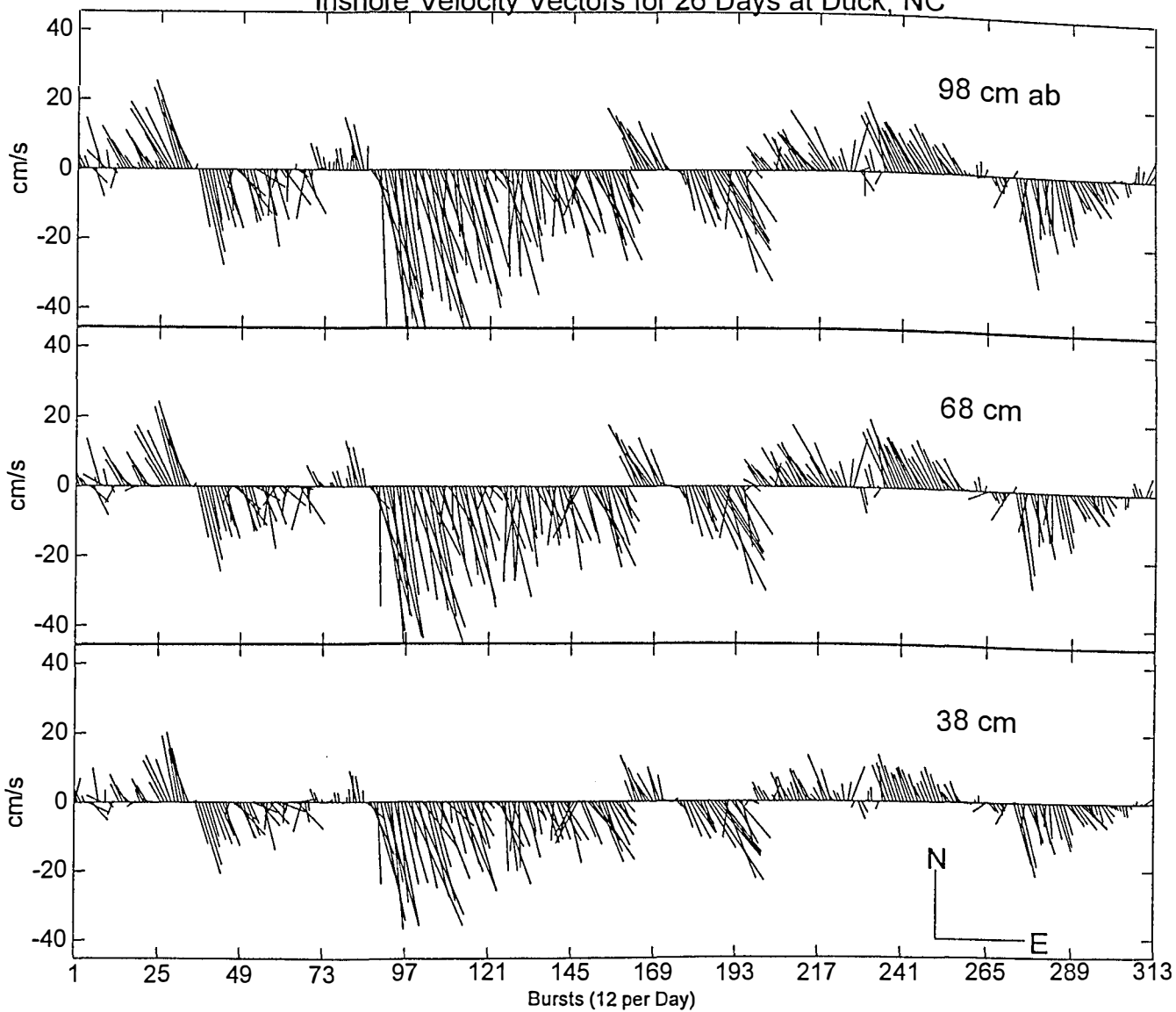
26 September - 22 October 1996

### 626 Velocity Profile Data from Duck96A Inshore Pod Sept/Oct 1996



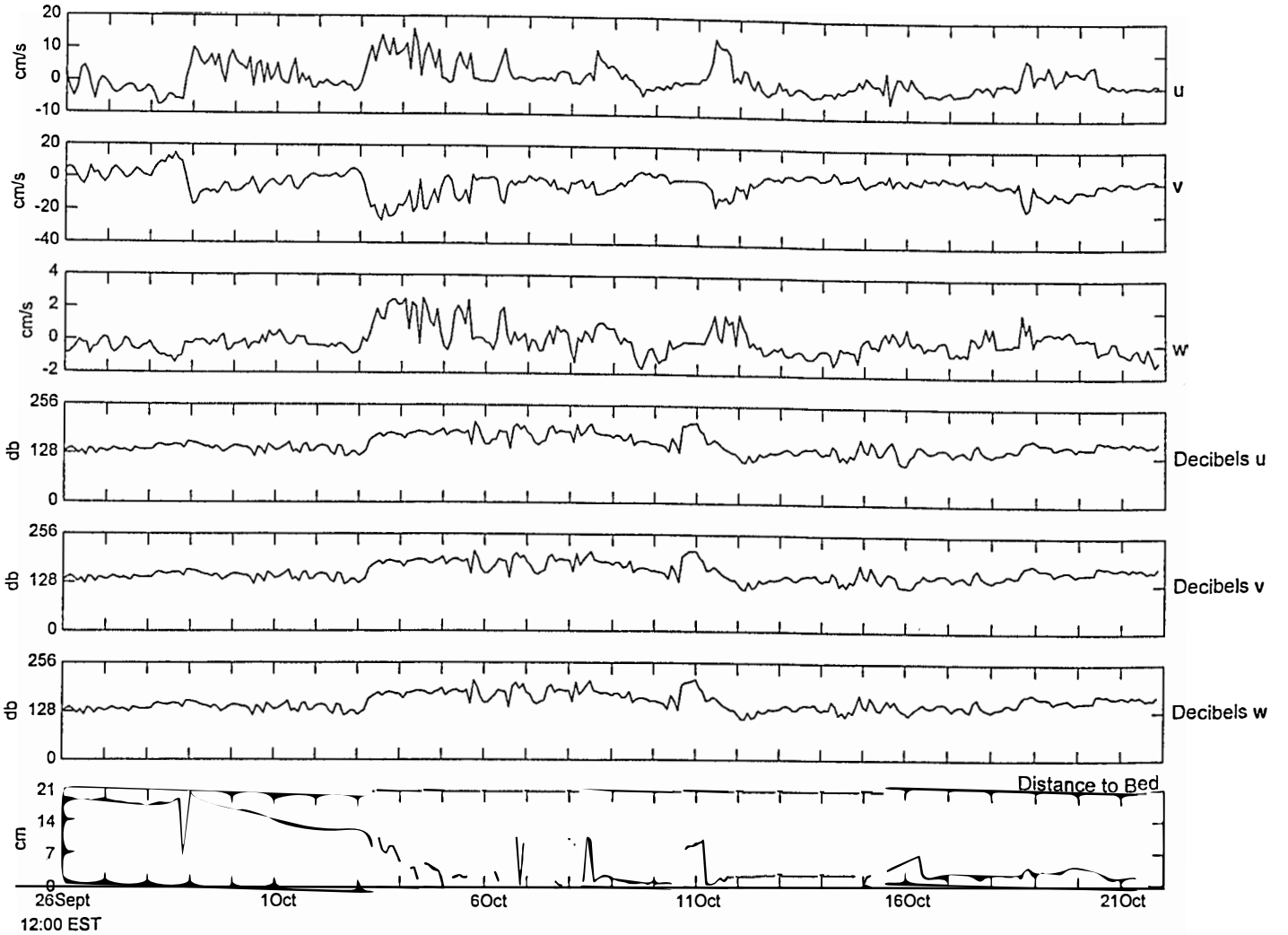
26 September - 22 October 1996

### Inshore Velocity Vectors for 26 Days at Duck, NC



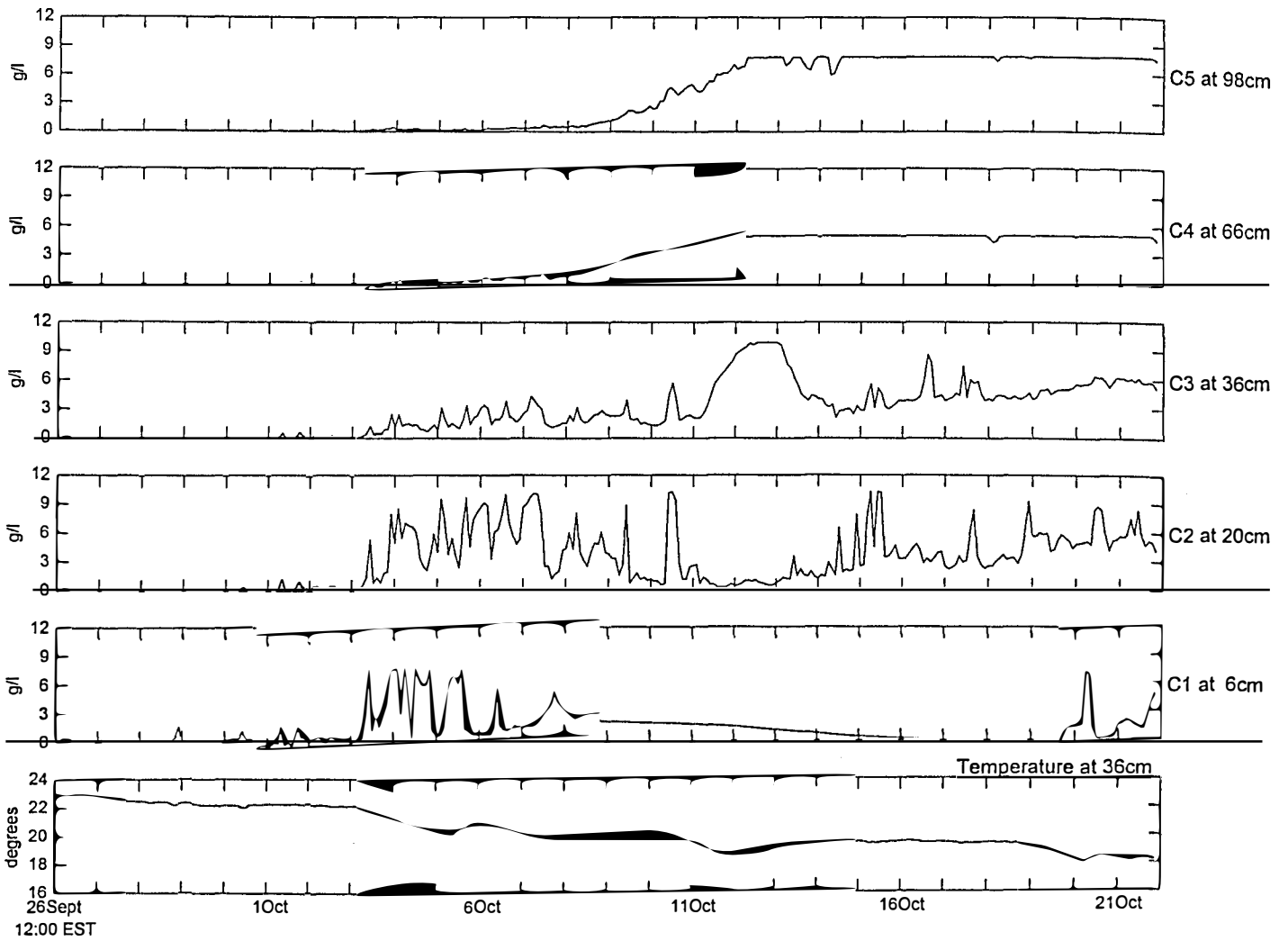


# Acoustic Doppler Velocity Data from Duck96A Inshore Pod Sept/Oct 1996



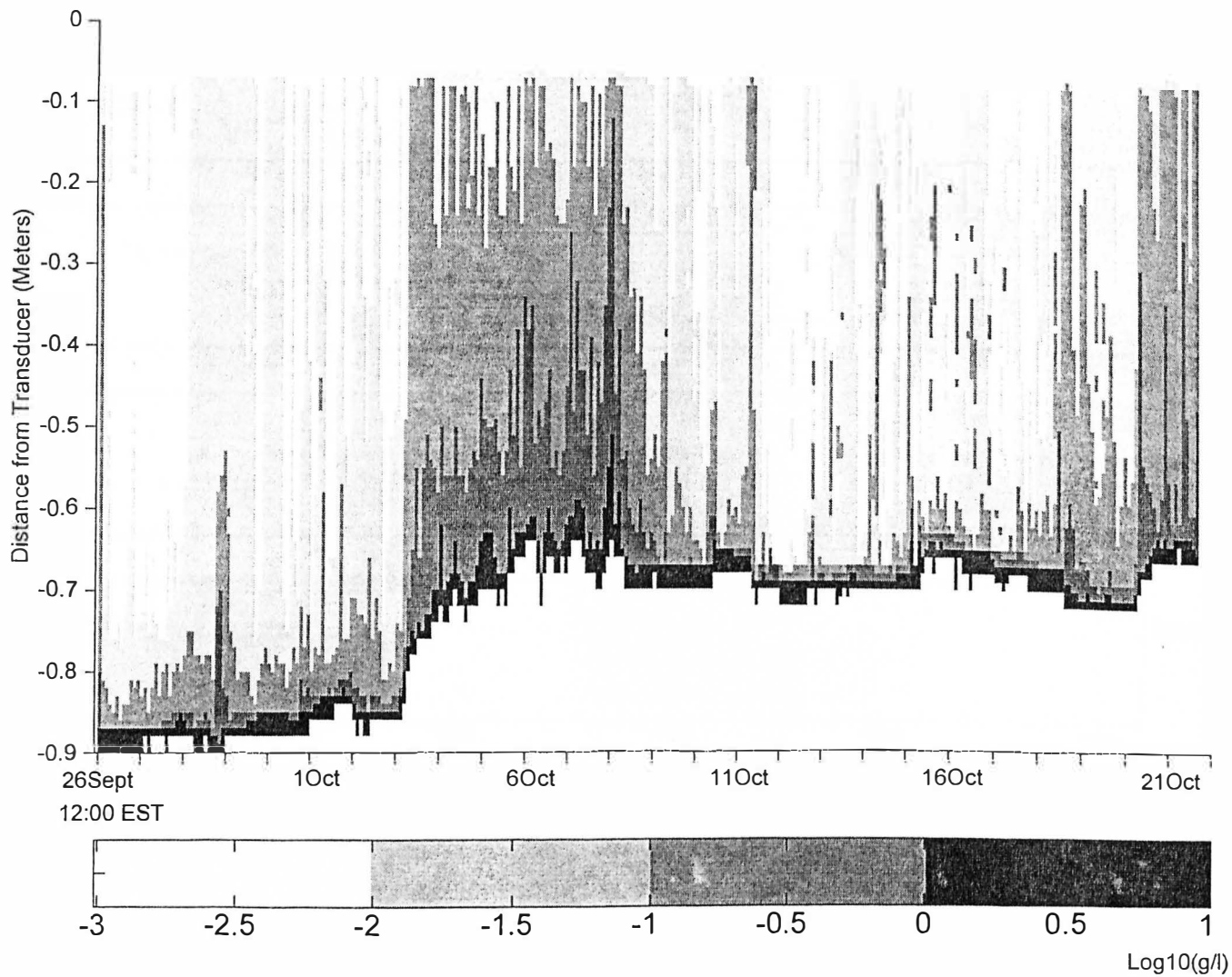
26 September - 22 October 1996

# Suspended Sediment Data from Duck96A Inshore Pod Sept/Oct 1996

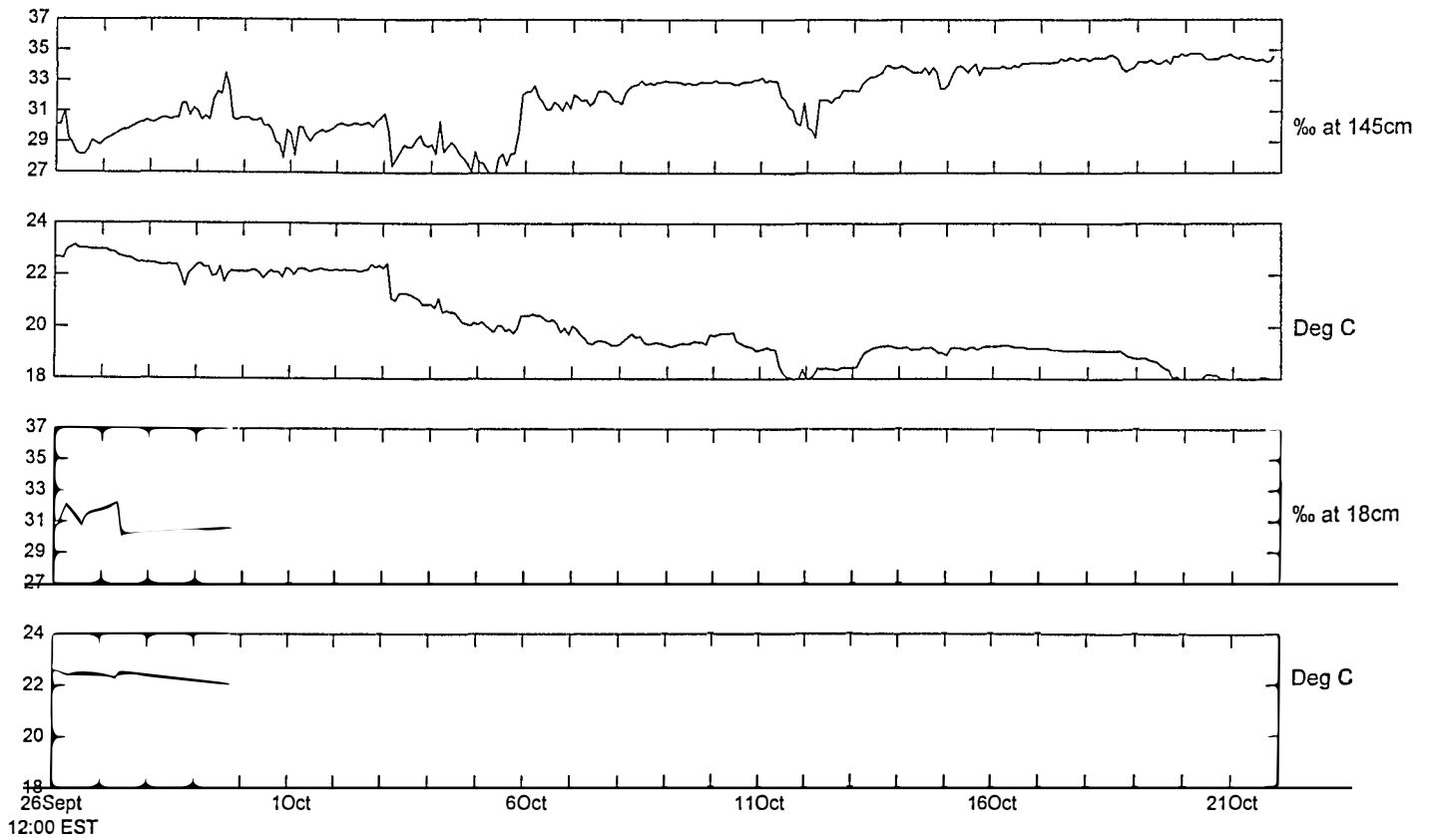


26 September - 22 October 1996

# Acoustic Backscatter Data from Duck96A Inshore Pod Sept/Oct 1996

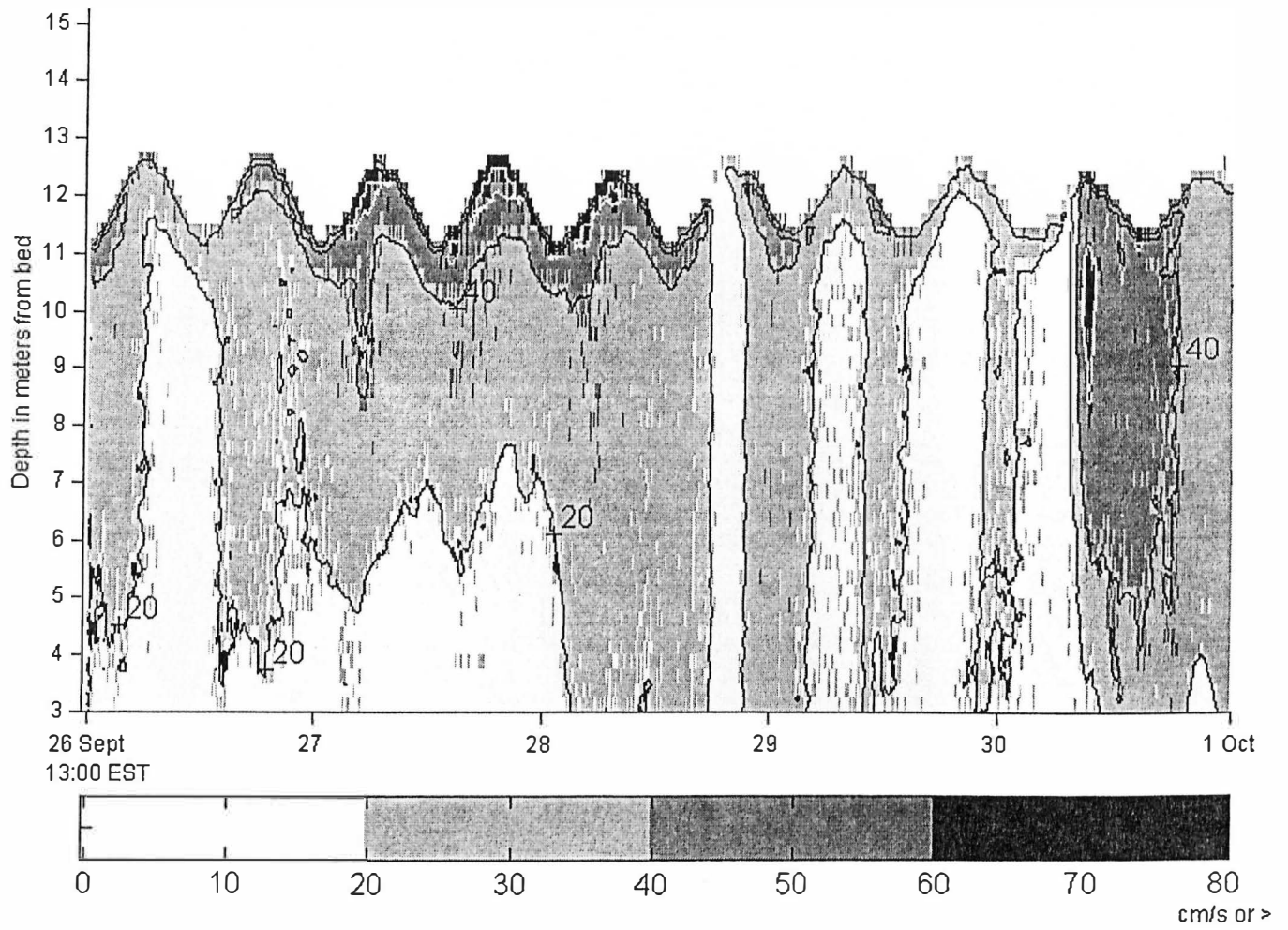


### Datasonde Data from Duck96A Inshore Pod Sept/Oct 1996

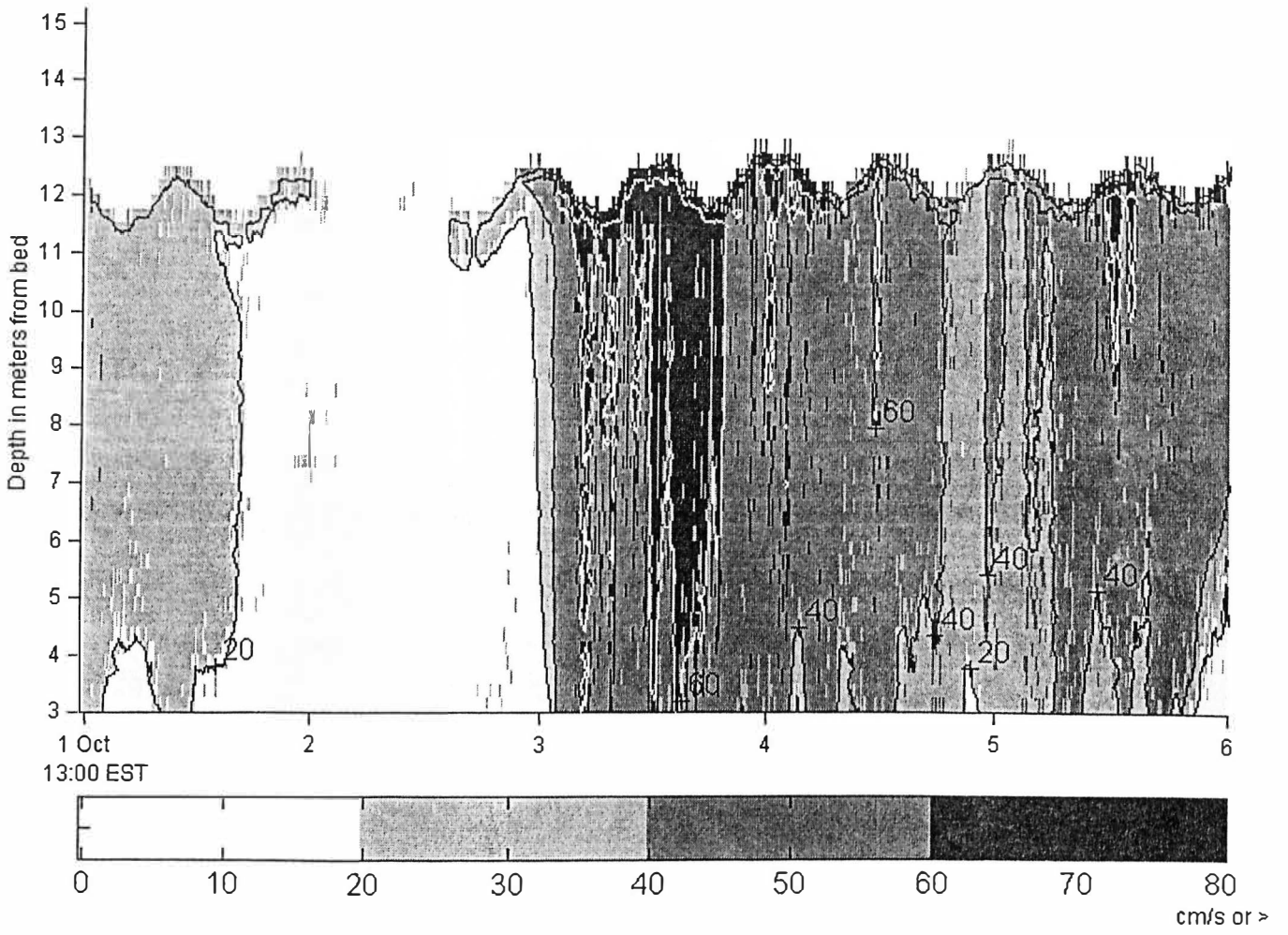


26 September - 22 October 1996

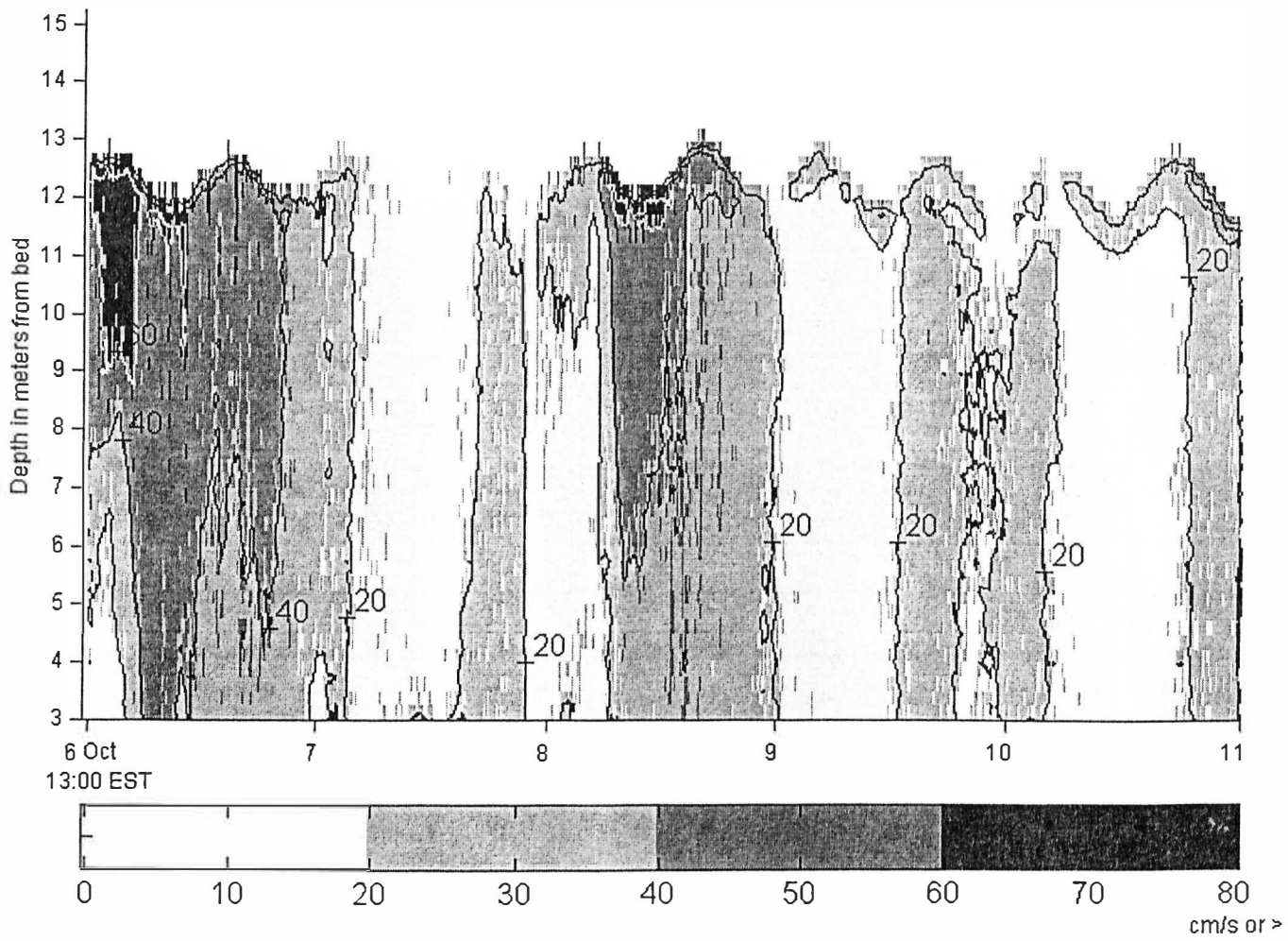
Duck96A - Water Column Velocity Magnitudes at Inshore Pod



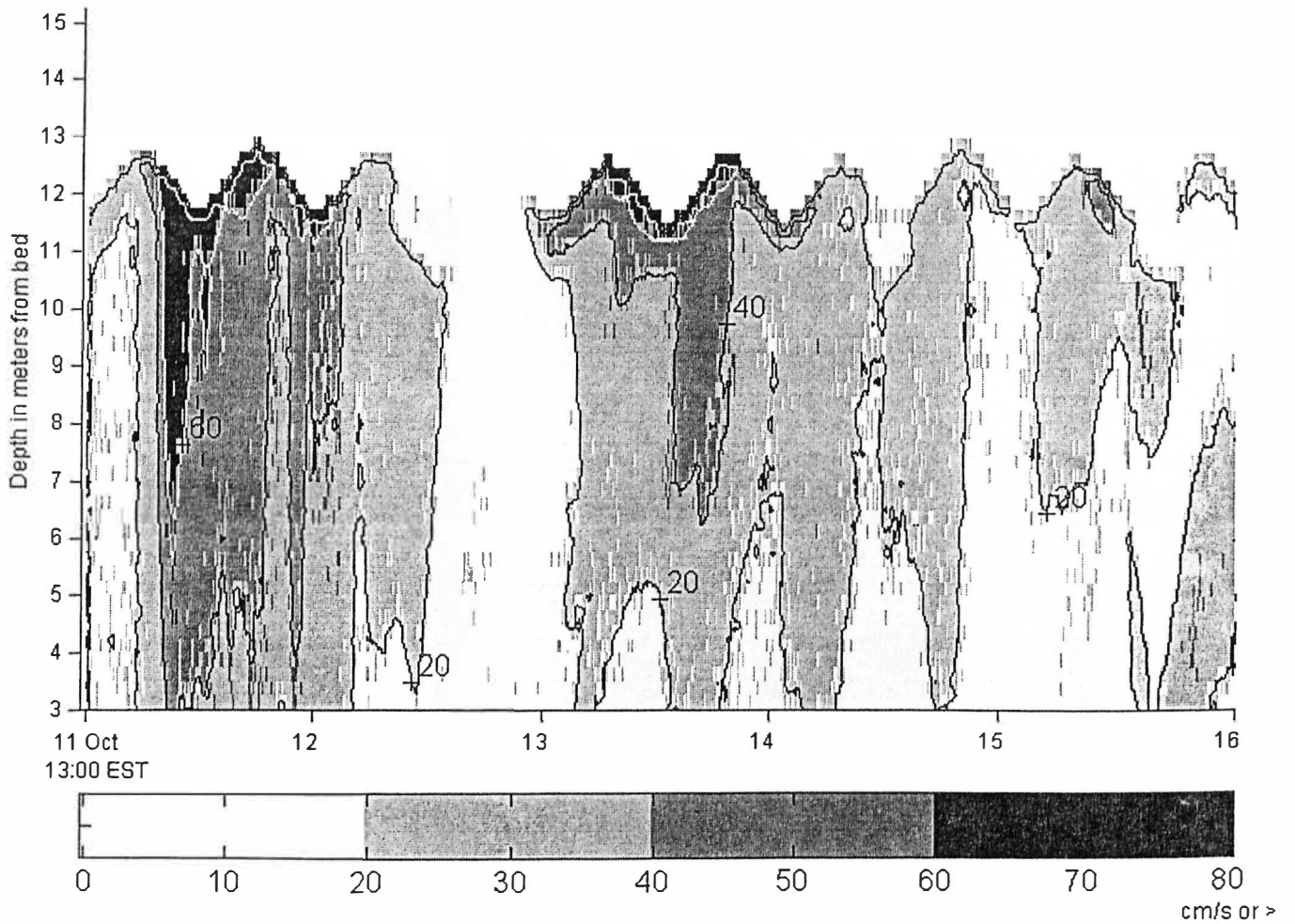
Duck96A - Water Column Velocity Magnitudes at Inshore Pod



Duck96A - Water Column Velocity Magnitudes at Inshore Pod

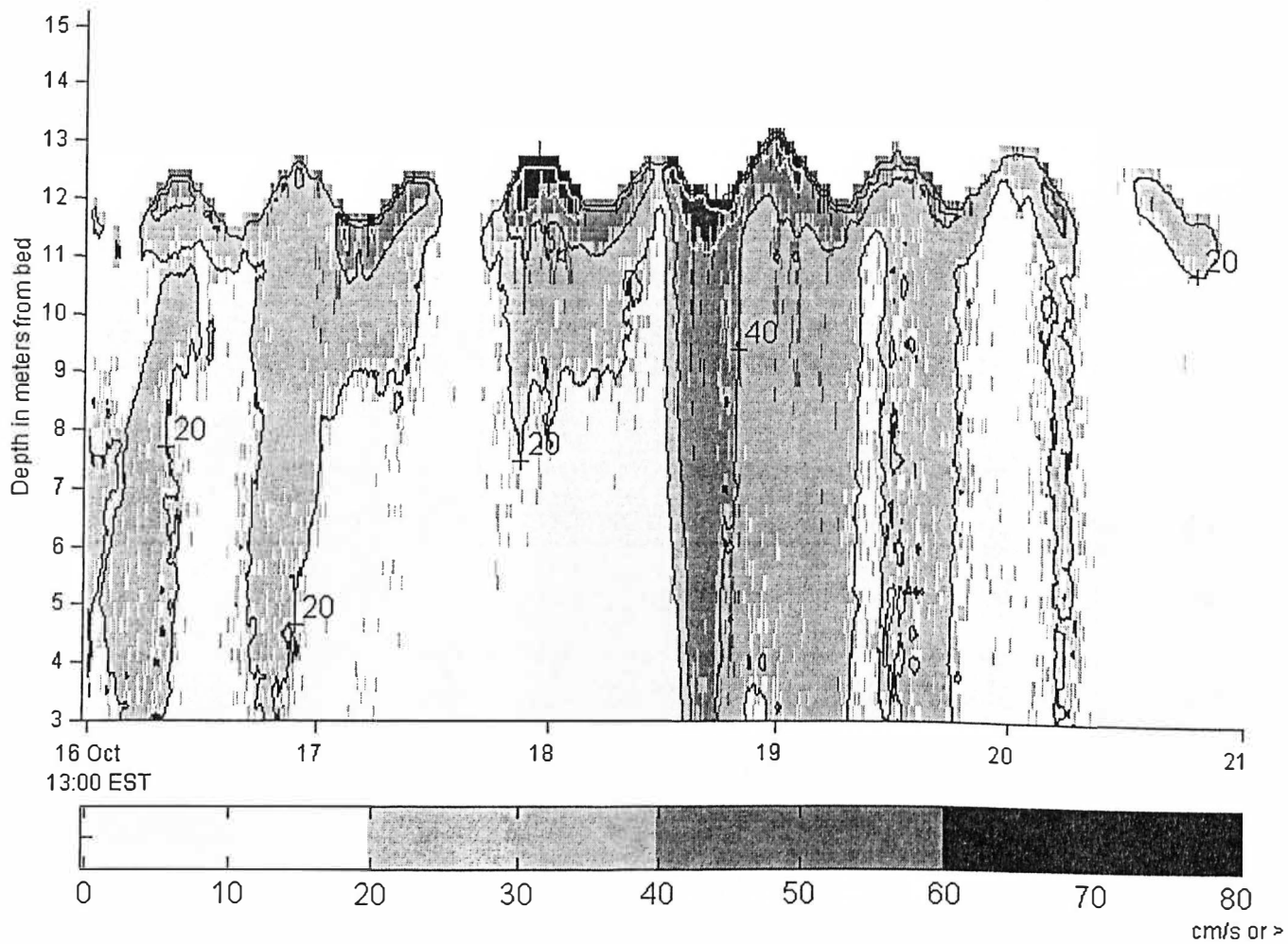


Duck96A - Water Column Velocity Magnitudes at Inshore Pod

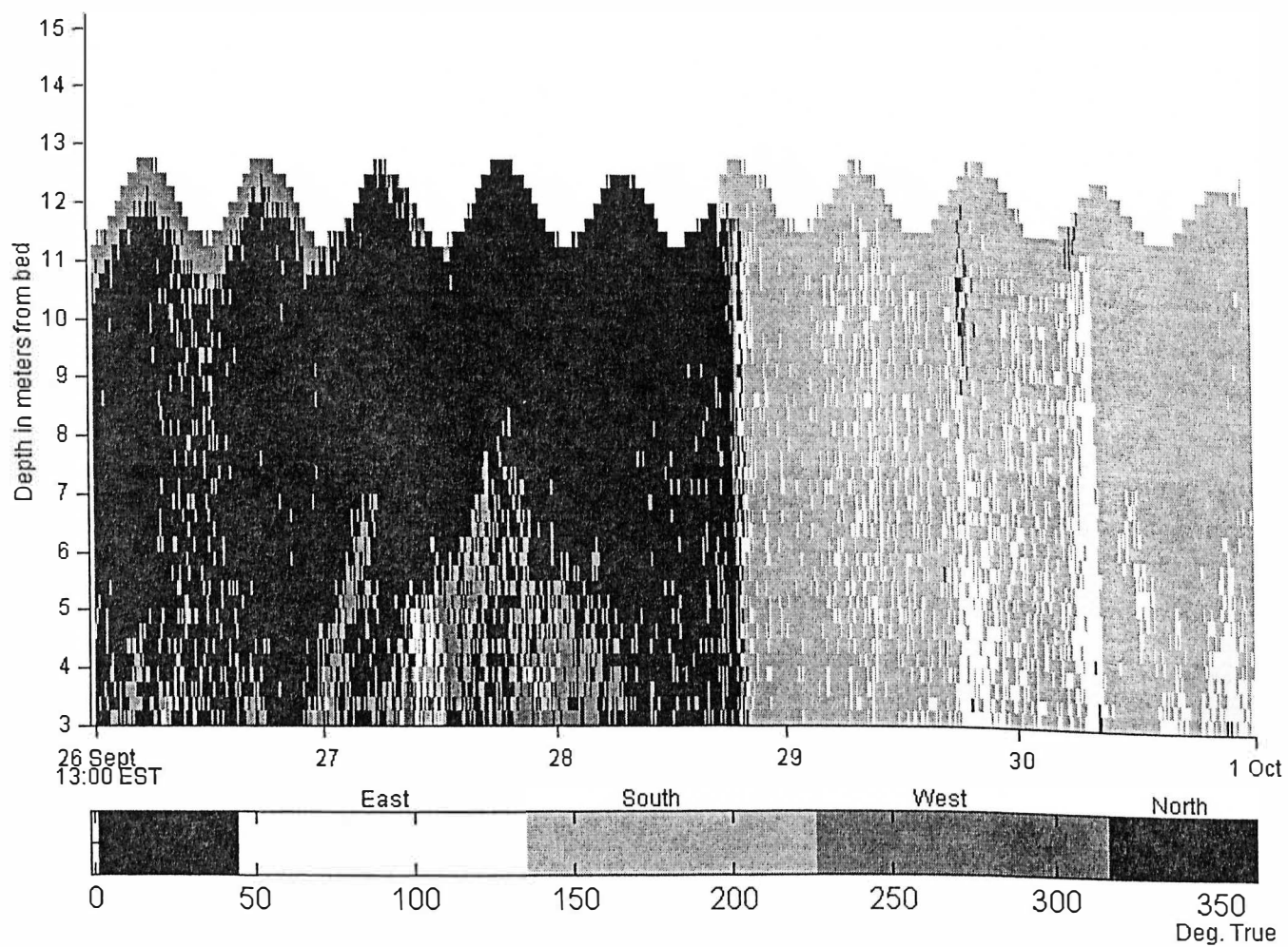




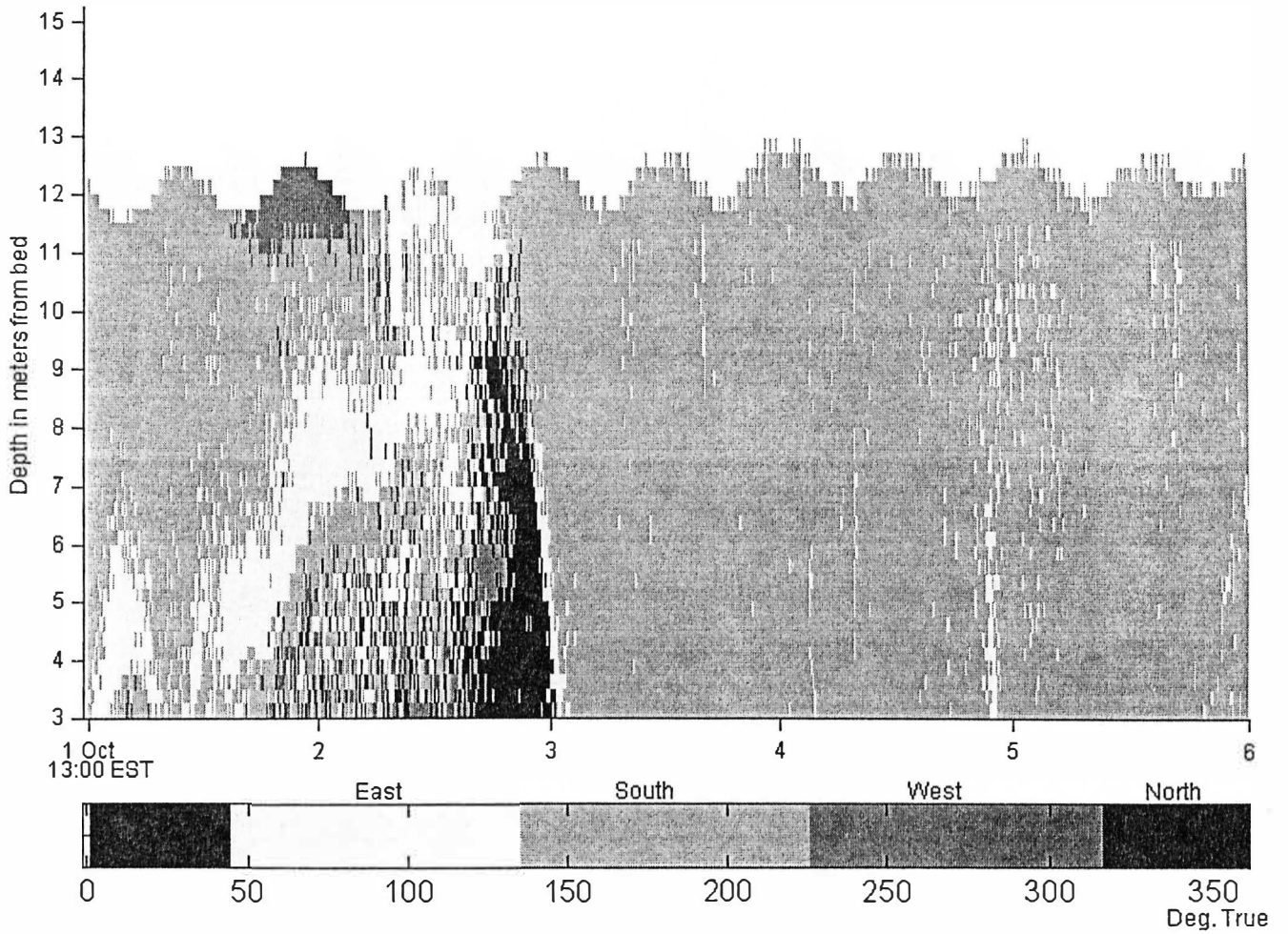
Duck96A - Water Column Velocity Magnitudes at Inshore Pod



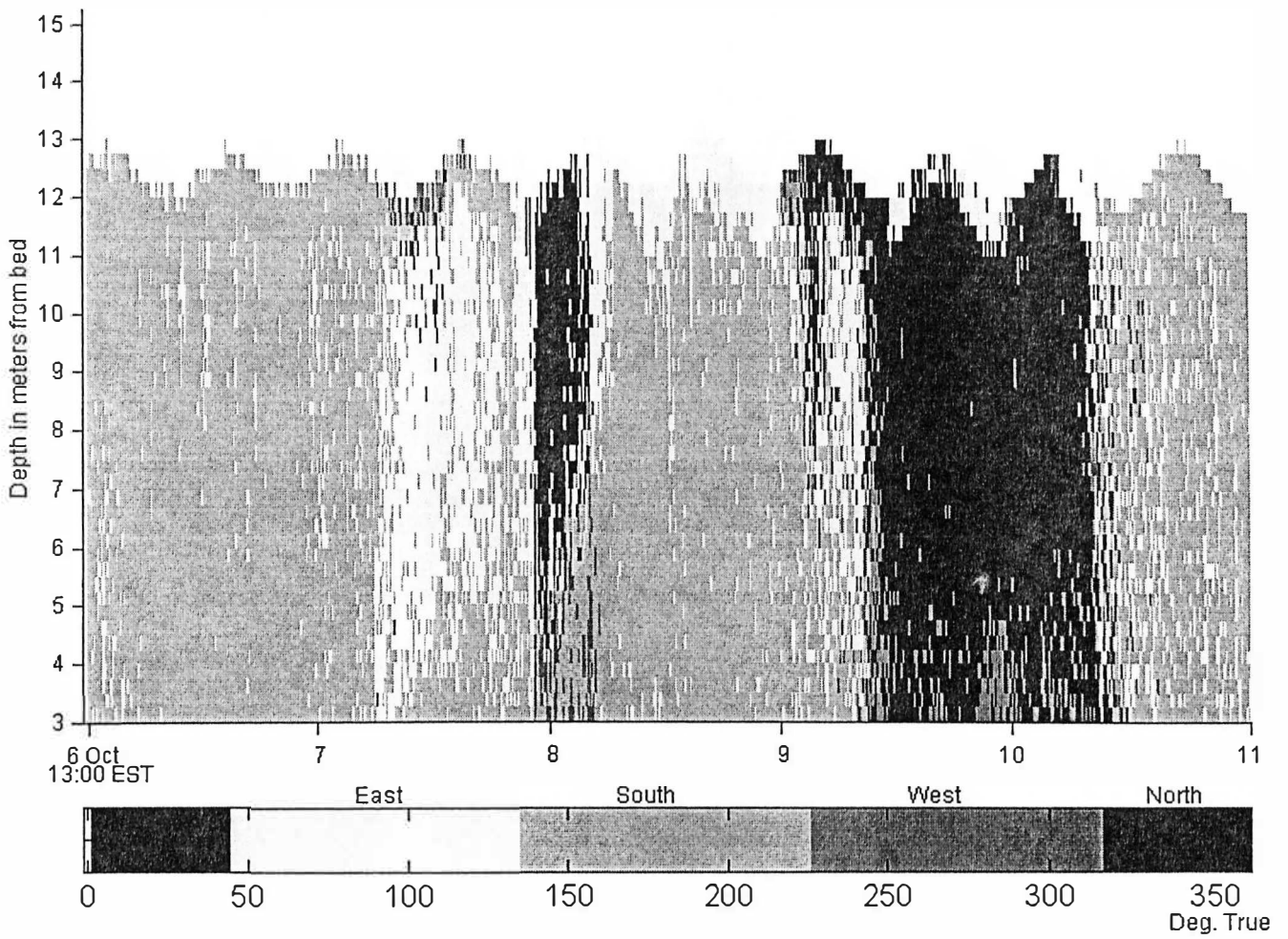
### Duck96A - Water Column Velocity Headings at Inshore Pod



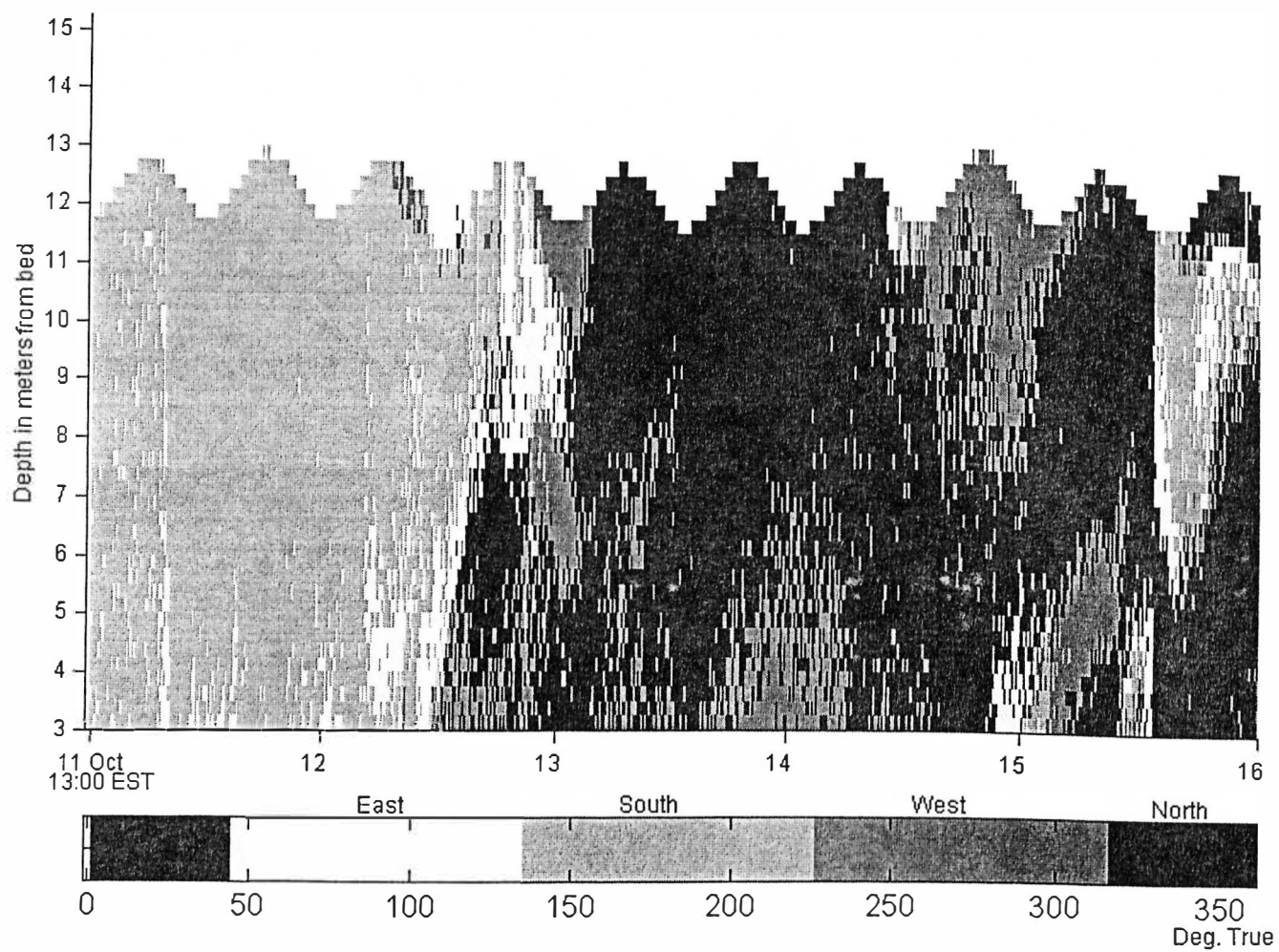
### Duck96A - Water Column Velocity Headings at Inshore Pod



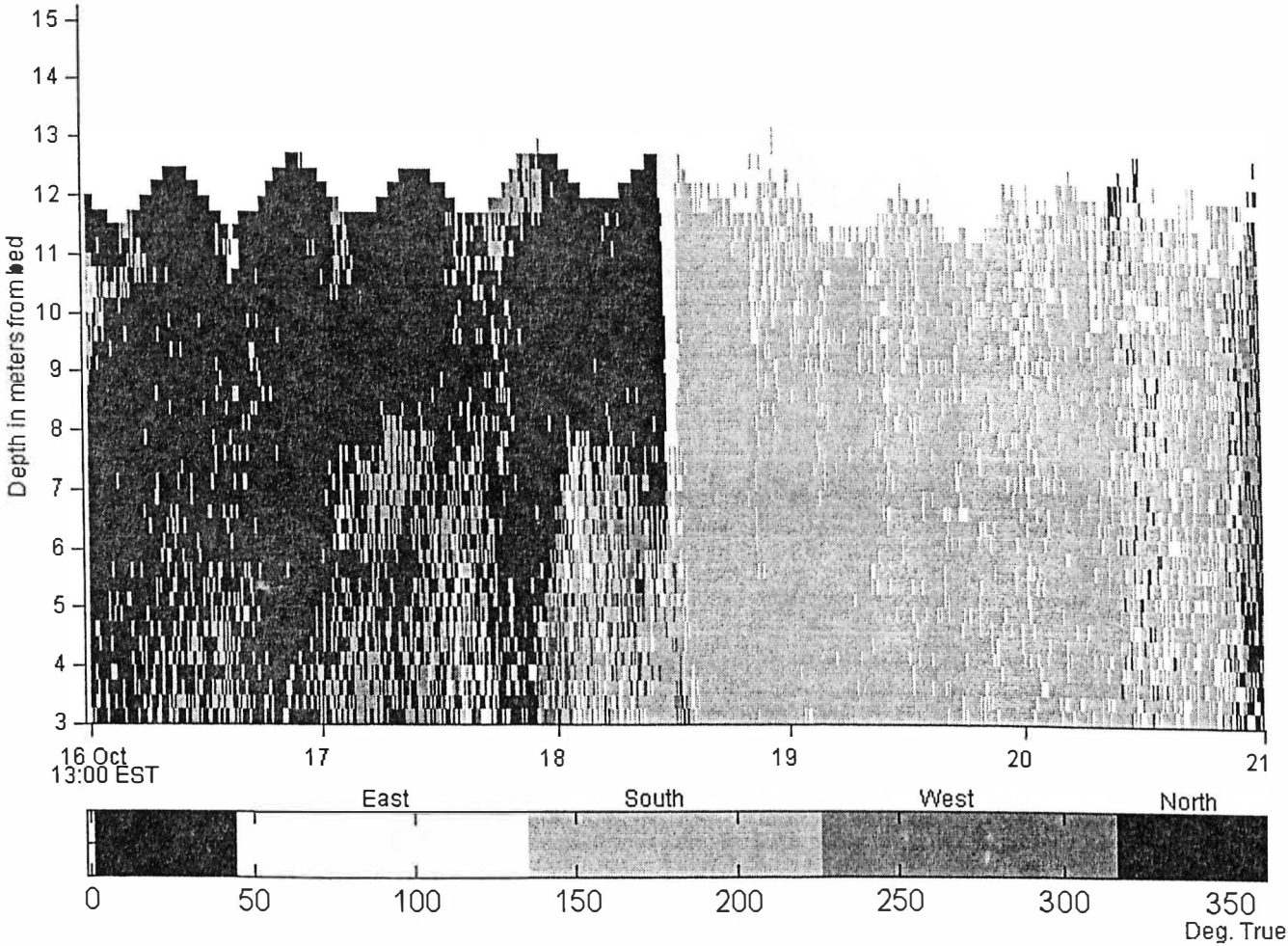
Duck96A - Water Column Velocity Headings at Inshore Pod



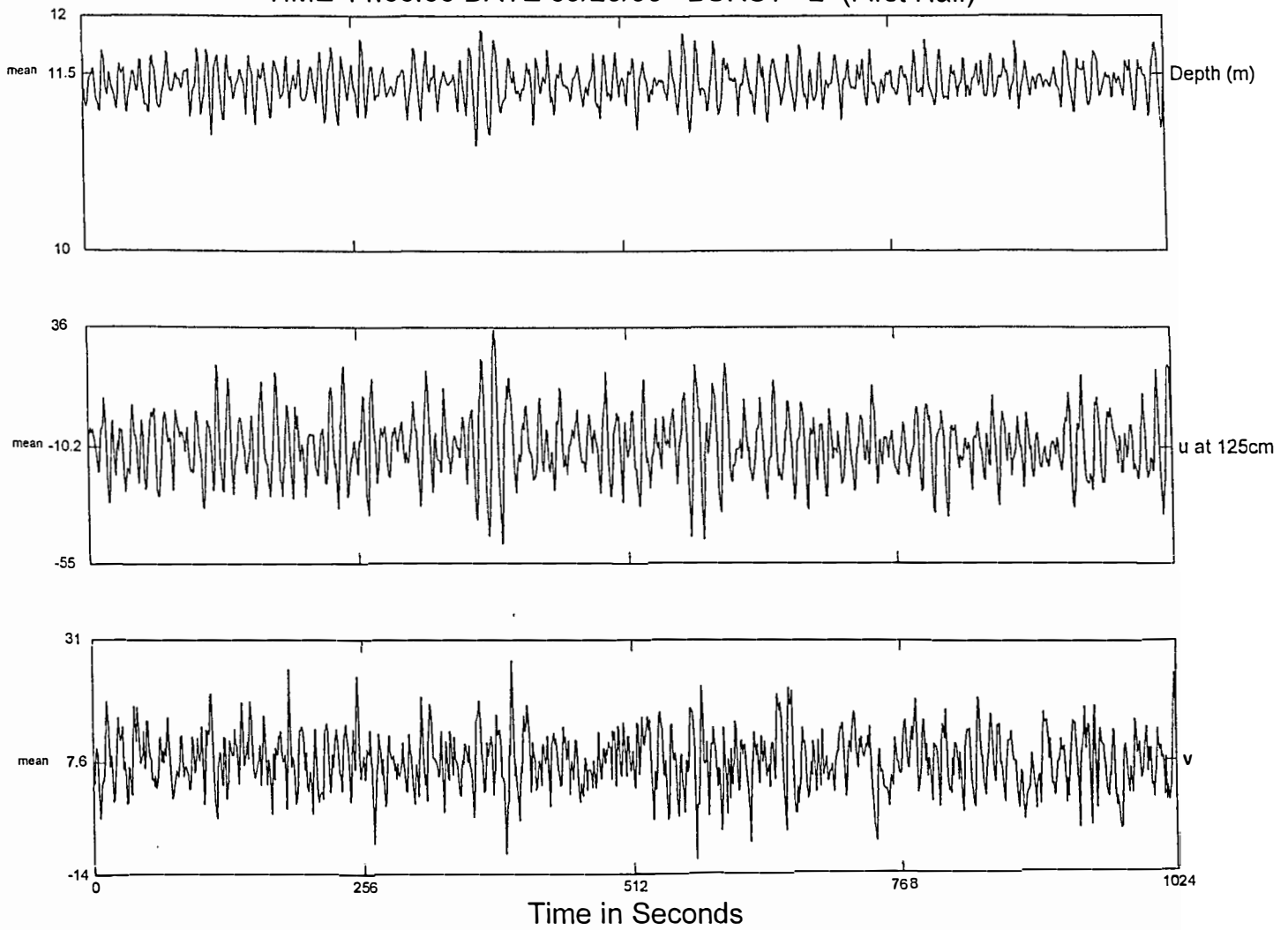
### Duck96A - Water Column Velocity Headings at Inshore Pod



Duck96A - Water Column Velocity Headings at Inshore Pod

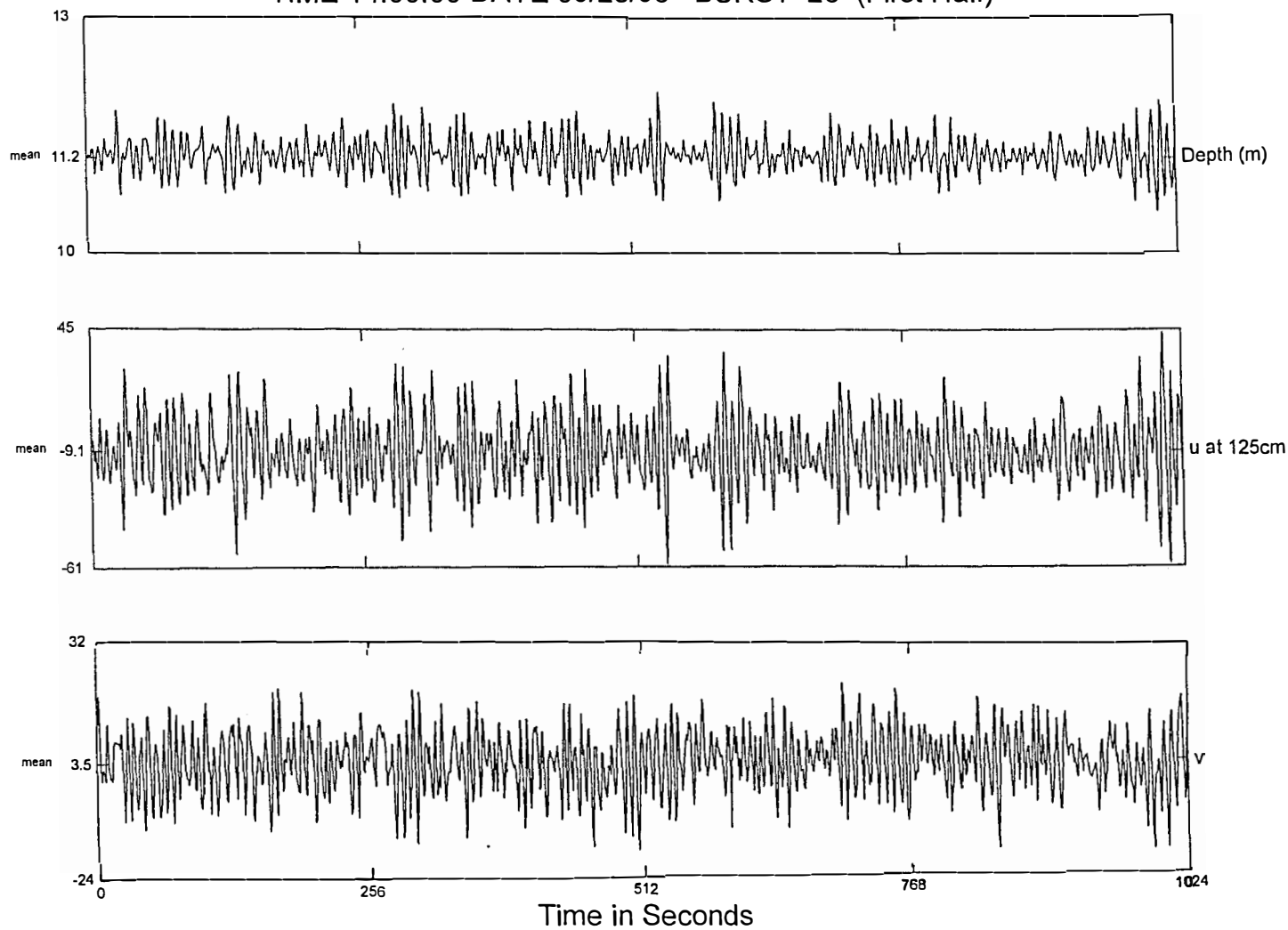


635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 09/26/96 BURST 2 (First Half)



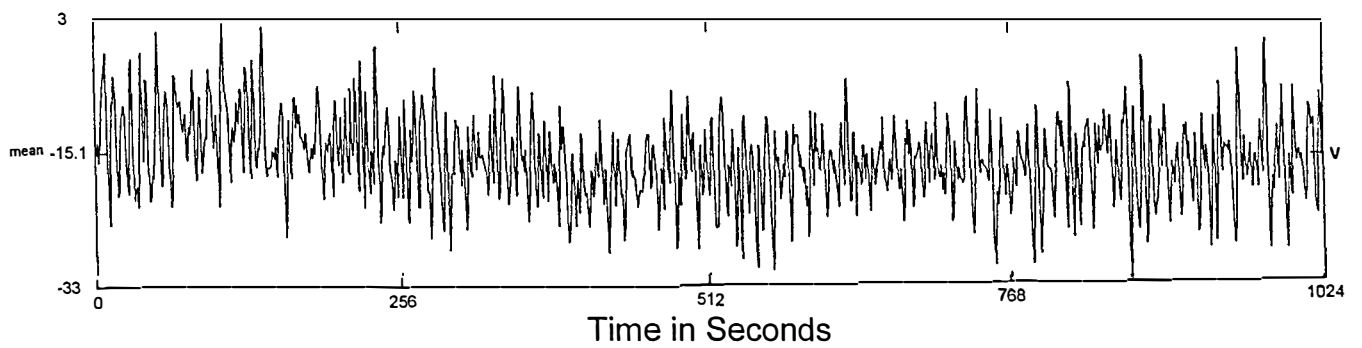
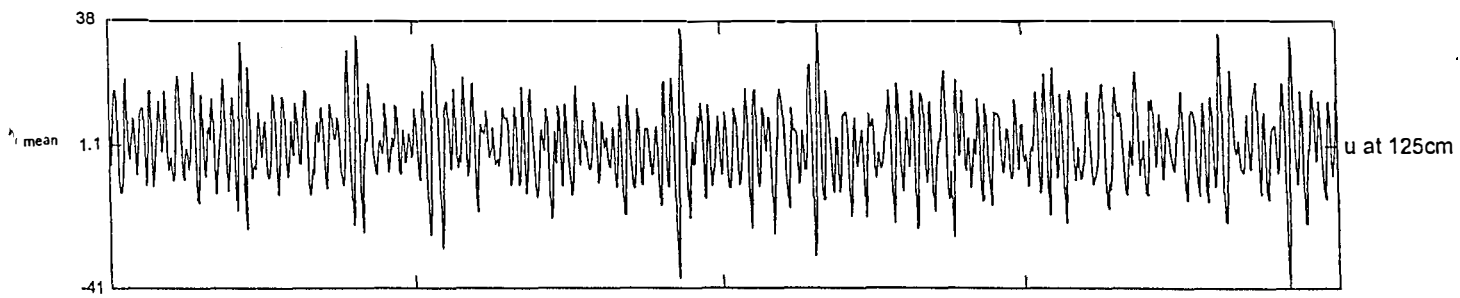
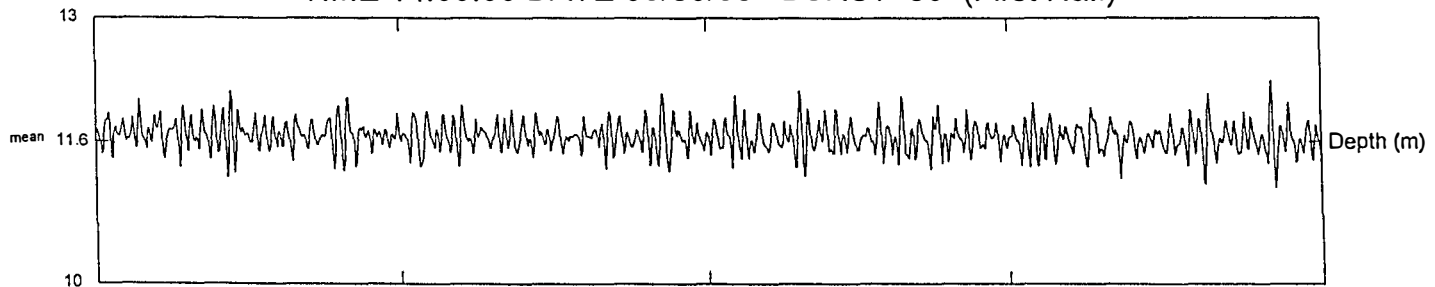


635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 09/28/96 BURST 26 (First Half)

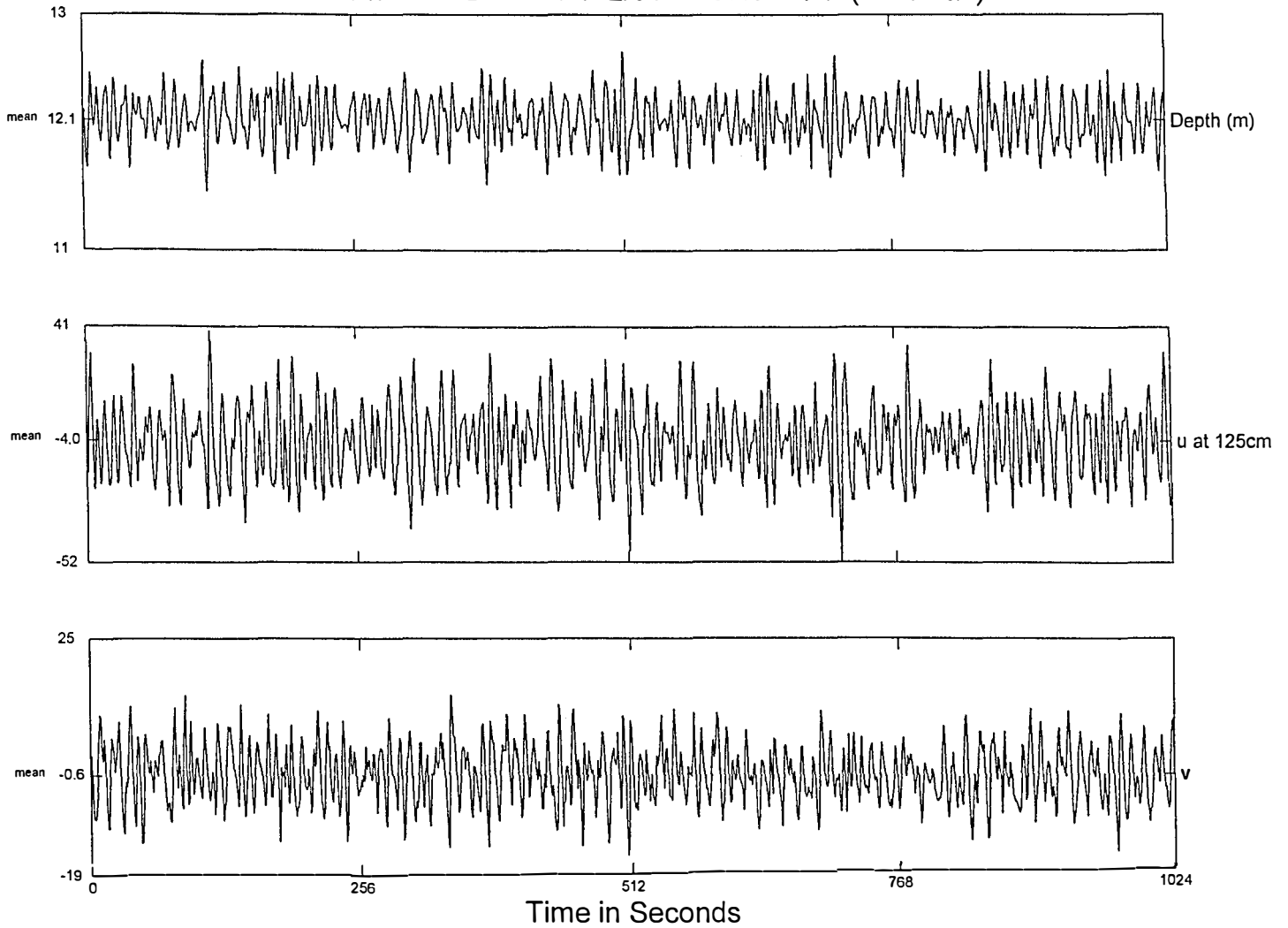




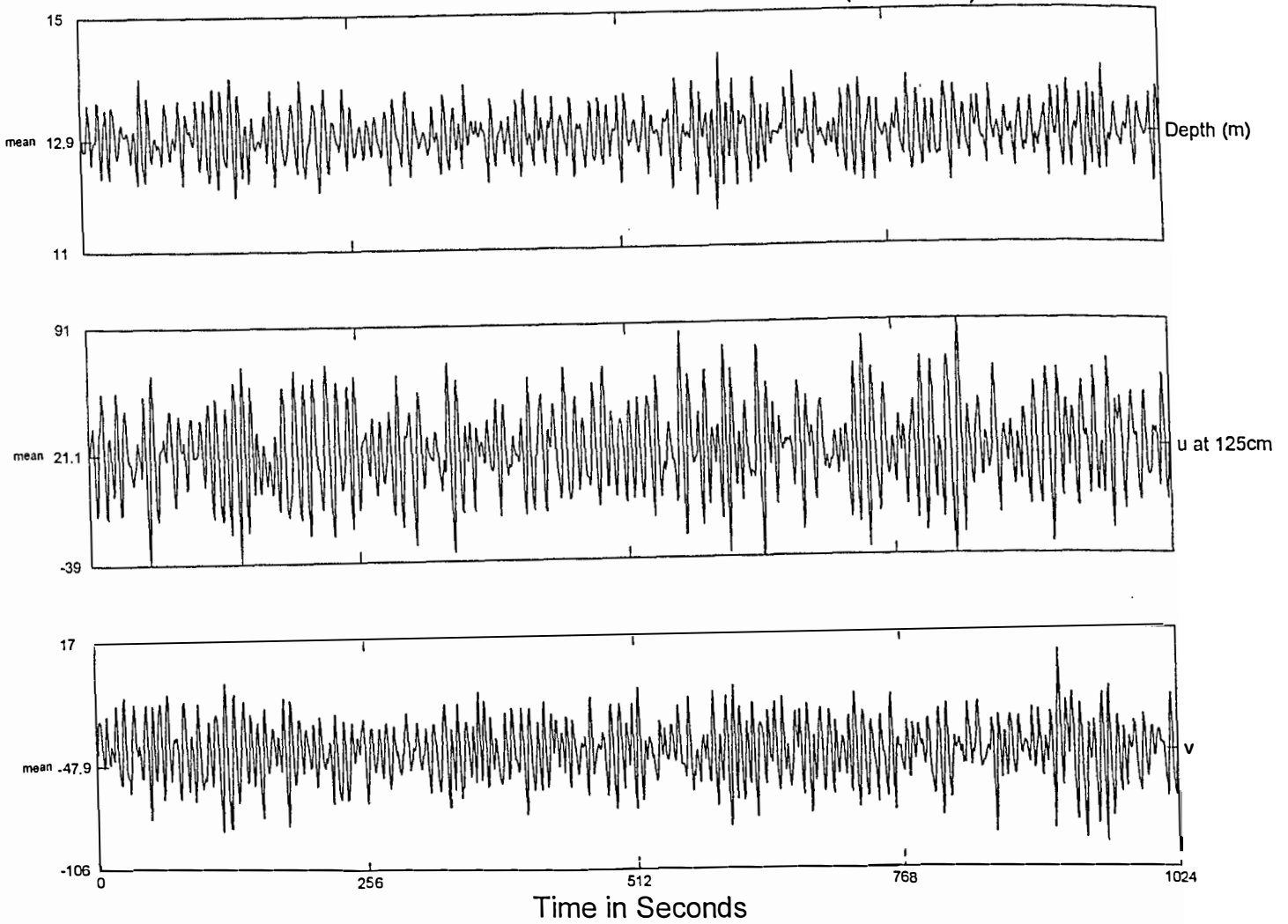
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 09/30/96 BURST 50 (First Half)



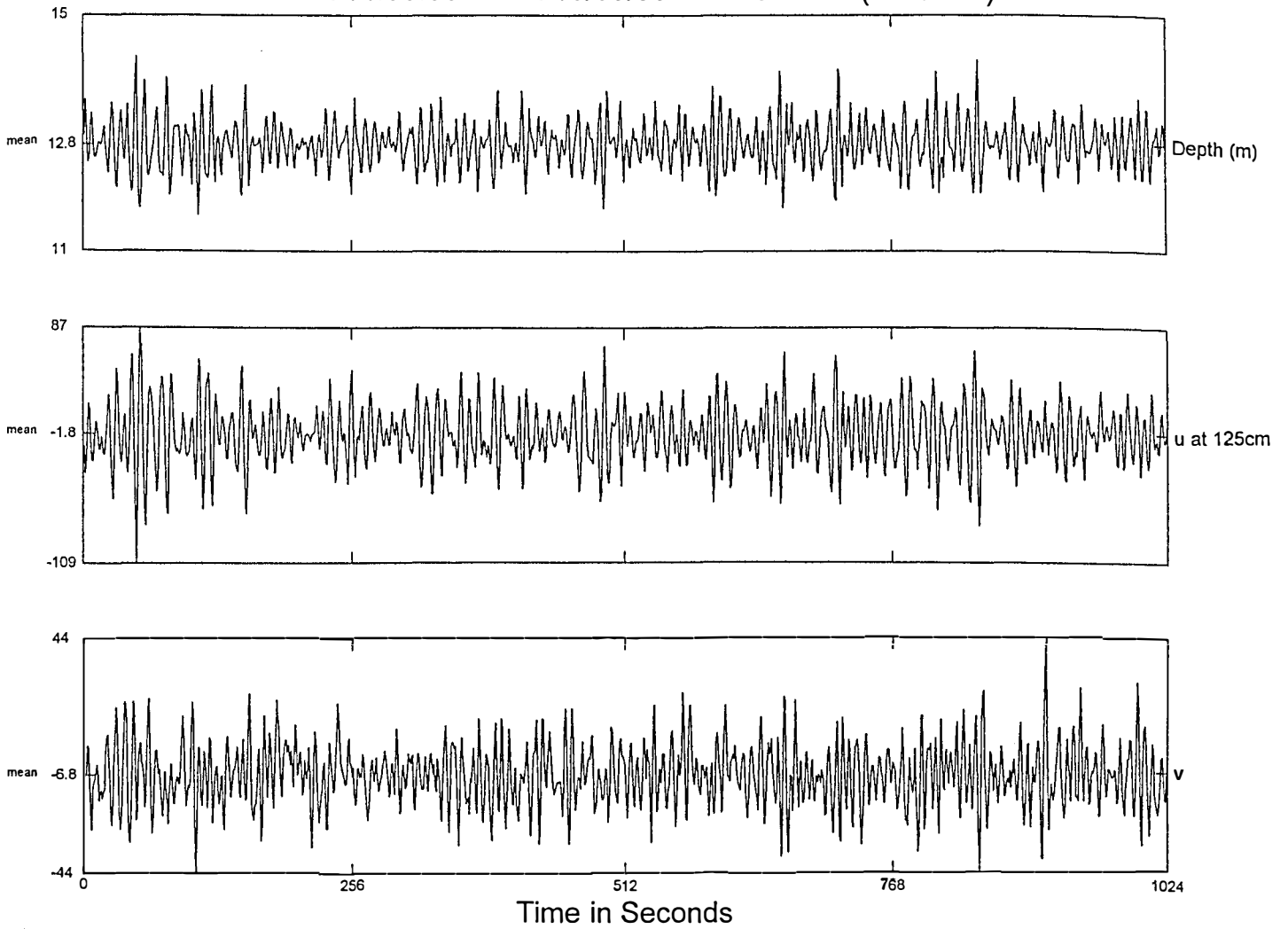
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/02/96 BURST 74 (First Half)



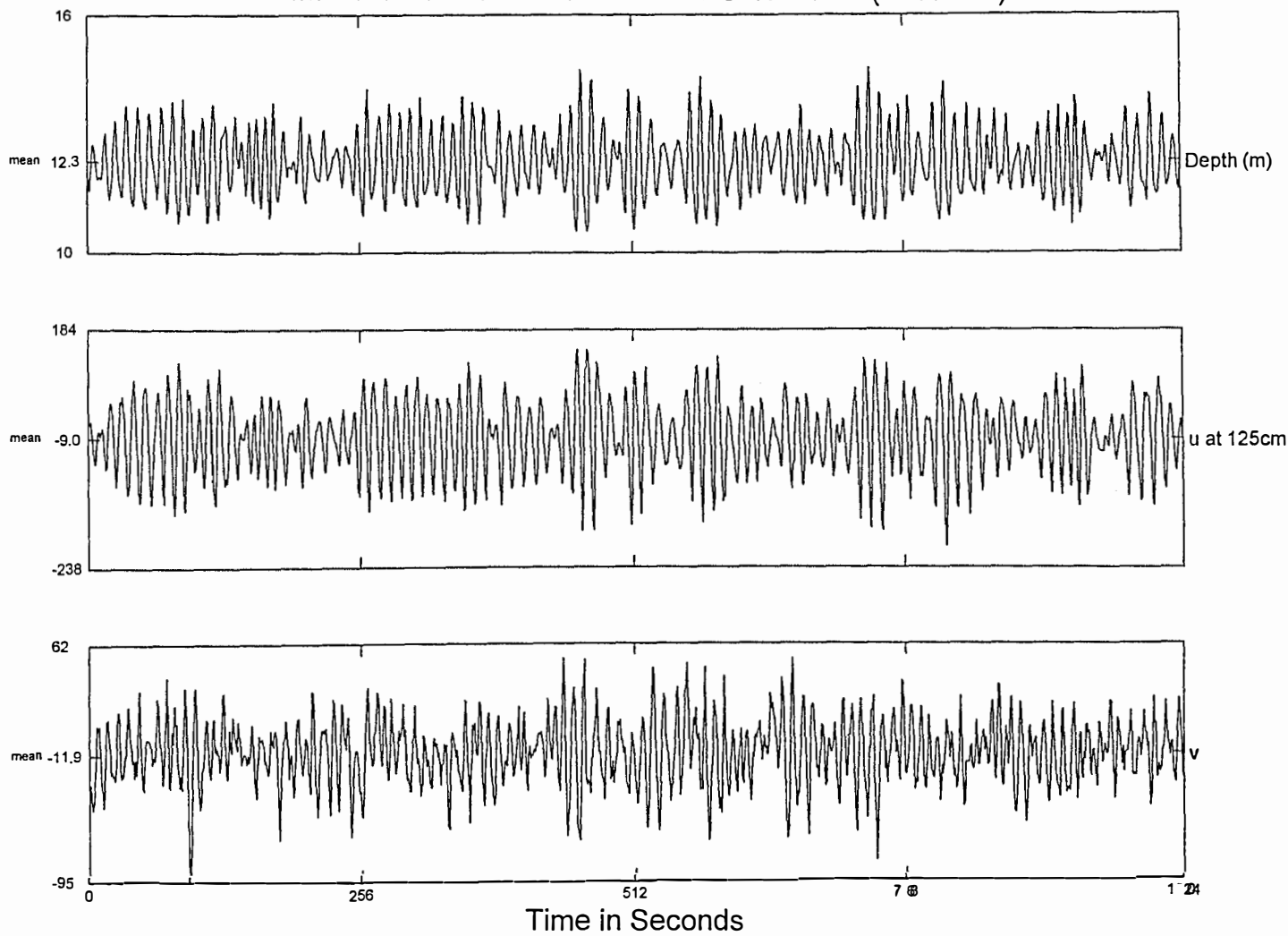
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/04/96 BURST 98 (First Half)



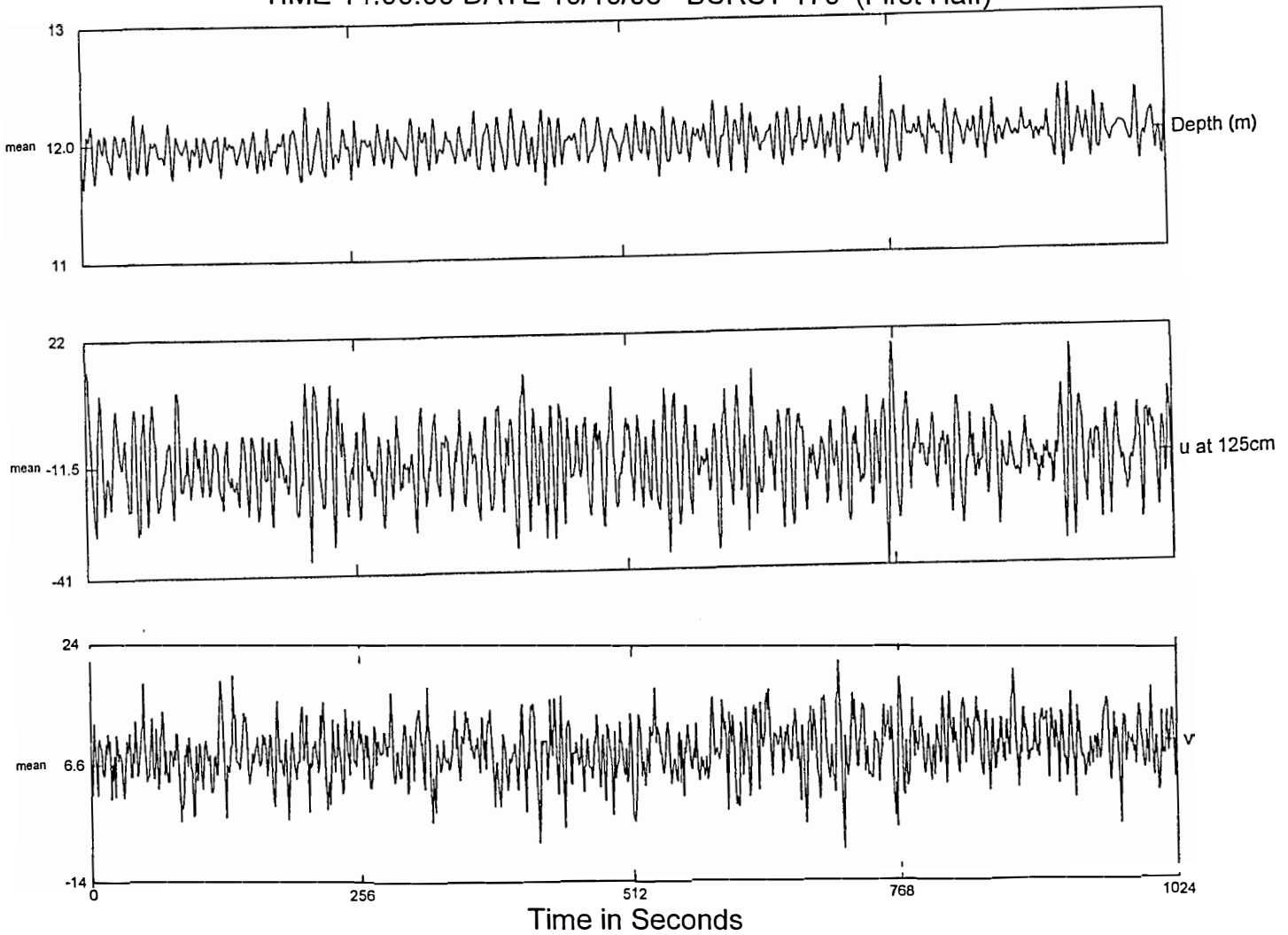
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/06/96 BURST 122 (First Half)



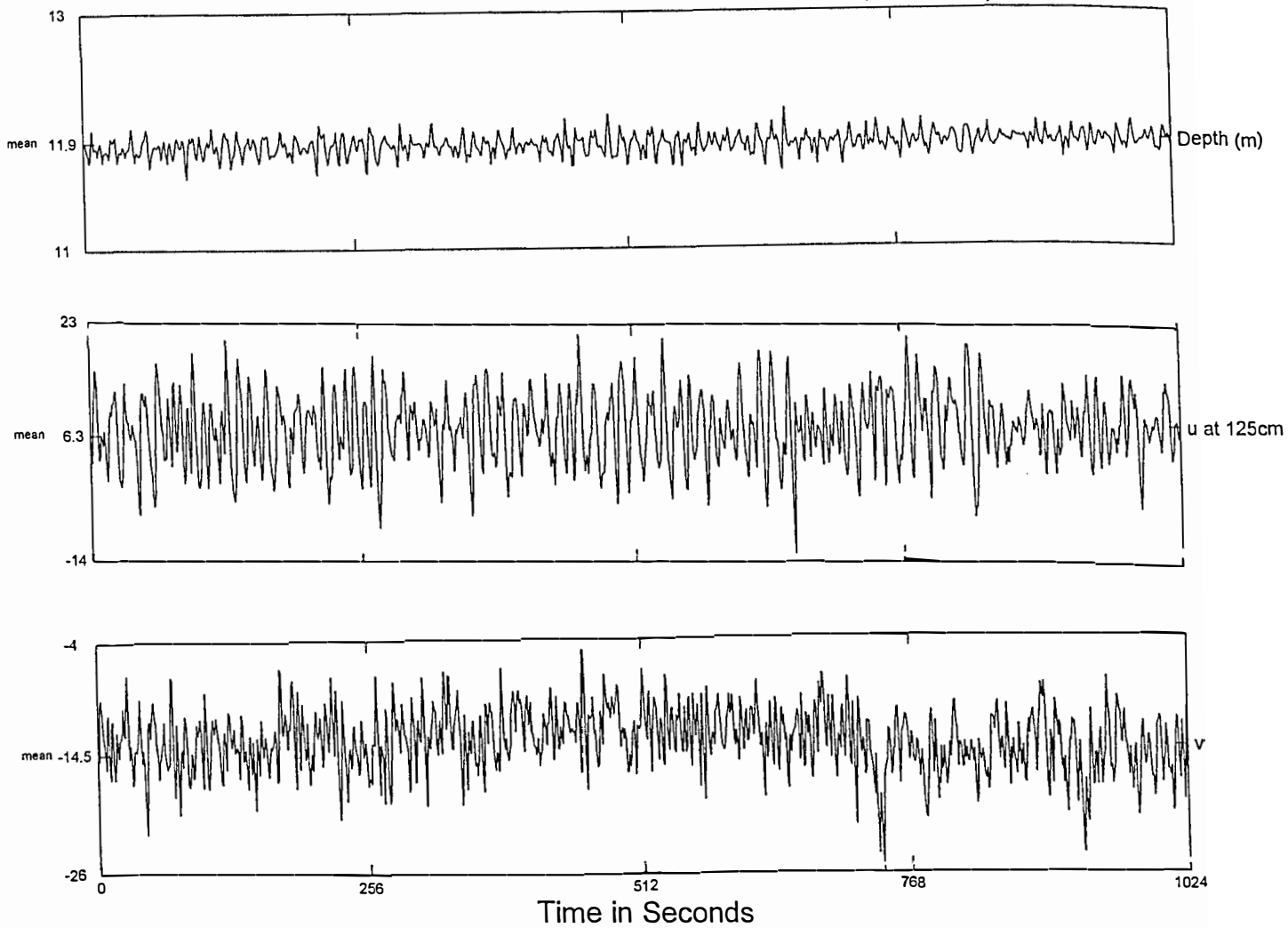
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/08/96 BURST 146 (First Half)



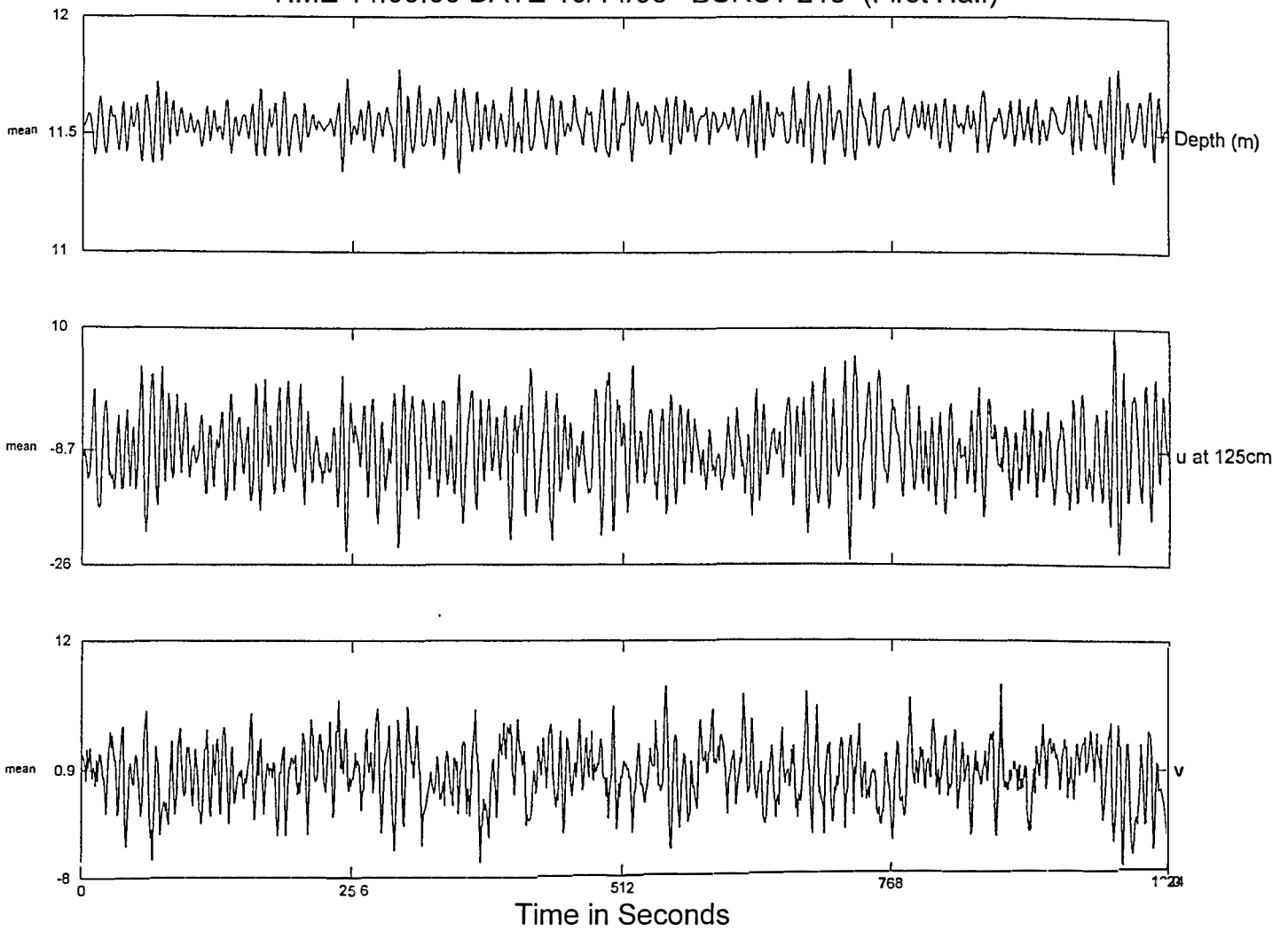
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/10/96 BURST 170 (First Half)



635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/12/96 BURST 194 (First Half)

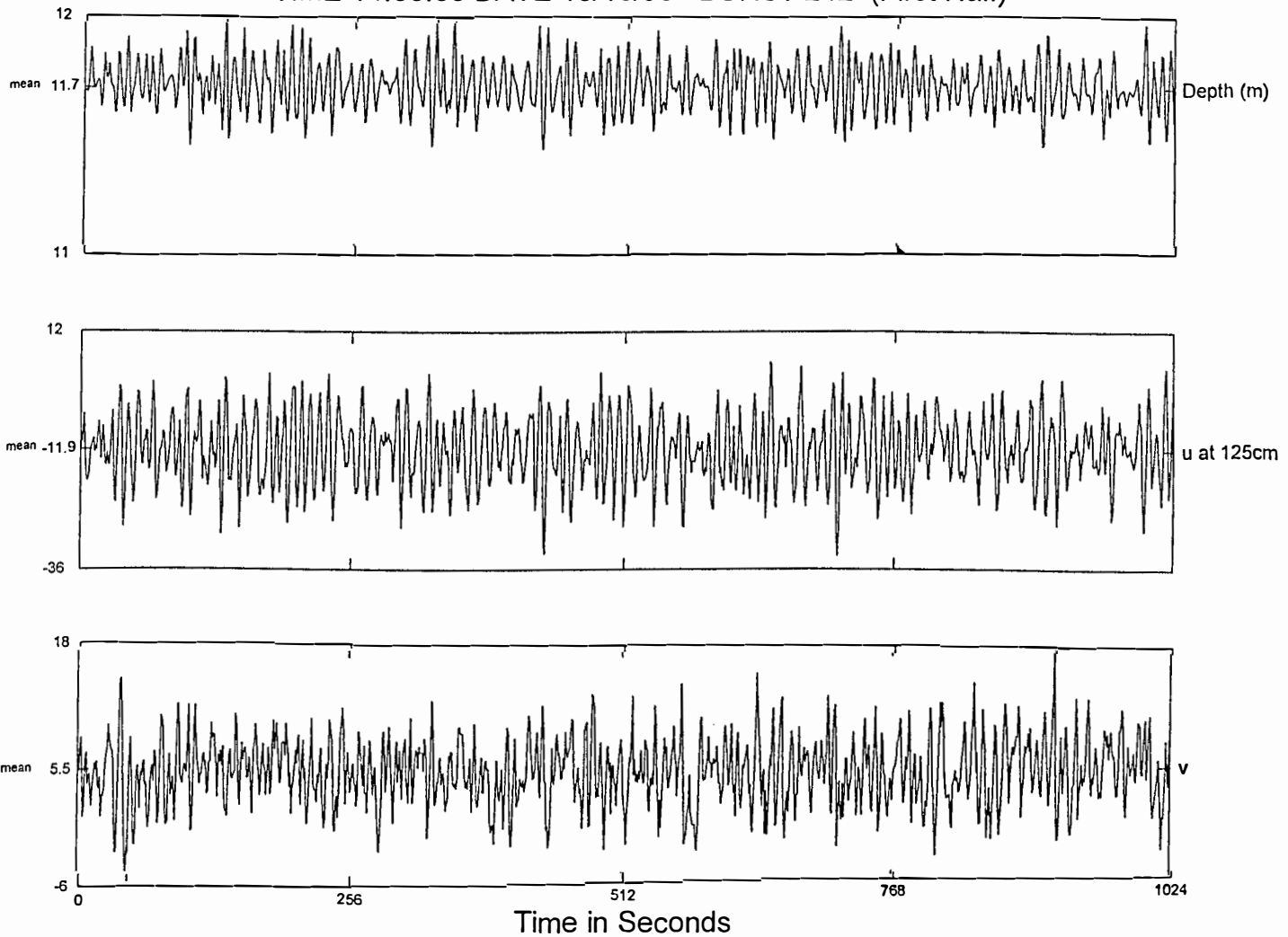


635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/14/96 BURST 218 (First Half)

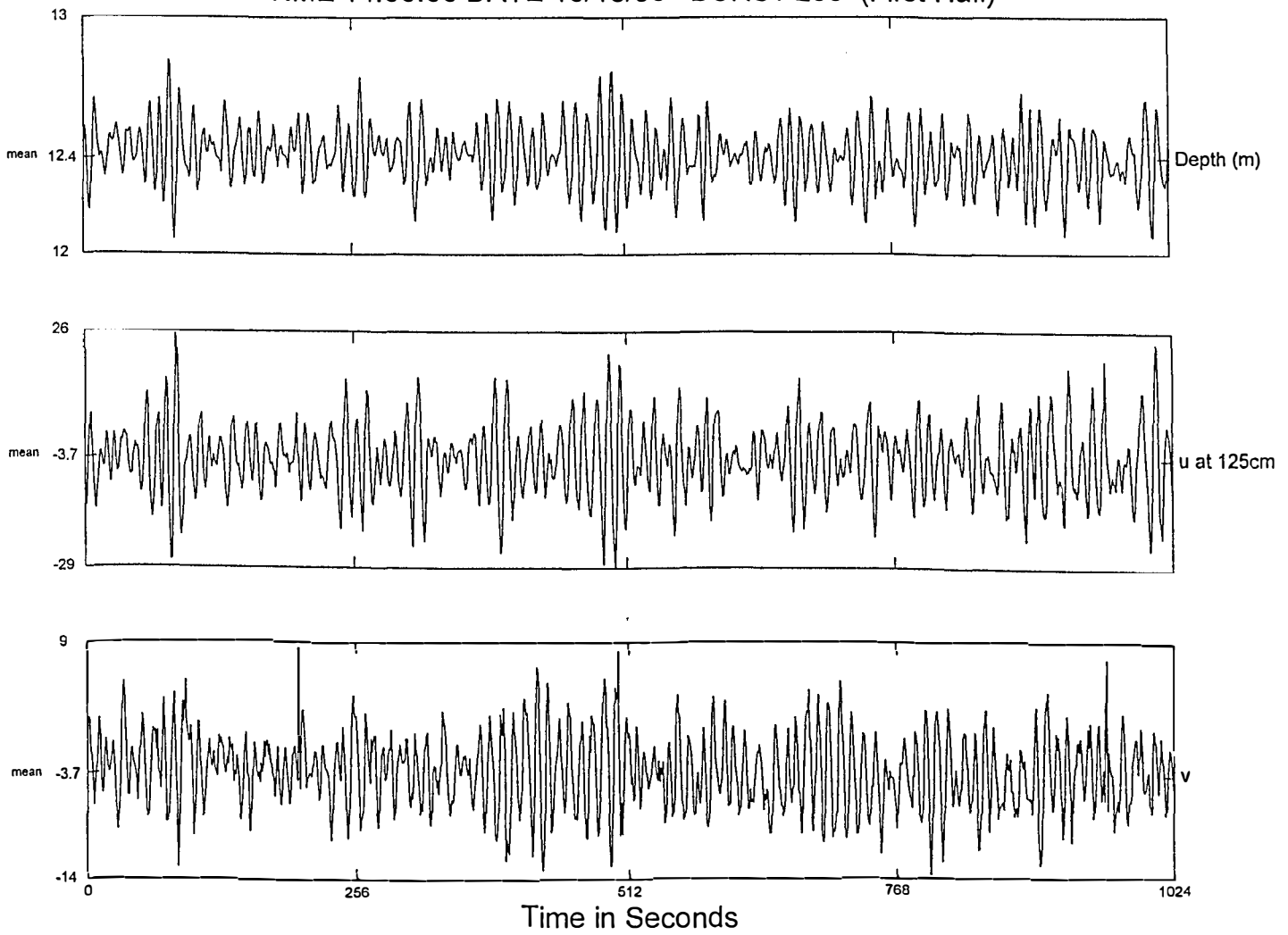




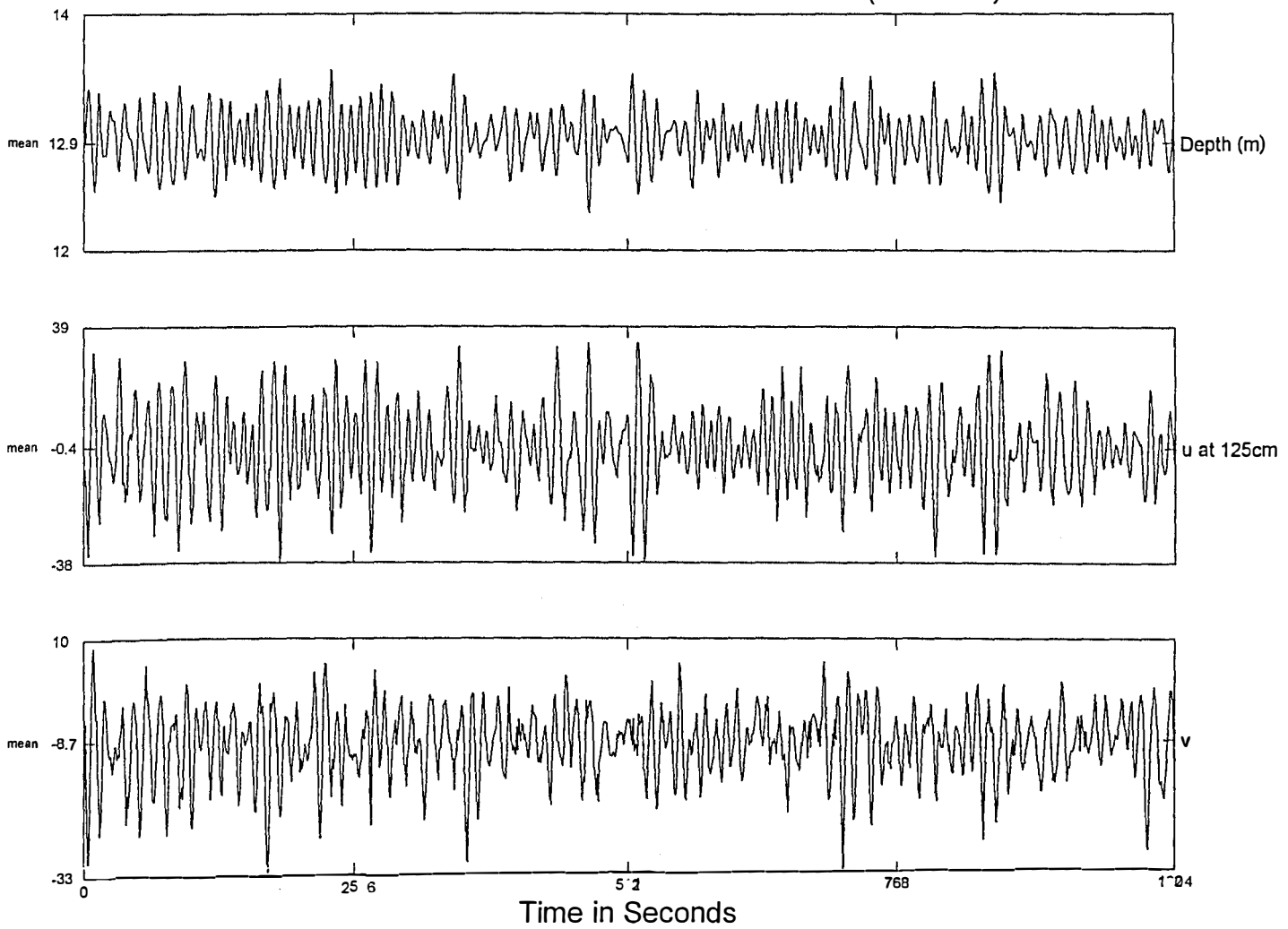
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/16/96 BURST 242 (First Half)



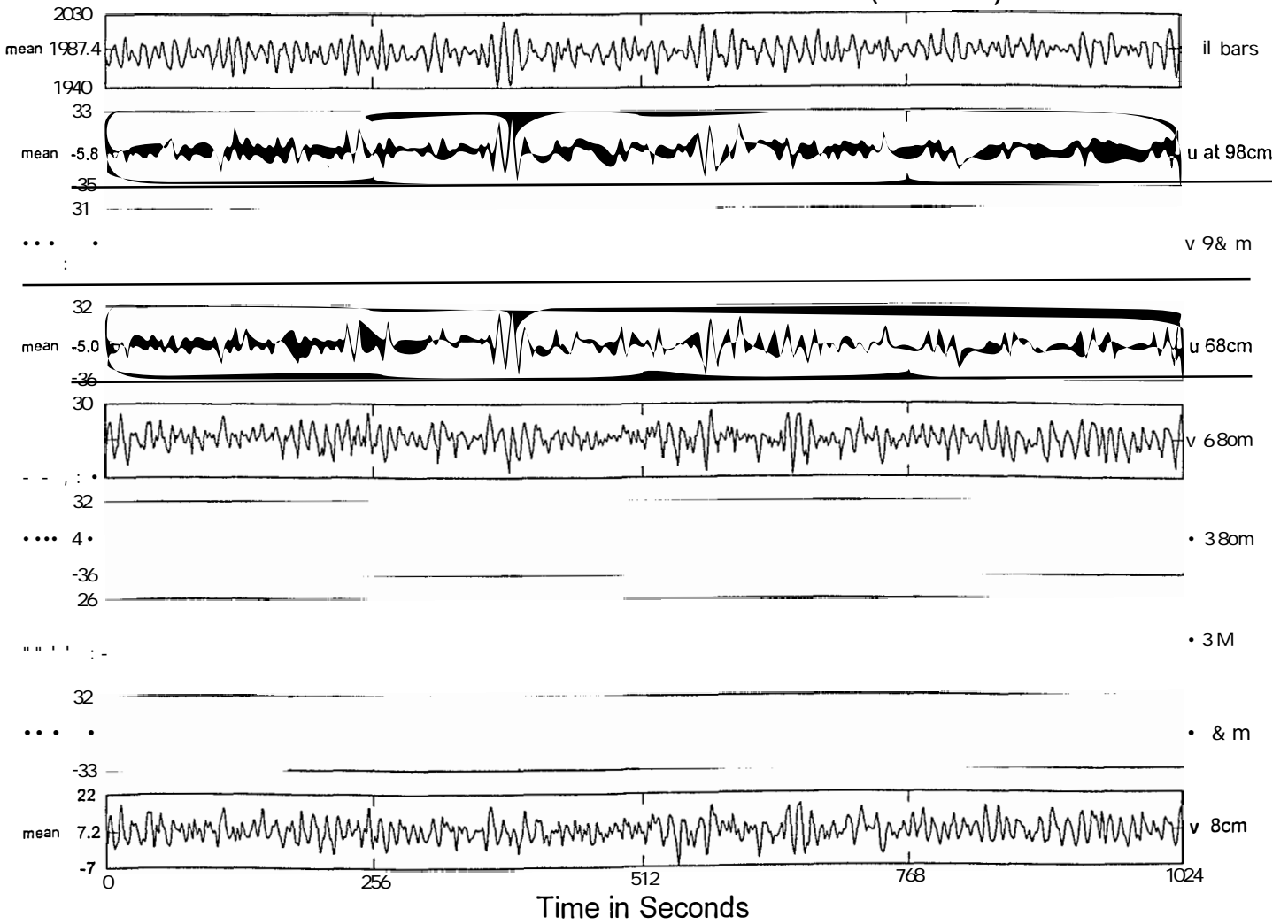
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/18/96 BURST 266 (First Half)



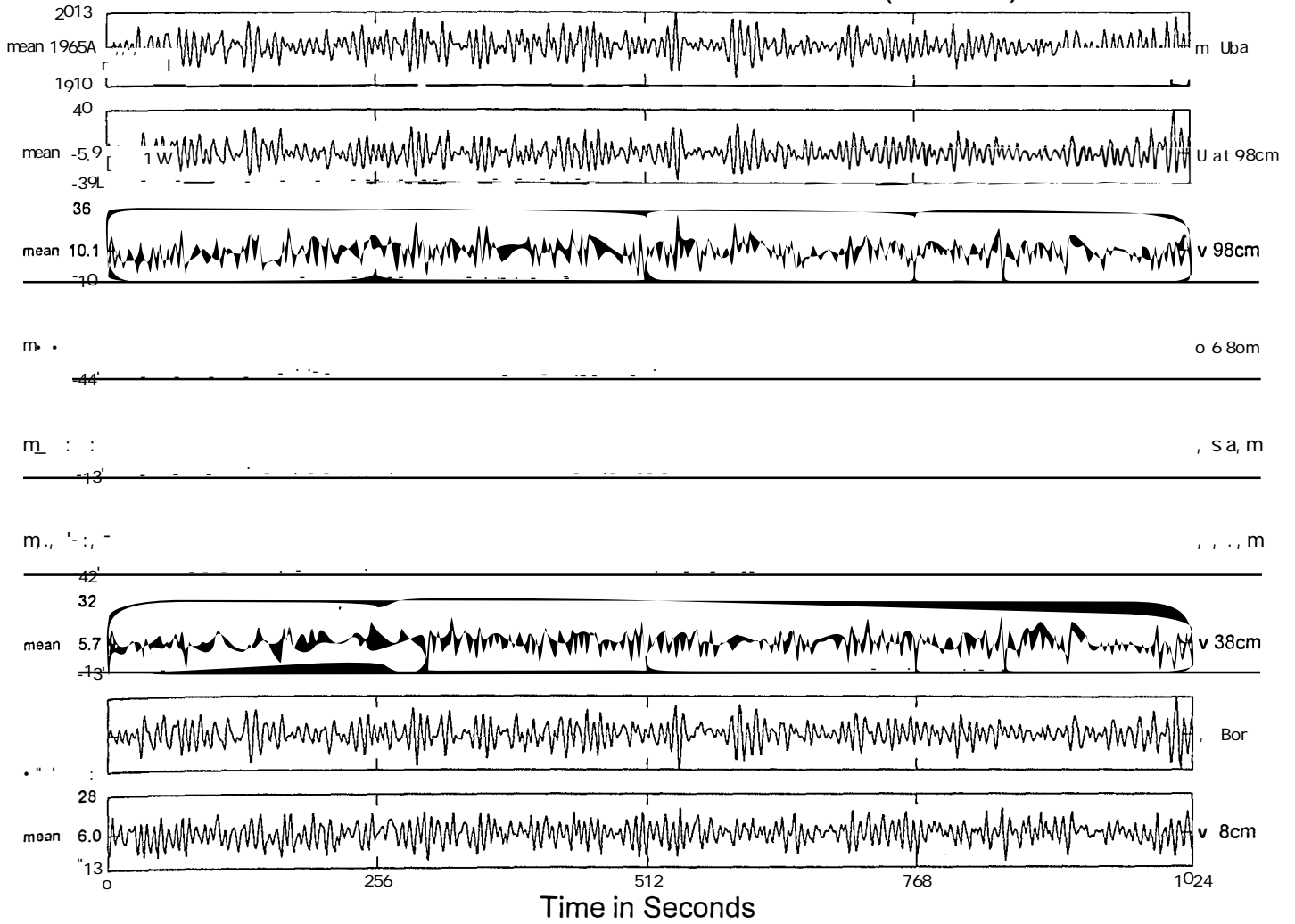
635 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/20/96 BURST 290 (First Half)



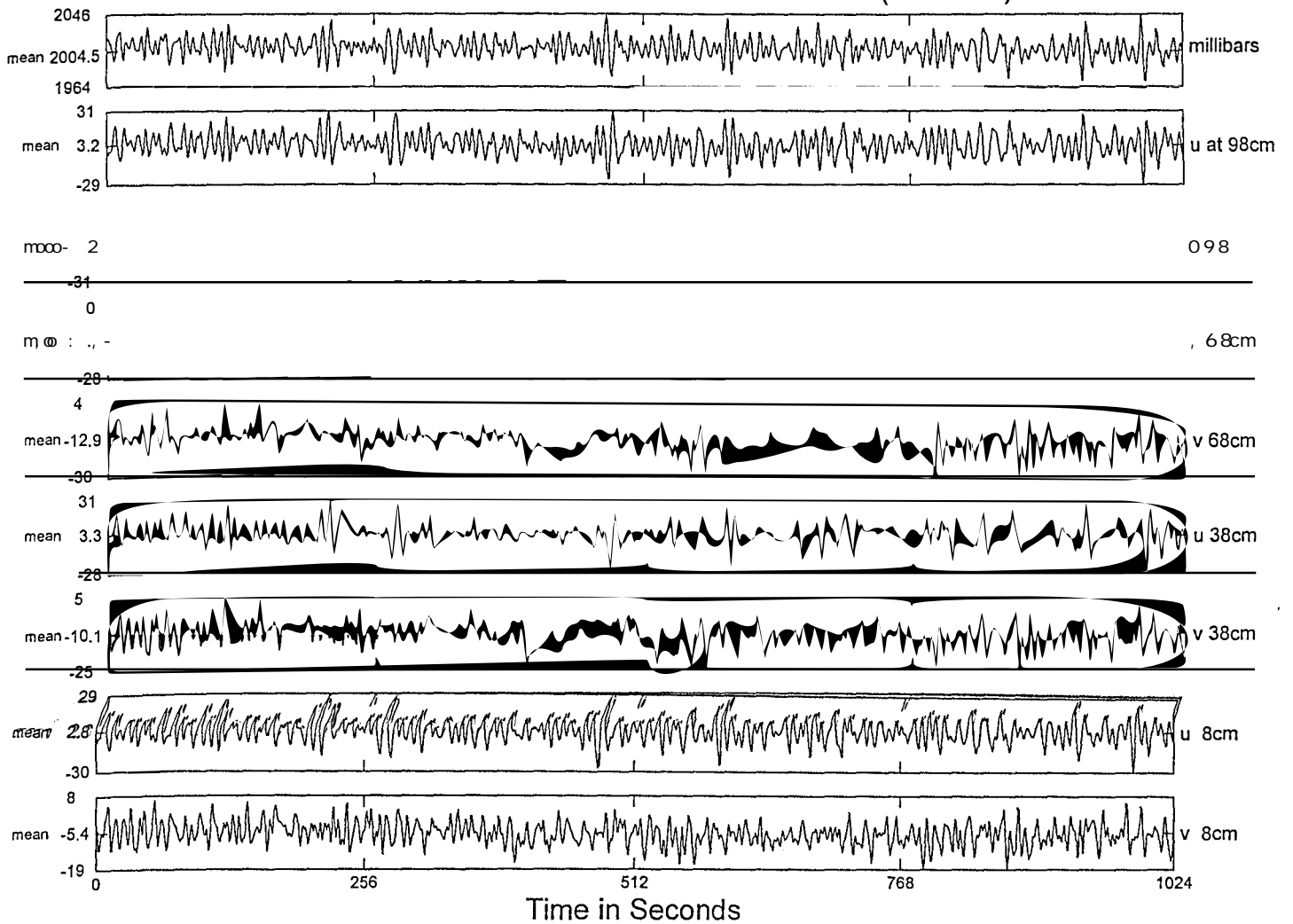
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
 TIME 14:00:00 DATE 09/26/96 BURST 2 (First Half)



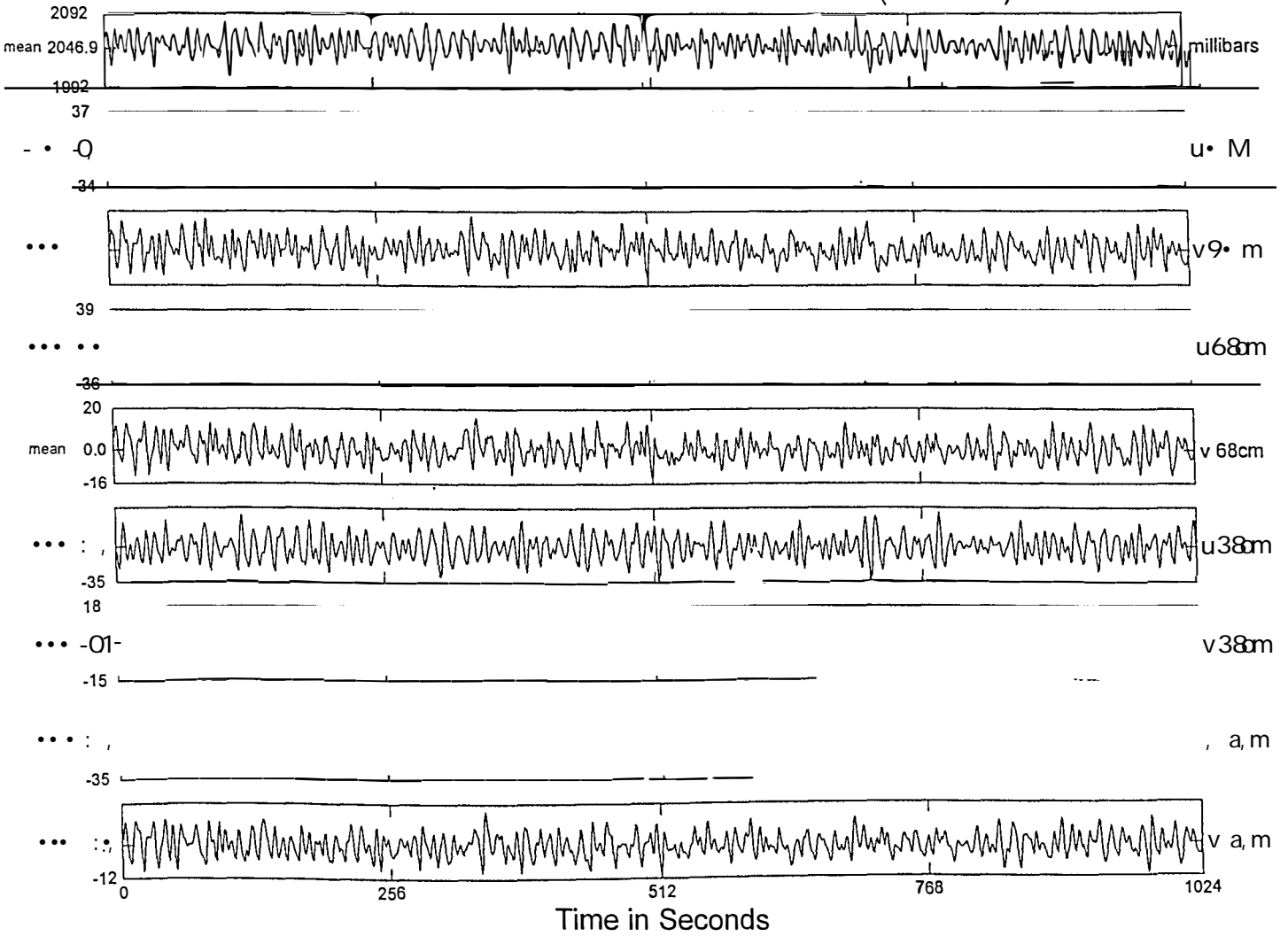
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
 TIME 14:00:00 DATE 09/28/96 BURST 26 (First Half)



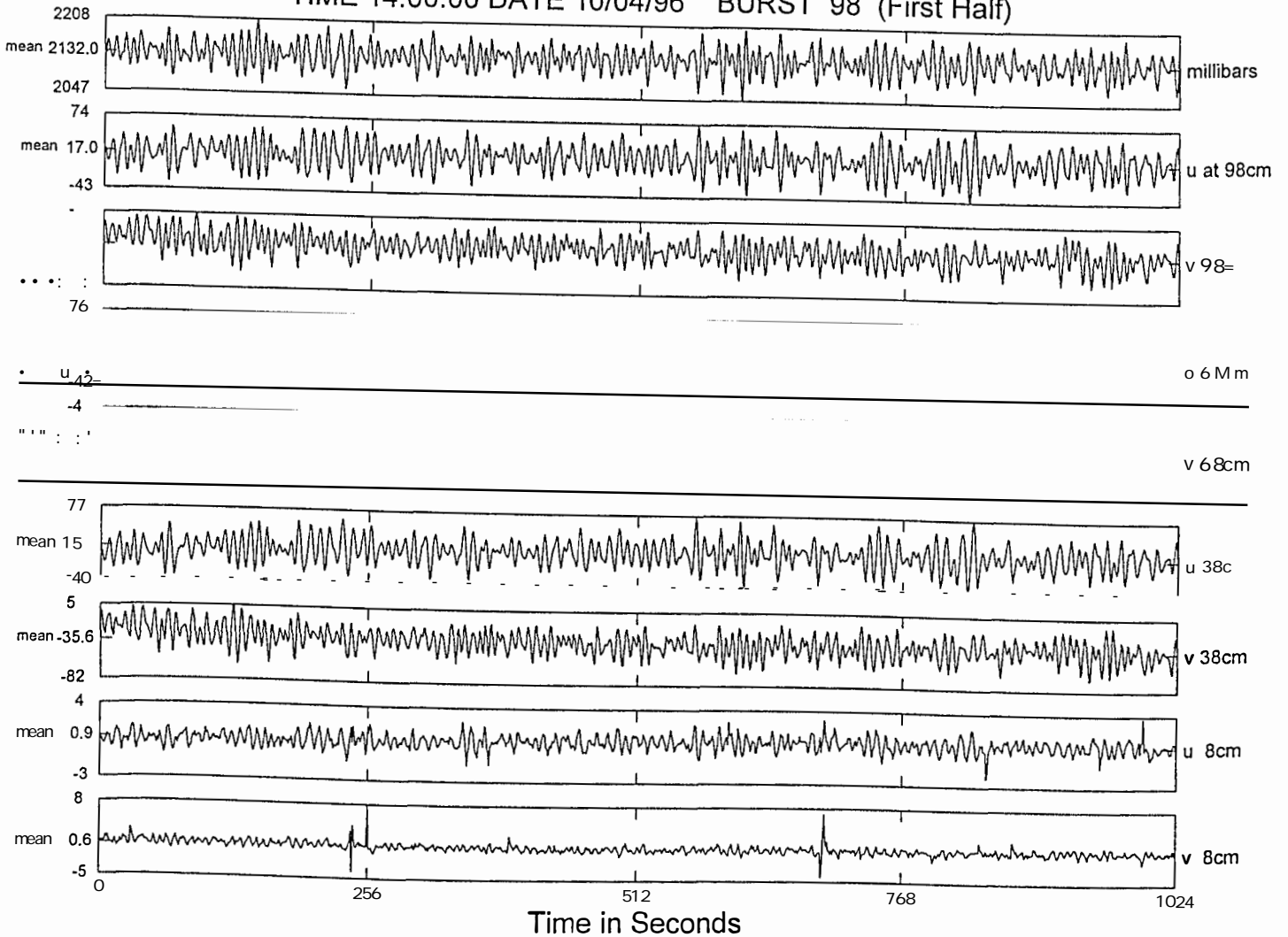
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 09/30/96 BURST 50 (First Half)



626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
 TIME 14:00:00 DATE 10/02/96 BURST 74 (First Half)

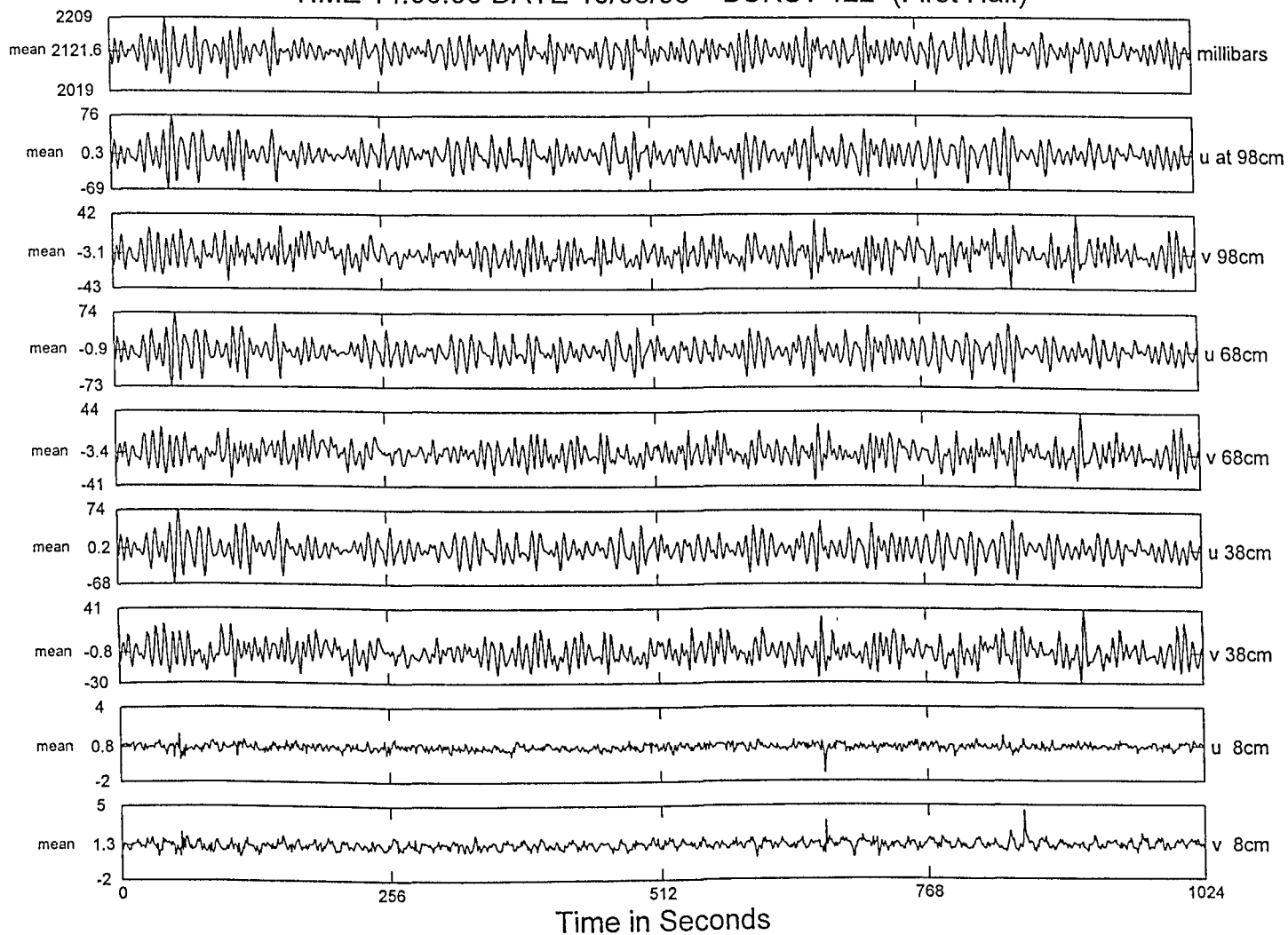


626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
 TIME 14:00:00 DATE 10/04/96 BURST 98 (First Half)

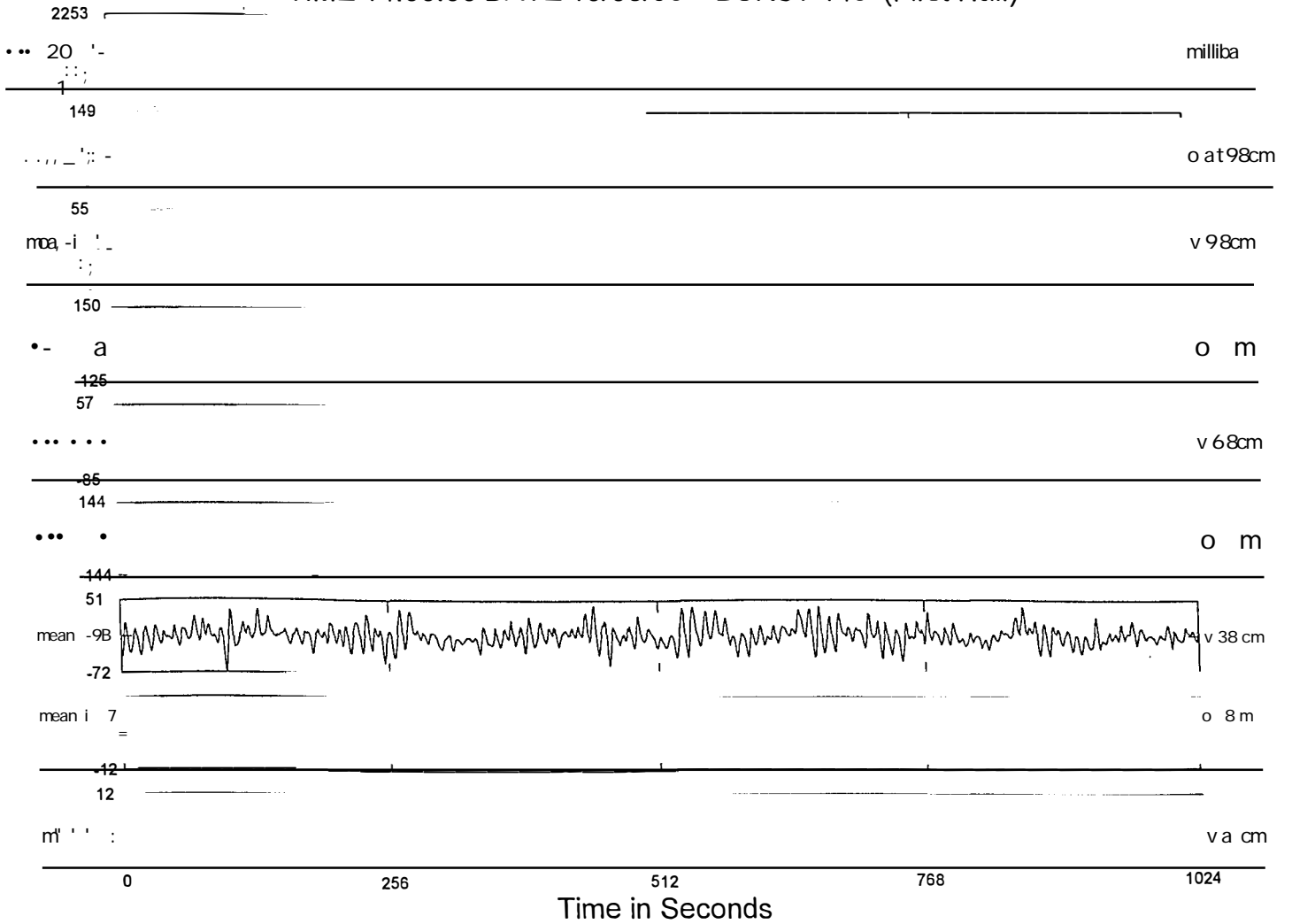




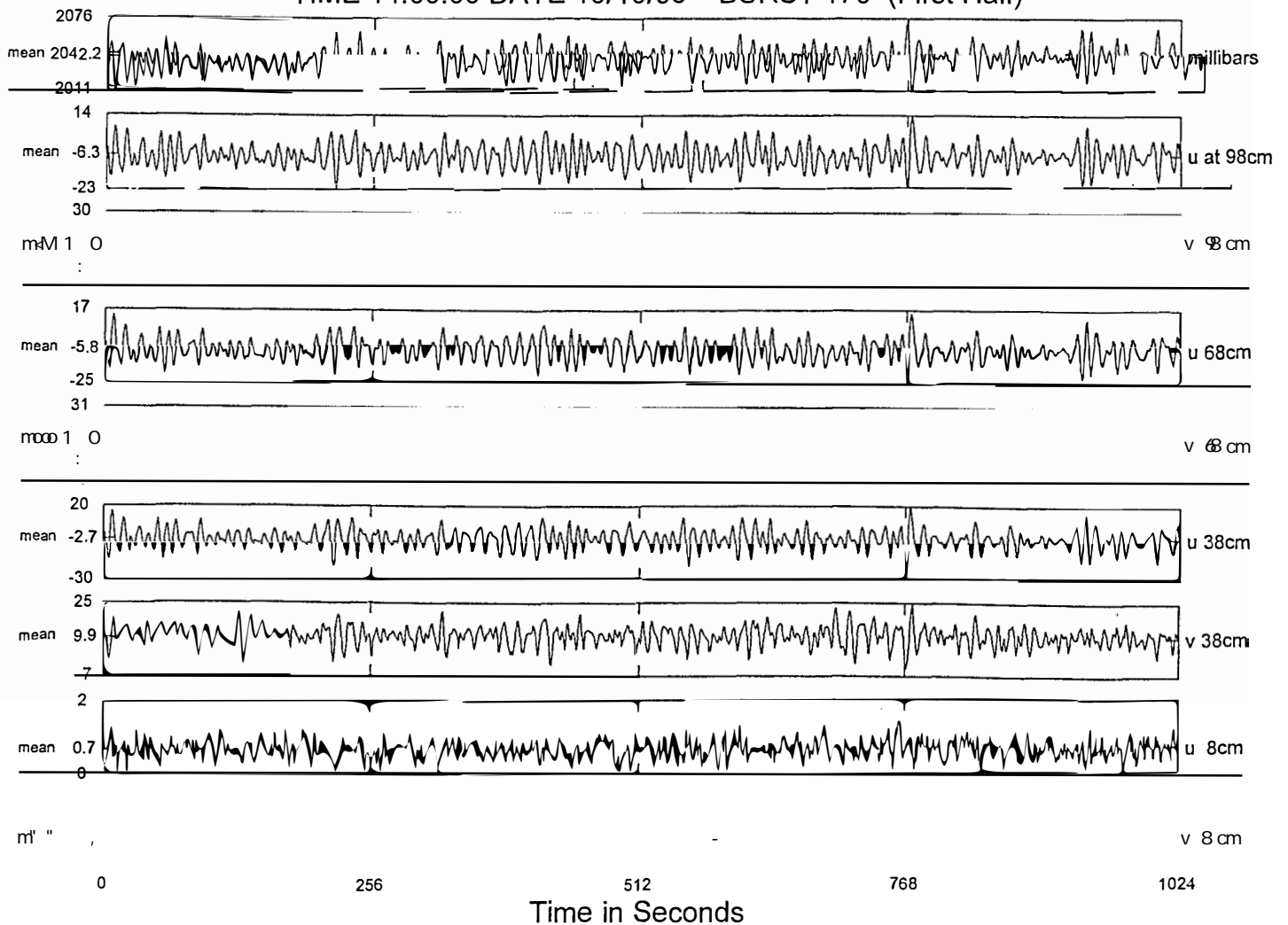
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/06/96 BURST 122 (First Half)



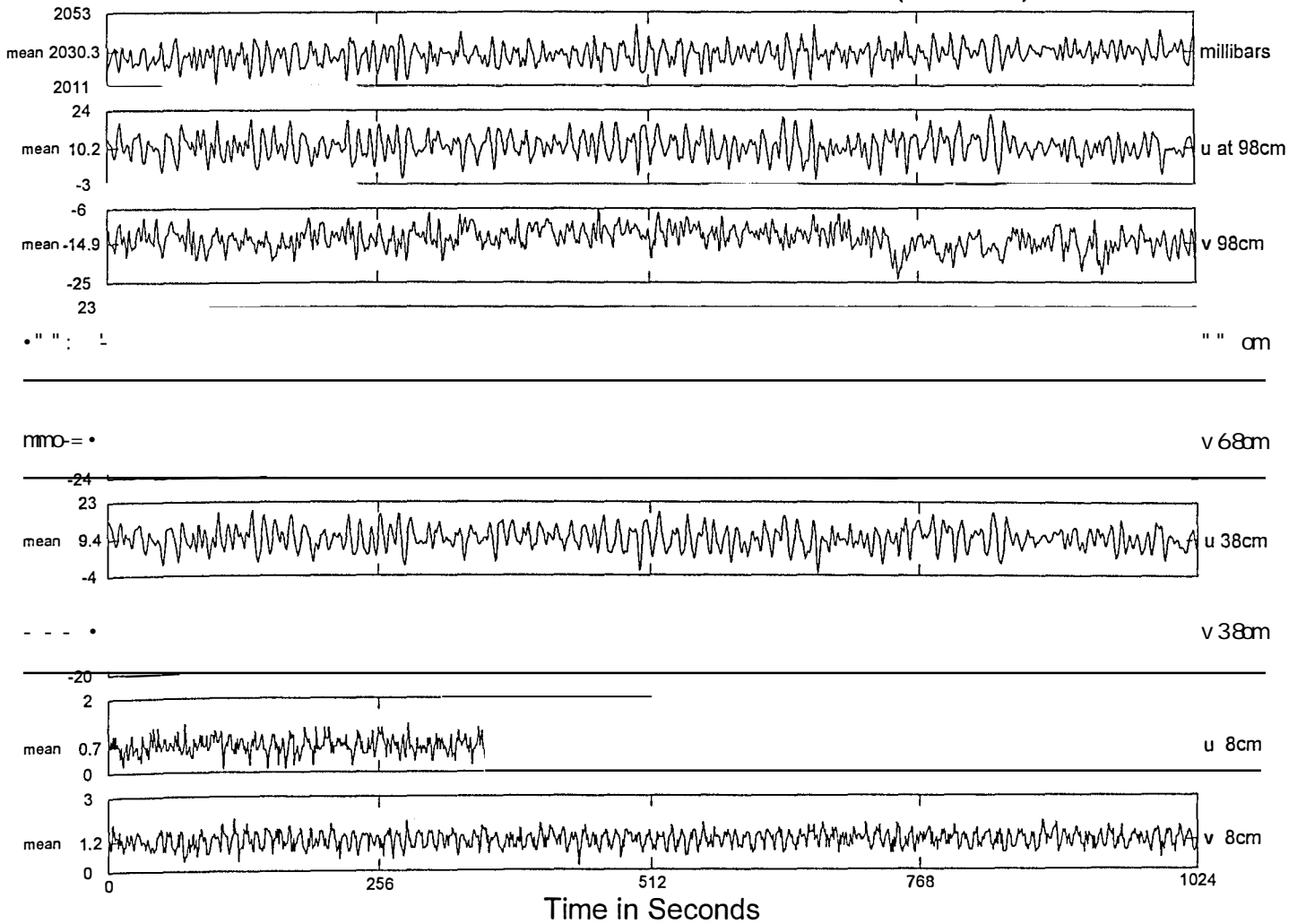
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
 TIME 14:00:00 DATE 10/08/96 BURST 146 (First Half)



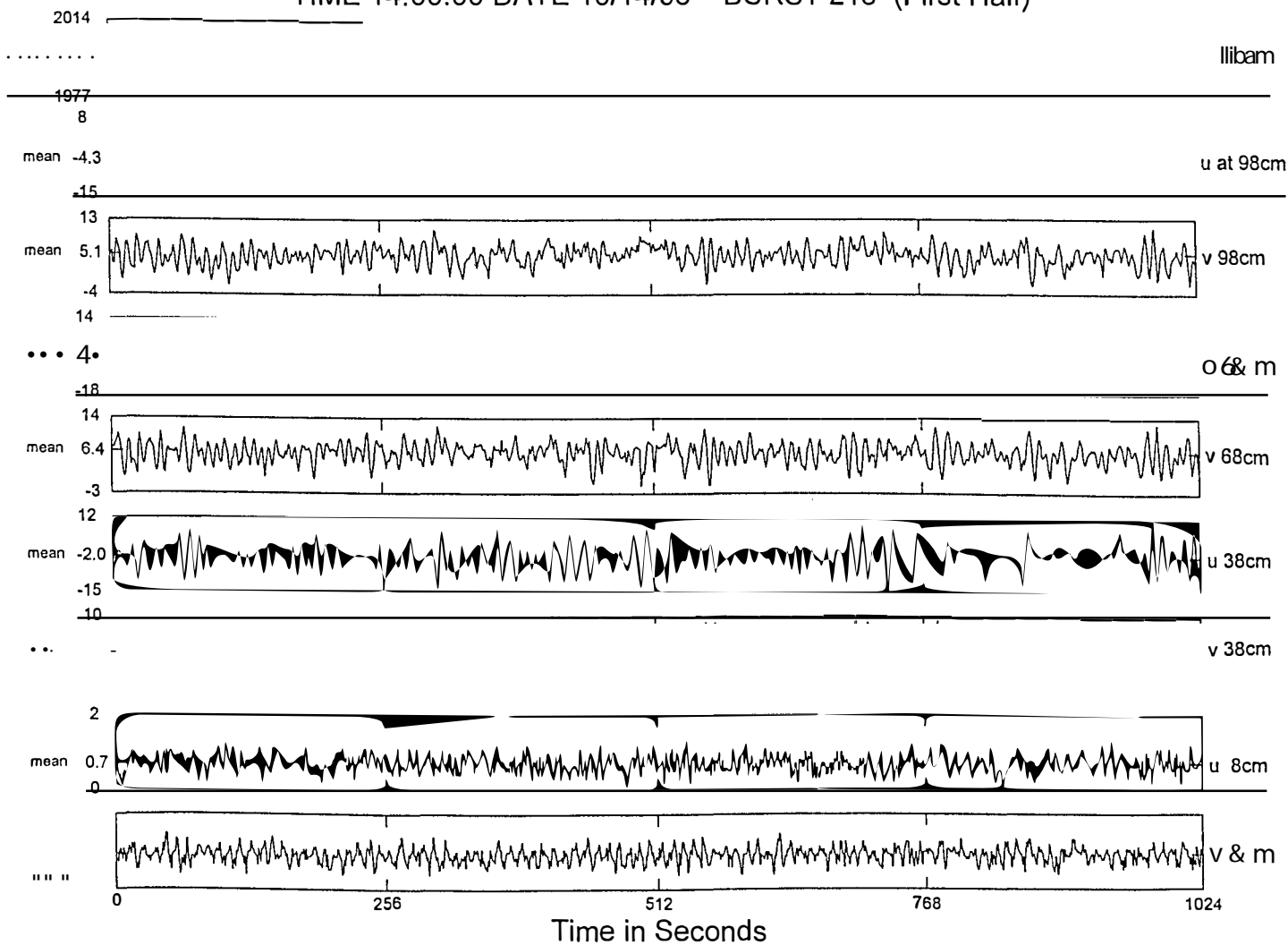
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
 TIME 14:00:00 DATE 10/10/96 BURST 170 (First Half)



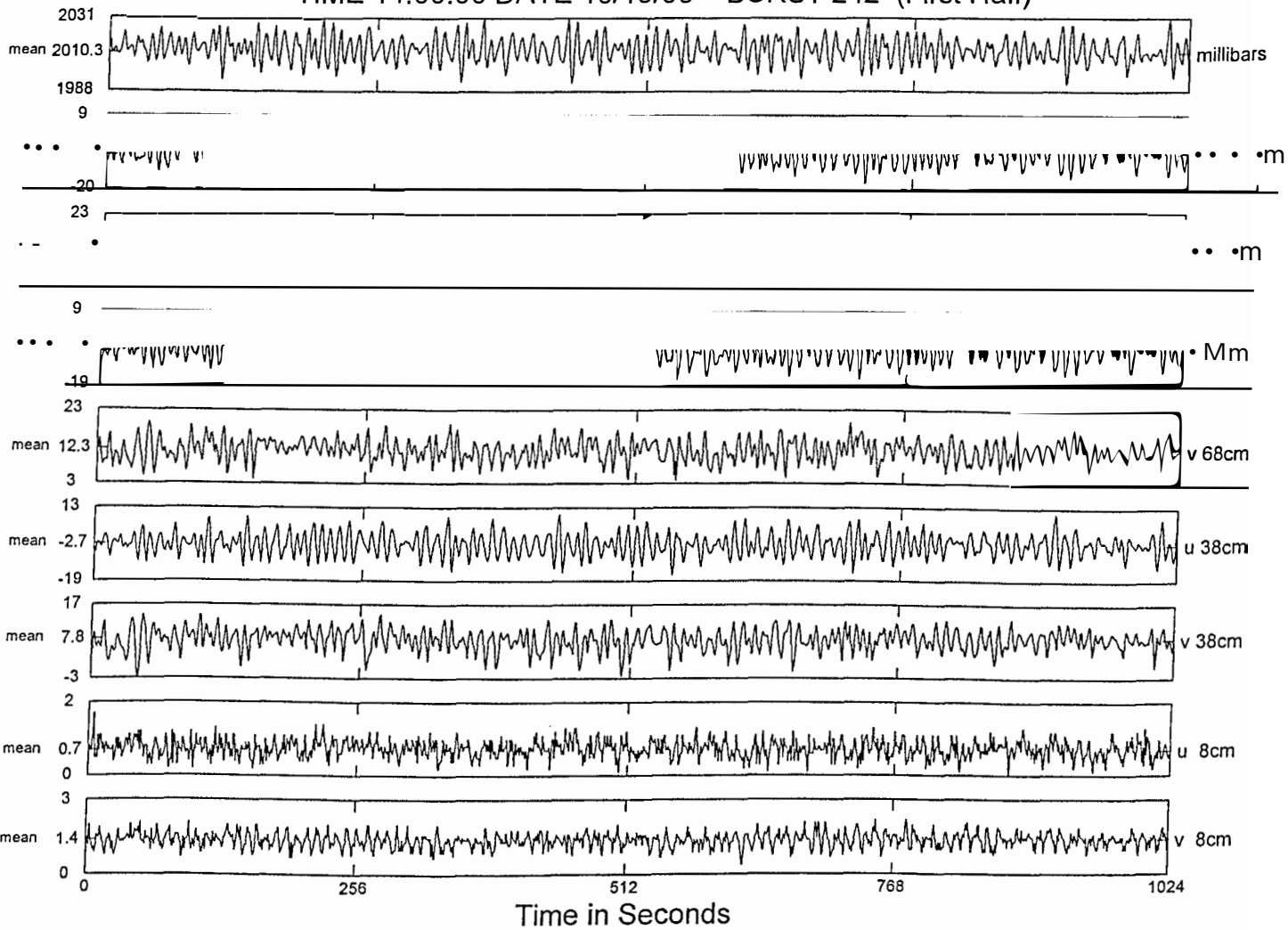
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/12/96 BURST 194 (First Half)



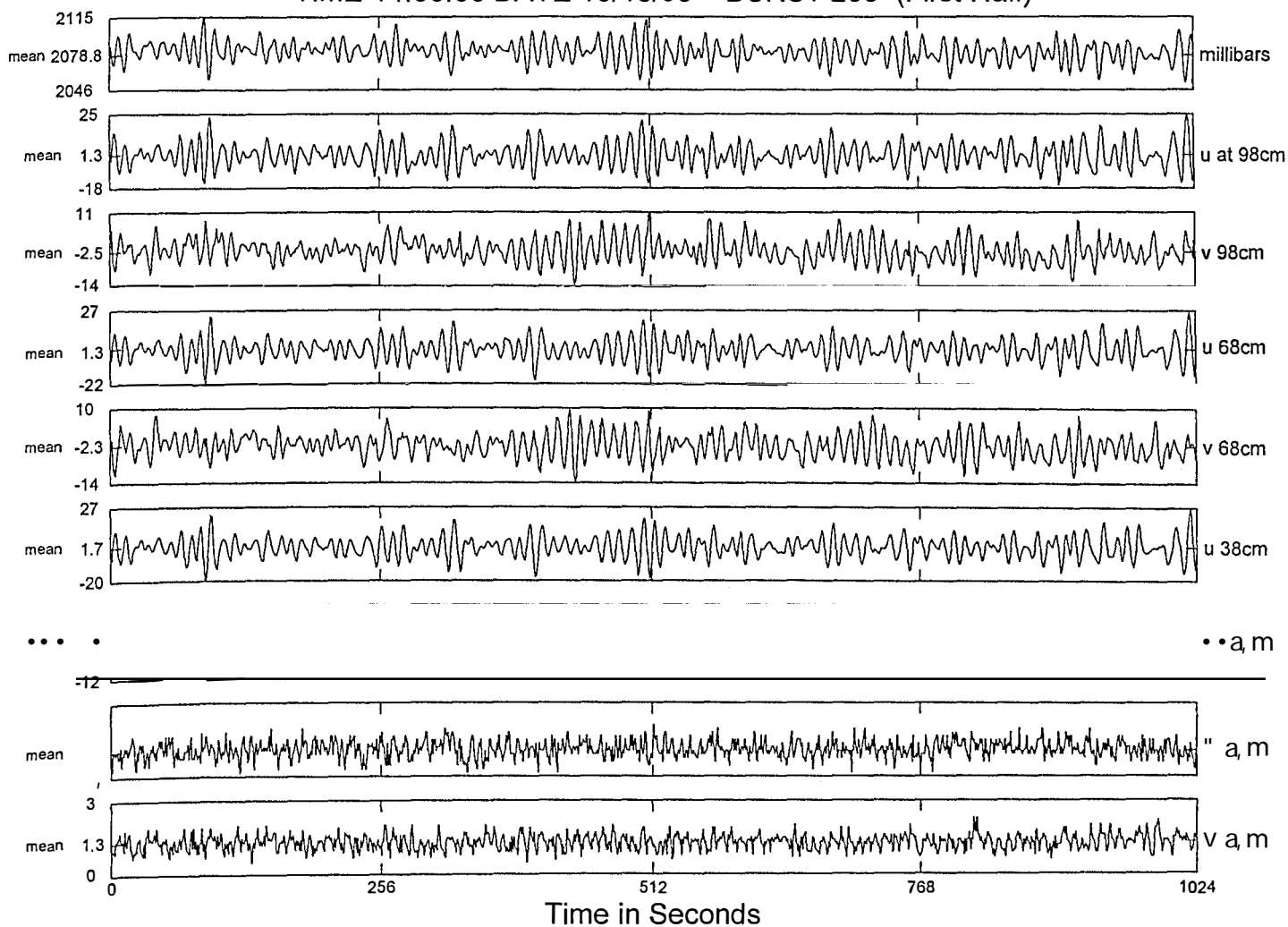
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/14/96 BURST 218 (First Half)



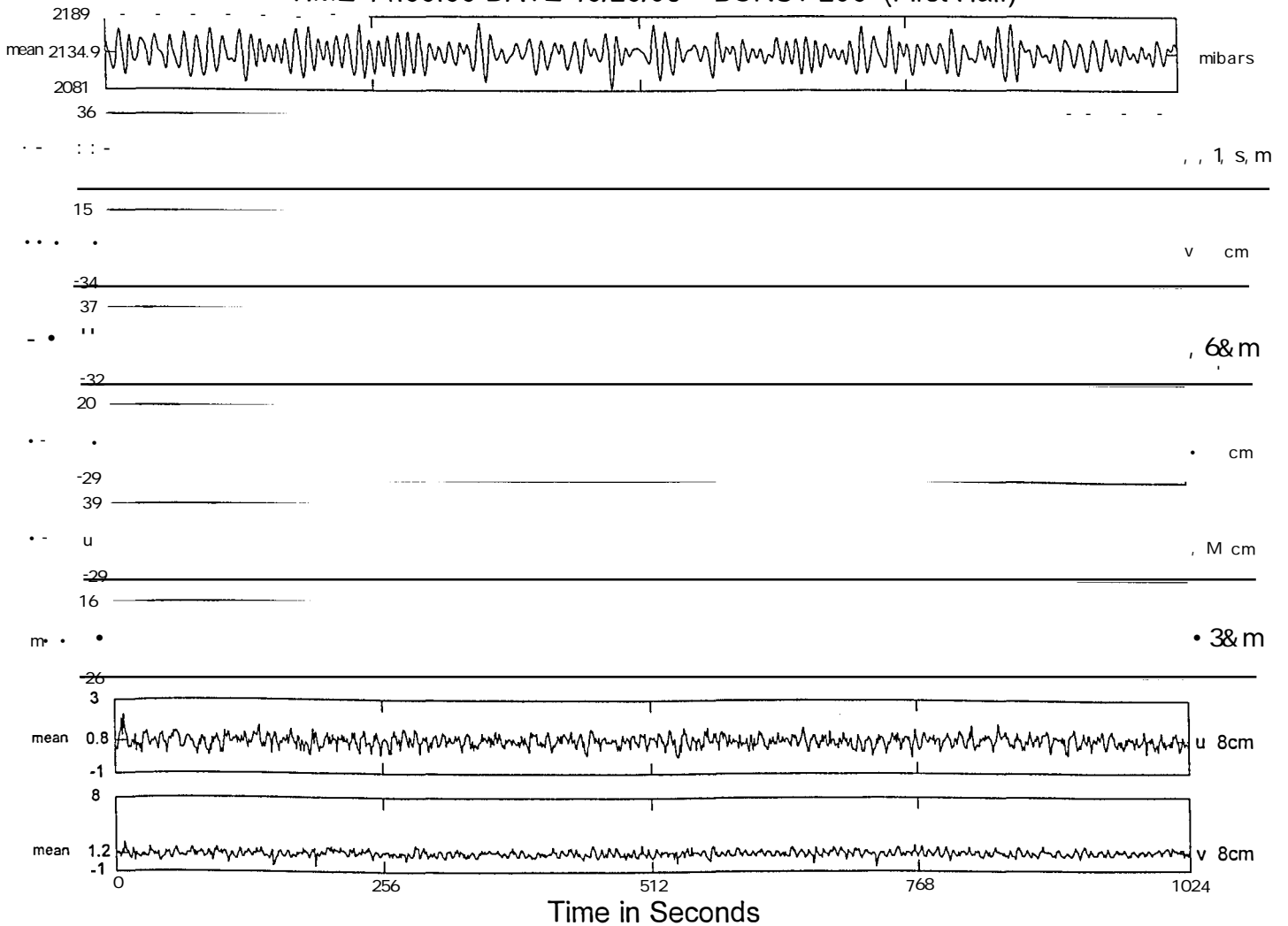
626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/16/96 BURST 242 (First Half)



626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
TIME 14:00:00 DATE 10/18/96 BURST 266 (First Half)

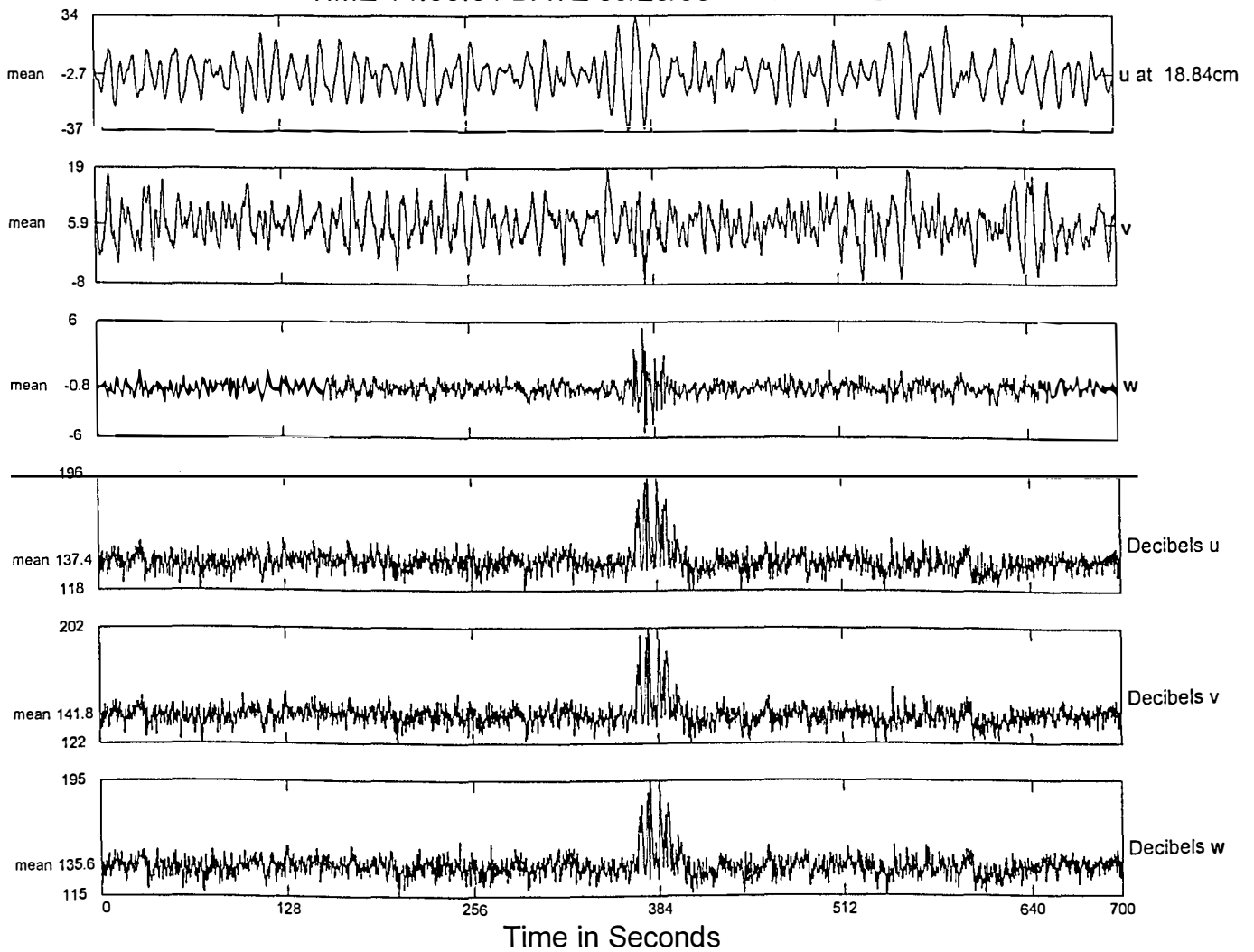


626 Burst Data from Duck96A Inshore Pod (u +East v +North in cm/s)  
 TIME 14:00:00 DATE 10/20/96 BURST 290 (First Half)

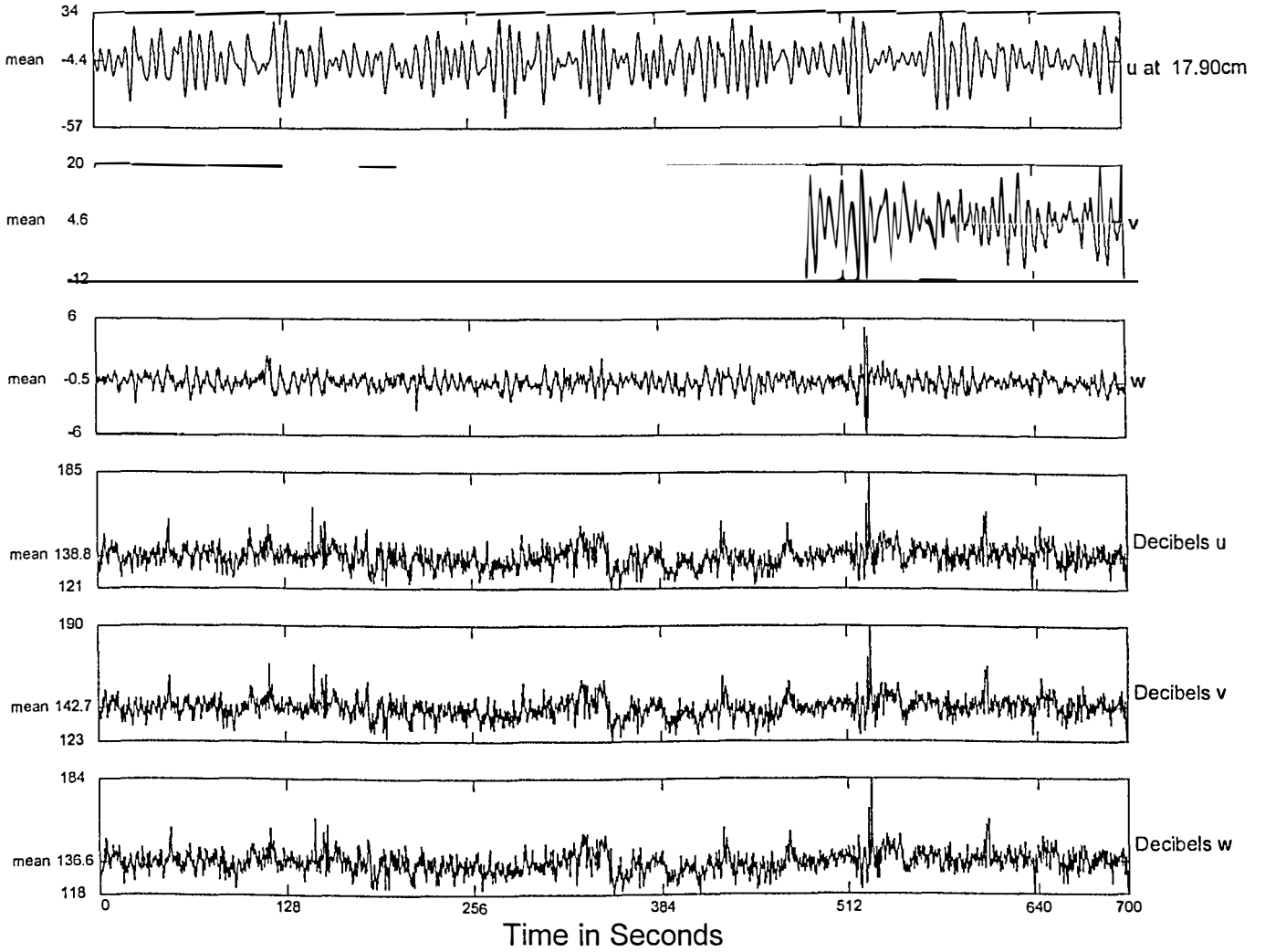




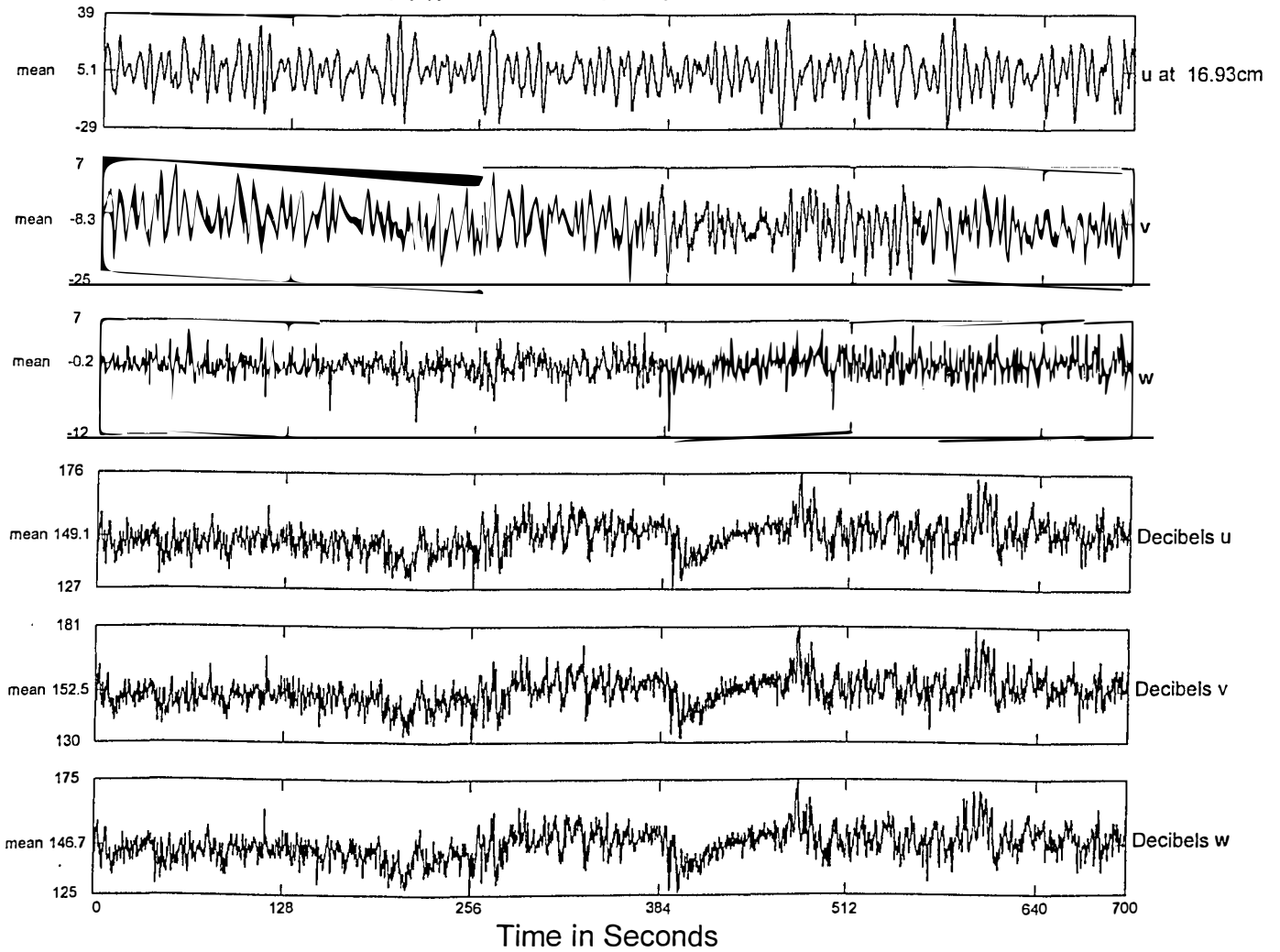
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:01 DATE 09/26/96 BURST 2



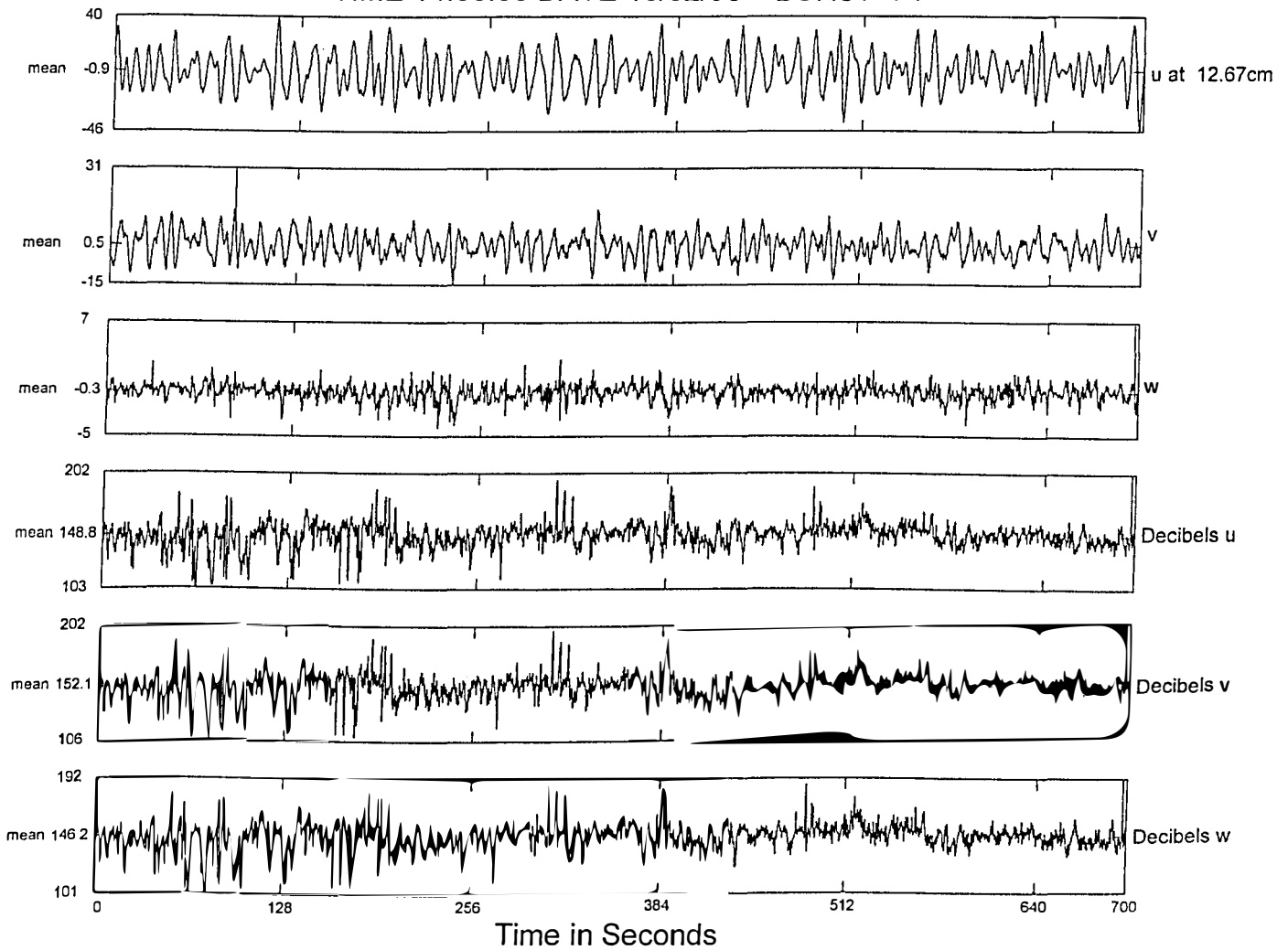
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:01 DATE 09/28/96 BURST 26



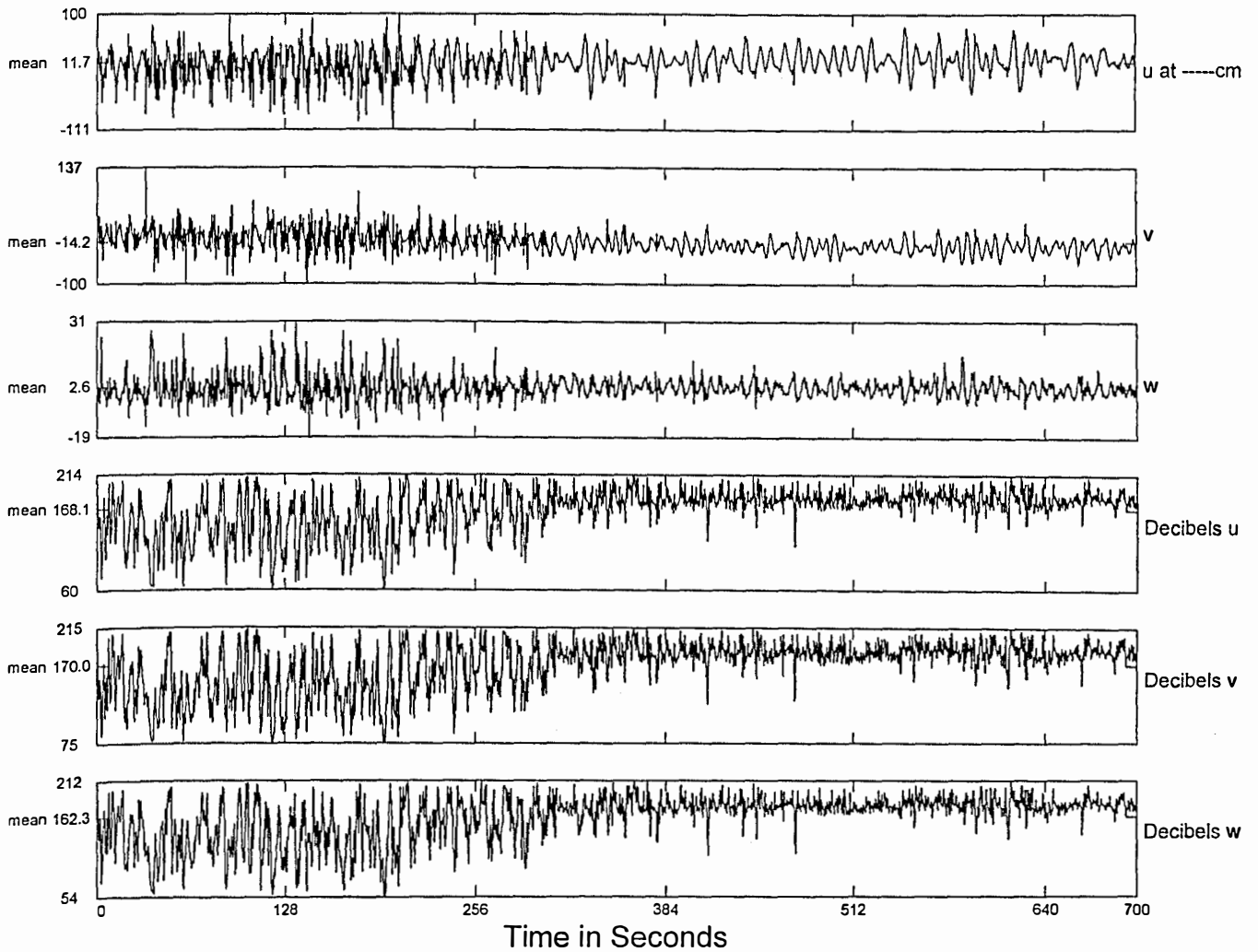
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:01 DATE 09/30/96 BURST 50



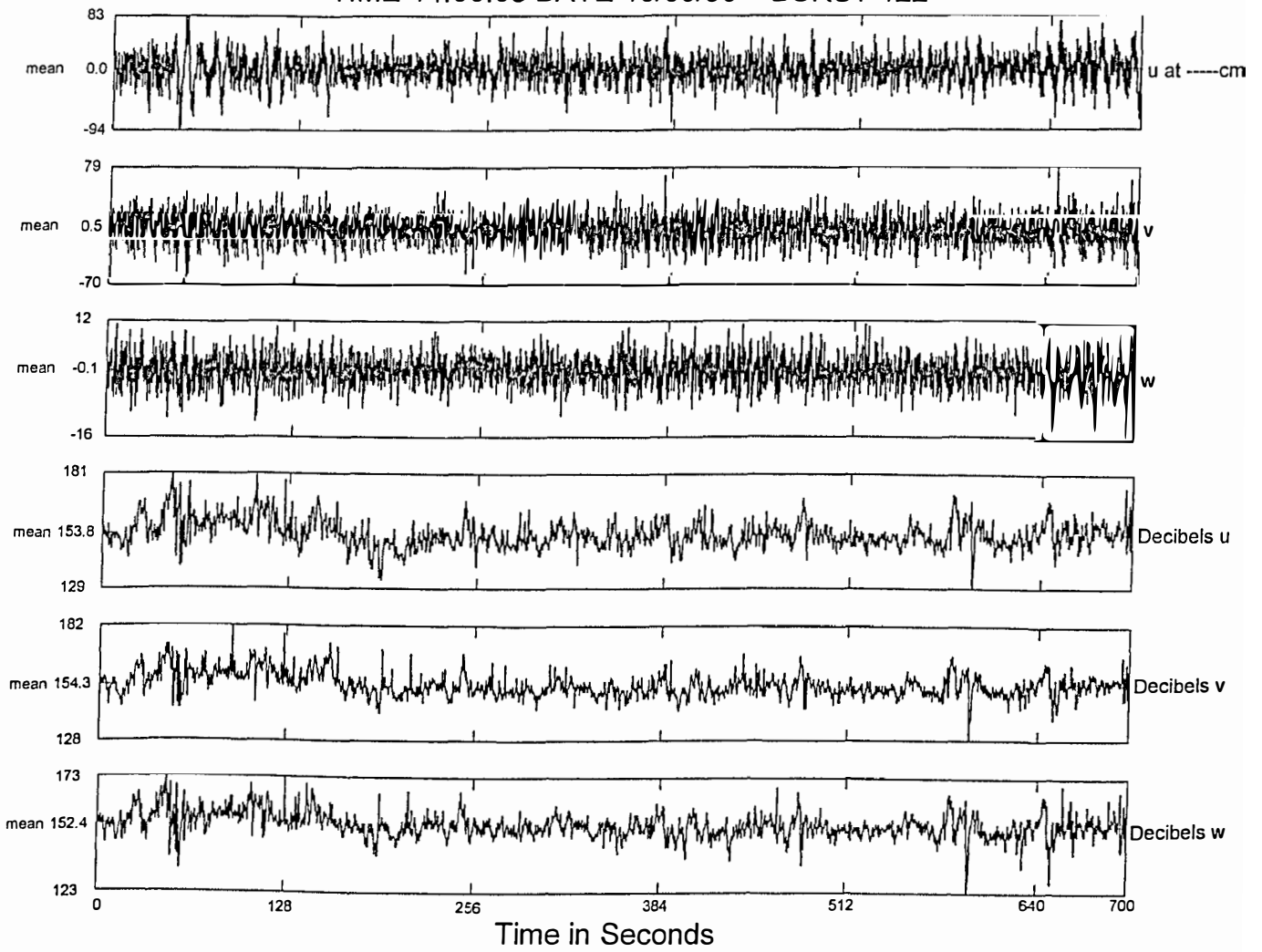
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:00 DATE 10/02/96 BURST 74



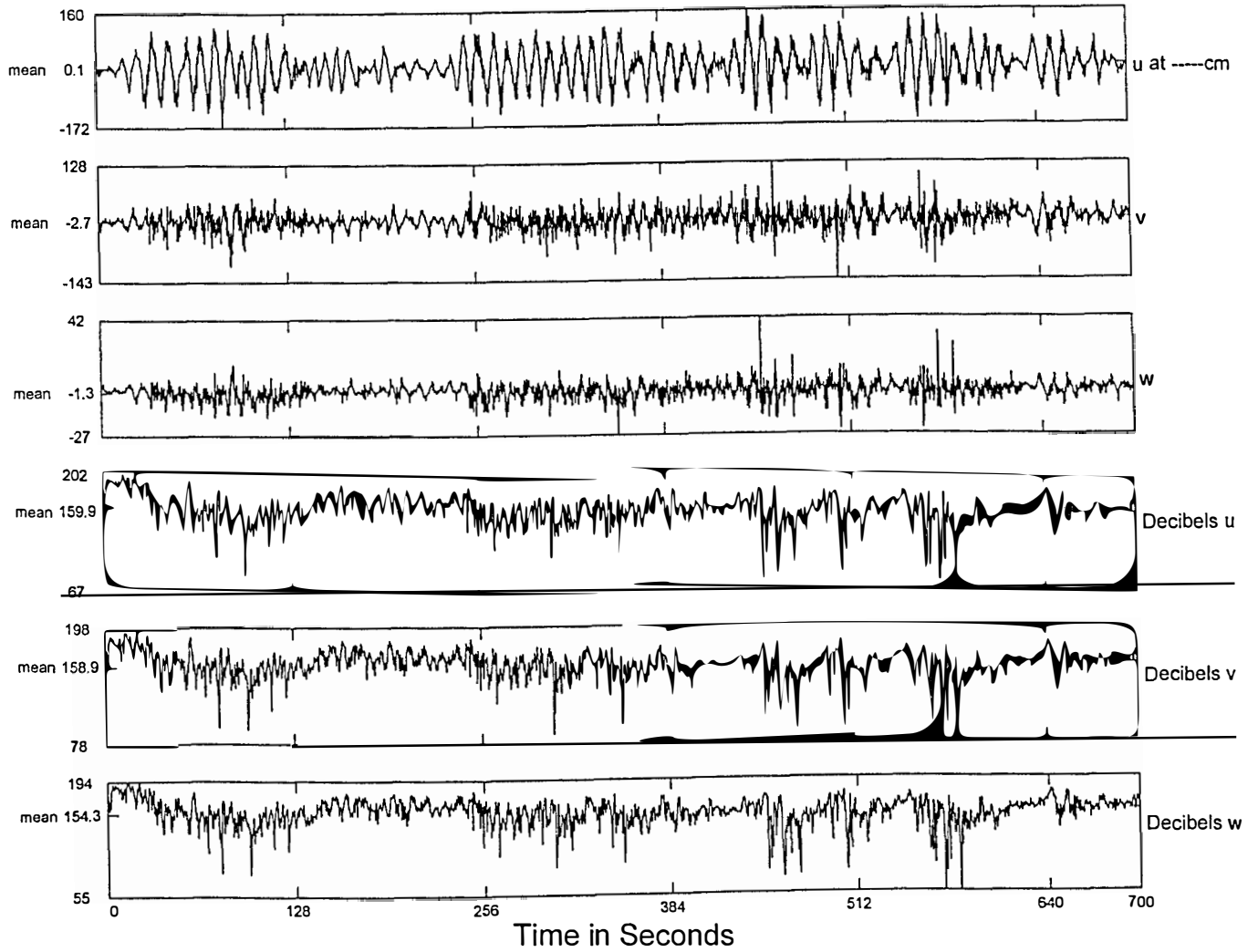
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:03 DATE 10/04/96 BURST 98



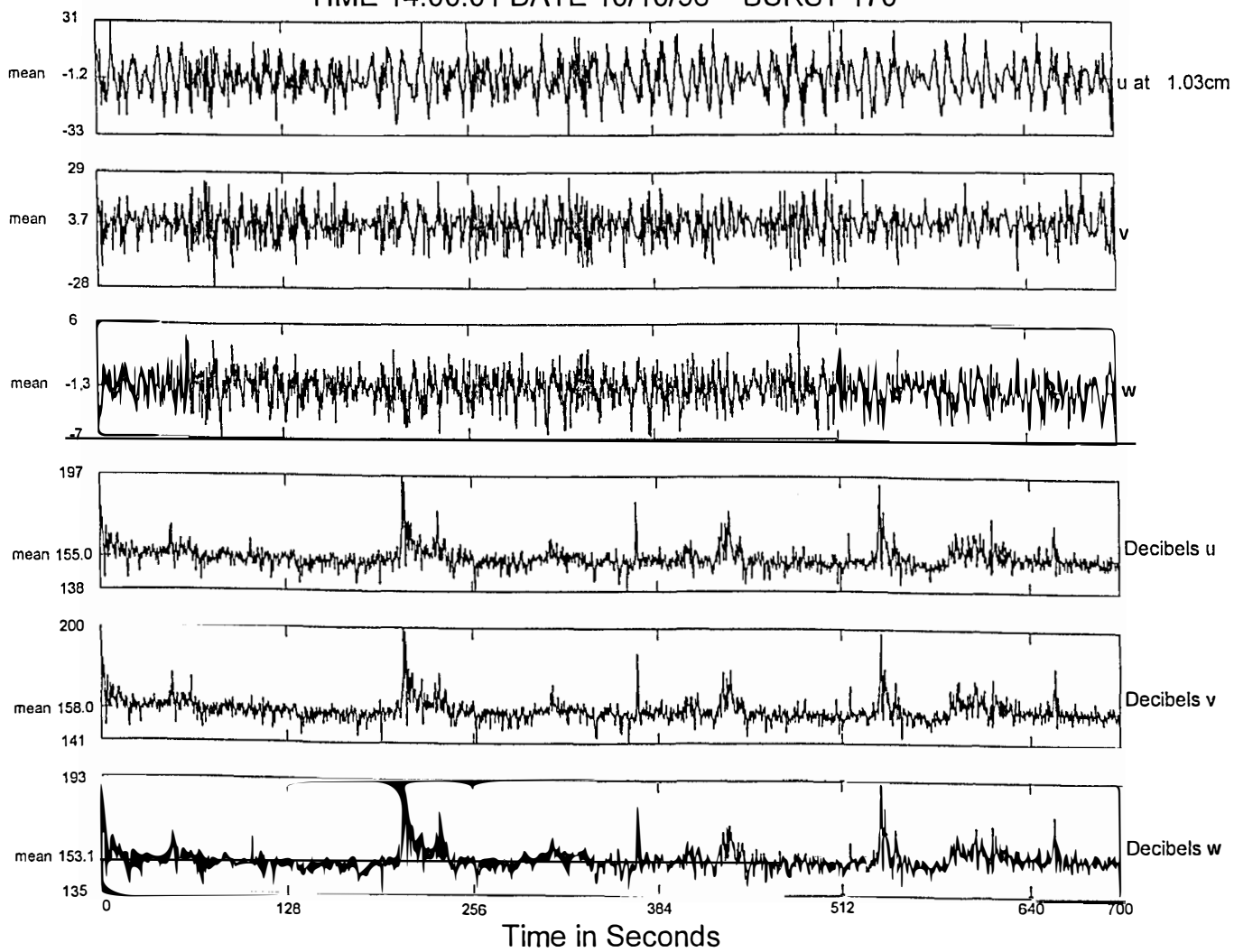
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:03 DATE 10/06/96 BURST 122



ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:03 DATE 10/08/96 BURST 146

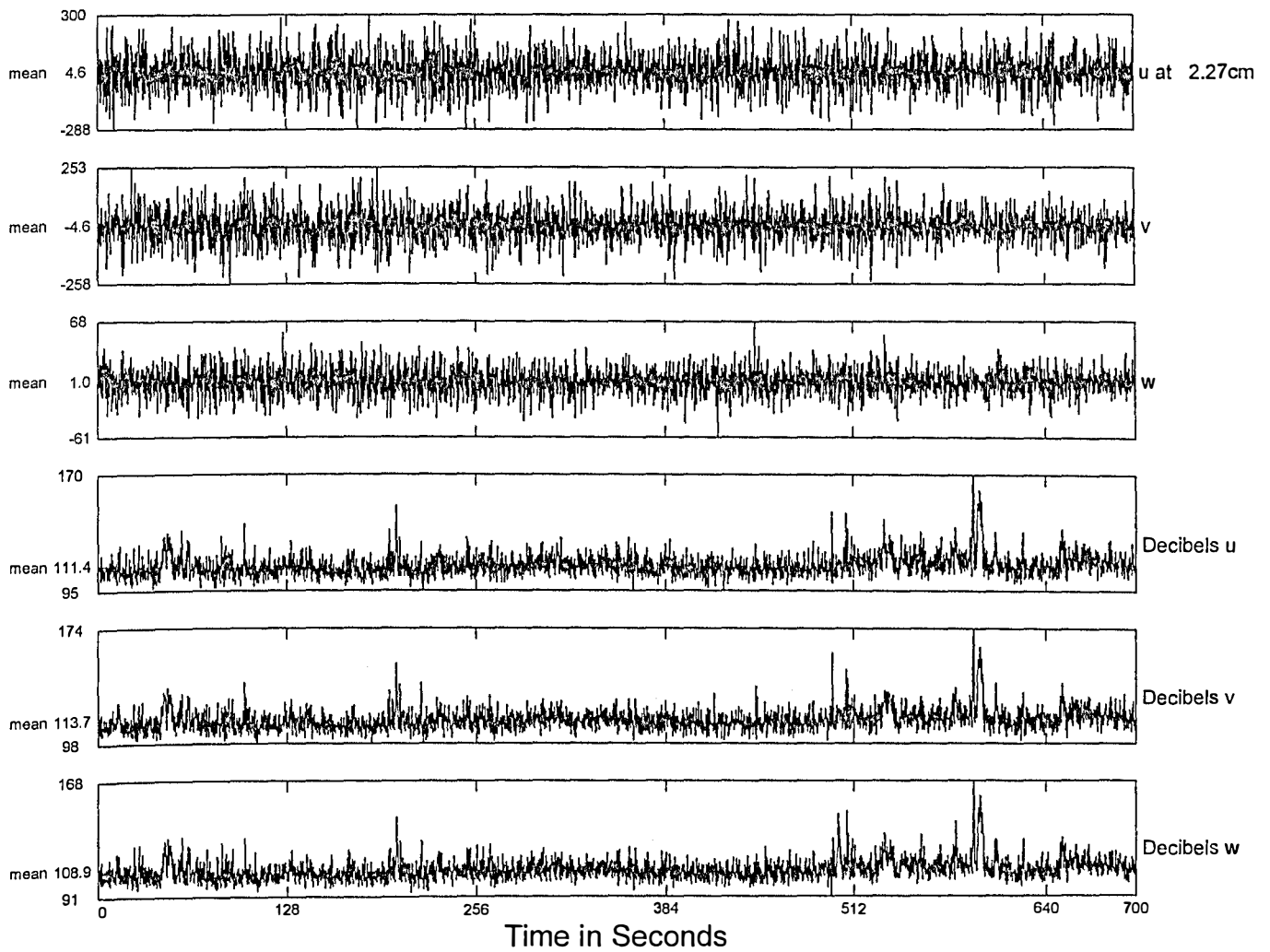


ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:01 DATE 10/10/96 BURST 170

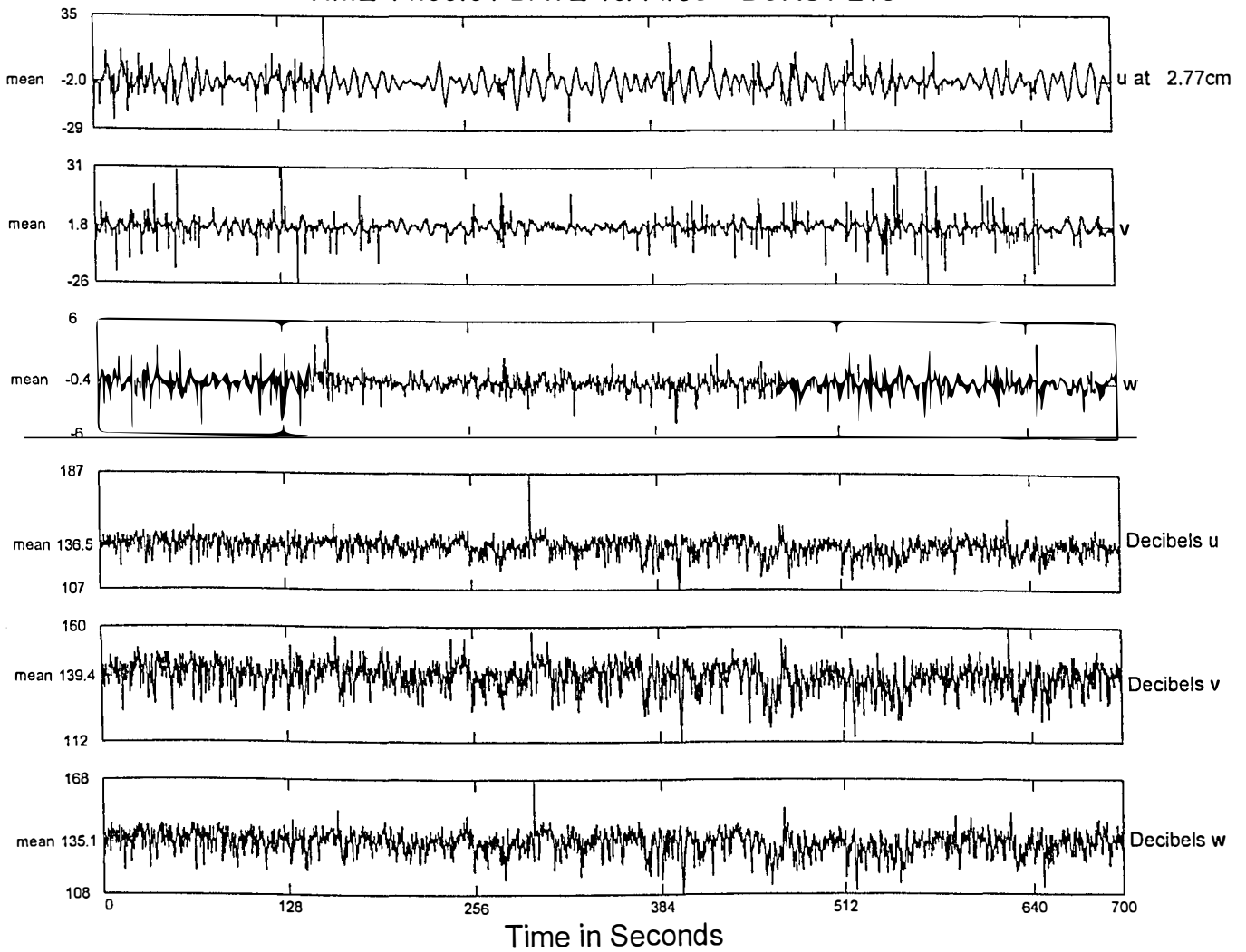




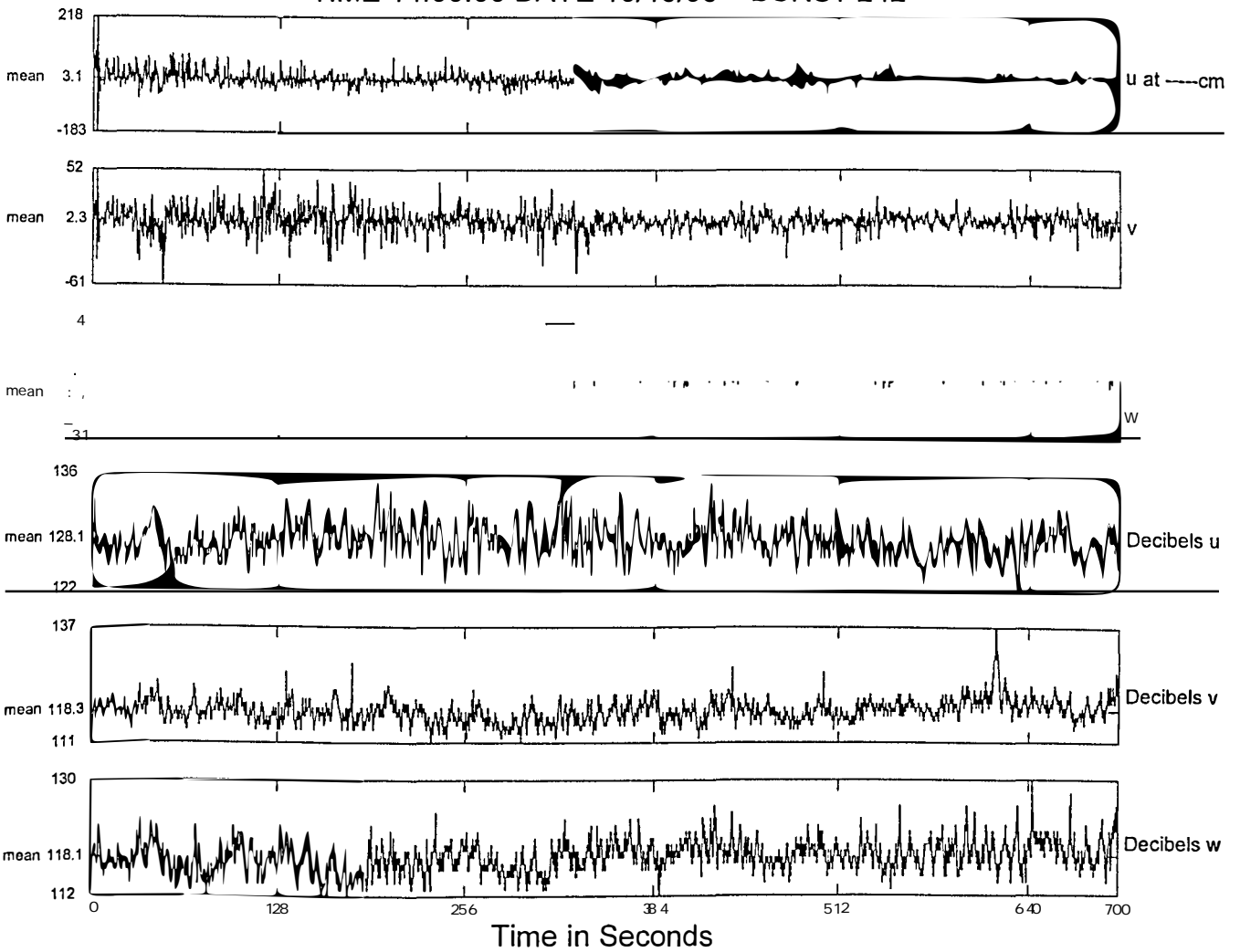
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:01 DATE 10/12/96 BURST 194



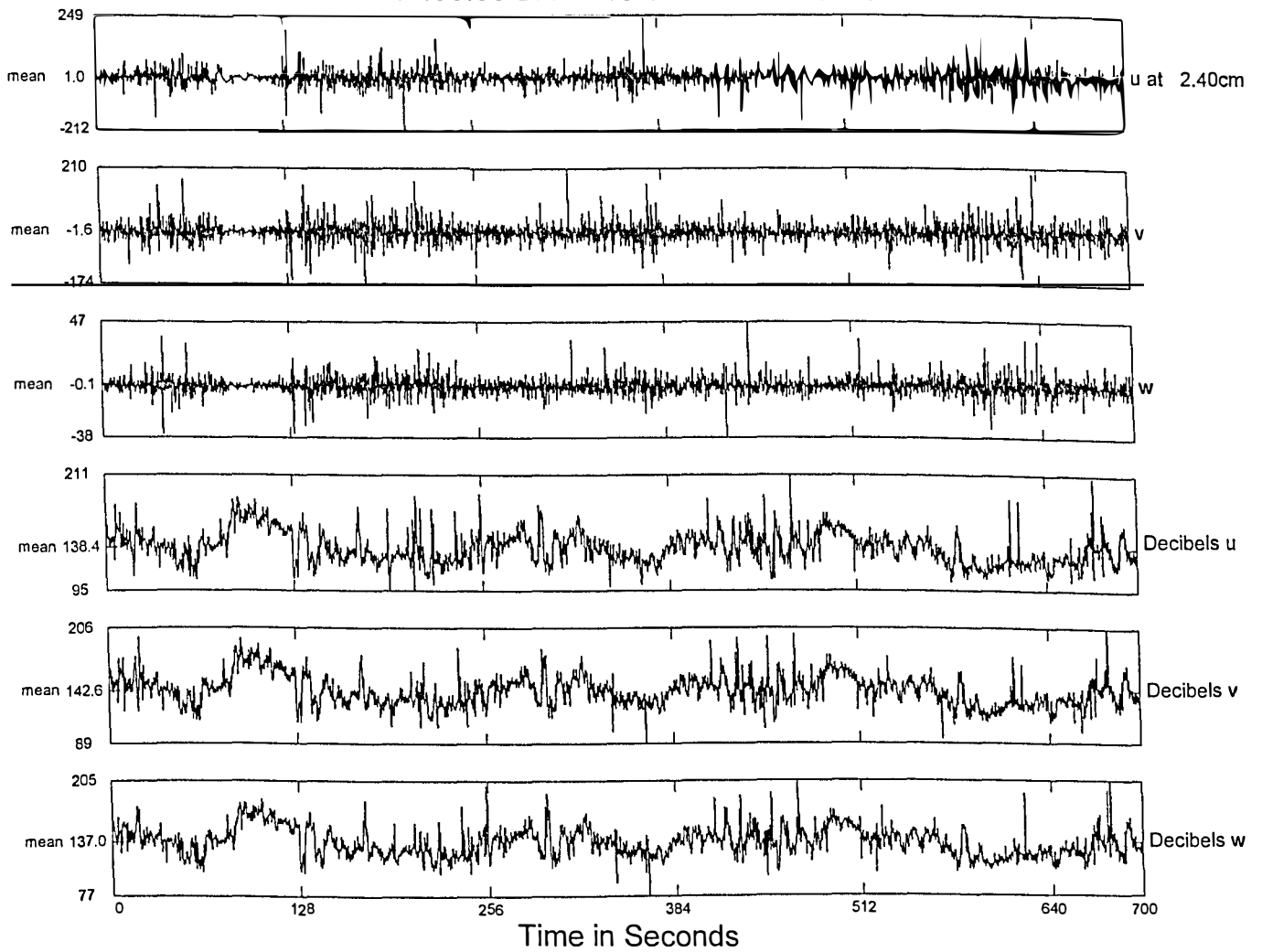
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:01 DATE 10/14/96 BURST 218



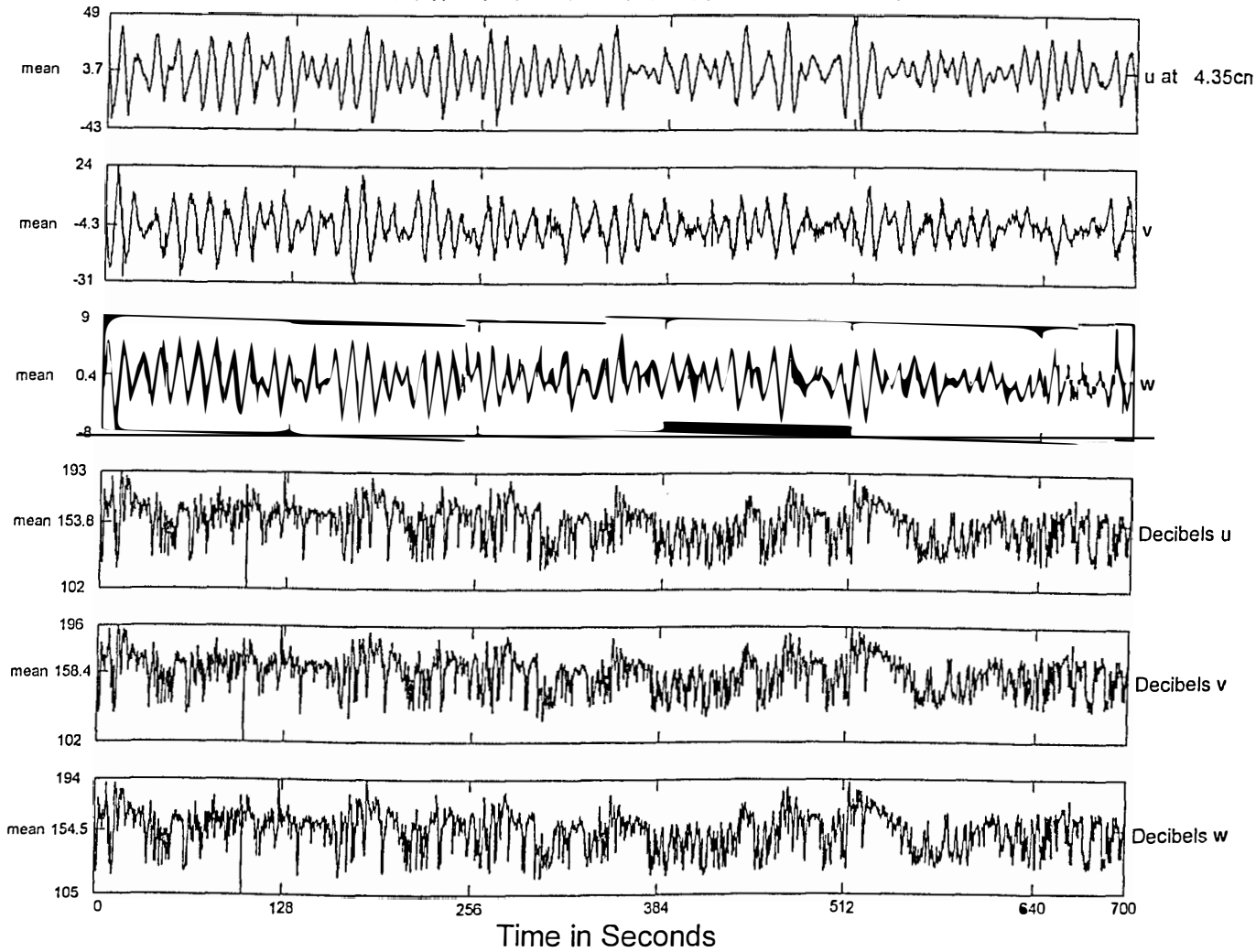
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:00 DATE 10/16/96 BURST 242



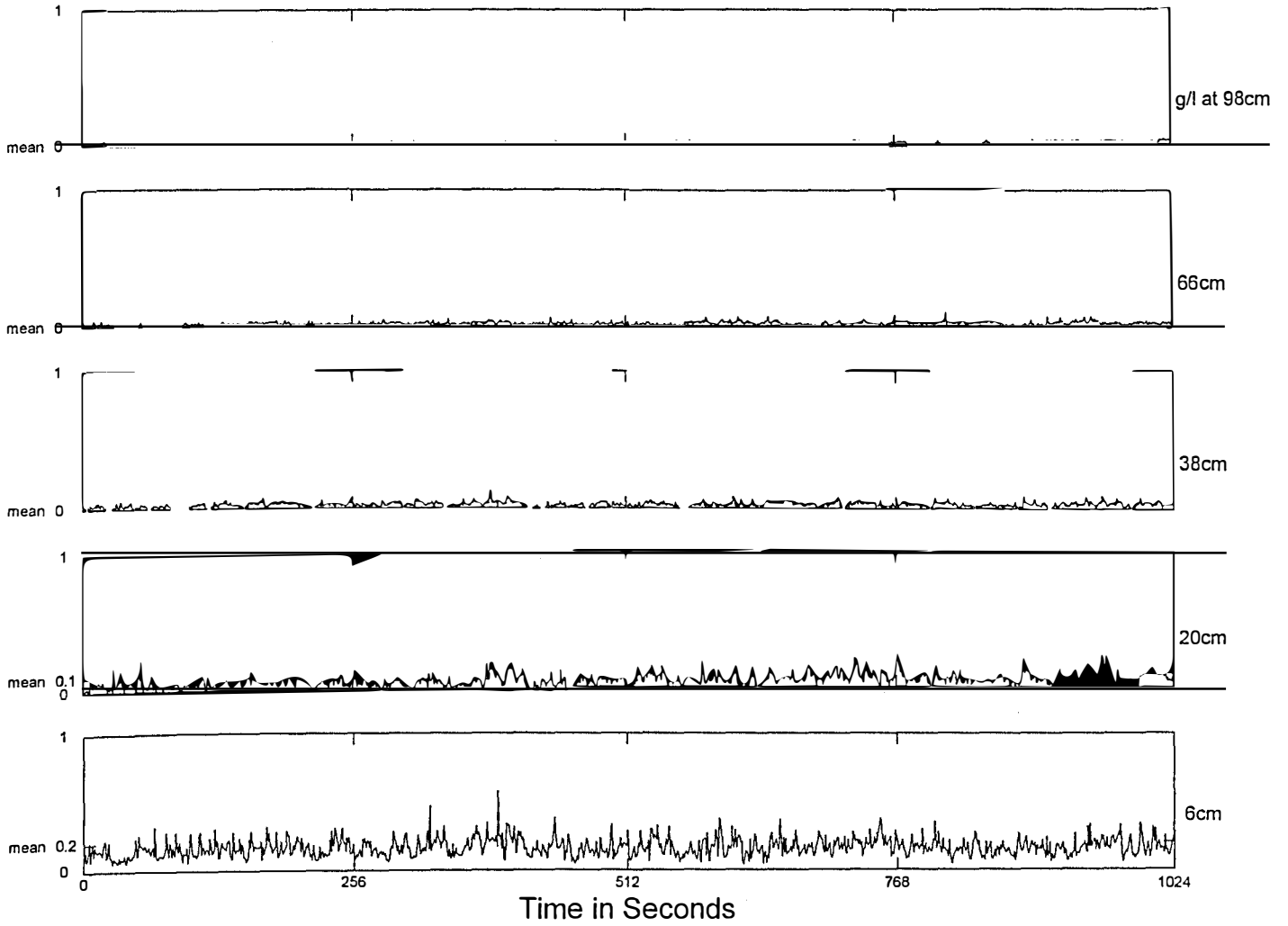
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:00 DATE 10/18/96 BURST 266



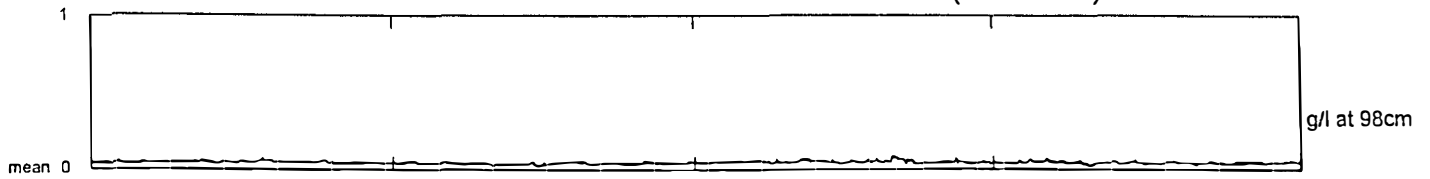
ADV Burst Data from Duck96A Inshore Pod (u +East v +North w +Up in cm/s)  
TIME 14:00:01 DATE 10/20/96 BURST 290



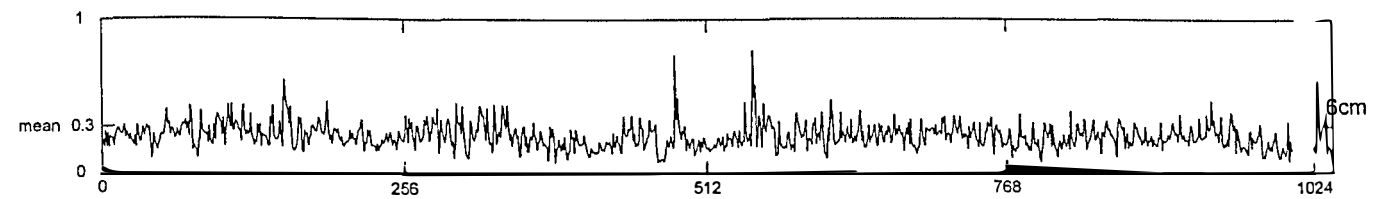
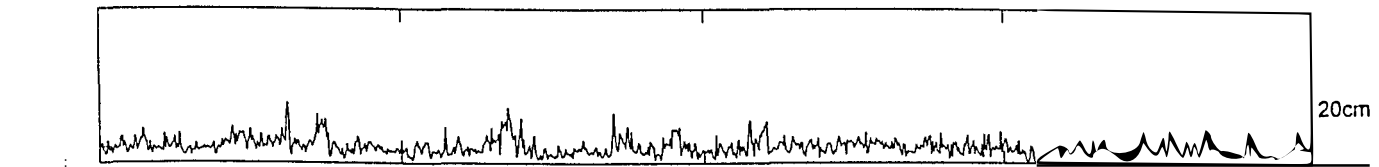
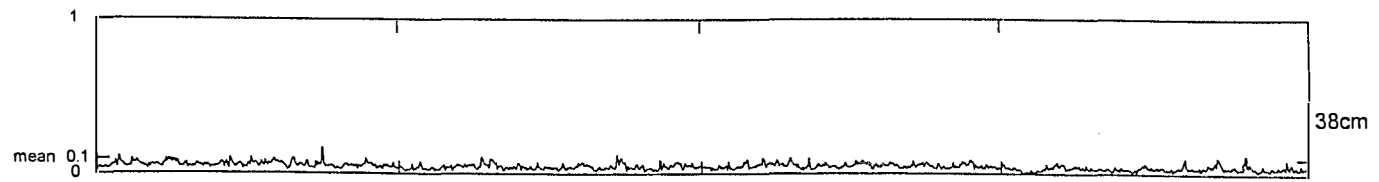
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 09/26/96 BURST# 2 (First Half)



OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 09/28/96 BURST# 26 (First Half)

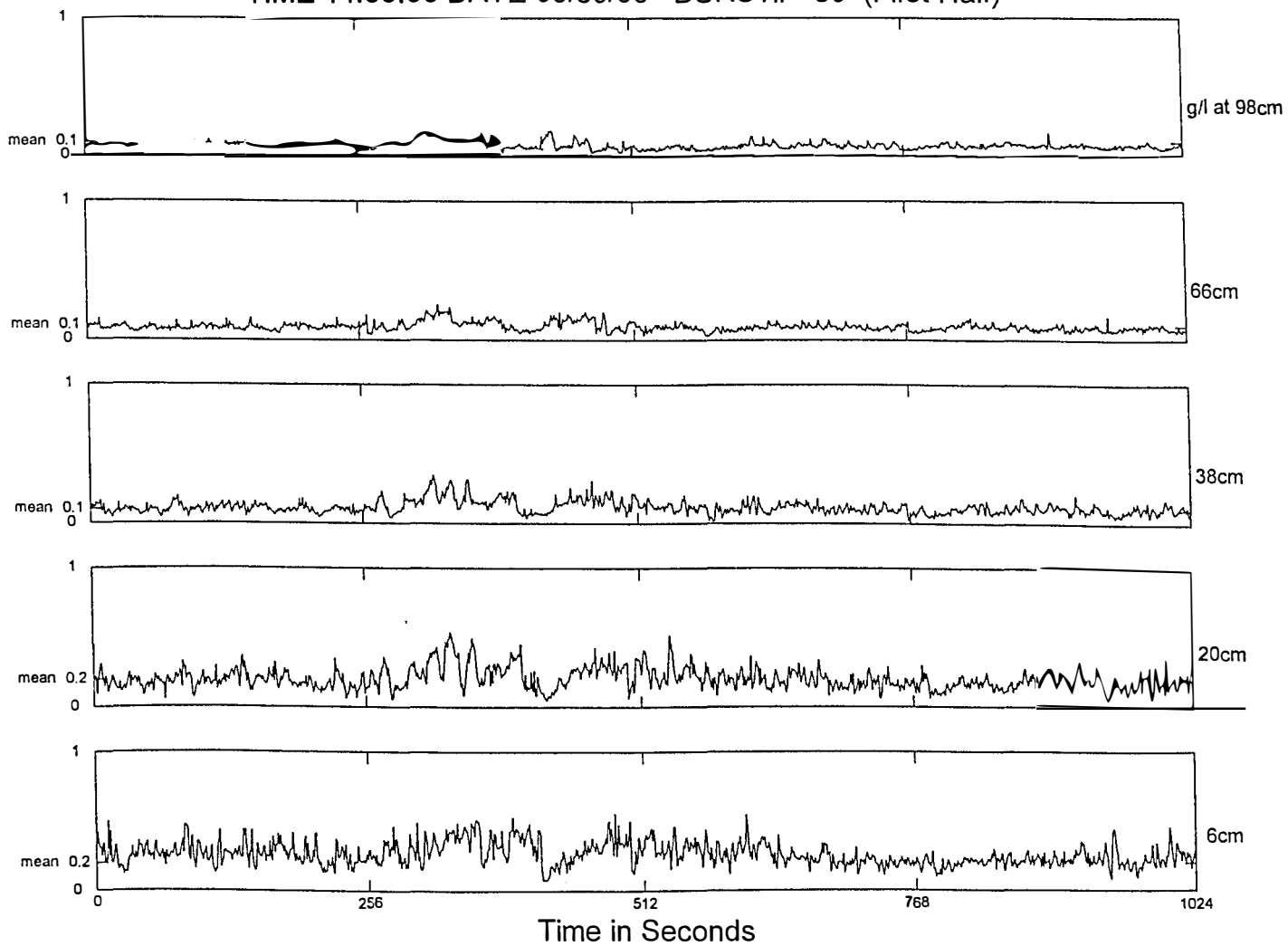


m · 0 : , L



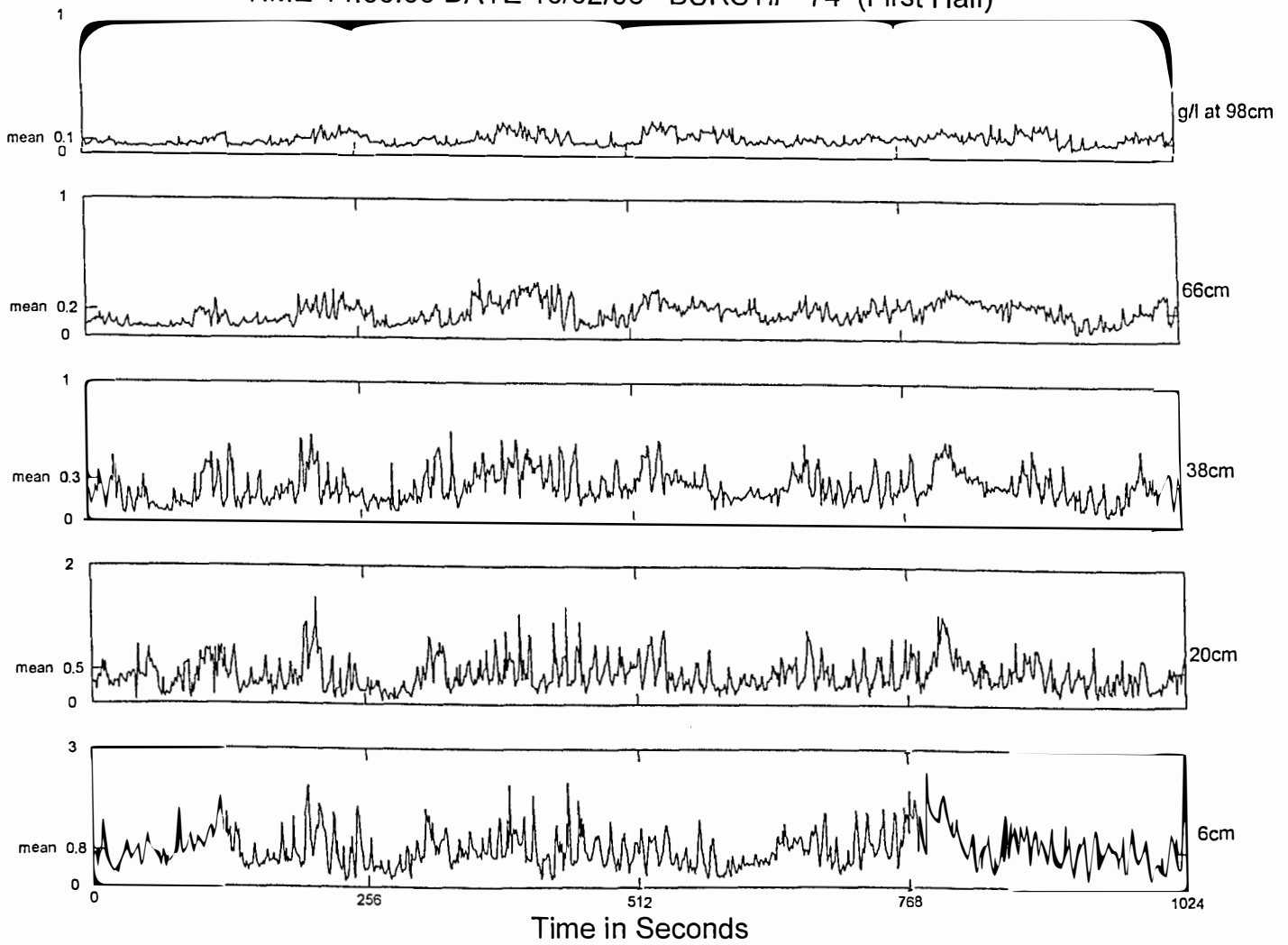
Time in Seconds

OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 09/30/96 BURST# 50 (First Half)

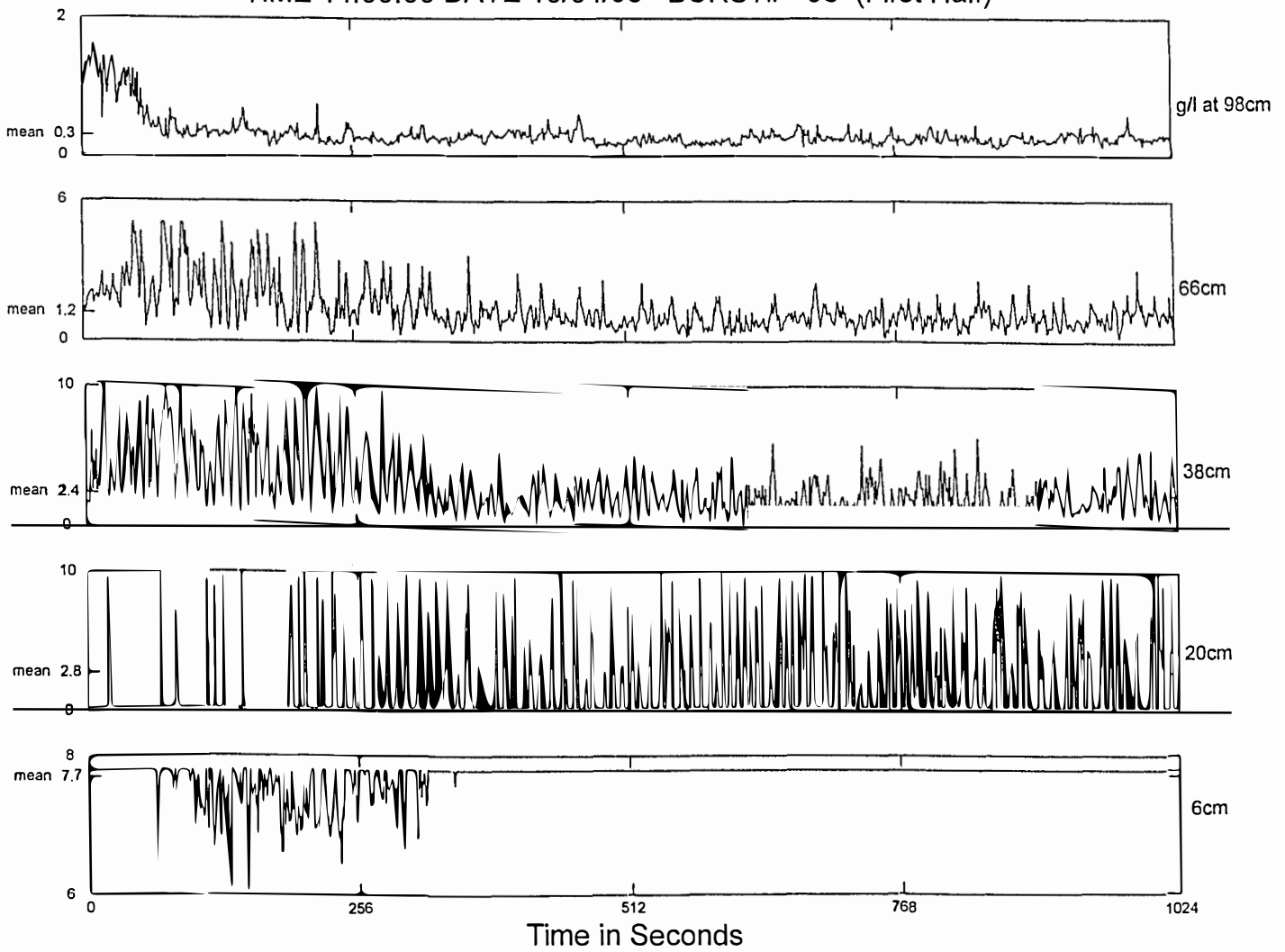




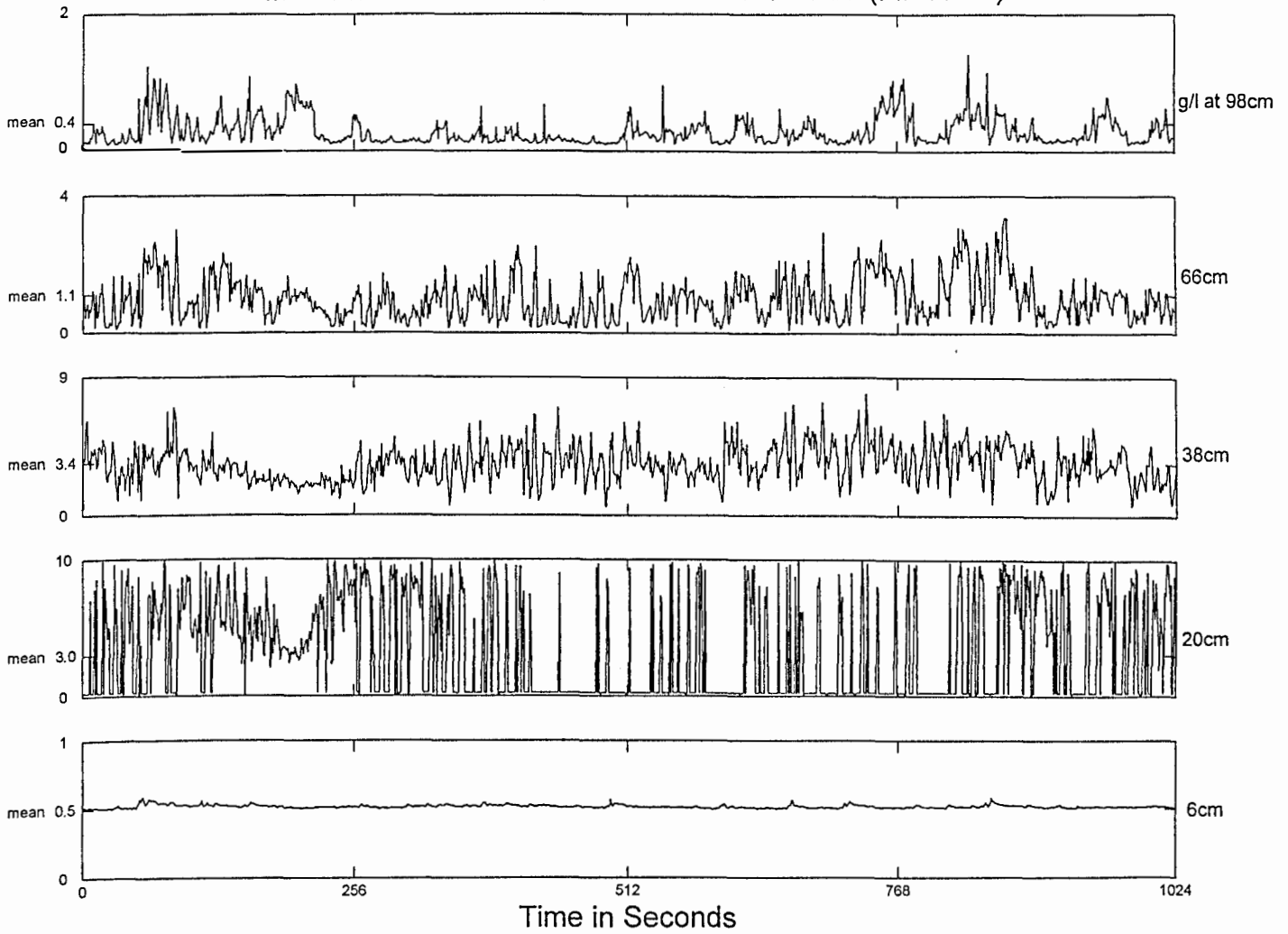
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/02/96 BURST# 74 (First Half)



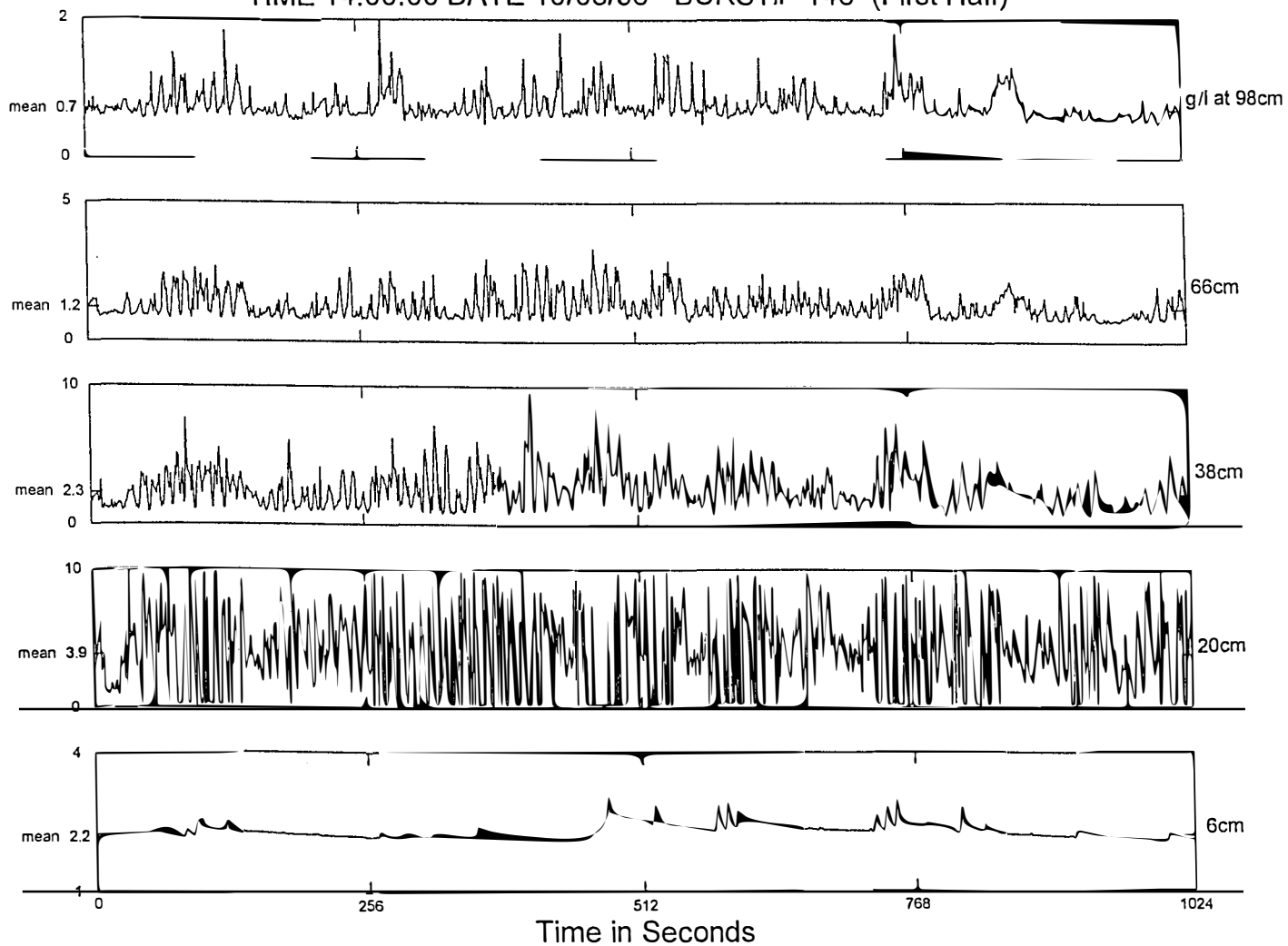
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/04/96 BURST# 98 (First Half)



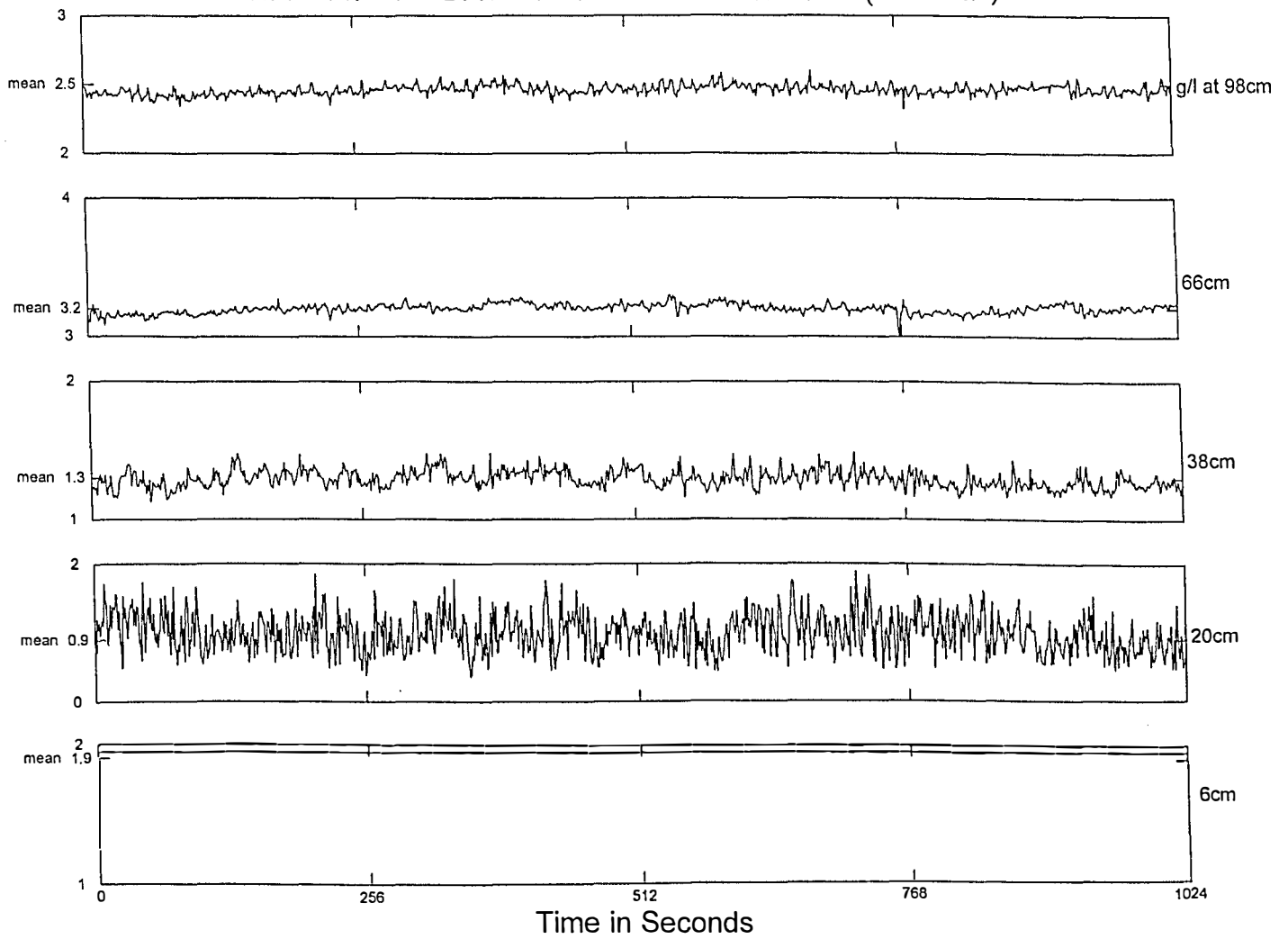
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/06/96 BURST# 122 (First Half)



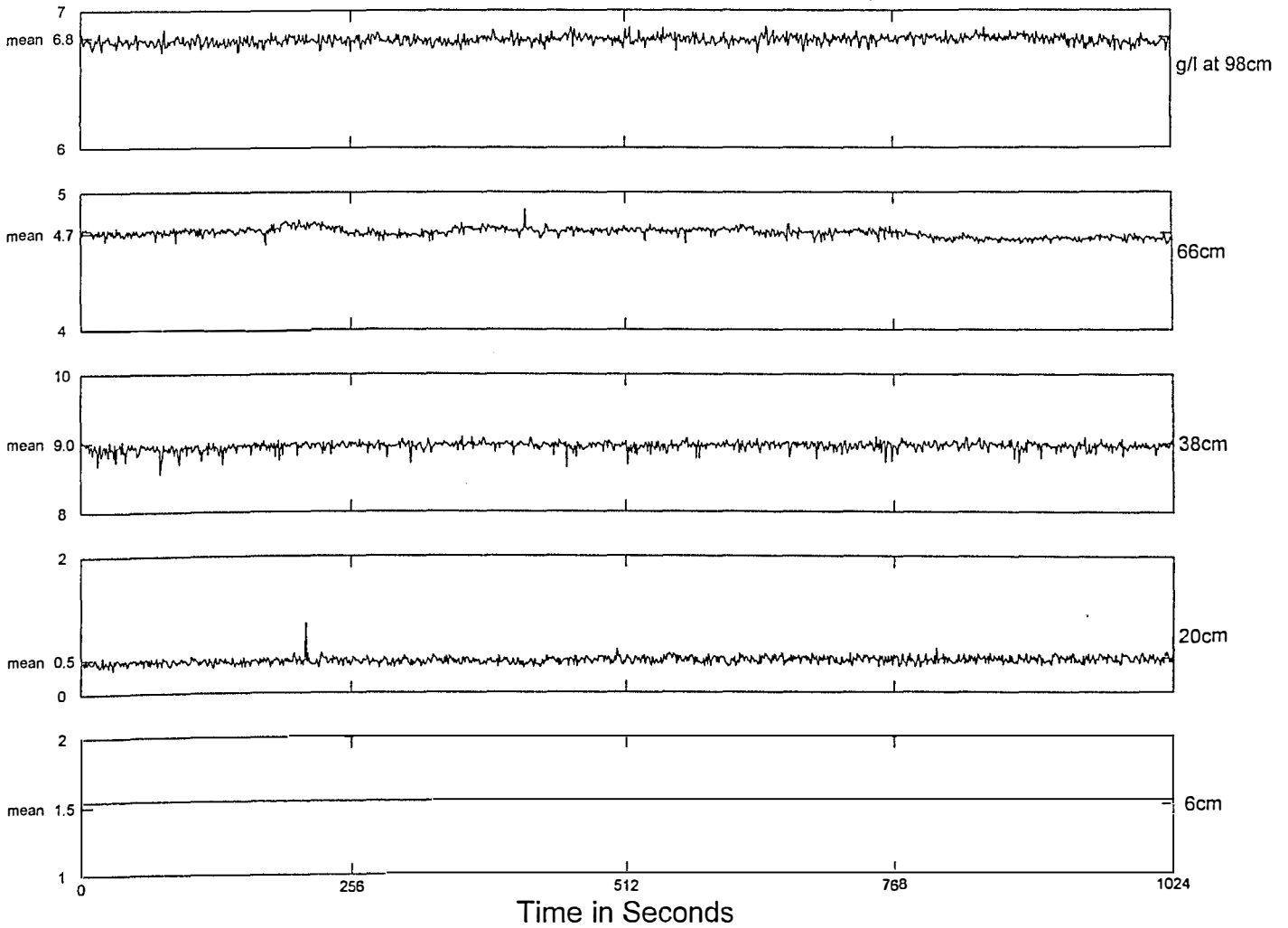
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/08/96 BURST# 146 (First Half)



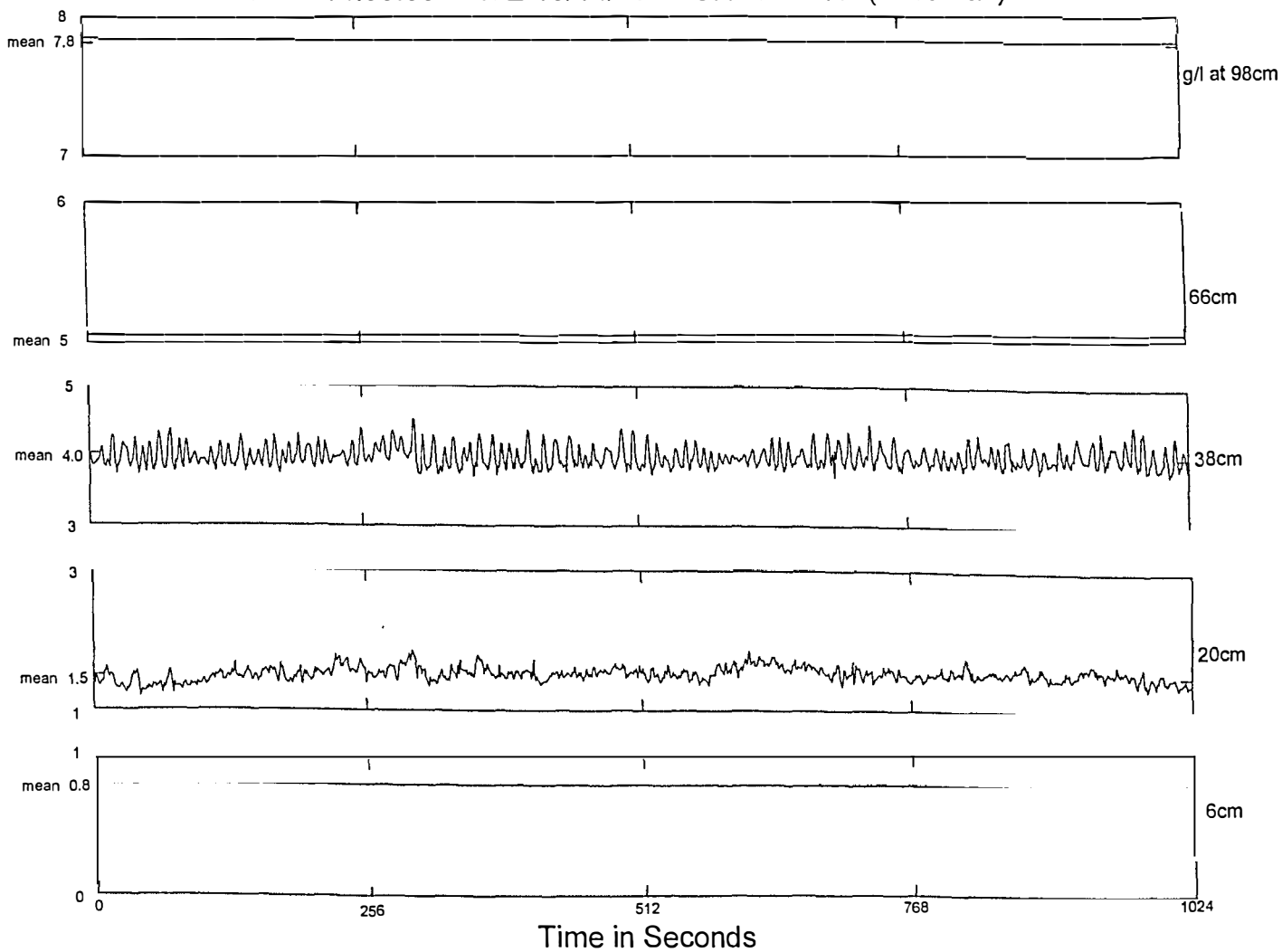
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/10/96 BURST# 170 (First Half)



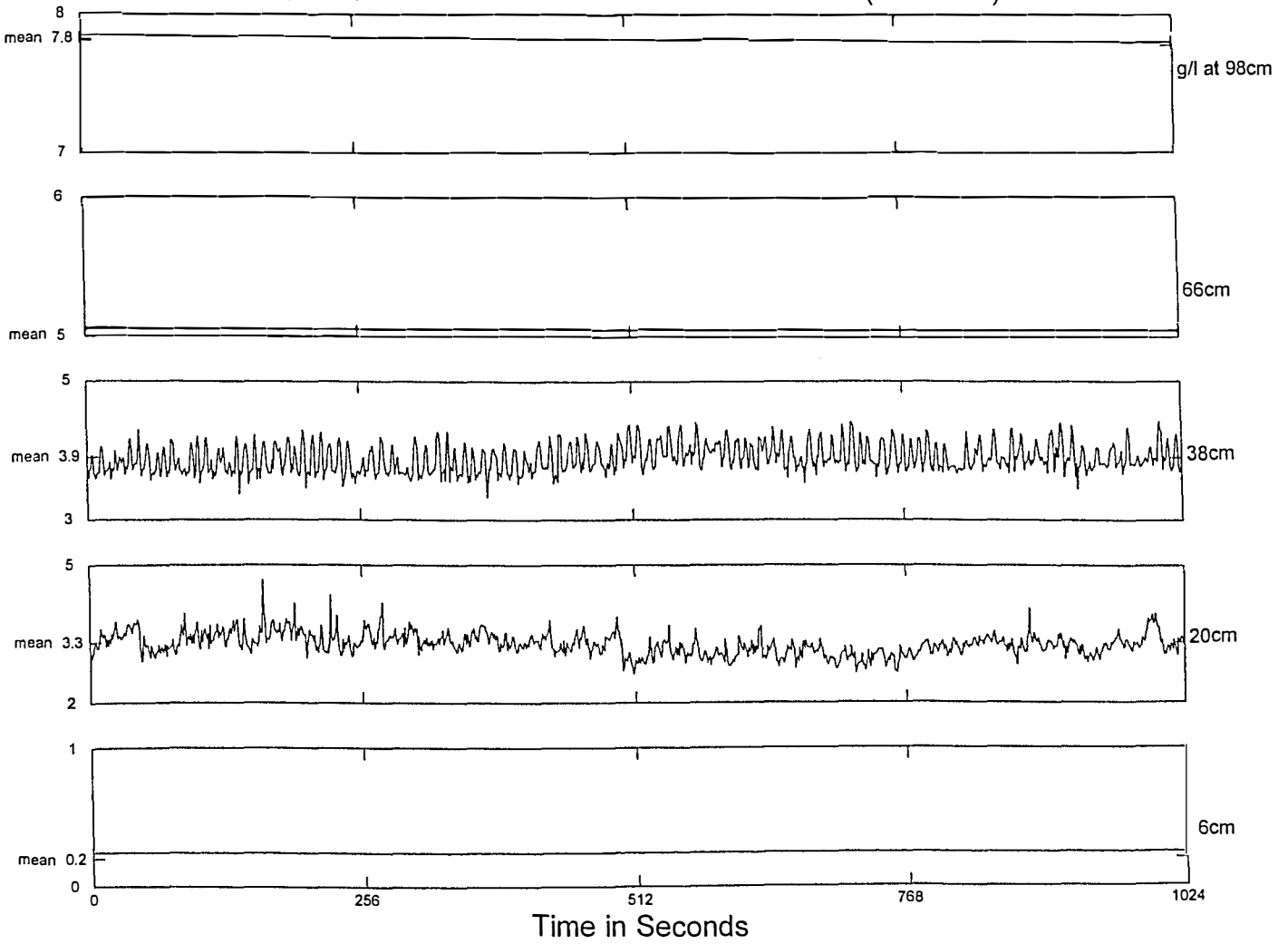
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/12/96 BURST# 194 (First Half)



OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/14/96 BURST# 218 (First Half)

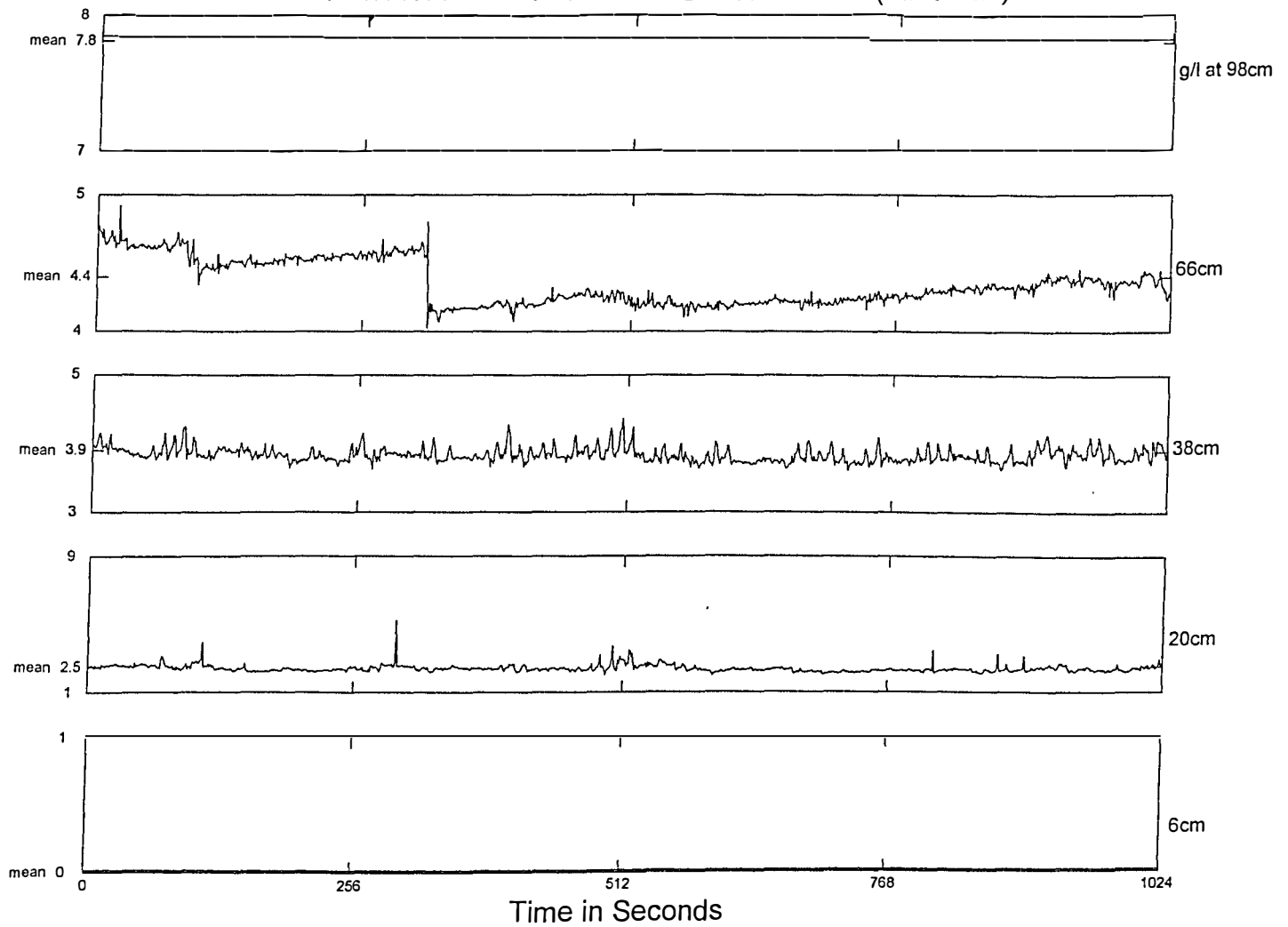


OBS Burst Data from Duck96A Inshore Pod  
TIME 13:59:59 DATE 10/16/96 BURST# 242 (First Half)

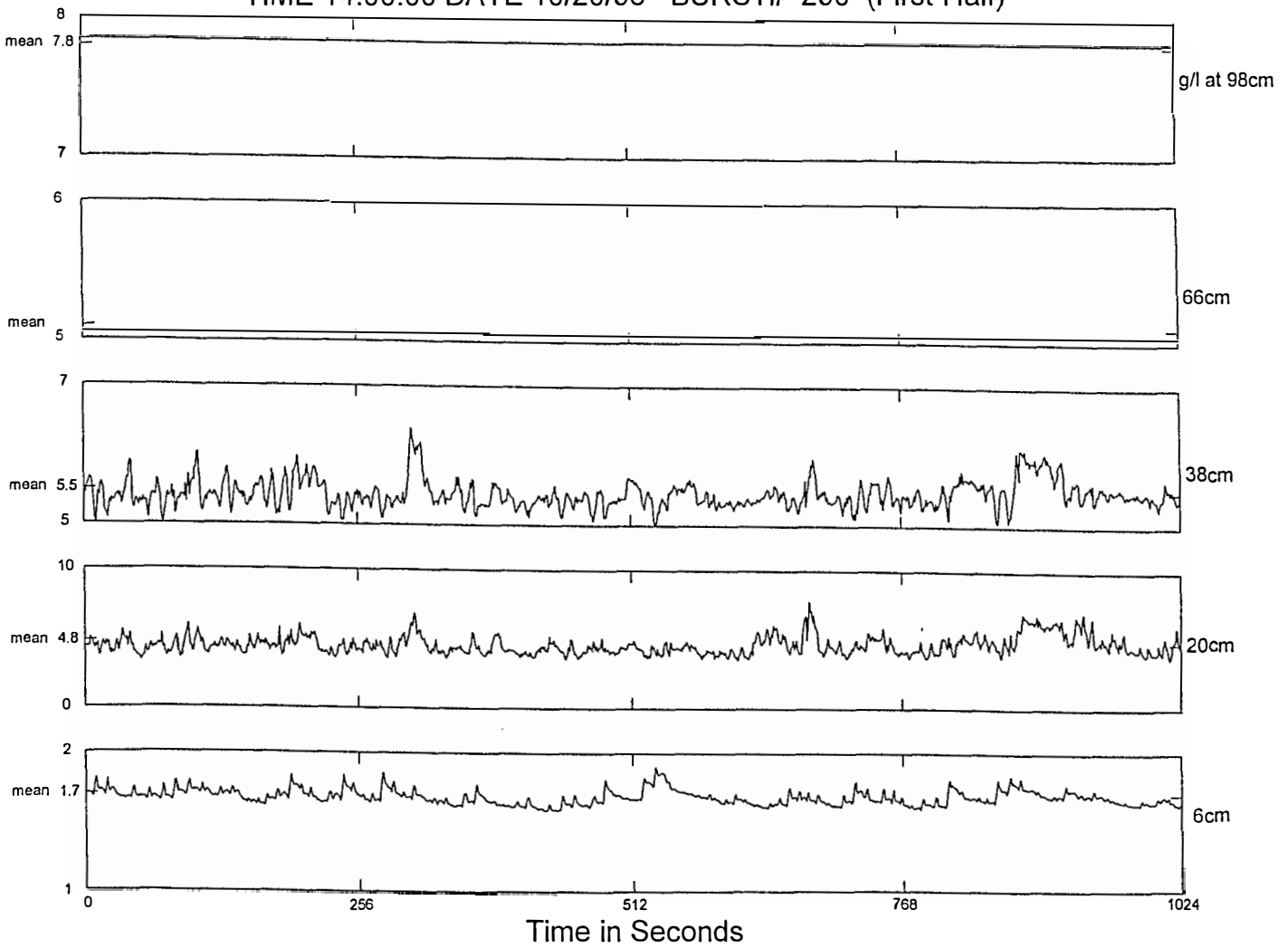




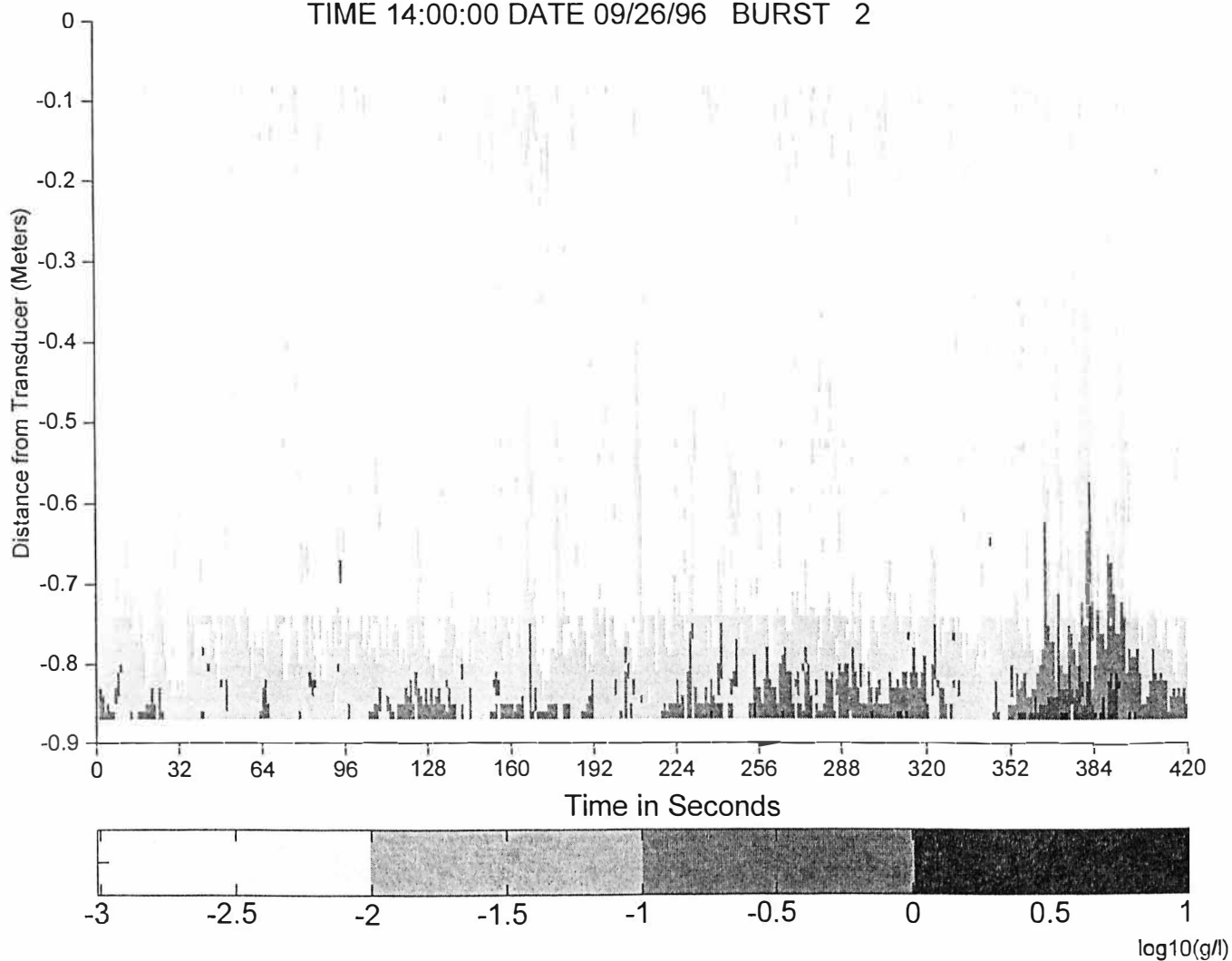
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/18/96 BURST# 266 (First Half)



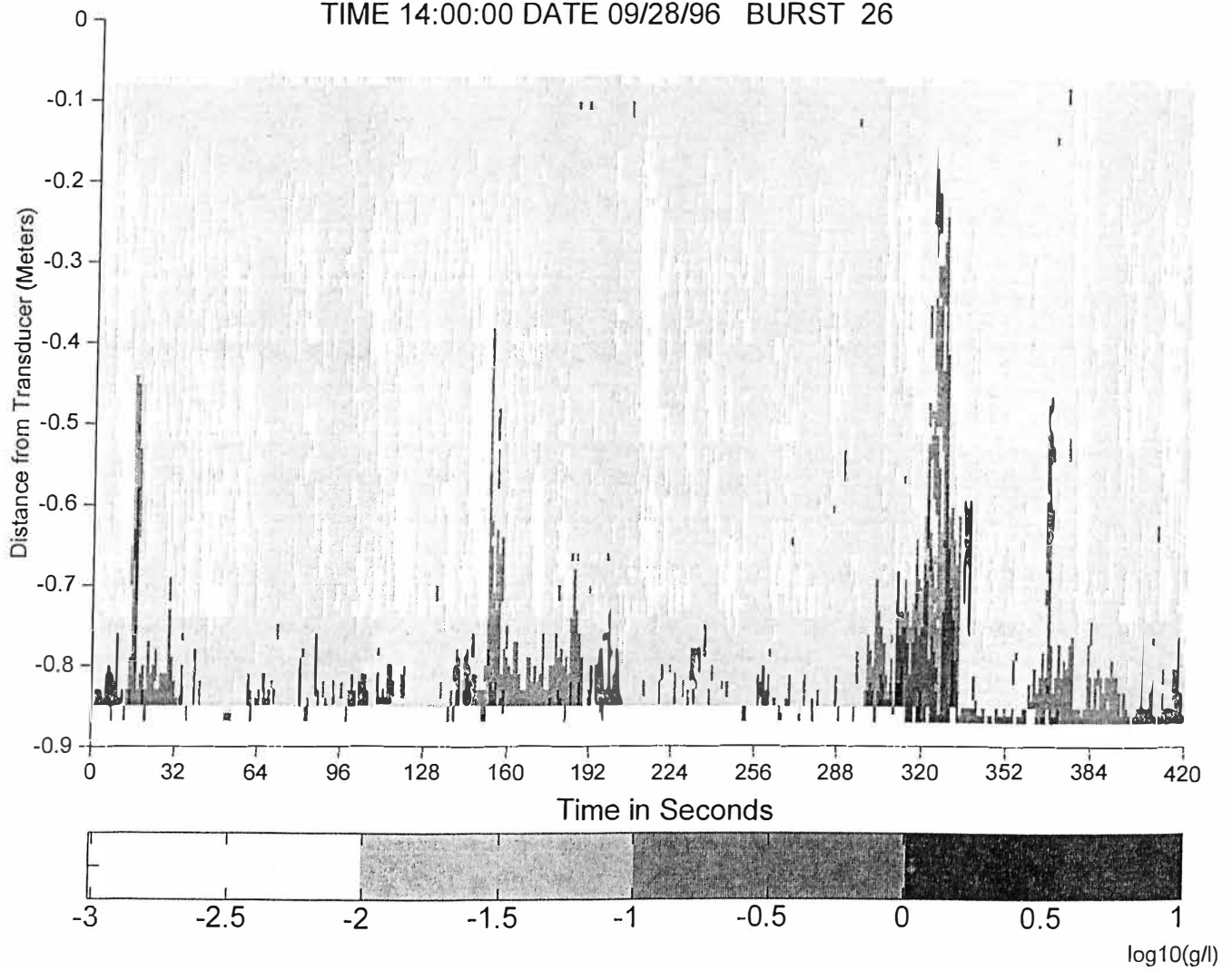
OBS Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/20/96 BURST# 290 (First Half)



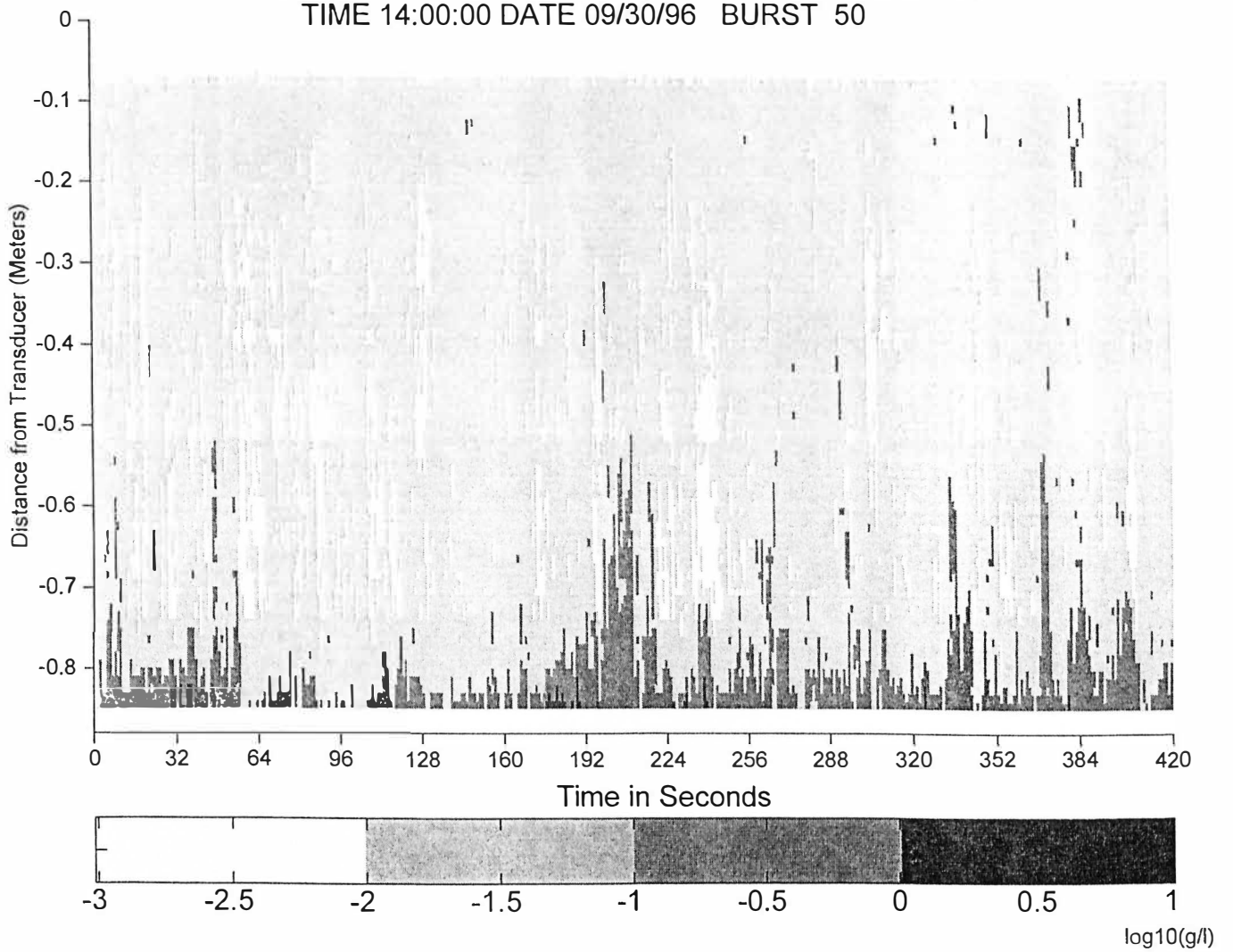
Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 09/26/96 BURST 2



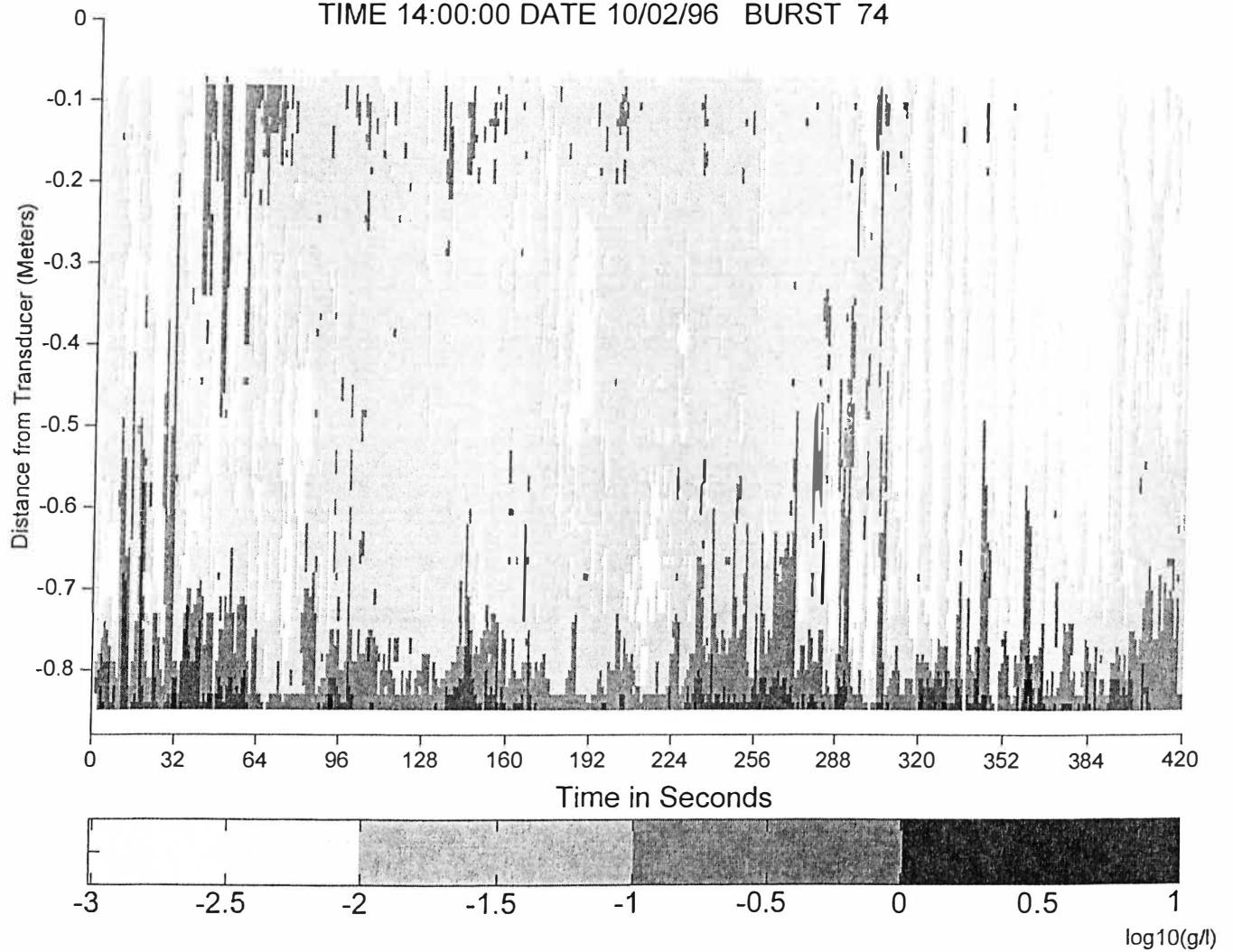
Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 09/28/96 BURST 26



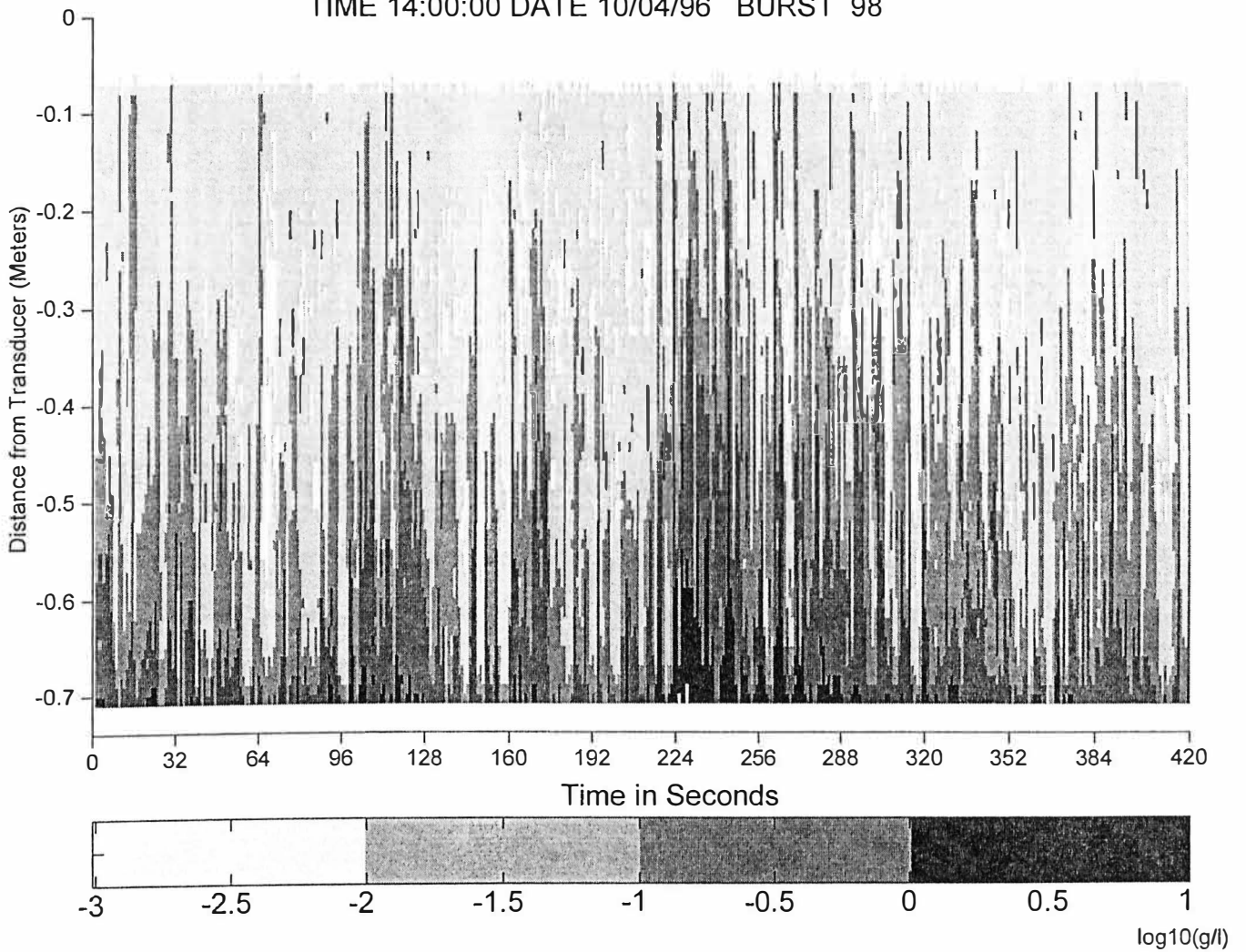
Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 09/30/96 BURST 50



Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/02/96 BURST 74

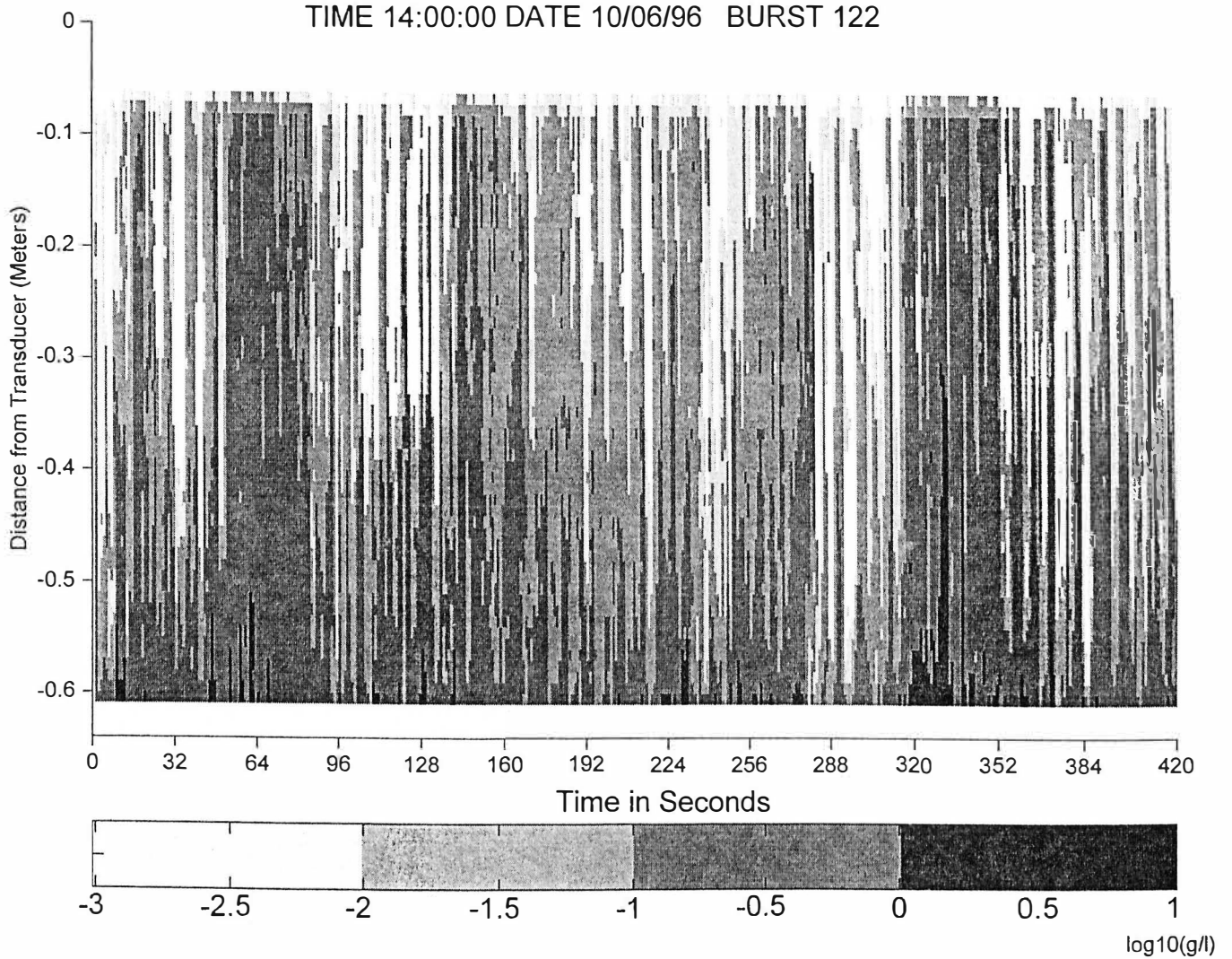


Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/04/96 BURST 98



Acoustic Backscatter Burst Data from Duck96A Inshore Pod

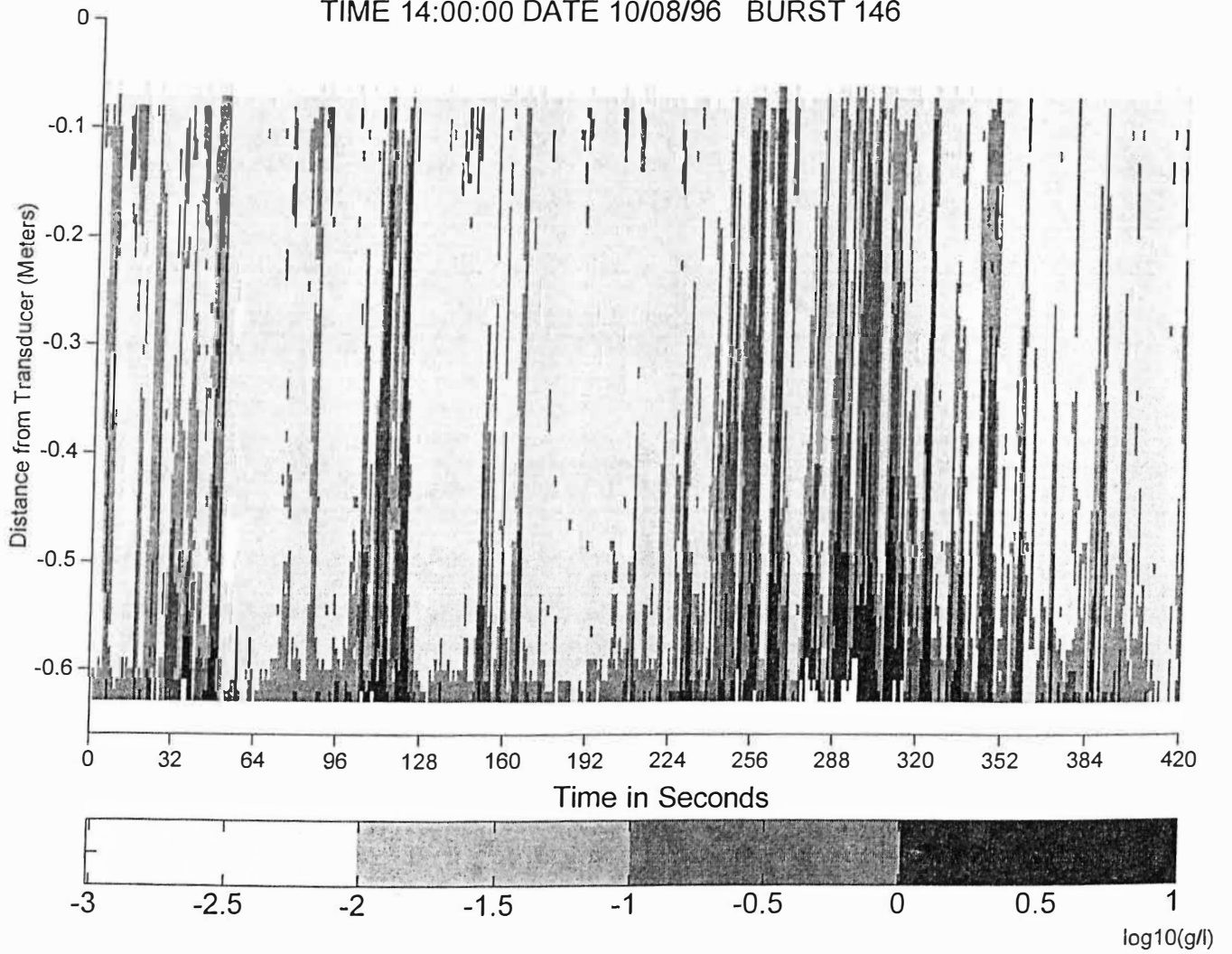
TIME 14:00:00 DATE 10/06/96 BURST 122





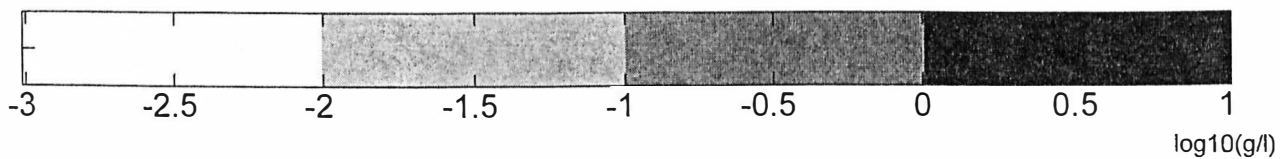
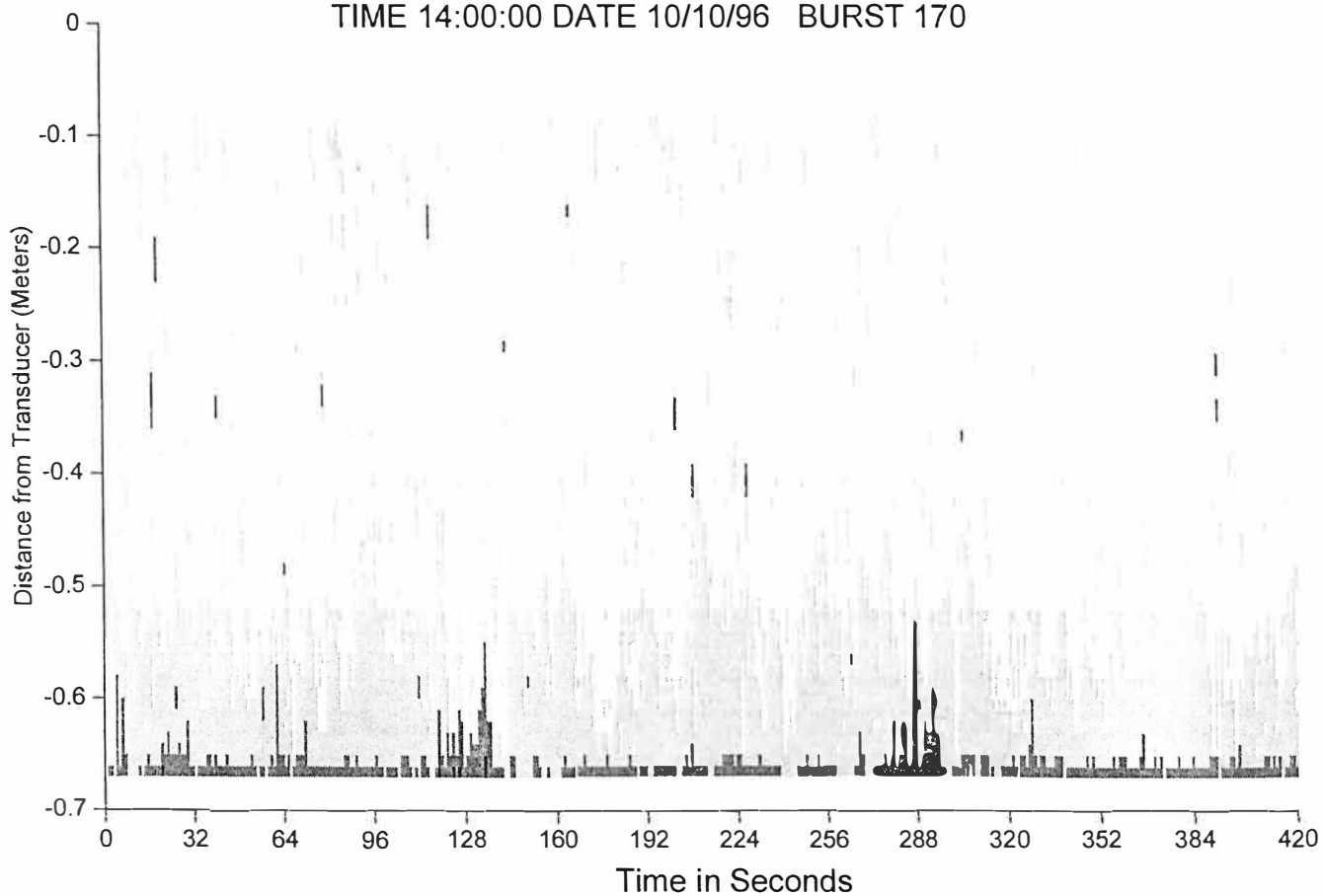
Acoustic Backscatter Burst Data from Duck96A Inshore Pod

TIME 14:00:00 DATE 10/08/96 BURST 146

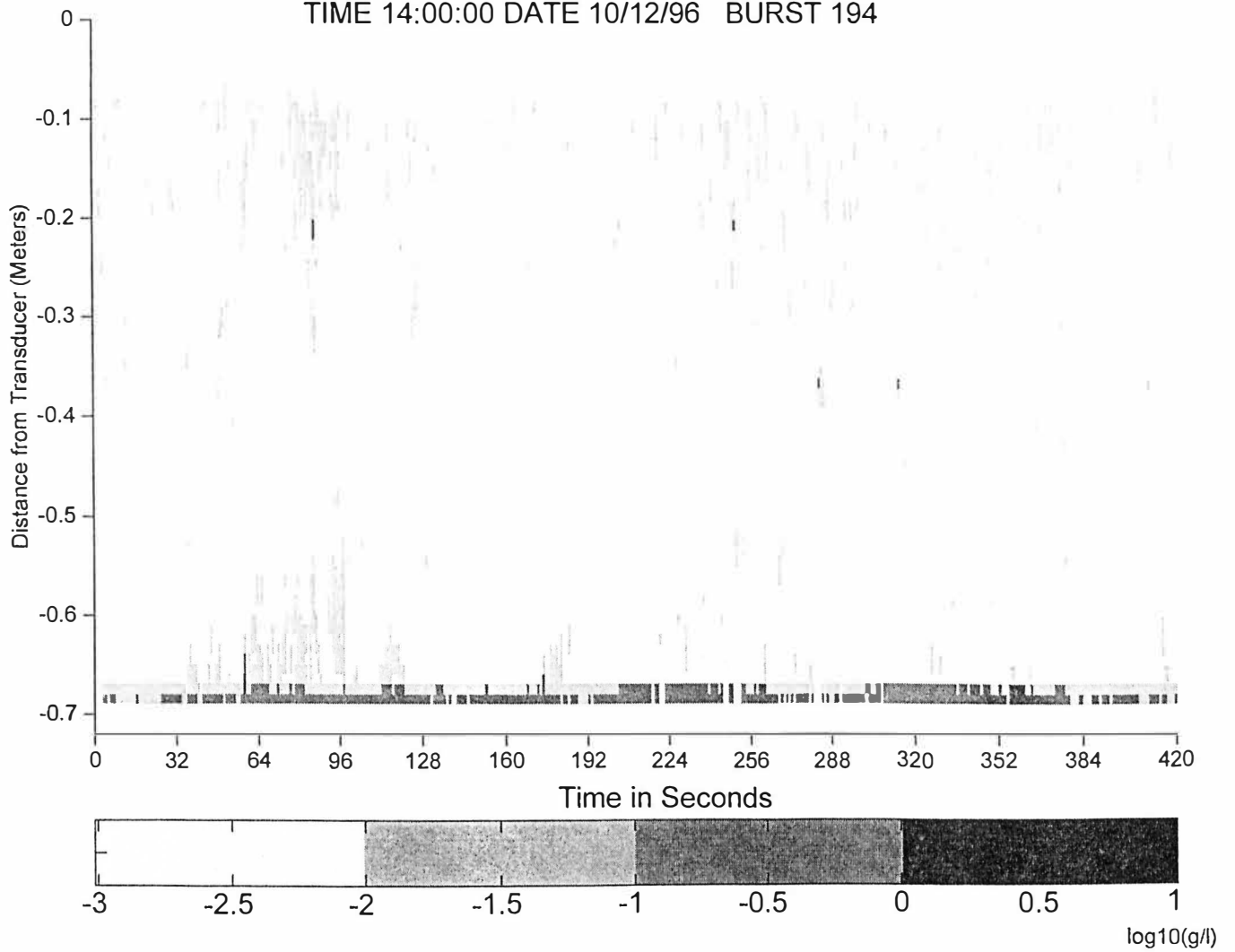


Acoustic Backscatter Burst Data from Duck96A Inshore Pod

TIME 14:00:00 DATE 10/10/96 BURST 170

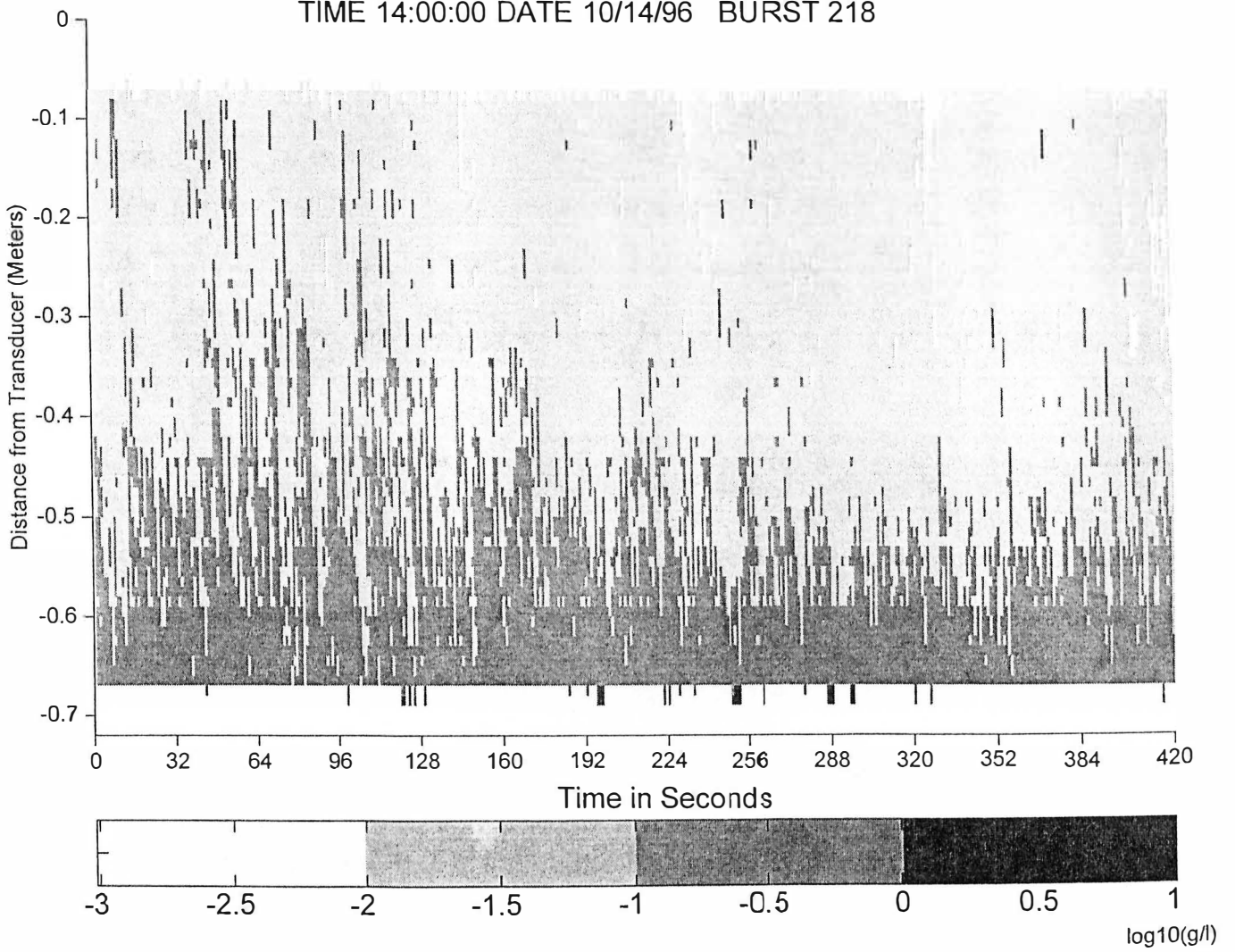


Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/12/96 BURST 194

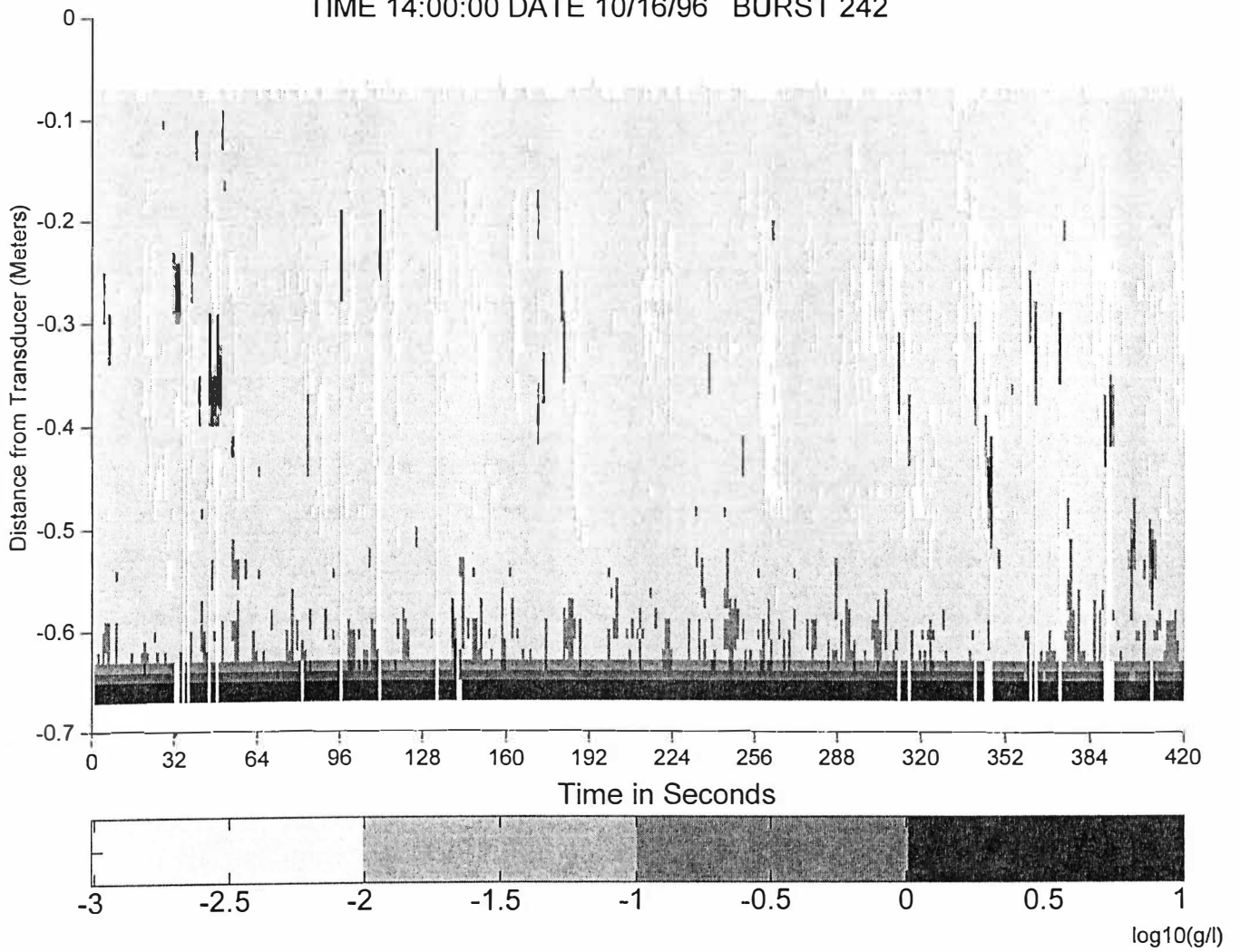


Acoustic Backscatter Burst Data from Duck96A Inshore Pod

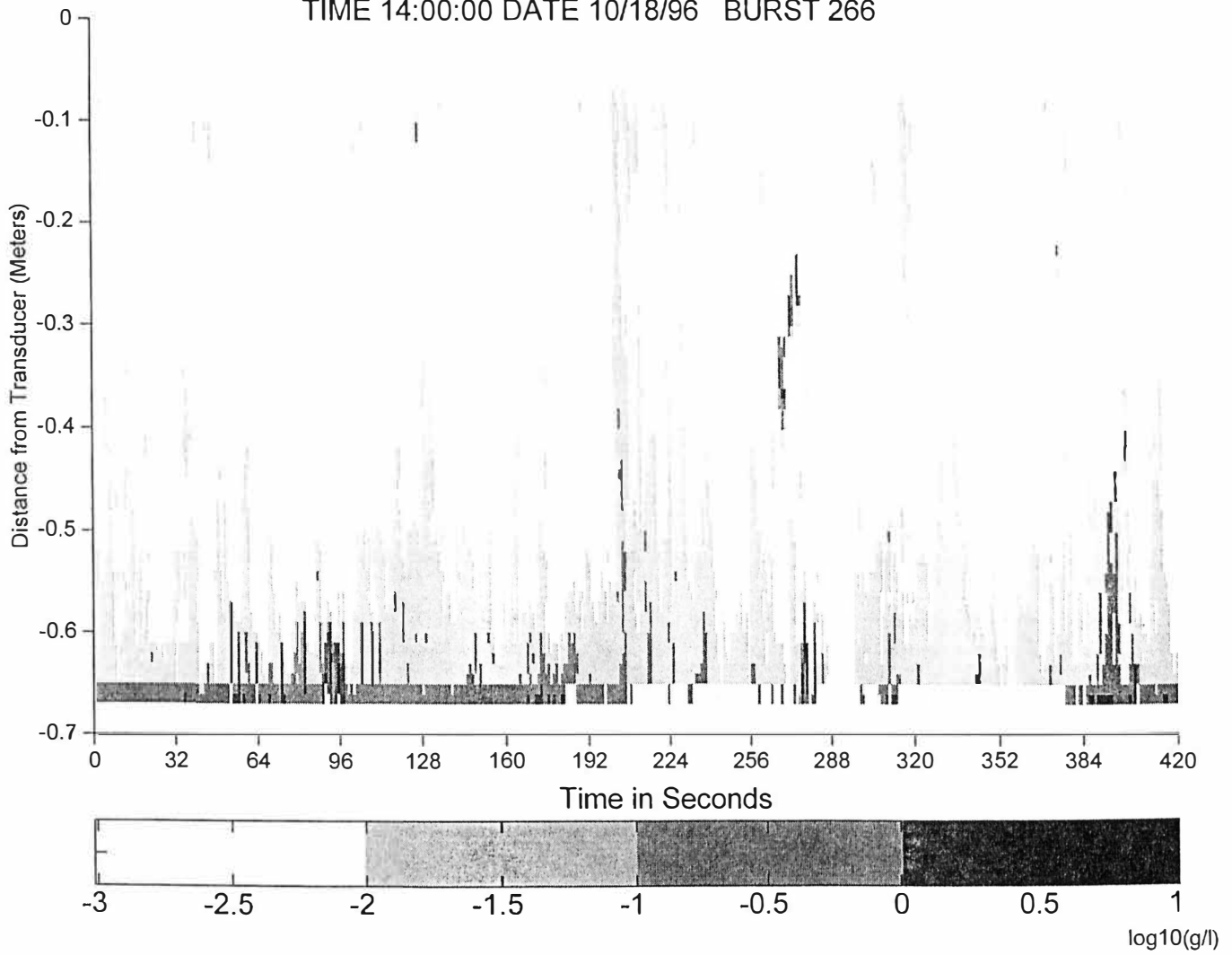
TIME 14:00:00 DATE 10/14/96 BURST 218



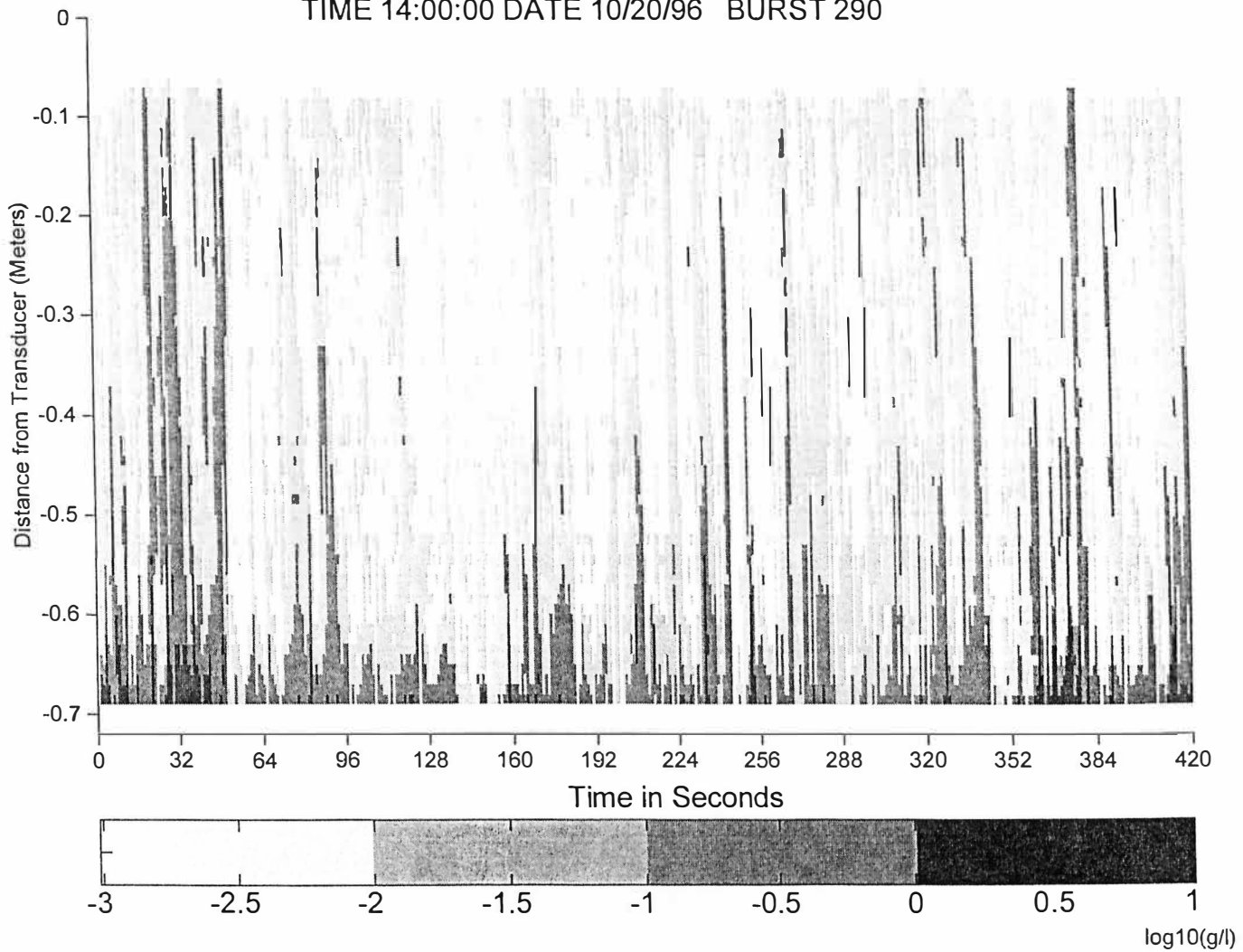
Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/16/96 BURST 242



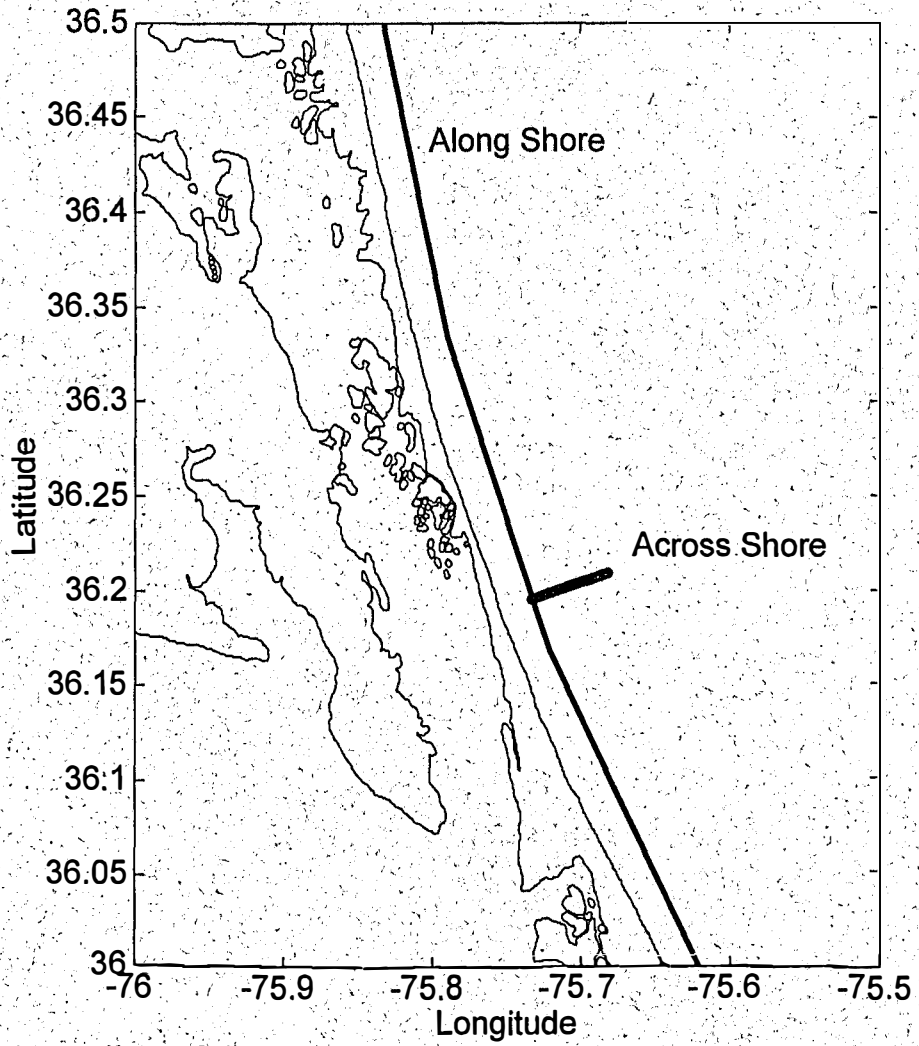
Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/18/96 BURST 266



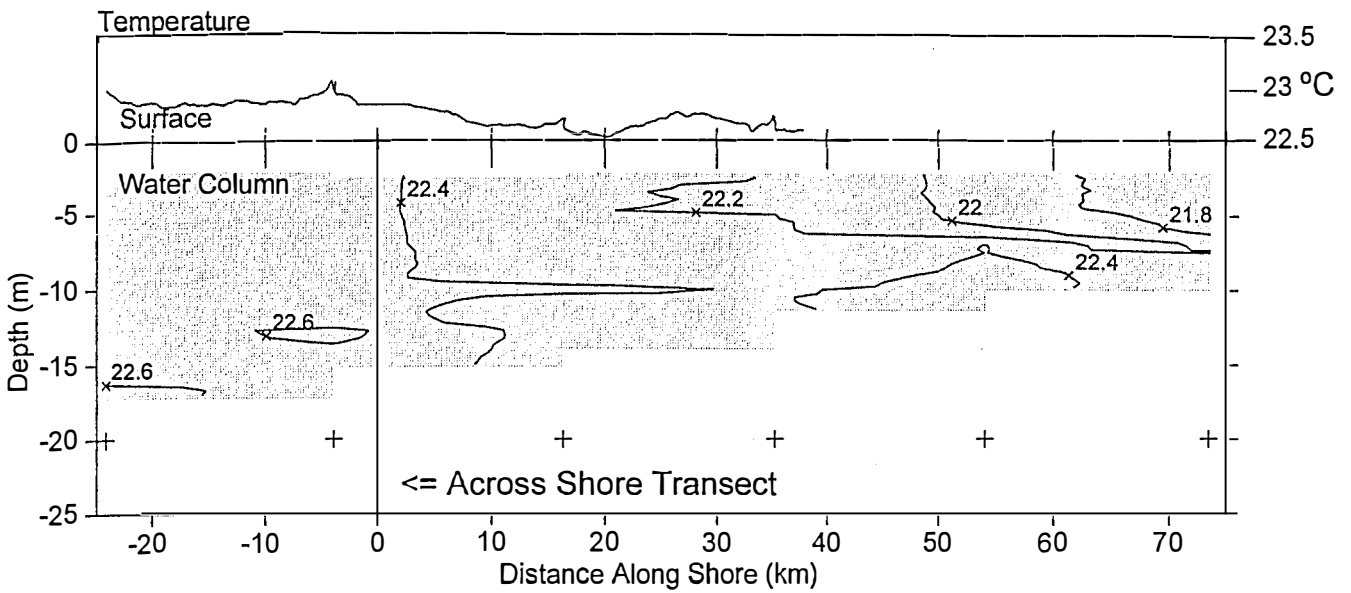
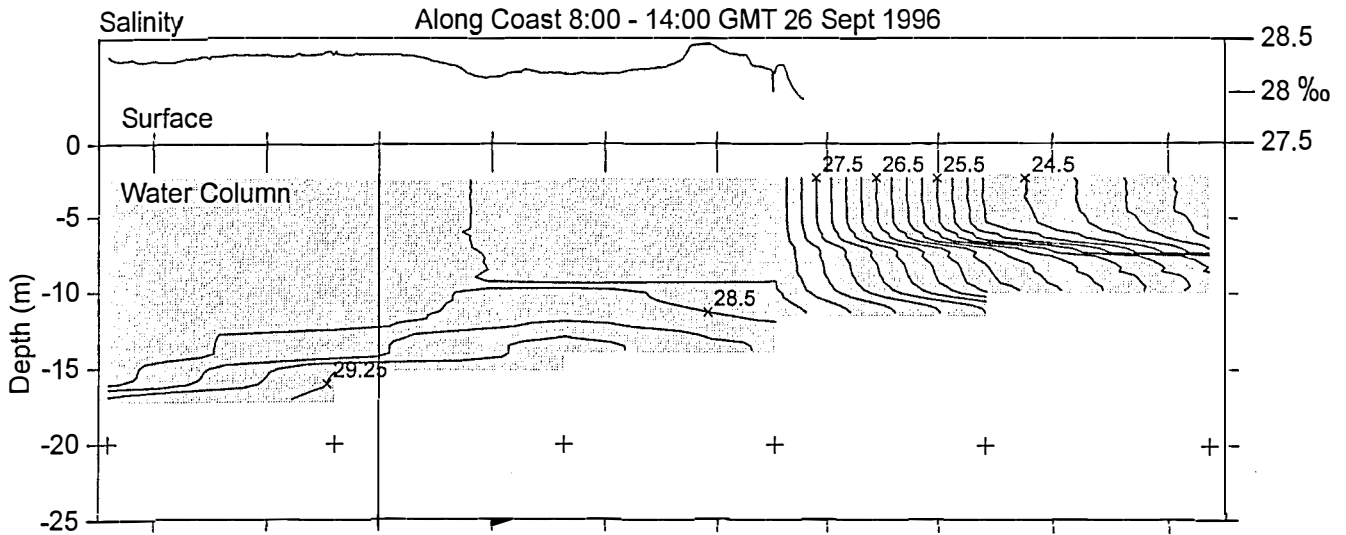
Acoustic Backscatter Burst Data from Duck96A Inshore Pod  
TIME 14:00:00 DATE 10/20/96 BURST 290

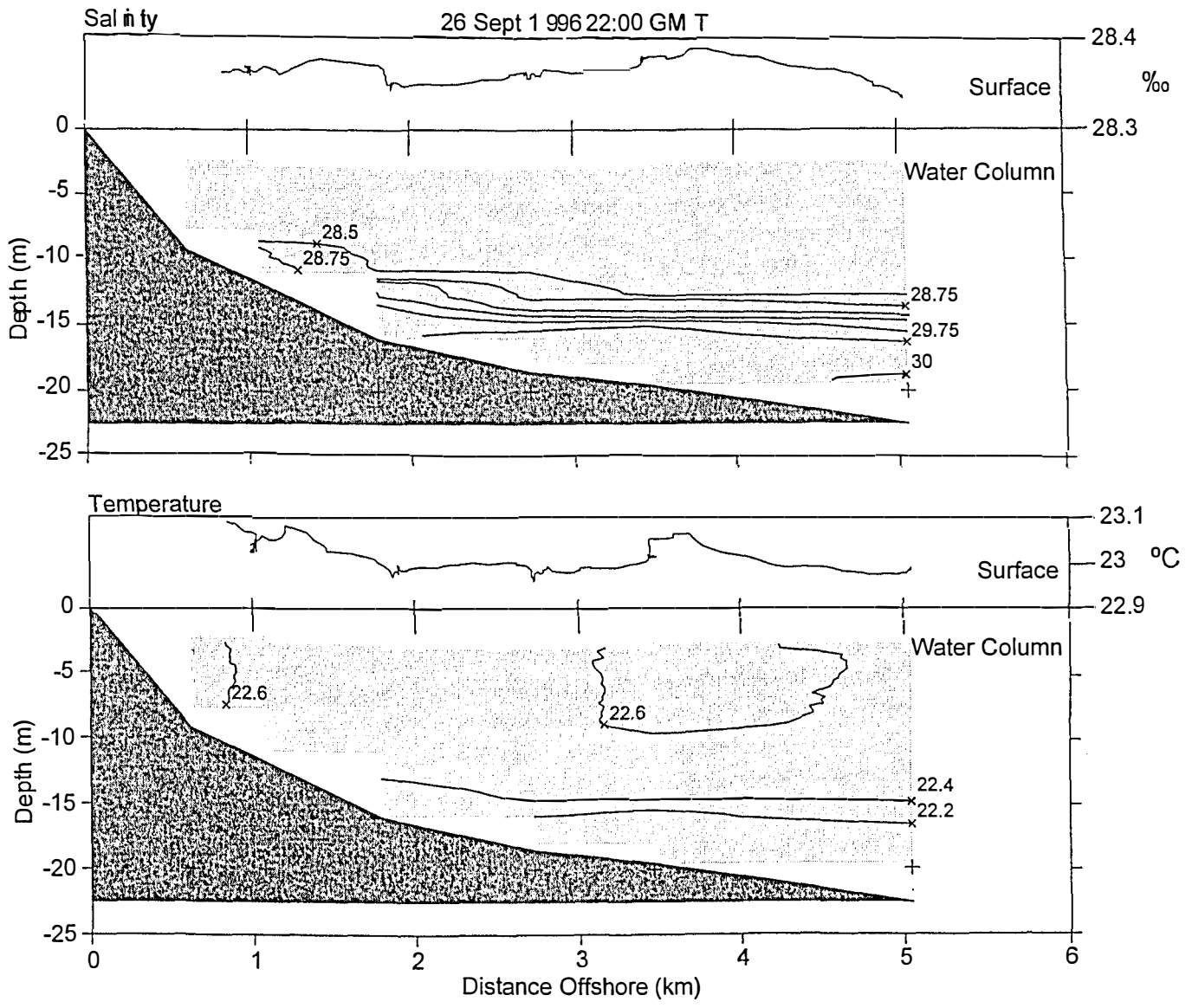


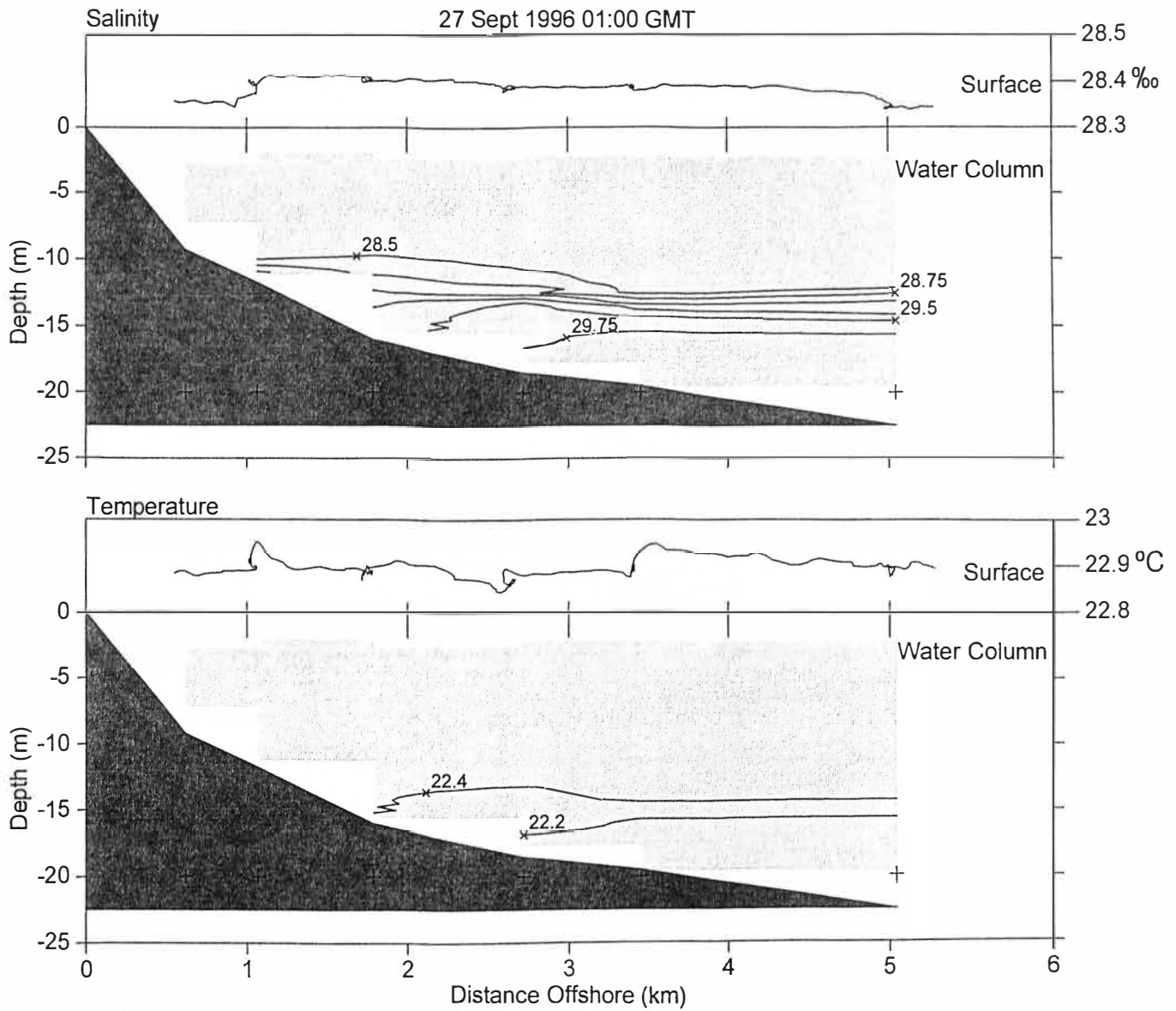
CTD & ADCP Transects - 1996

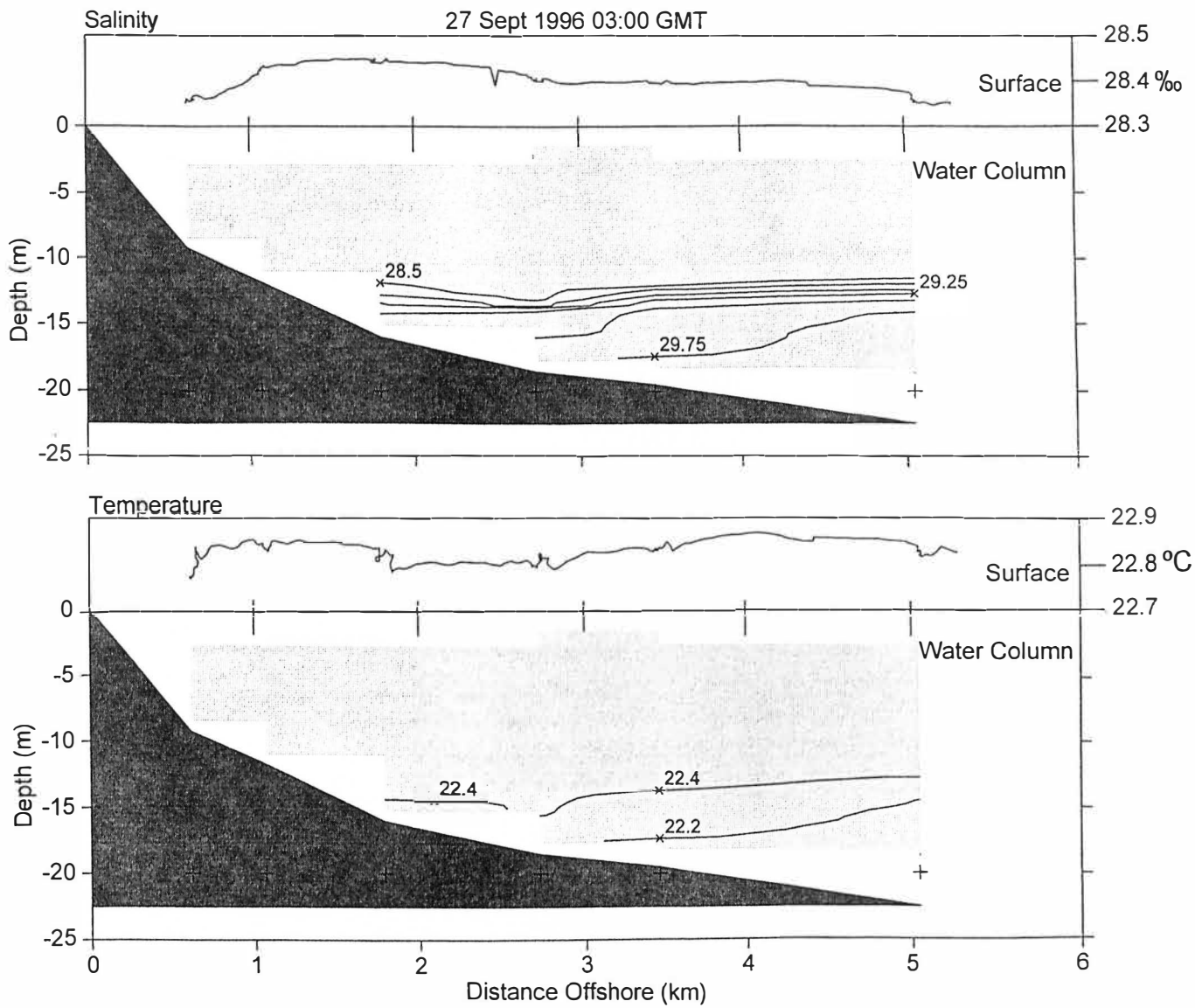


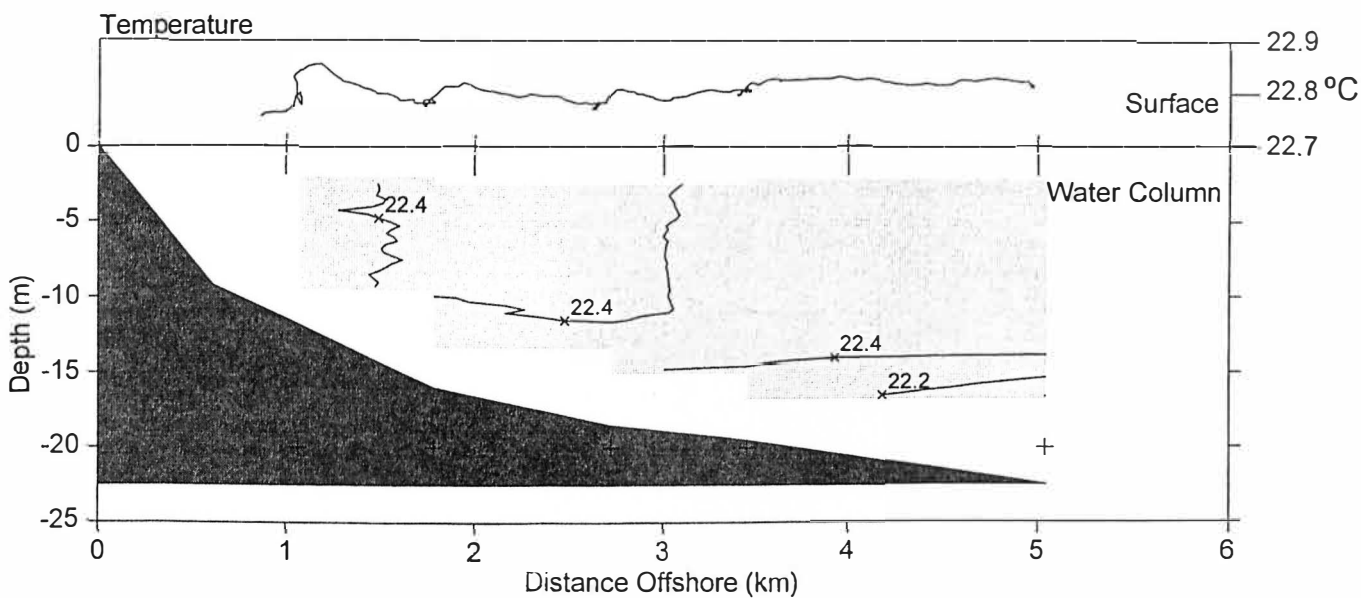
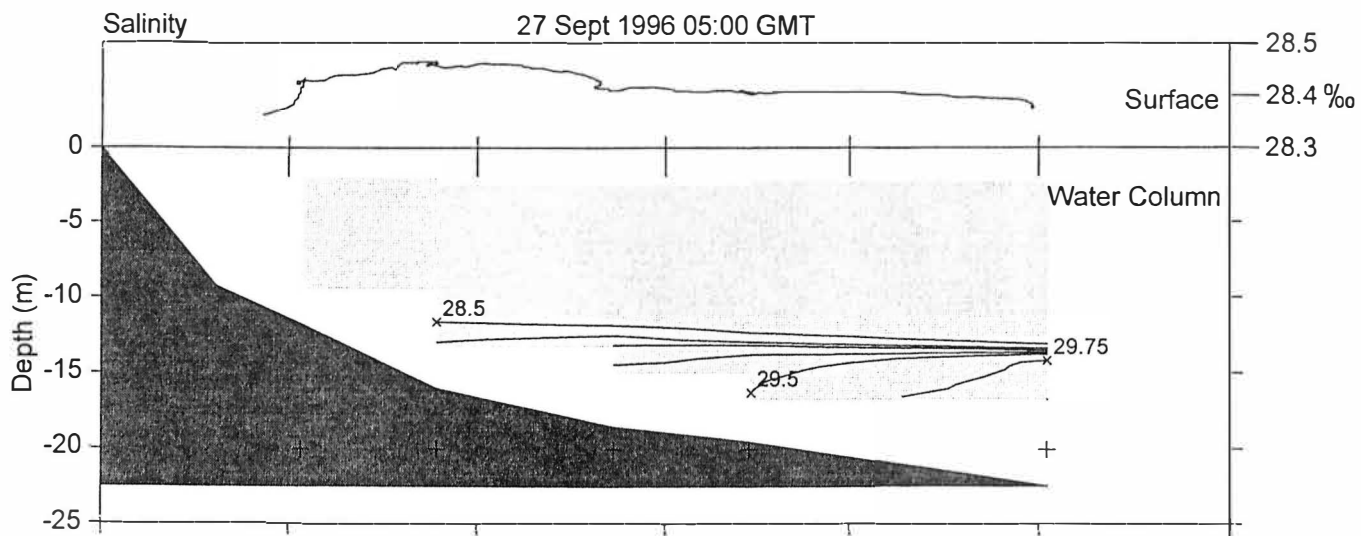


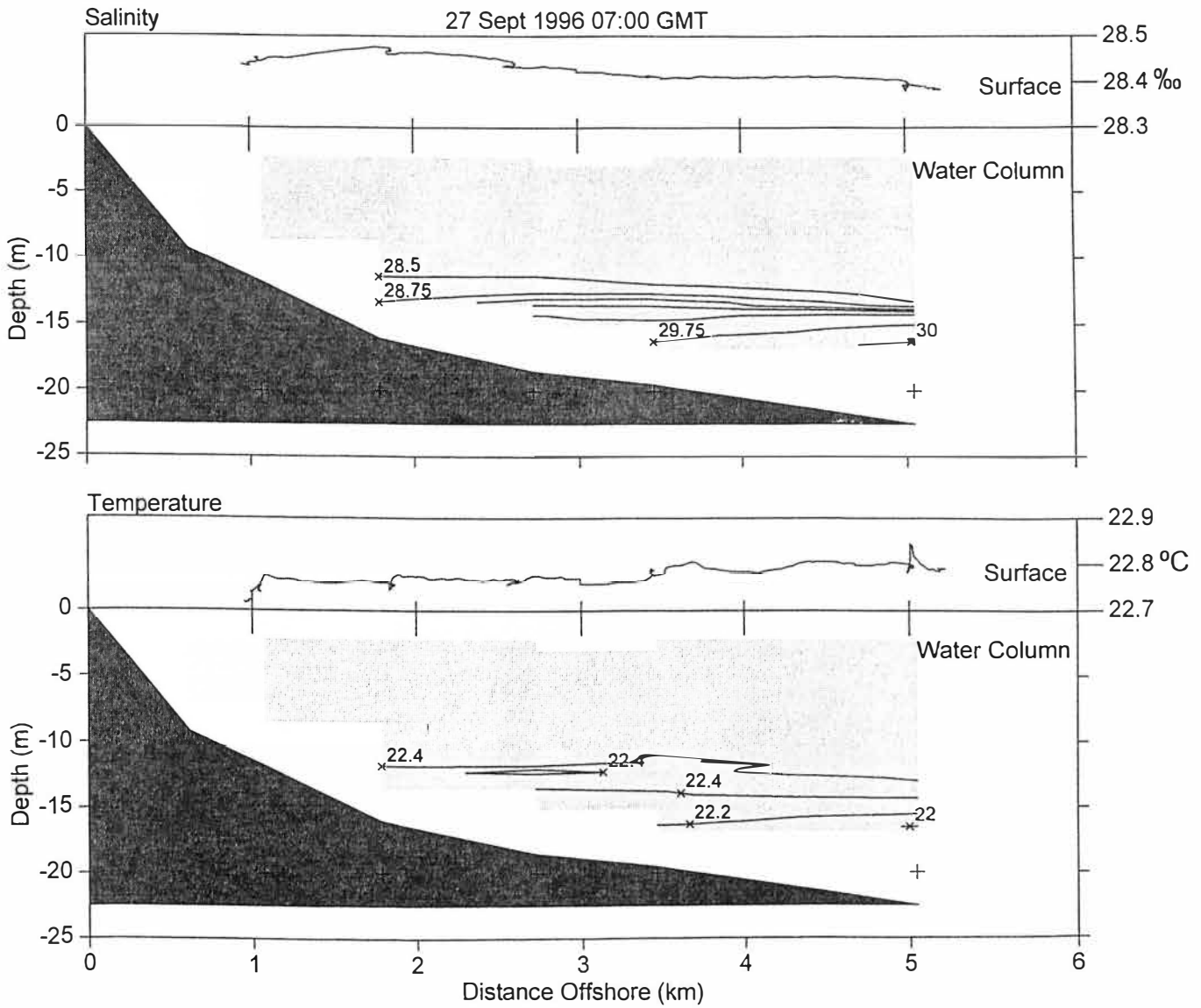


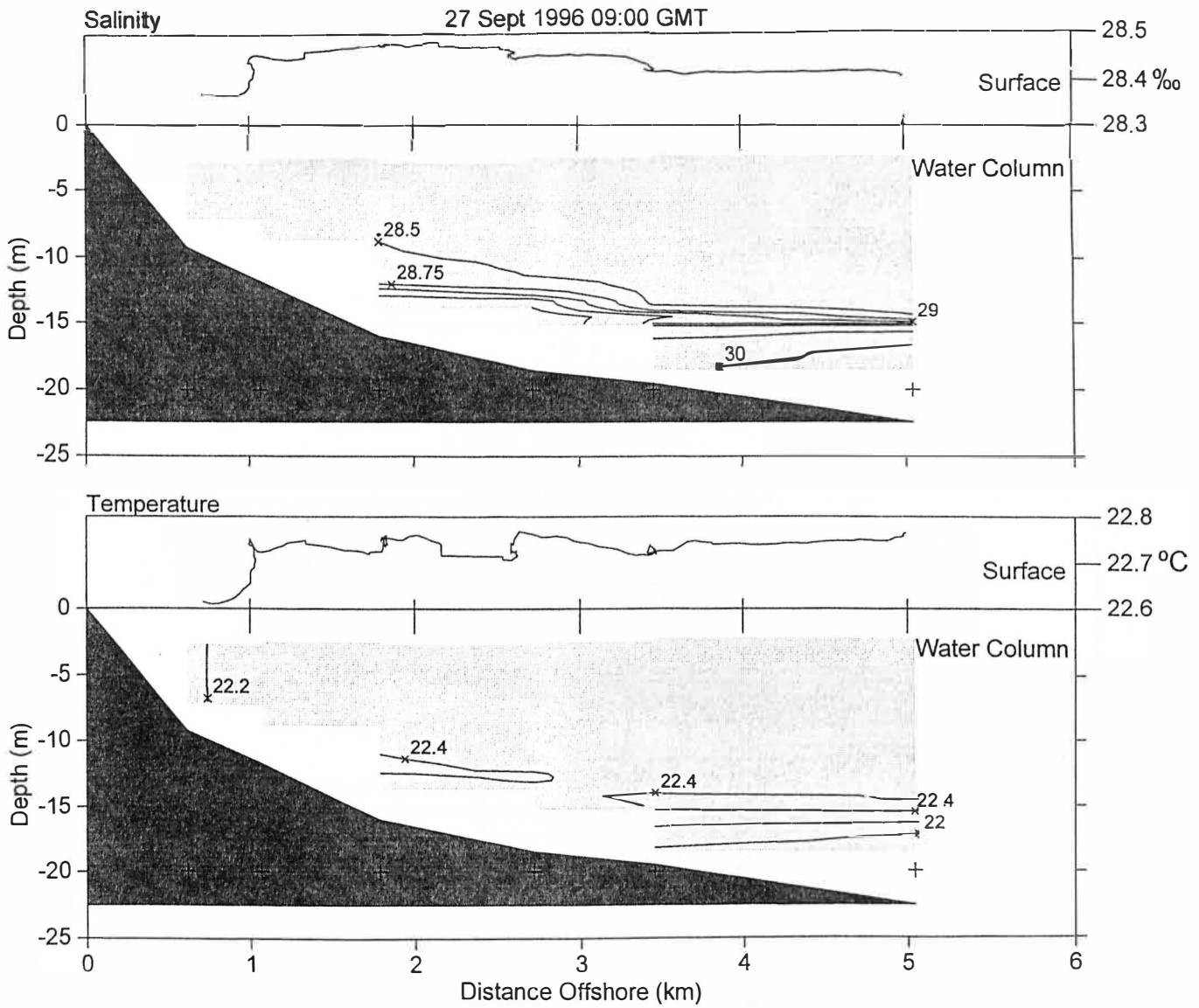




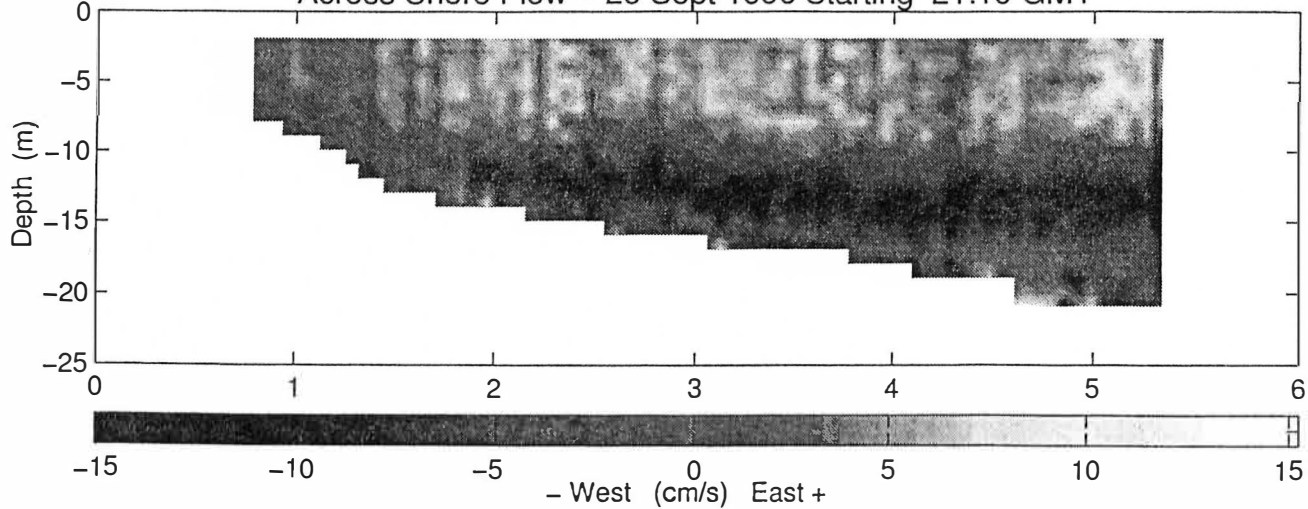




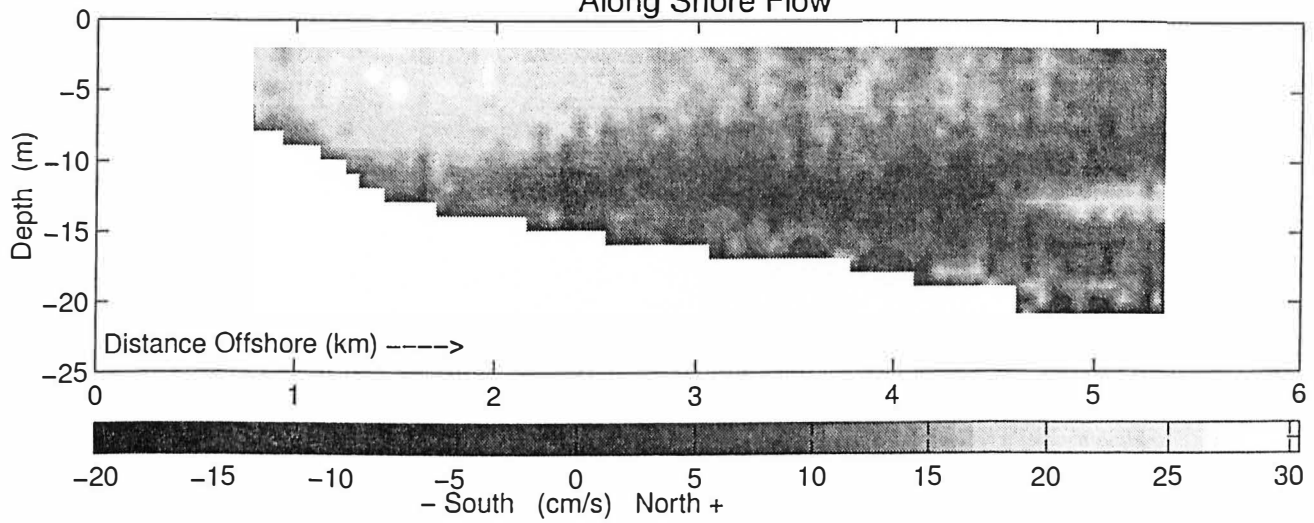




Across Shore Flow – 26 Sept 1996 Starting 21:19 GMT

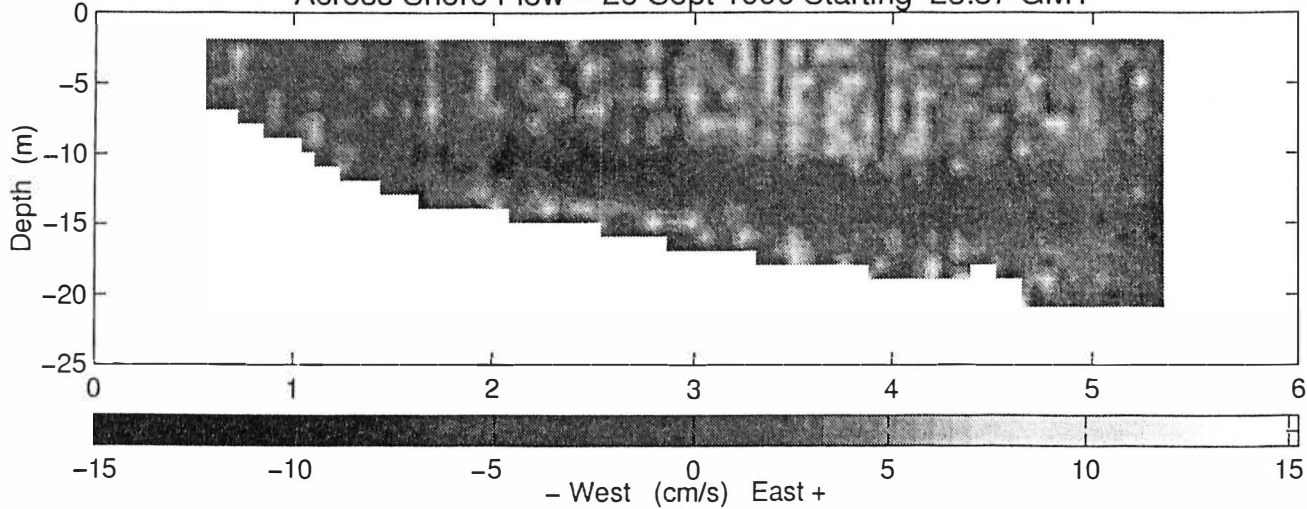


Along Shore Flow

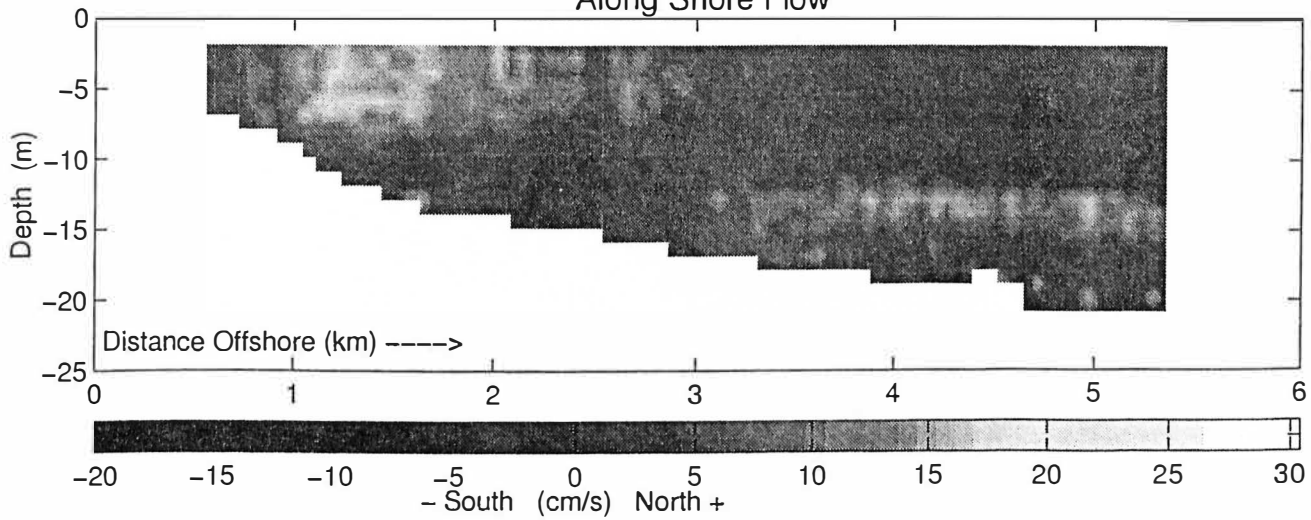




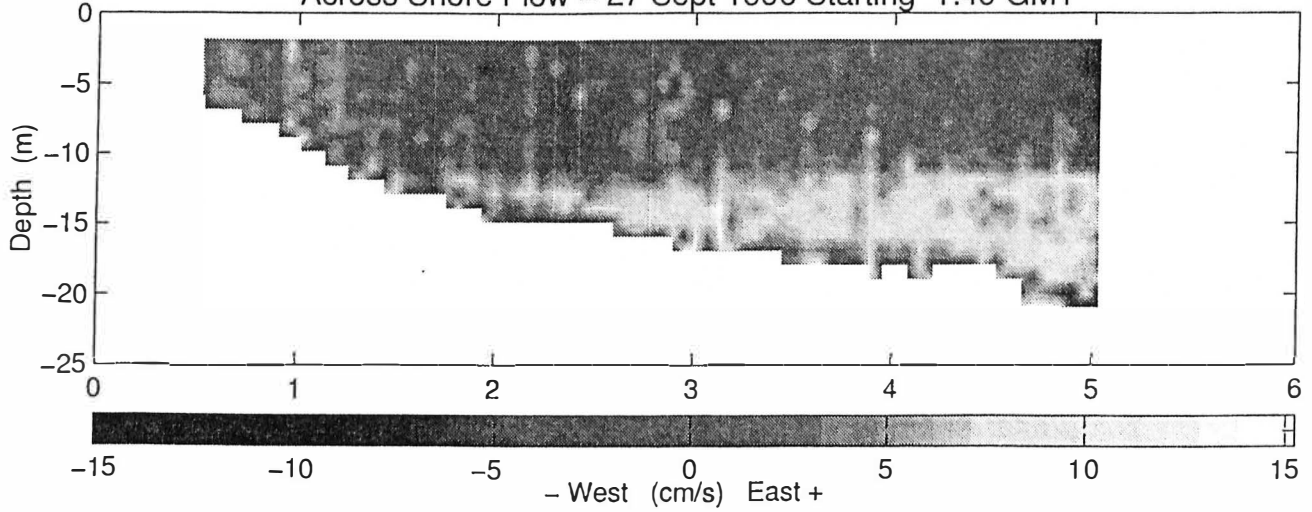
Across Shore Flow - 26 Sept 1996 Starting 23:37 GMT



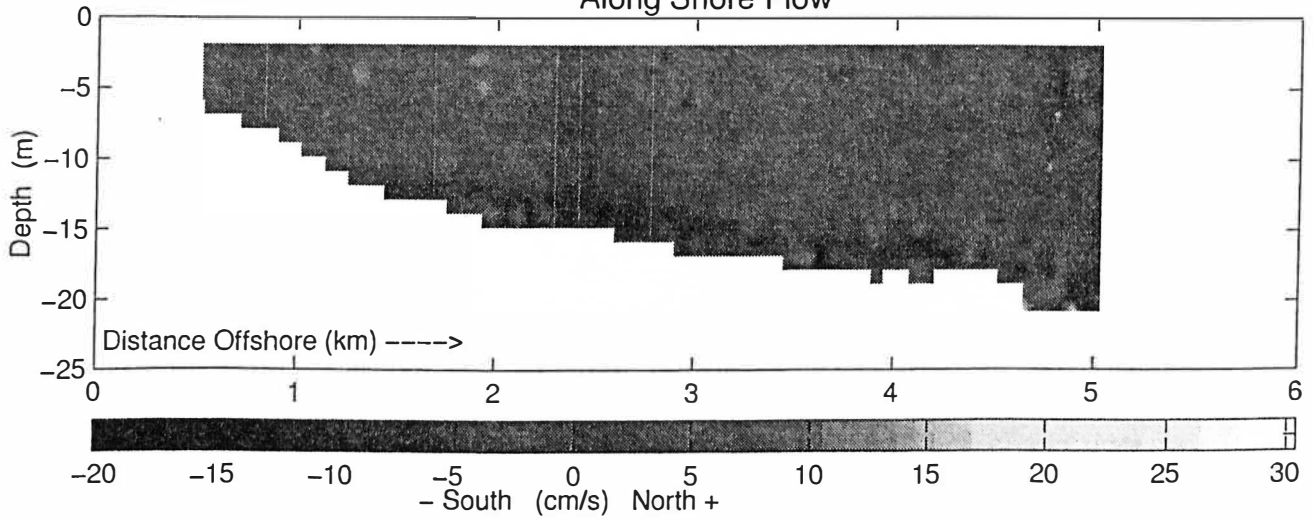
Along Shore Flow



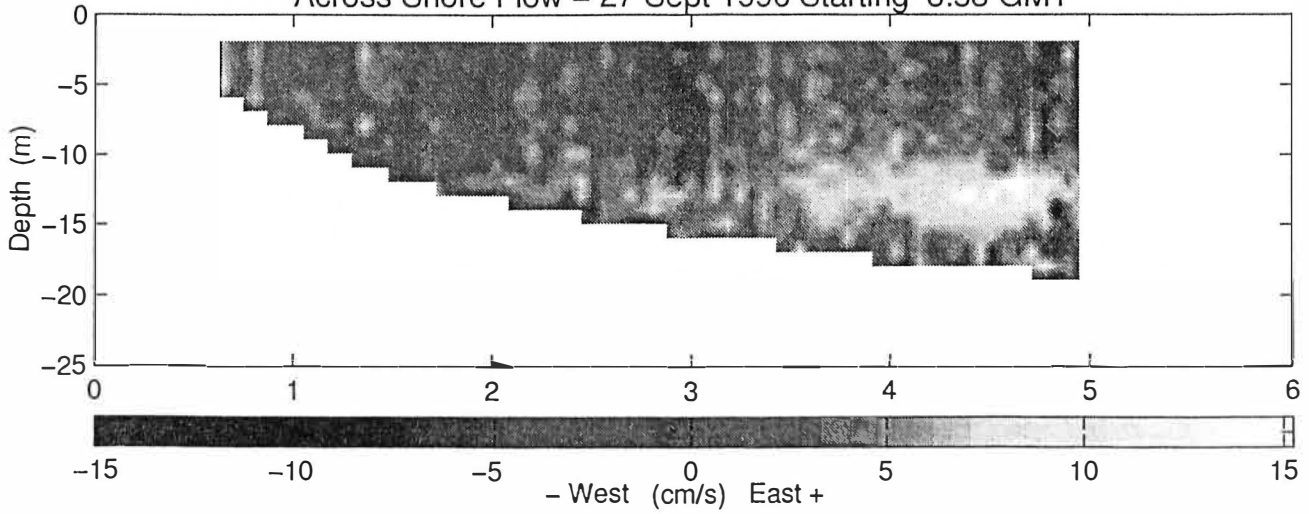
Across Shore Flow - 27 Sept 1996 Starting 1:49 GMT



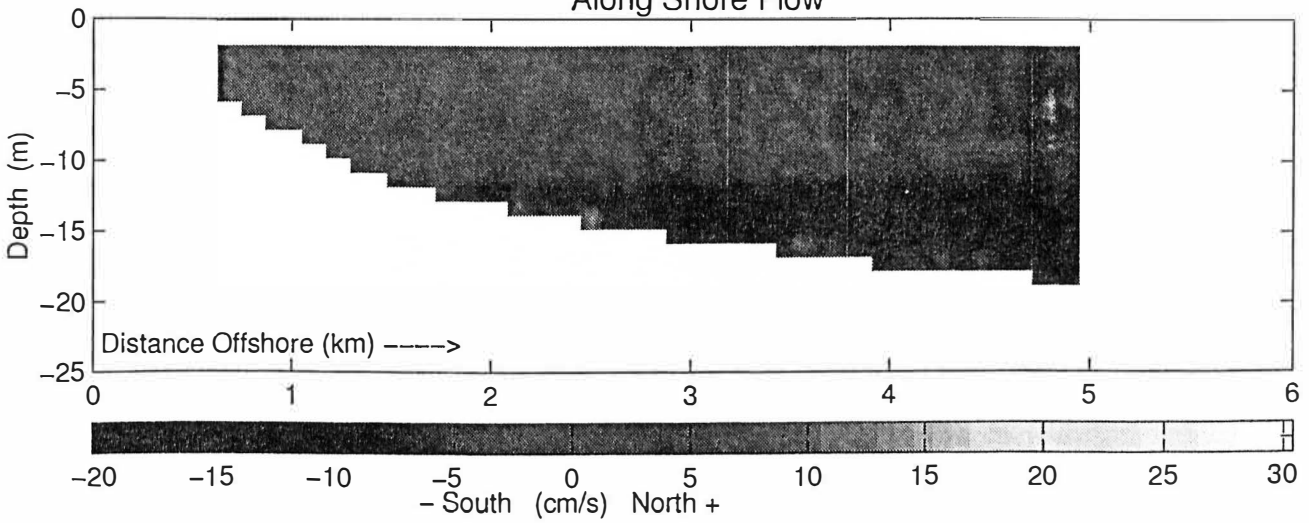
Along Shore Flow



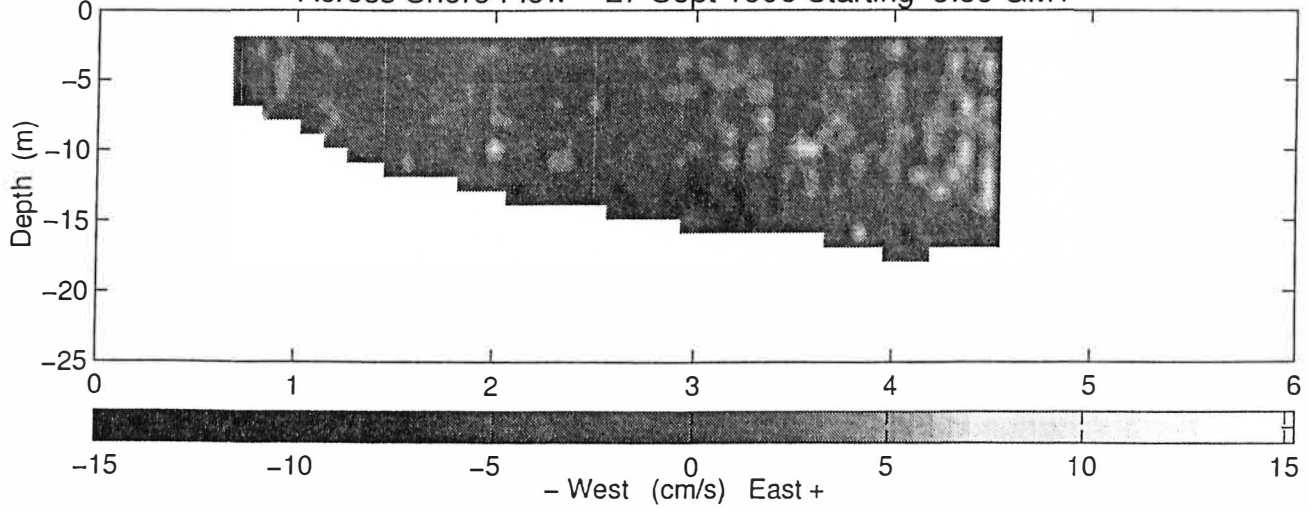
Across Shore Flow – 27 Sept 1996 Starting 3:53 GMT



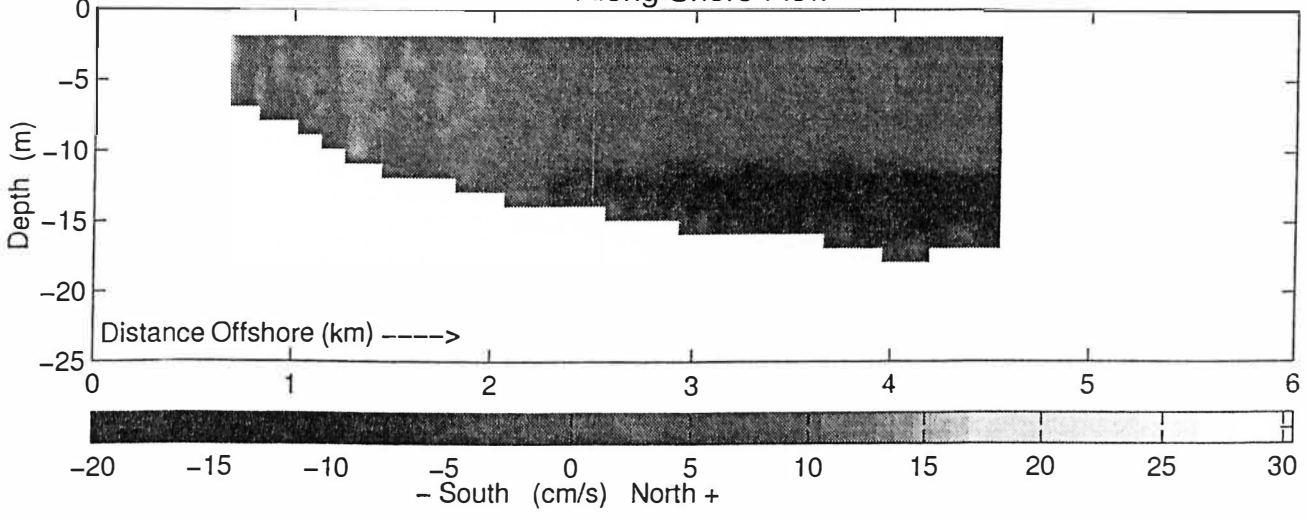
Along Shore Flow



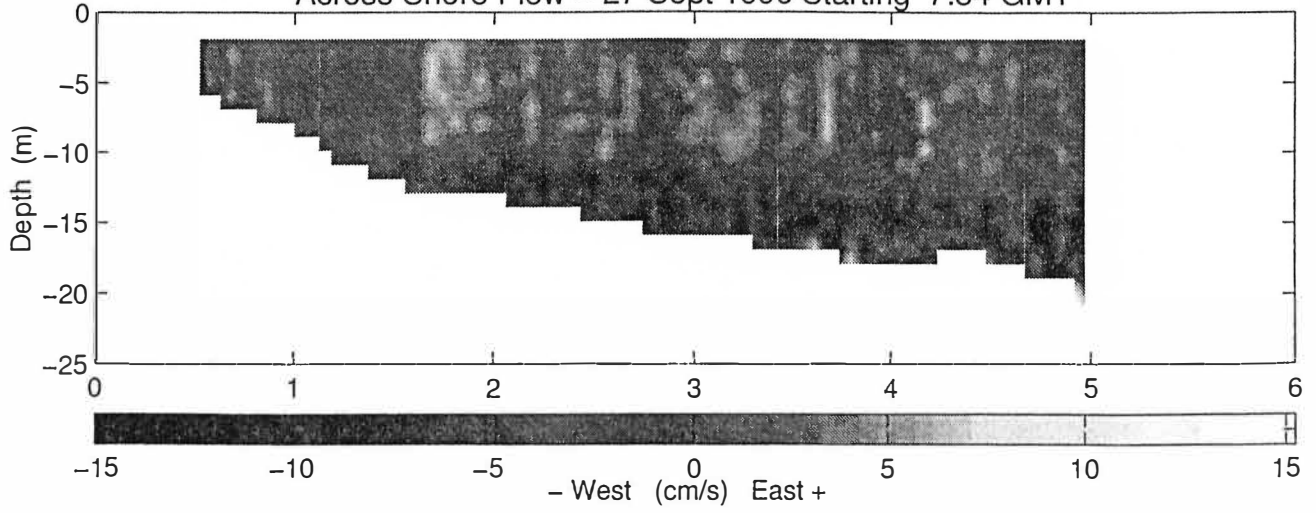
Across Shore Flow - 27 Sept 1996 Starting 5:55 GMT



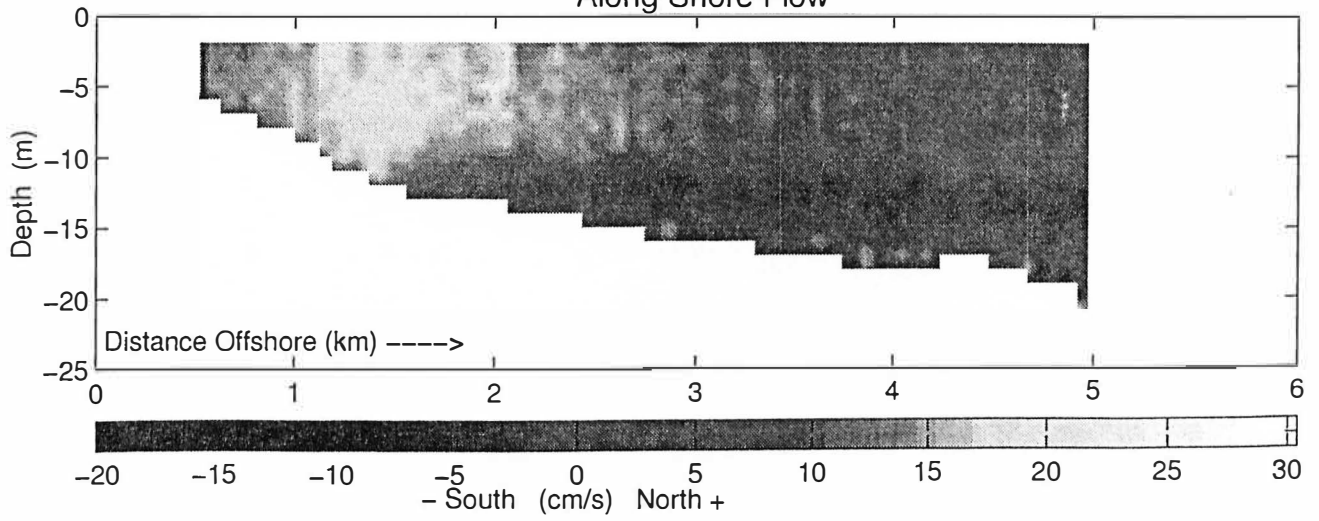
Along Shore Flow



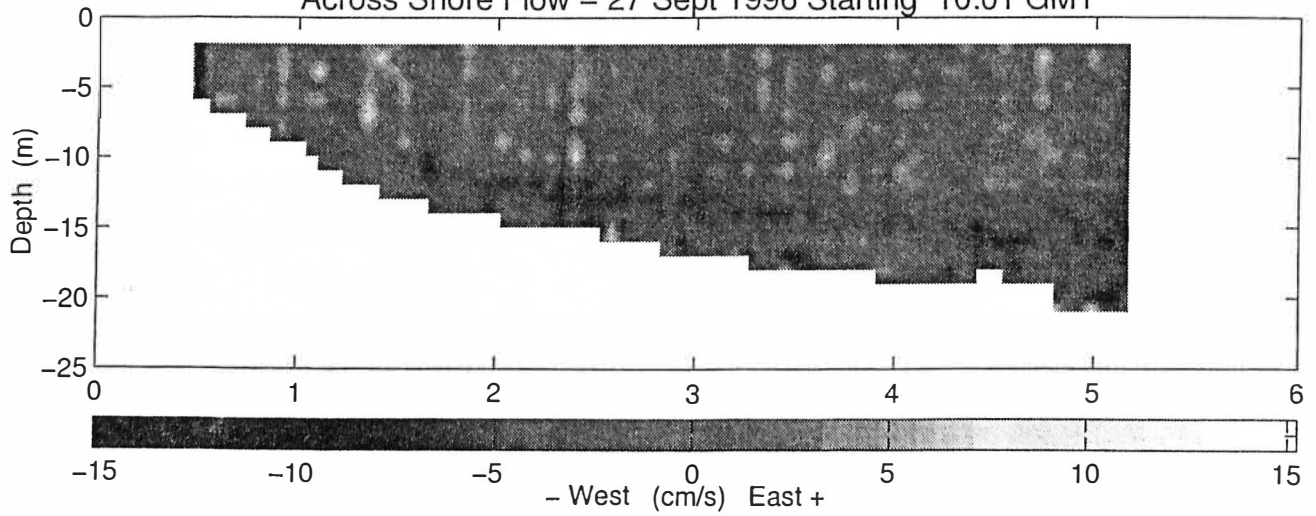
Across Shore Flow – 27 Sept 1996 Starting 7:54 GMT



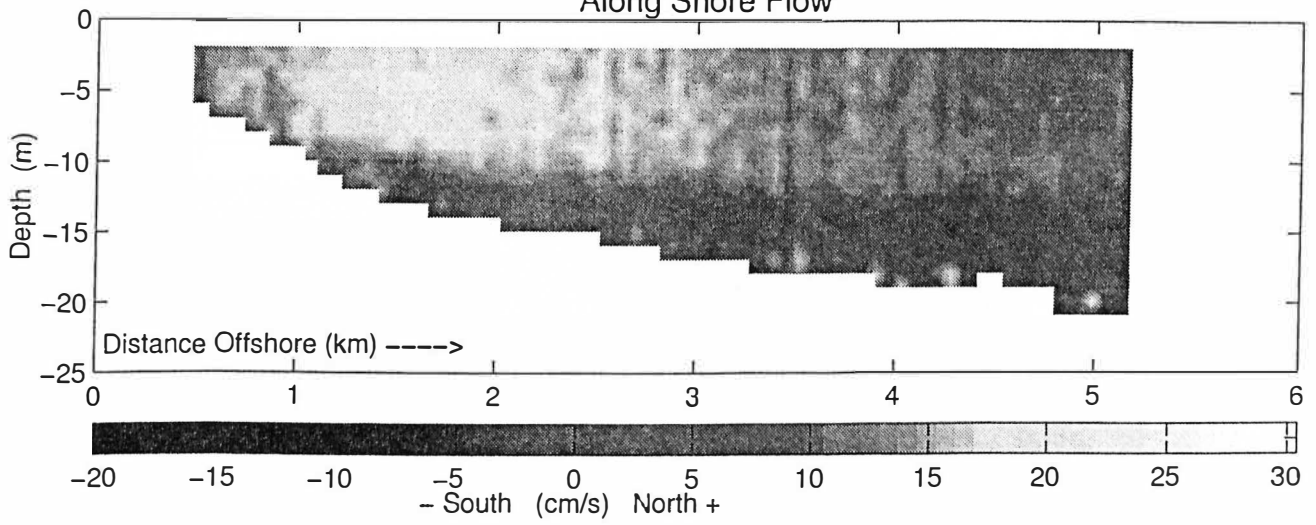
Along Shore Flow

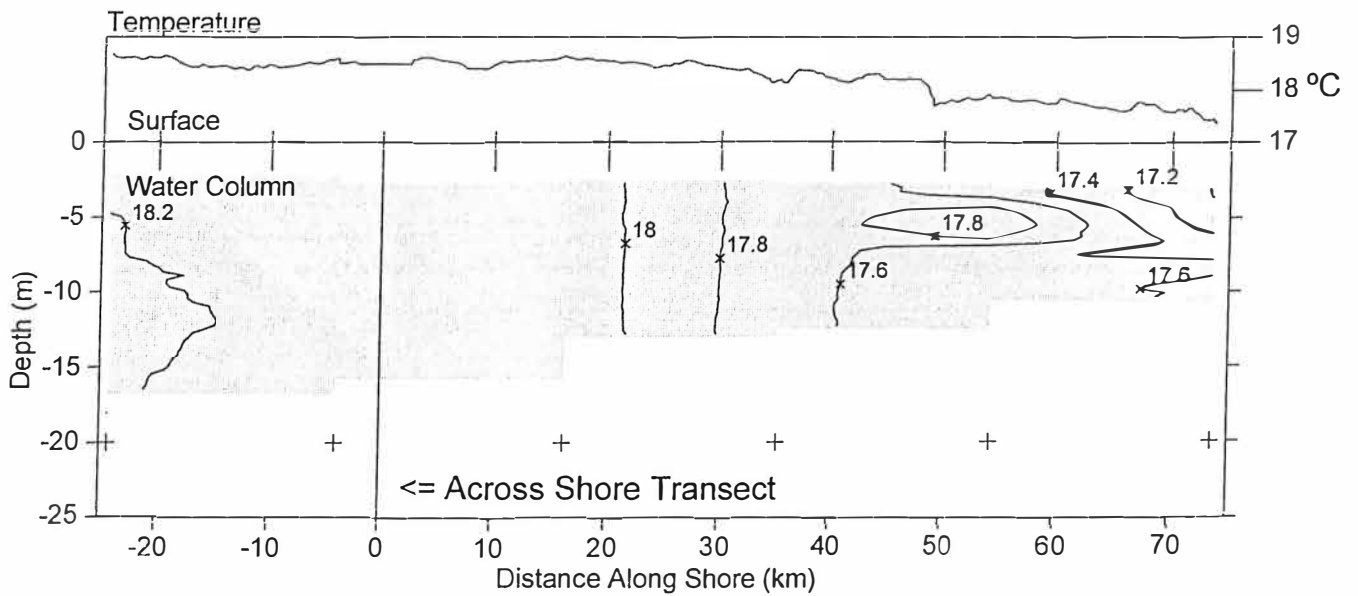
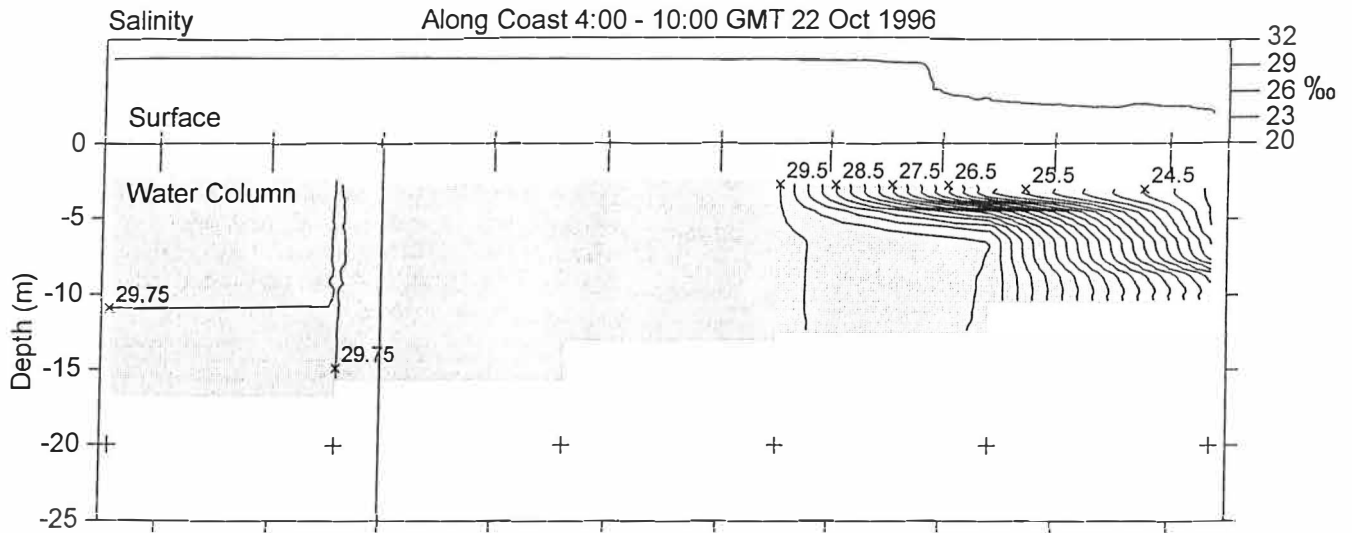


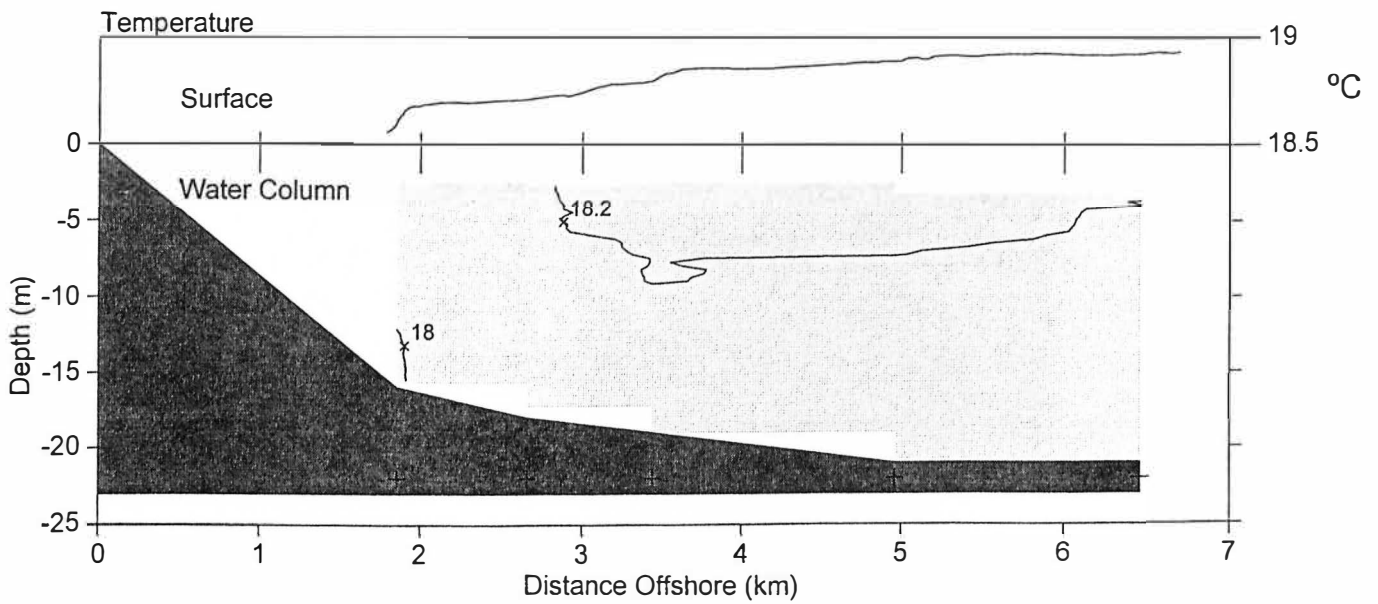
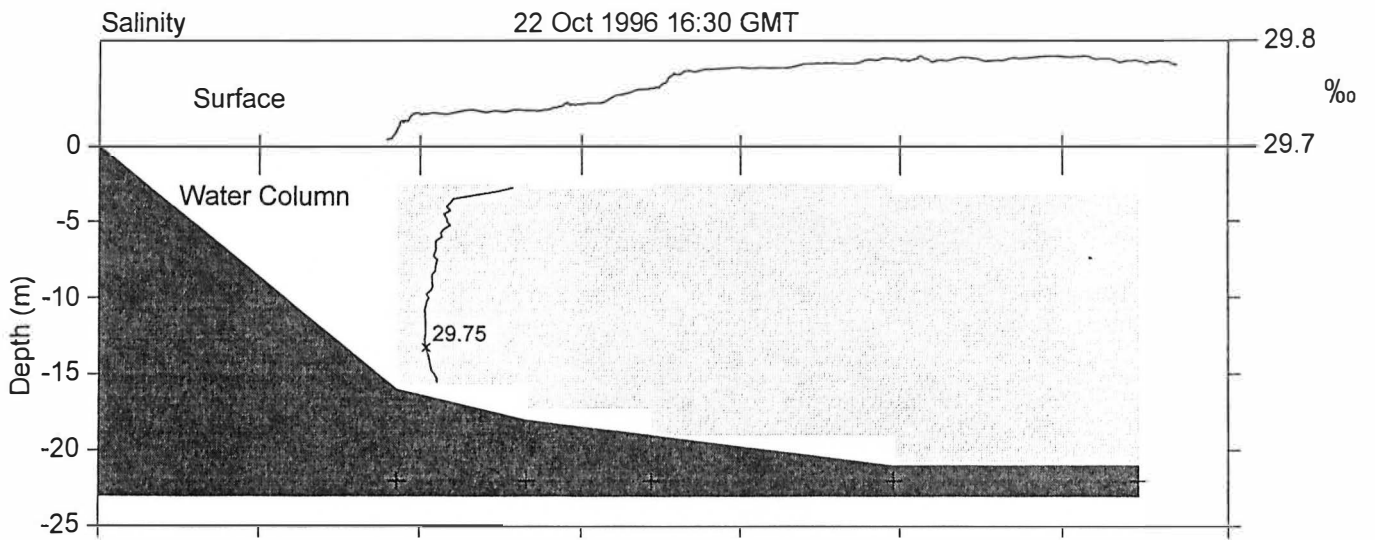
Across Shore Flow – 27 Sept 1996 Starting 10:01 GMT



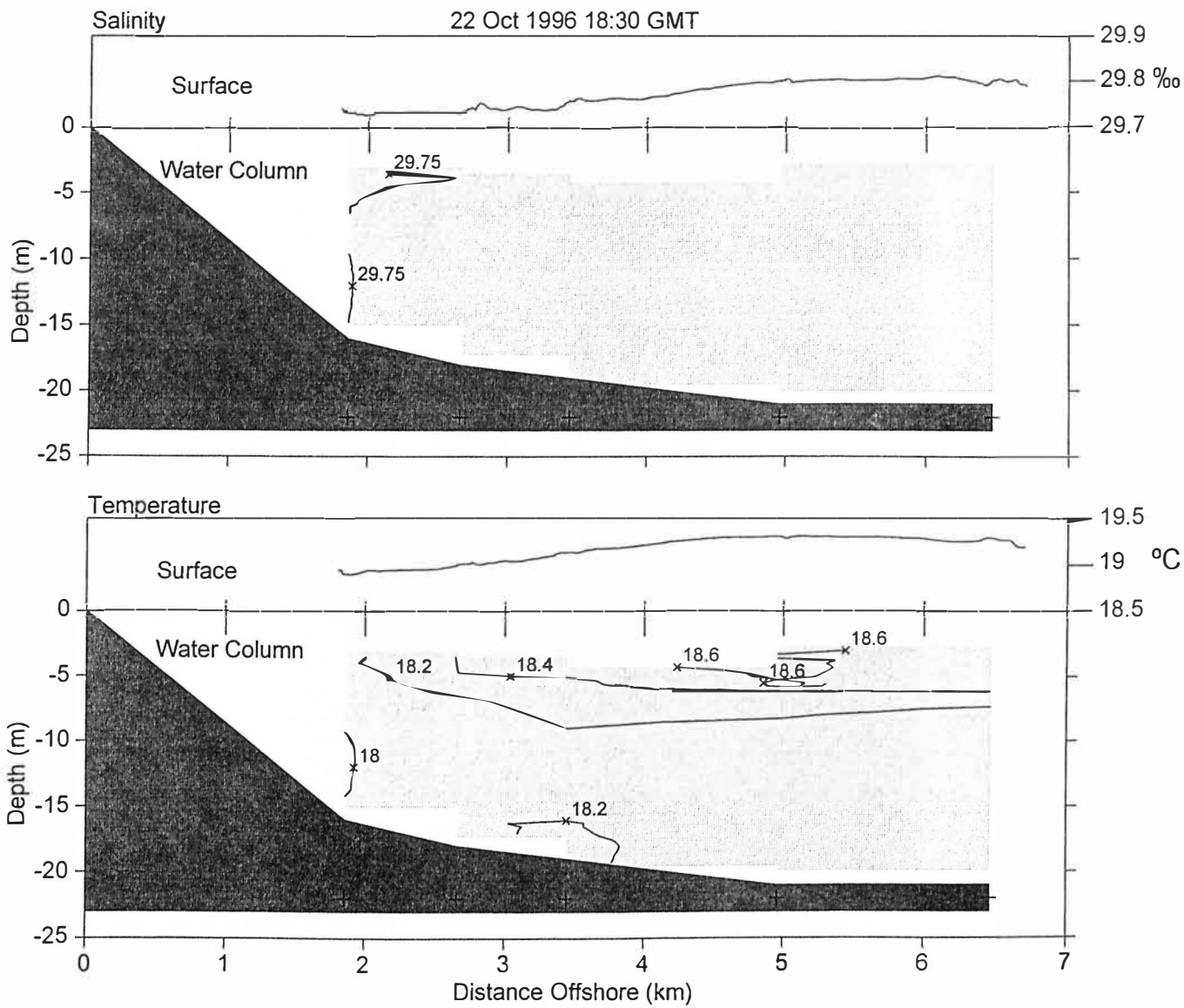
Along Shore Flow

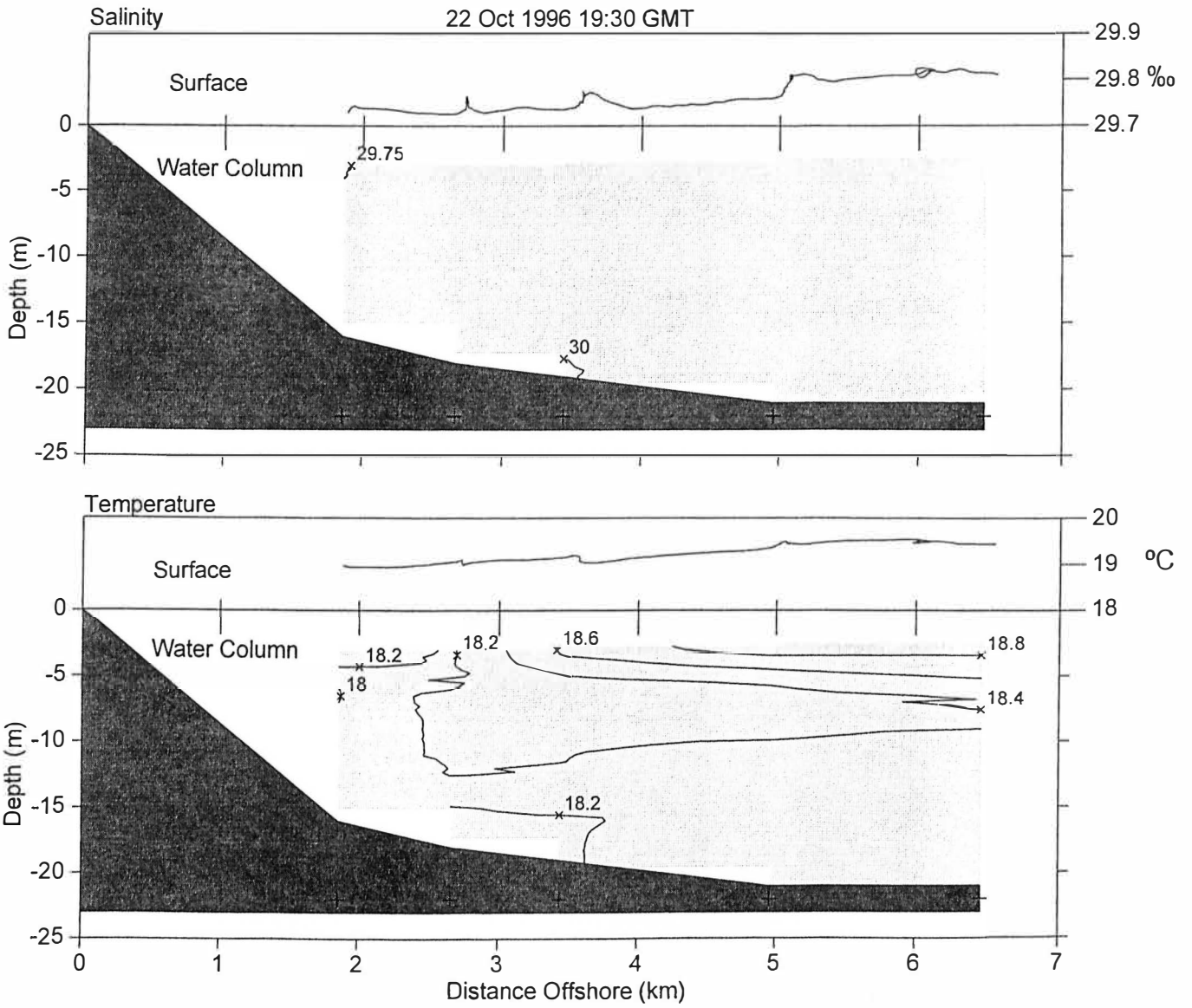


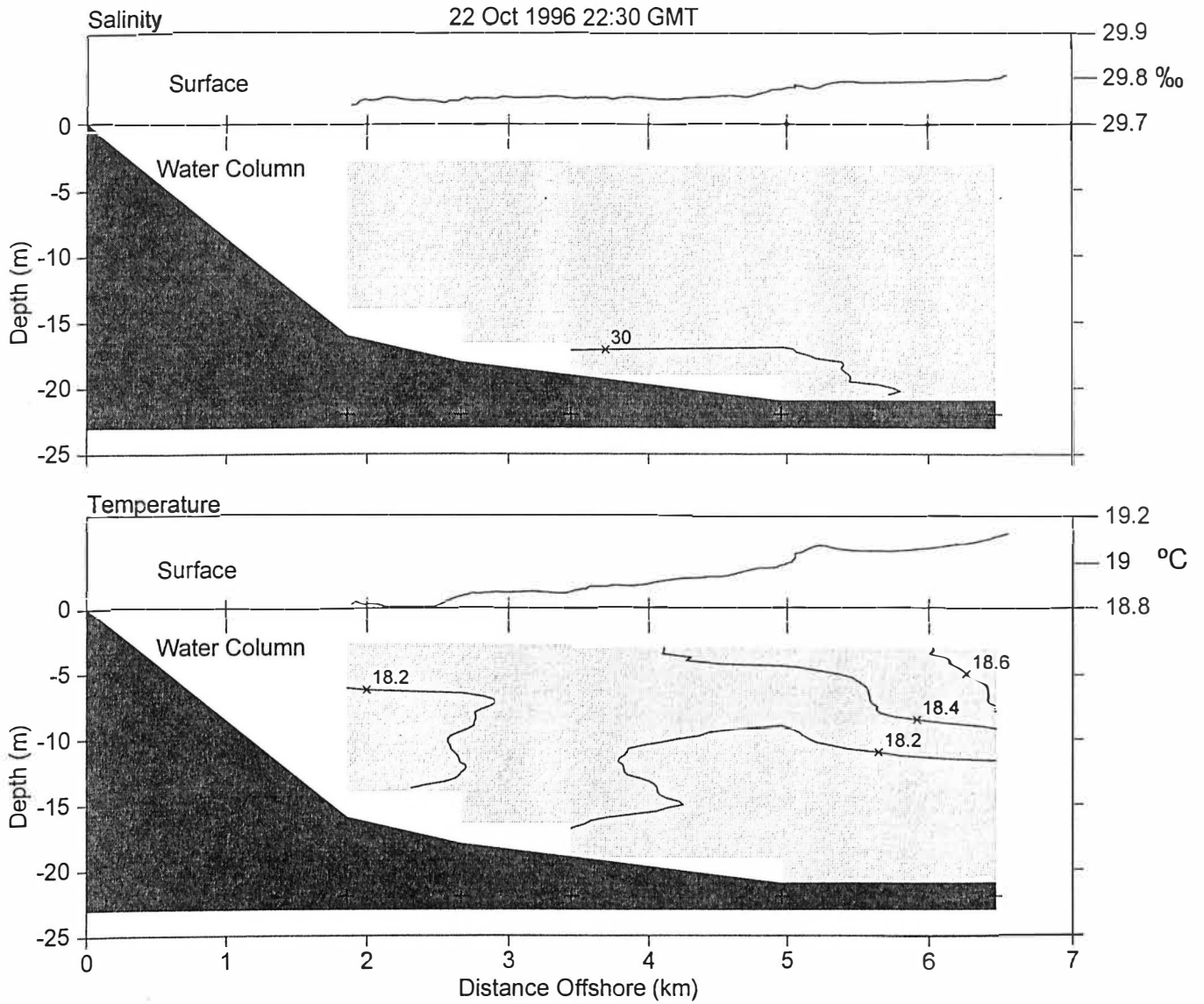


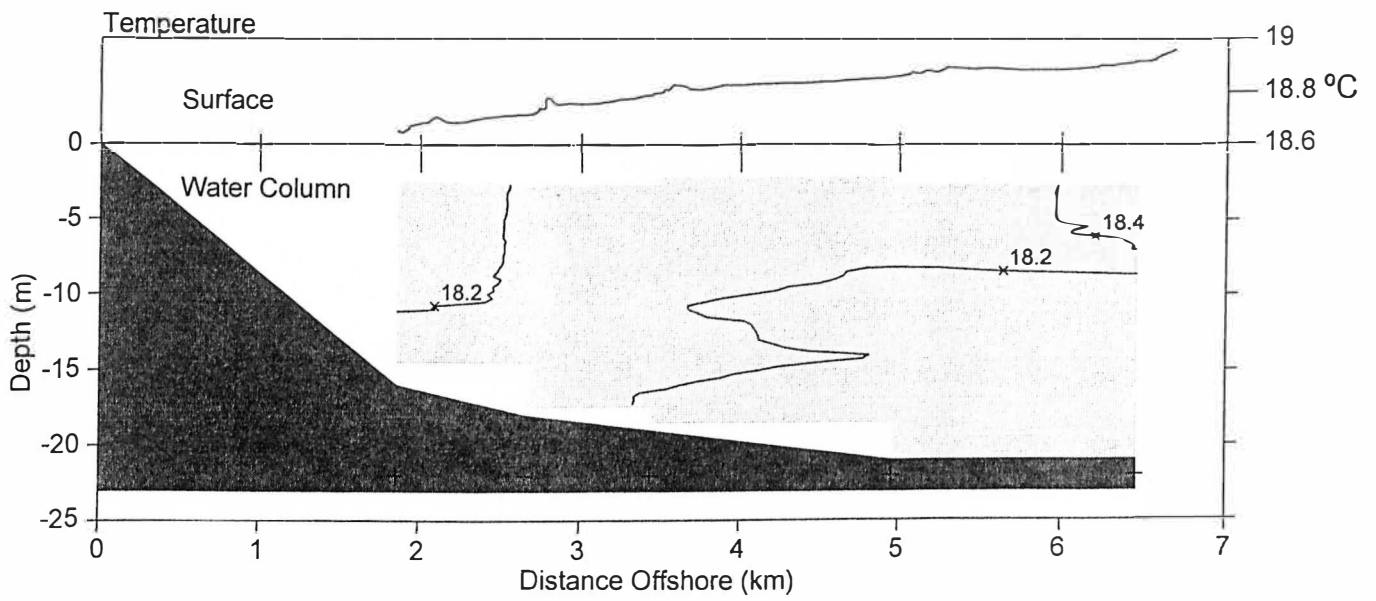
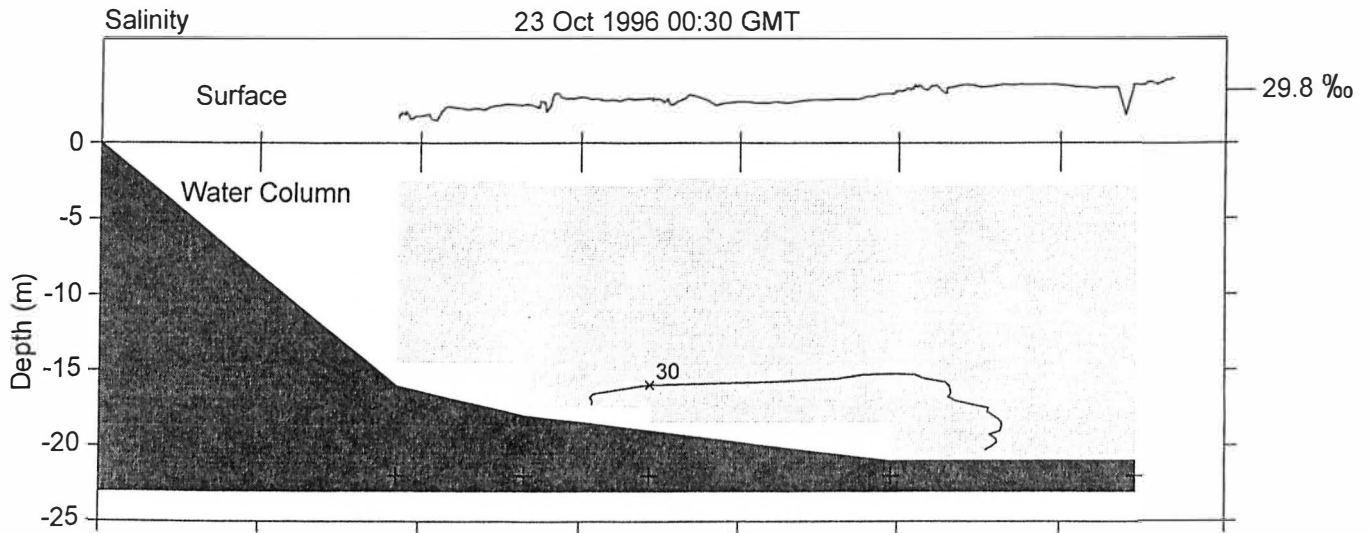


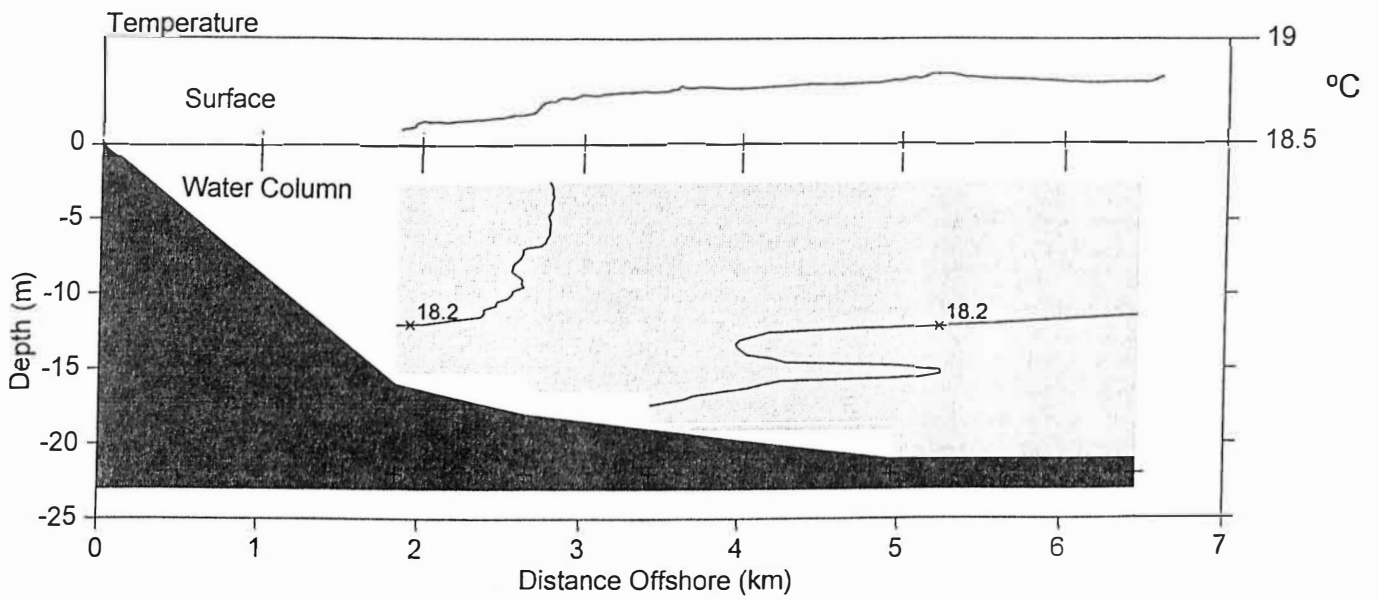
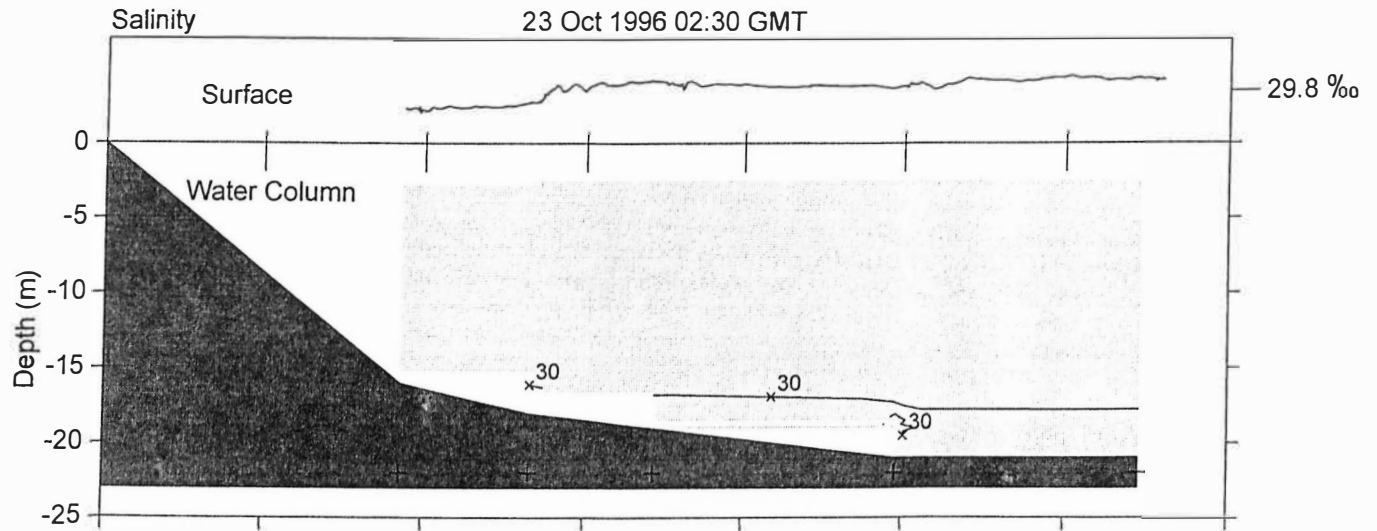




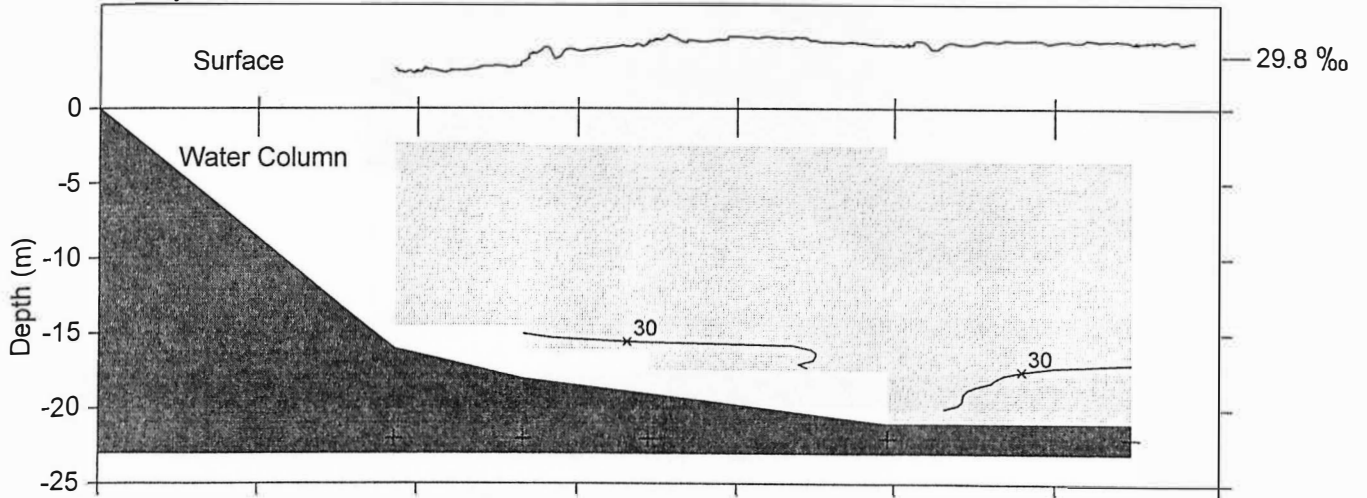




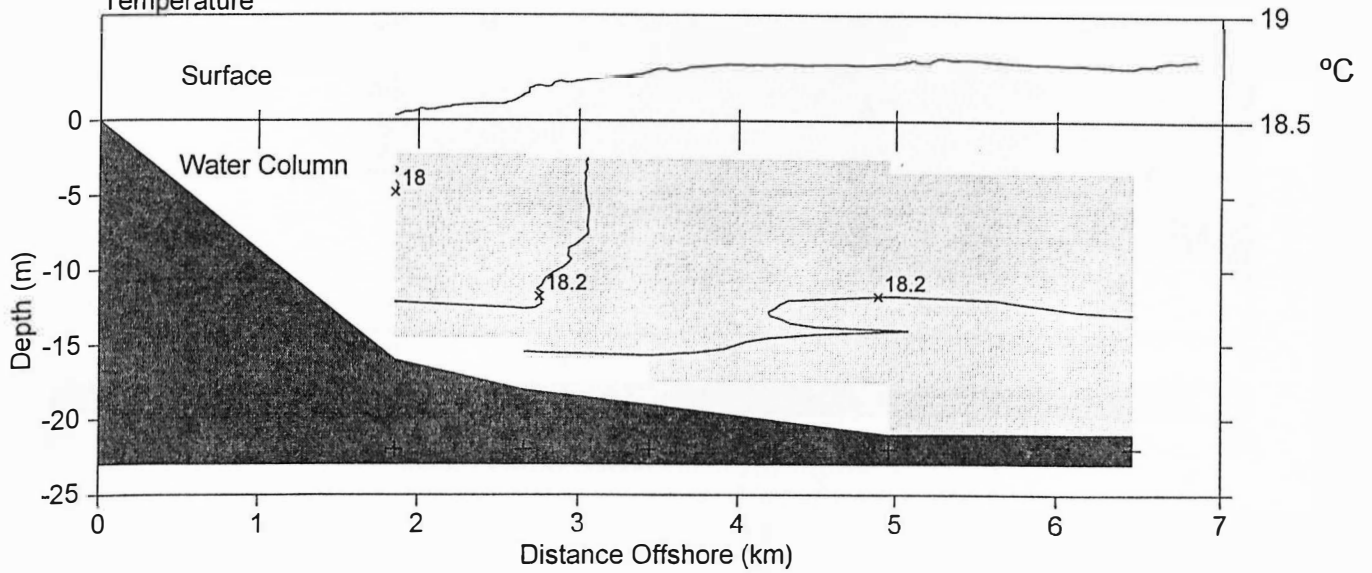




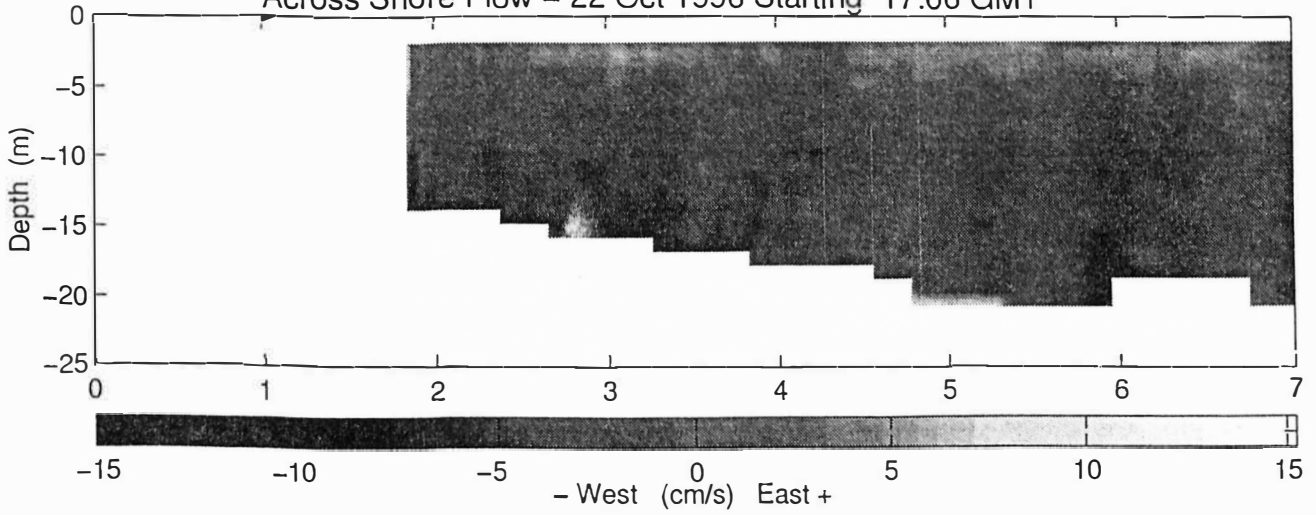
Salinity 23 Oct 1996 04:30 GMT



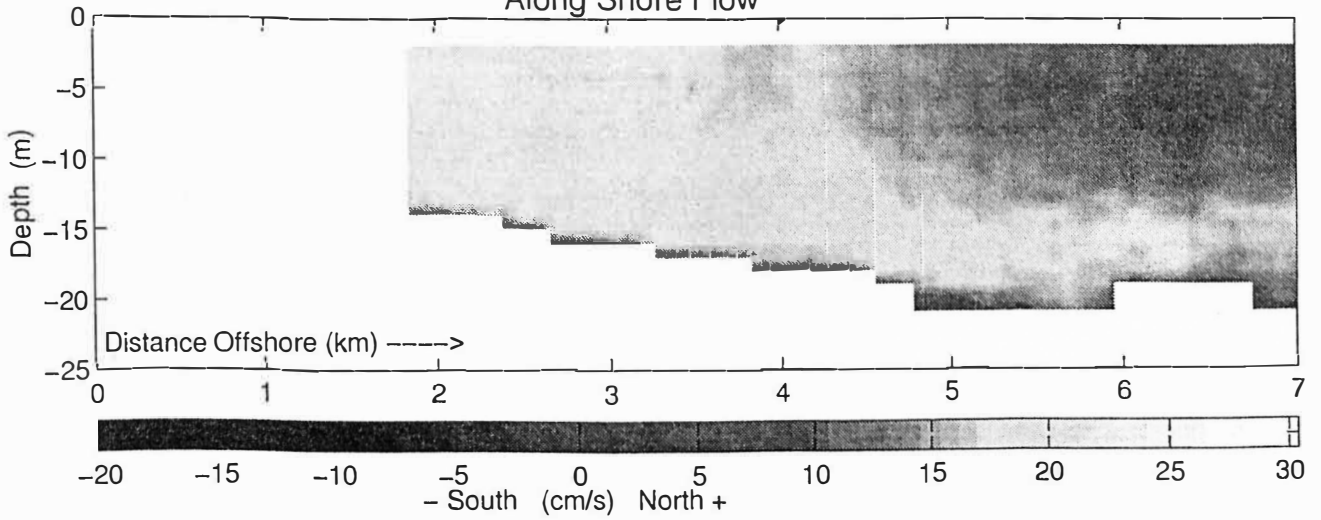
Temperature



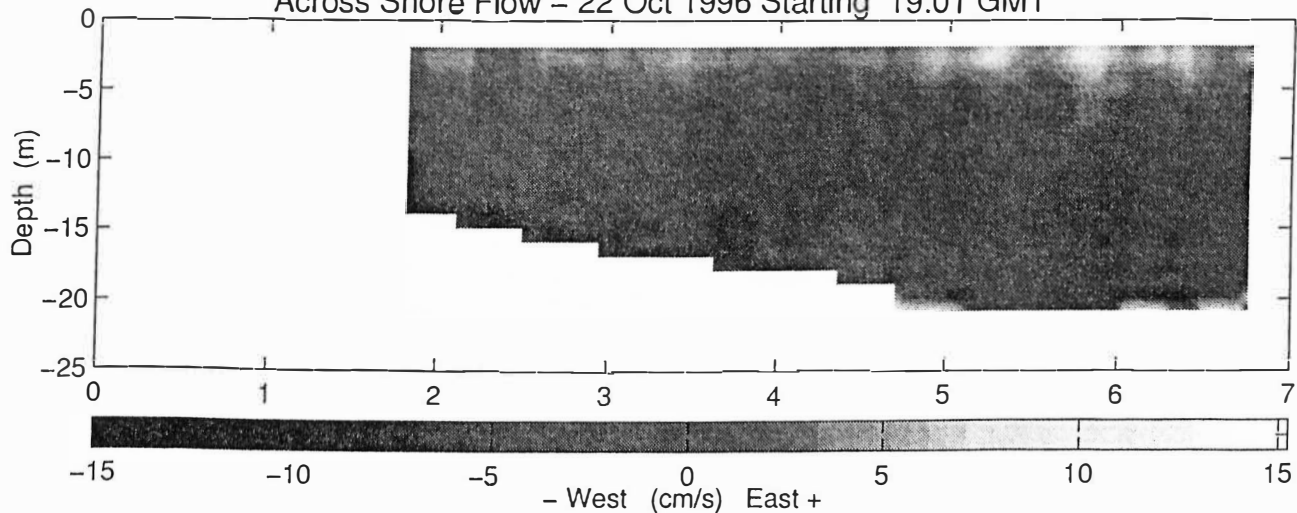
Across Shore Flow - 22 Oct 1996 Starting 17:06 GMT



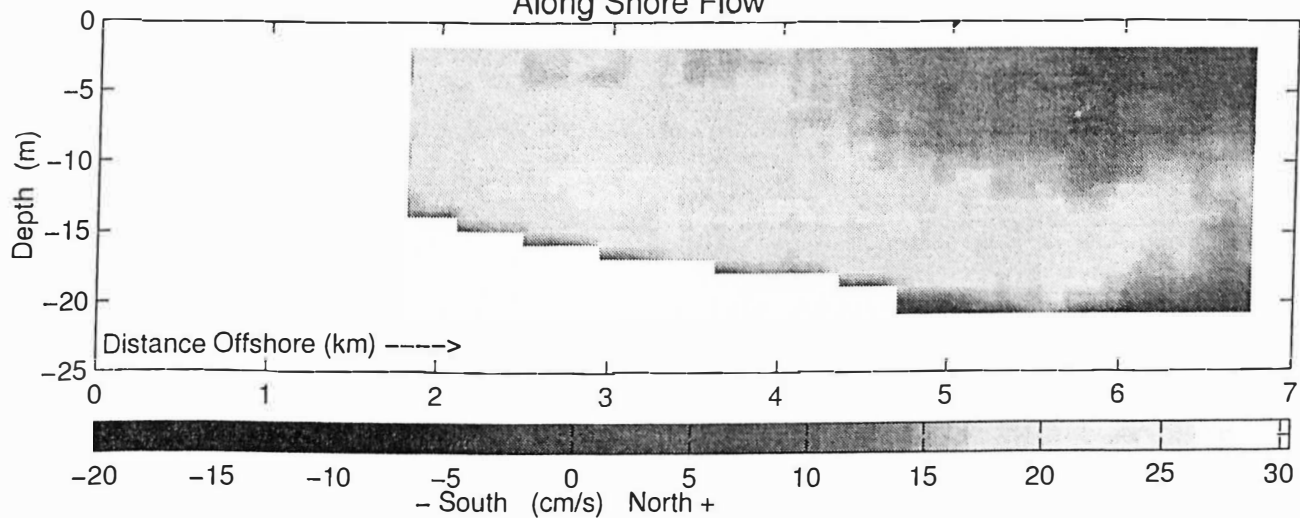
Along Shore Flow



Across Shore Flow - 22 Oct 1996 Starting 19:01 GMT

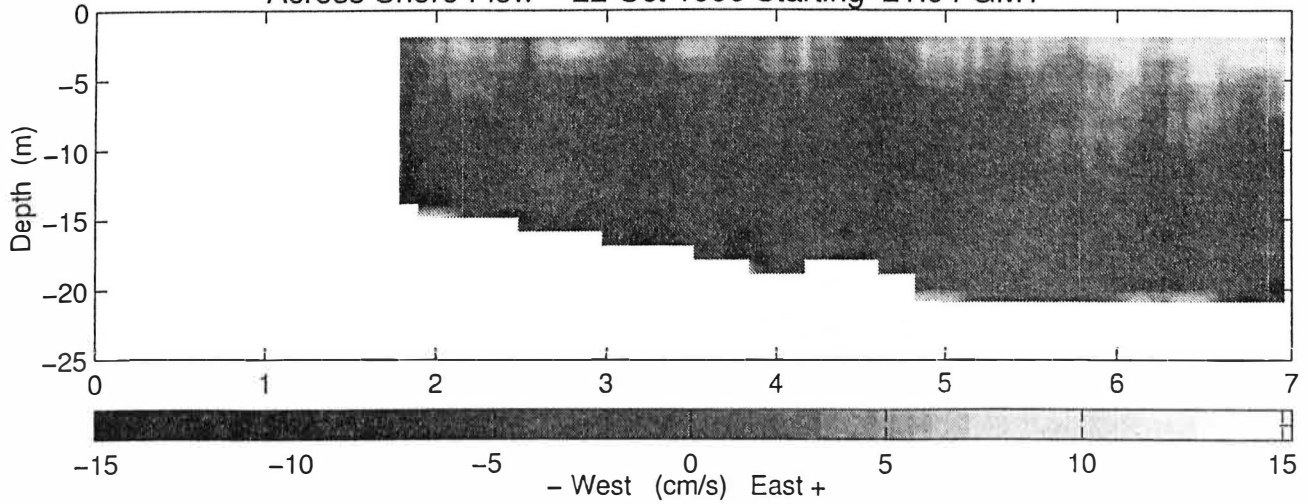


Along Shore Flow

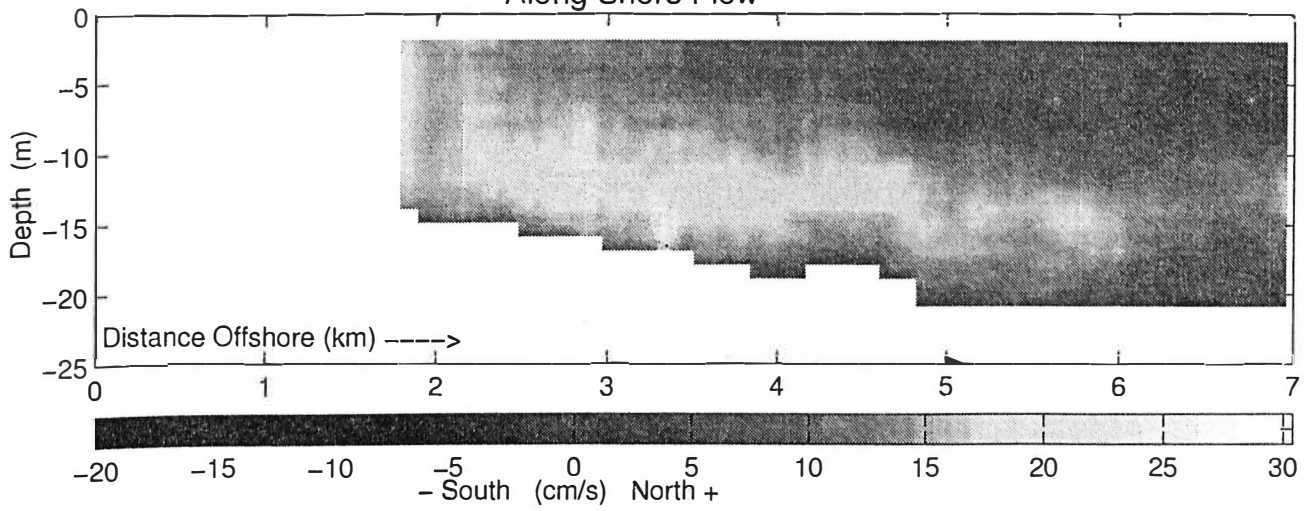




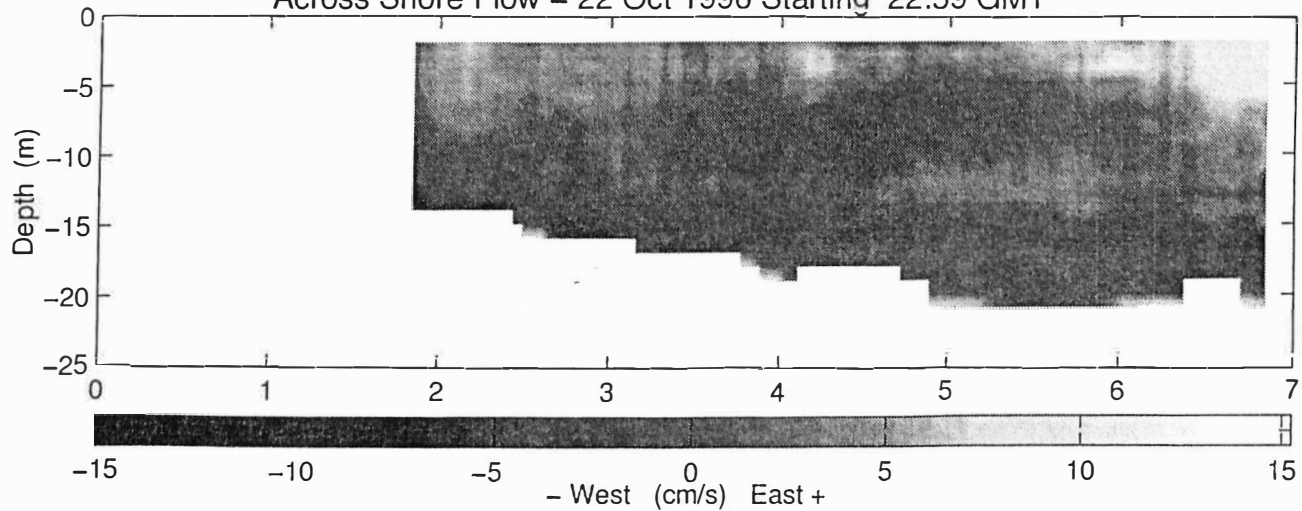
Across Shore Flow – 22 Oct 1996 Starting 21:04 GMT



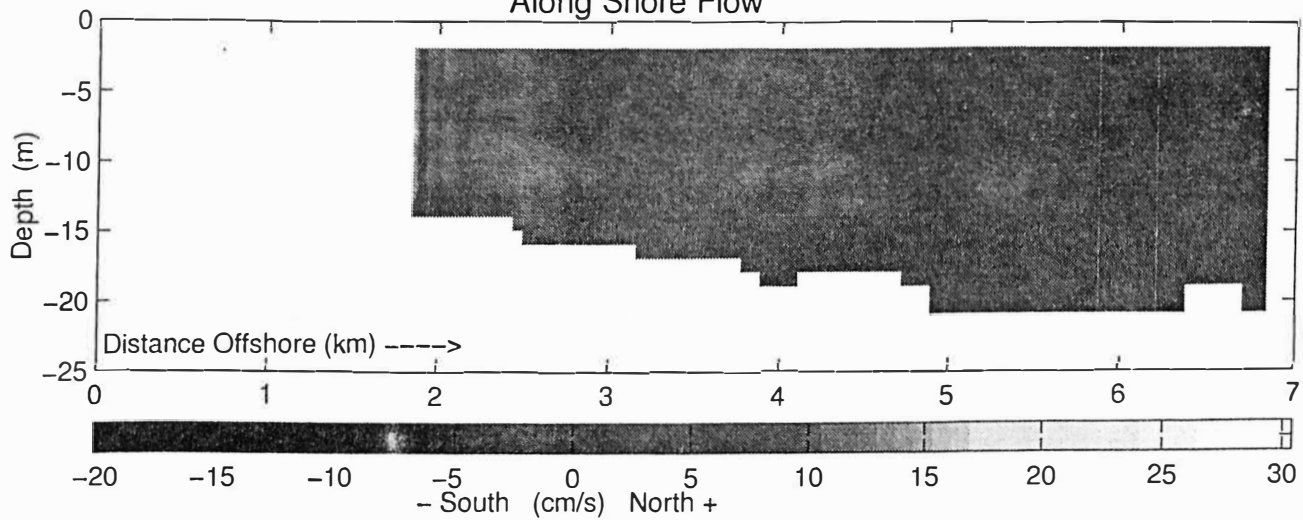
Along Shore Flow



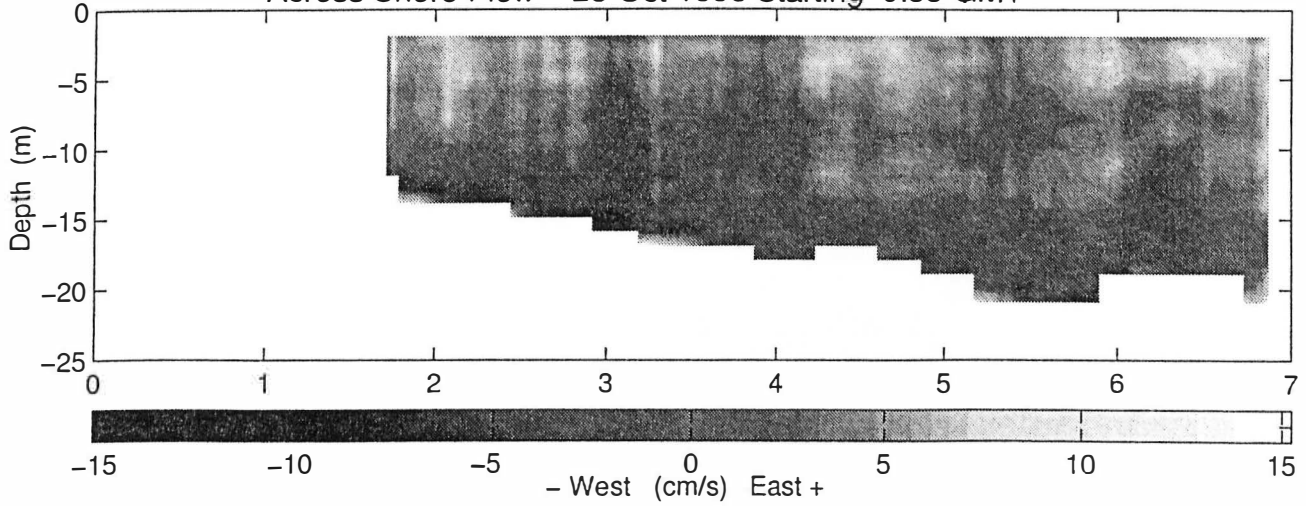
Across Shore Flow - 22 Oct 1996 Starting 22:59 GMT



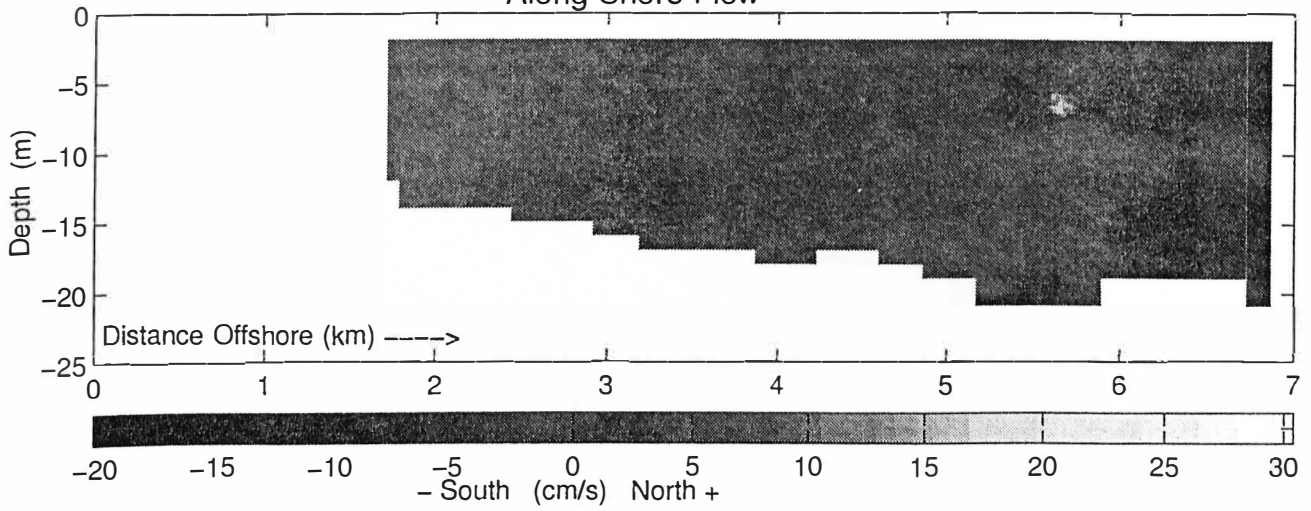
Along Shore Flow



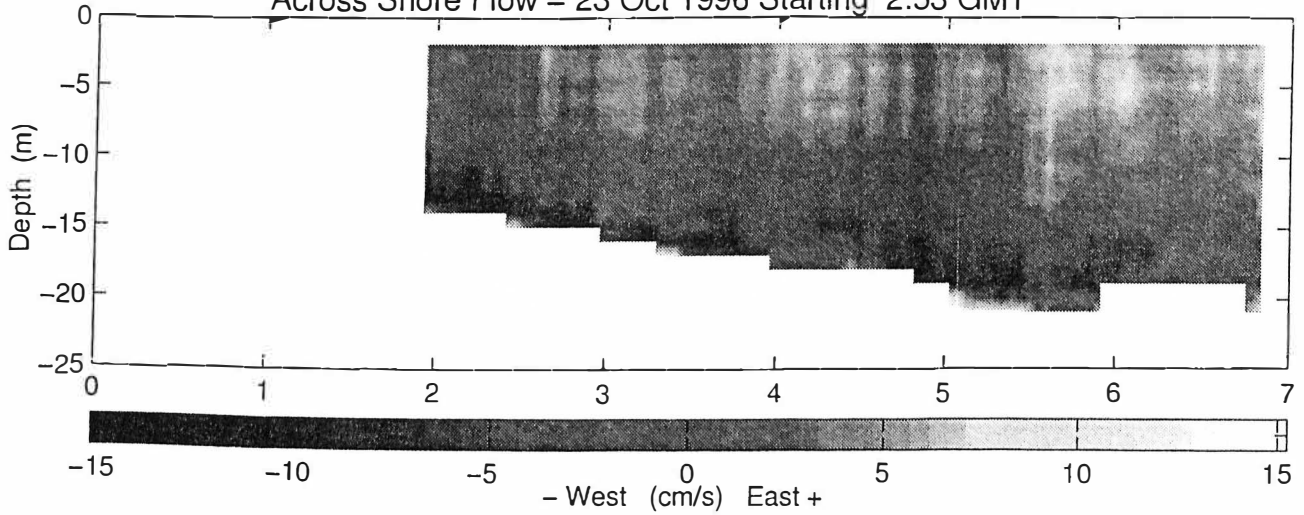
Across Shore Flow - 23 Oct 1996 Starting 0:55 GMT



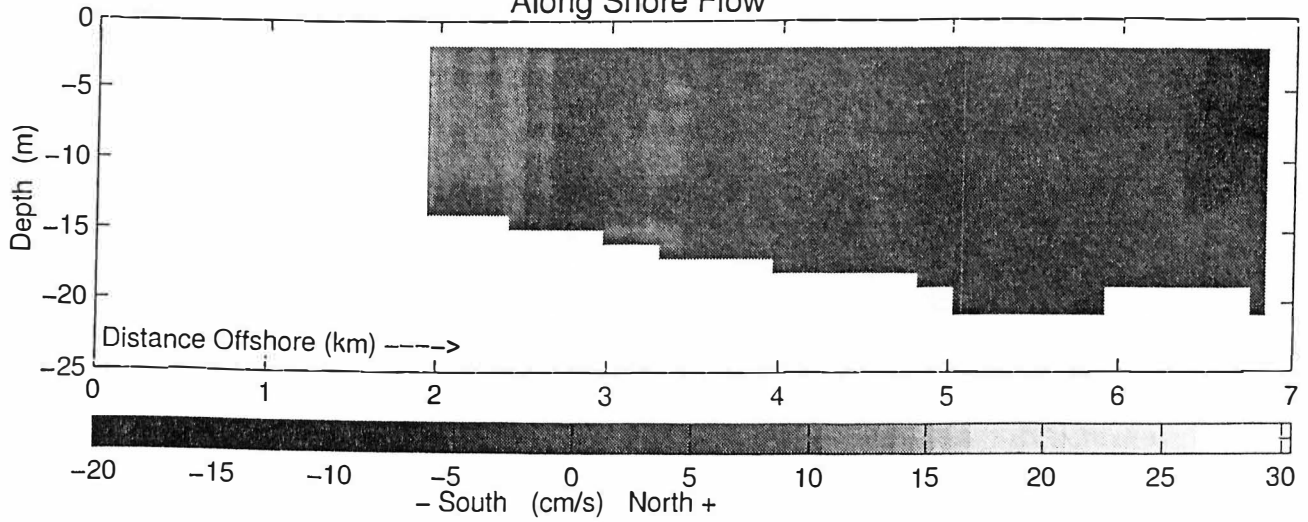
Along Shore Flow



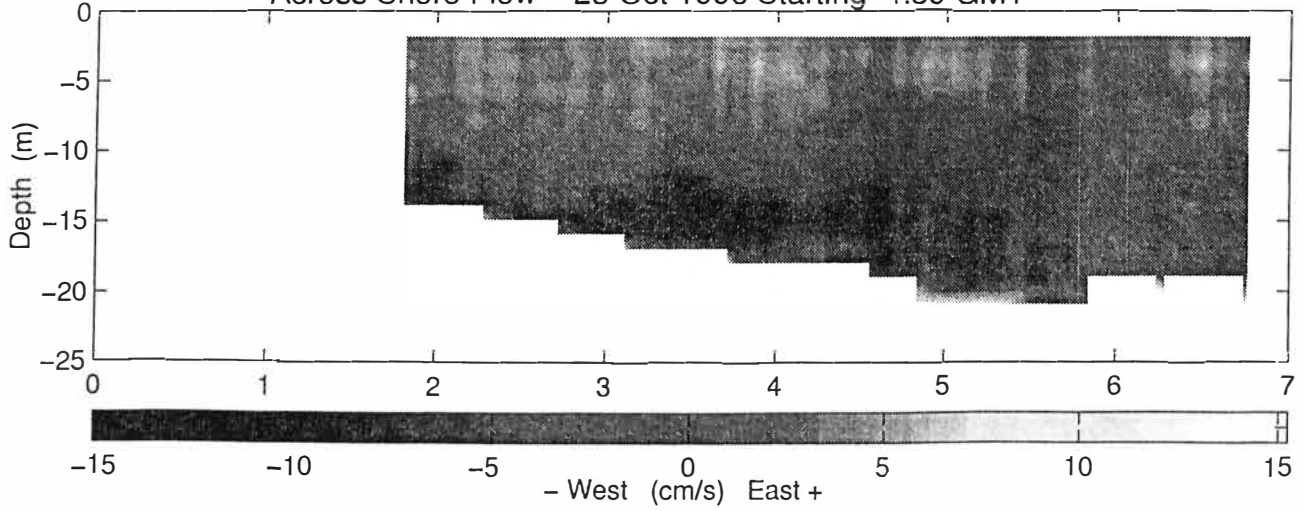
Across Shore Flow - 23 Oct 1996 Starting 2:53 GMT



Along Shore Flow



Across Shore Flow – 23 Oct 1996 Starting 4:59 GMT



Along Shore Flow

