

**College of
OCEANIC &
ATMOSPHERIC SCIENCES**



Coastal Ocean Advances in Shelf Transport

**Acoustic Doppler current profiler
observations during the Coastal Ocean
Advances in Shelf Transport (COAST)
Survey II: R/V Wecoma cruise W0108A,
6-25 August 2001**

S. D. Pierce and J. A. Barth

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Data Report 188
Reference 2002-4
October 2002

OREGON STATE UNIVERSITY

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We present velocity observations from a shipboard acoustic Doppler current profiler (ADCP) on R/V *Wecoma* during cruise W0108a (6-25 August 2001). The cruise was a component (Survey II) of the Coastal Ocean Advances in Shelf Transport (COAST) experiment. The ADCP was an RD Instruments hull-mounted 153-kHz narrowband unit. Data were collected nearly continuously using an ensemble averaging interval of 1 min and a vertical bin length of 8 m. This implies an inherent short-term random uncertainty of 2 cm/s for each data point; this uncertainty is reduced with additional space or time averaging. To reference the velocities to earth coordinates, we used GPS navigation in combination with the ship's gyrocompass and a GPS attitude system. Our processing methods are generally standard ones, primarily making use of the CODAS software package as described at <http://ilikai.soest.hawaii.edu/sadcp>. Overall ADCP data quality for the cruise was excellent. To produce the vector maps here, we applied 5 km spatial averaging. For the sections, we contoured using a two-pass Barnes method with horizontal (vertical) smoothing of 5 km (24 m) and 2.5 km (12 m) for the first and second passes. An online version of this report is available at <http://damp.coas.oregonstate.edu/coast/adcp>. In addition, the complete data set and all processing details are available from the NODC Joint Archive for Shipboard ADCP: <http://ilikai.soest.hawaii.edu/sadcp>. A cruise narrative is included in the companion Seasoar data report at <http://damp.coas.oregonstate.edu/coast/seasoar>. This work was funded by National Science Foundation grant OCE-9907854.

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w0108.txt

#DATA_DATES: 2001/08/06 20:06:33 to 2001/08/26 02:20:07
#LON_RANGE: 125.343 W to 124.018 W
#LAT_RANGE: 43.7476 N to 45.2548 N
#DEPTH_RANGE: 17 to 457 m
#SAC_CRUISE_ID:
#PLATFORM_NAME: R/V Wecoma
#PRINCIPAL_INVESTIGATOR_NAME: Jack Barth (barth@coas.oregonstate.edu)
#PI_INSTITUTION: Oregon State University
#PI_COUNTRY: USA
#PROJECT: Coastal Ocean Advances in Shelf Transport (COAST)
#CRUISE_NAME: W0108a -or- COAST Survey II
#PORTS: Newport, OR, USA --- to --- Newport, OR, USA
#GEOGRAPHIC_REGION: Oregon coast
#PROCESSED_BY: Stephen D. Pierce (spierce@coas.oregonstate.edu)
#NAVIGATION: GPS (Pcode and attitude)
#QUALITY_NAV: excellent
#GENERAL_INFORMATION:

CRUISE NOTES

CHIEF SCIENTIST ON SHIP : Jack Barth
INSTITUTE : Oregon State University
COUNTRY : USA
SIGNIFICANT DATA GAPS : none
SPECIAL SHIP TRACK PATTERNS : Seasoar surveys

ADCP INSTRUMENTATION

MANUFACTURER : RD Instruments (RDI)
HARDWARE MODEL : RD-VM150 Narrow band
TRANSMIT FREQUENCY : 153.6 kHz
TRANSDUCER CONFIGURATION : JANUS CONCAVE
TRANSDUCER BEAM ANGLE : 30 deg.

ADCP INSTALLATION

METHOD/DESCRIPTION OF THE
ATTACHMENT TO THE HULL : bottom
LOCATION/DEPTH ON HULL : 5 m
REPEATABLE ATTACHMENT : YES
ACOUSTIC WINDOW : NO

ADCP INSTRUMENT CONFIGURATION

DEPTH RANGE : 17 - 457 m (bin centers)
BIN LENGTH : 8 m
NUMBER OF BINS : 60
TRANSMIT PULSE LENGTH : 8

BLANKING INTERVAL : 4
ENSEMBLE AVERAGING INTERVAL : 60 s
SOUND SPEED CALCULATION : function of temp at transducer
BOTTOM TRACKING : YES (78% of the cruise)
DIRECT COMMANDS : "FH00001" "E0003020199" "CF99"

ADCP DATA ACQUISITION SYSTEM

SOFTWARE DEVELOPERS : RDI
SOFTWARE VERSIONS : DAS 2.48
DATA LOGGER, MAKE/MODEL : 386
ADCP/LOGGER COMMUNICATION : GPIB
USER BUFFER VERSION : UH user exit "UE4", 1920 buffer version
CLOCK : PC clock; reset if drift > 2 sec from GPS clock

SHIP HEADING

INSTRUMENT MAKE/MODEL : Sperry MK-37 Mod D/E gyrocompass
SYNCHRO OR STEPPER : synchro
SYNCHRO RATIO : 1:1
GPS ATTITUDE SYSTEM : YES: Ashtech
LOCATION OF ANTENNAS : forward
RIGID ATTACHMENT : YES
LOGGING RATE : 1 per sec

ANCILLARY MEASUREMENTS

SURFACE TEMP AND SALINITY : yes
HYDRO CAST MEASUREMENTS : yes
SEASOAR CTD MEASUREMENTS : yes
RAW AGC AND SPECTRAL WIDTH : yes
BIOMASS DETERMINATION : Yes, in process
BEAM-AVERAGED AGC AVAILABLE?: YES
CALIBRATION NET TOWS? : Yes

ADCP DATA PROCESSING/EDITING

PERSONNEL IN CHARGE : Stephen D. Pierce
DATE OF PROCESSING : finalized October 2002

NAVIGATION

GPS : YES
MAKE/MODEL : Trimble
SELECTIVE AVAILABILITY : YES
P-CODE : YES
DIFFERENTIAL : NO
SAMPLE INTERVAL : 1 per sec
TIME OBTAINED RELATIVE TO

START/END OF ENSEMBLE : end
LOGGED WITH ADCP DATA : YES - user exit program

CALIBRATION

GYROCOMPASS CORRECTION : YES, profile-by-profile-rotation based
on the attitude gps HOFS (heading offsets)
BOTTOM TRACK METHOD : YES
WATER TRACK METHOD : NO
FINAL SELECTION : AMPLITUDE= 1.013 PHASE= -3.056
SOUND SPEED CORRECTIONS : NO

NAVIGATION CALCULATION

NAVIGATION USED : gps
REFERENCE LAYER DEPTH RANGE : bins 3 to 5
FILTERING METHOD FOR
SMOOTHING REFERENCE LAYER
VELOCITY (FORM/WIDTH) : Blackman window function of width T= 20 min:
 $w(t) = 0.42 - 0.5 * \cos(2 * \pi * t / T) + 0.08 * \cos(4 * \pi * t / T).$
FINALIZED SHIP VEL/POSITIONS
STORED IN DATABASE : YES

GENERAL_ASSESSMENT :

ON-STATION VS. UNDERWAY : good
VECTOR, CONTOUR, STICK PLOTS: good
COMMENTS : data quality excellent in general

REFERENCES:

<http://damp.coas.oregonstate.edu/coast/adcp>

start.cnf, primary configuration file

AD,SI,HUNDREDTHS 60.00 Sampling interval
AD,NB,WHOLE 64 Number of Depth Bins
AD,BL,WHOLE 3 Bin Length
AD,PL,WHOLE 8 Pulse Length
AD,BK,TENTHS 4.0 Blank Beyond Transmit
AD,PE,WHOLE 1 Pings Per Ensemble
AD,PC,HUNDREDTHS 1.00 Pulse Cycle Time
AD,PG,WHOLE 25 Percent Pings Good Threshold
XX,OD2,WHOLE 5 [SYSTEM DEFAULT, OD2]
XX,TE,HUNDREDTHS 0.00 [SYSTEM DEFAULT, TE]
AD,US,BOOLE YES Use Direct Commands on StartUp
DP,TR,BOOLE NO Toggle roll compensation
DP,TP,BOOLE NO Toggle Pitch compensation
DP,TH,BOOLE YES Toggle Heading compensation
DP,VS,BOOLE YES Calculate Sound Velocity from TEMP/Salinity
DP,UR,BOOLE YES Use Reference Layer
DP,FR,WHOLE 3 First Bin for reference Layer
DP,LR,WHOLE 5 Last Bin for reference Layer
DP,BT,BOOLE YES Use Bottom Track
DP,B3,BOOLE NO Use 3 Beam Solutions
DP,EV,BOOLE YES Use Error Velocity as Percent Good Criterion
DP,ME,TENTHS 100.0 Max. Error Velocity for Valid Data (cm/sec)
DR,RD,BOOLE YES Recording on disk
DR,RX,BOOLE YES Record N/S (FORE/AFT) Vel.
DR,RY,BOOLE YES Record E/W (FORT/STBD) Vel.
,RZ,BOOLE YES Record vertical vel.
DR,RE,BOOLE YES Record error Good
DR,RB,BOOLE NO Bytes of user prog. buffer
DR,RP,BOOLE YES Record Percent good
DR,RA,BOOLE YES Record average AGC/Bin
DR,RN,BOOLE YES Record Ancillary data
DR,AP,BOOLE YES Auto-ping on start-up
XX,LDR,TRI 1 [SYSTEM DEFAULT, LDR]
XX,RB2,WHOLE 192 [SYSTEM DEFAULT, RB2]
DR,RC,BOOLE NO Record CTD data
XX,FB,WHOLE 1 [SYSTEM DEFAULT, FB]
XX,PU,BOOLE NO [SYSTEM DEFAULT, PU]
GC,TG,TRI 1 DISPLAY (NO/GRAPH/TAB)
GC,ZV,WHOLE 1 ZERO VELOCITY REFERENCE (S/B/M/L)
GC,VL,WHOLE -100 LOWEST VELOCITY ON GRAPH
GC,VH,WHOLE 100 HIGHEST VELOCITY ON GRAPH
GC,DL,WHOLE 0 LOWEST DEPTHS ON GRAPH
GC,DH,WHOLE 400 HIGHEST DEPTHS ON GRAPH

GC,SW,BOOLE	NO SET DEPTHS WINDOW TO INCLUDE ALL BINS
GC,MP,WHOLE	25 MINIMUM PERCENT GOOD TO PLOT
SG,PNS,BOOLE	YES PLOT NORTH/SOUTH VEL.
SG,PEW,BOOLE	YES PLOT EAST/WEST VEL.
SG,PVT,BOOLE	NO PLOT VERTICAL VEL.
SG,PEV,BOOLE	YES PLOT ERROR VEL.
SG,PPE,BOOLE	NO PLOT PERCENT ERROR
SG,PMD,BOOLE	NO PLOT MAG AND DIR
SG,PSW,BOOLE	NO PLOT AVERAGE SP. W.
SG,PAV,BOOLE	NO PLOT AVERAGE AGC.
SG,PPG,BOOLE	YES PLOT PERCENT GOOD
SG,PD1,BOOLE	NO PLOT DOPPLER 1
SG,PD2,BOOLE	NO PLOT DOPPLER 2
SG,PD3,BOOLE	NO PLOT DOPPLER 3
SG,PD4,BOOLE	NO PLOT DOPPLER 4
SG,PW1,BOOLE	NO PLOT SP. W. 1
SG,PW2,BOOLE	NO PLOT SP. W. 2
SG,PW3,BOOLE	NO PLOT SP. W. 3
SG,PW4,BOOLE	NO PLOT SP. W. 4
SG,PA1,BOOLE	YES PLOT AGC 1
SG,PA2,BOOLE	YES PLOT AGC 2
SG,PA3,BOOLE	YES PLOT AGC 3
SG,PA4,BOOLE	YES PLOT AGC 4
SG,PP3,BOOLE	NO PLOT 3-BEAM SOLUTION
SS,OD,WHOLE	5 OffSet for Depth
SS,OH,TENTHS	45.0 OffSet for Heading
SS,OP,TENTHS	0.0 OffSet for Pitch
SS,ZR,TENTHS	0.0 OffSet for Roll
SS,OT,HUNDREDTHS	45.00 OffSet FOR temp
SS,ST,HUNDREDTHS	50.00 Scale for Temp
SS,SL,HUNDREDTHS	33.00 Salinity (PPT)
SS,UD,BOOLE	YES Toggle UP/DOWN
SS,CV,BOOLE	NO Toggle concave/Convex transducerhead
SS,MA,TENTHS	30.0 Mounting angle for transducers.
SS,SS,HUNDREDTHS	1465.00 Speed of Sound (m/sec)
XX,GP,BOOLE	YES [SYSTEM DEFAULT, GP]
XX,DD,TENTHS	1.0 [SYSTEM DEFAULT, DD]
XX,PT,BOOLE	NO [SYSTEM DEFAULT, PT]
XX,TU,TRI	2 [SYSTEM DEFAULT, TU]
TB,FP,WHOLE	1 FIRST BINS TO PRINT
TB,LP,WHOLE	15 LAST BIN TO PRINT
TB,SK,WHOLE	1 SKIP INTERVAL BETWEEN BINS
TB,DT,BOOLE	YES DIAGNOSTIC TAB MODE
DU,TD,BOOLE	NO TOGGLE USE OF DUMMY DATA

XX,PN,WHOLE	0 [SYSTEM DEFAULT, PN]
DR,SD,WHOLE	2 Second recording drive
DR,PD,WHOLE	1 First recording drive (1=A:,2=B: ...)
DP,PX,BOOLE	NO Profiler does XYZE transform
SS,LC,TENTHS	1.0 Limit of Knots change
SS,NW,TENTHS	0.5 Weight of new knots of value
GC,GM,TRI	2 GRAPHICS CONTROL 0=LO RES, 1=HI RES, 2=ENHANCED
AD,PS,BOOLE	NO YES=SERIAL/NO=PARALLEL Profiler Link
XX,LNN,BOOLE	YES [SYSTEM DEFAULT, LNN]
XX,BM,BOOLE	YES [SYSTEM DEFAULT, BM]
XX,RSD,BOOLE	NO RECORD STANDARD DEVIATION OF VELOCITIES PER BIN
XX,DRV,WHOLE	0 [SYSTEM DEFAULT, DRV]
XX,PBD,WHOLE	3 [SYSTEM DEFAULT, PBD]
TB,RS,BOOLE	NO SHOW RHPT STATISTIC
UX,EE,BOOLE	YES ENABLE EXIT TO EXTERNAL PROGRAM
SS,VSC,TRI	0 Velocity scale adjustment
AD,DM,BOOLE	NO USE DMA
TB,SC,BOOLE	NO SHOW CTD DATA
AD,CW,BOOLE	YES Collect spectral width
DR,RW,BOOLE	YES Record average SP.W./Bin
DR,RRD,BOOLE	NO Record last raw dopplers
DR,RRA,BOOLE	YES Record last raw AGC
DR,RRW,BOOLE	NO Record last SP.W.
DR,R3,BOOLE	YES Record average 3-Beam solutions
DR,RBS,BOOLE	YES Record beam statistic
XX,STD,BOOLE	NO [SYSTEM DEFAULT, STD]
LR,HB,HUNDREDTHS	0.00 Heading Bias
SL,1,ARRAY5	0 1 8 NONE 9600 PROFILER
SL,2,ARRAY5	0 1 8 NONE 1200 LORAN RECEIVER
SL,3,ARRAY5	0 1 8 NONE 1200 REMOTE DISPLAY
SL,4,ARRAY5	0 1 8 NONE 9600 ENSEMBLE OUTPUT
SL,5,ARRAY5	0 1 8 NONE 1200 AUX 1
SL,6,ARRAY5	0 1 8 NONE 1200 AUX 2
DU,1,ARRAY6	100.00 100.00 60.00 0.00 0.00 YES D1
DU,2,ARRAY6	-100.00 -100.00 60.00 0.00 0.00 YES D2
DU,3,ARRAY6	200.00 200.00 60.00 0.00 0.00 YES D3
DU,4,ARRAY6	-200.00 -200.00 60.00 0.00 0.00 YES D4
DU,5,ARRAY6	200.00 19.00 60.00 0.00 0.00 YES AGC
DU,6,ARRAY6	0.00 0.00 60.00 0.00 0.00 NO SP. W.
DU,7,ARRAY6	0.00 0.00 60.00 0.00 0.00 NO ROLL
DU,8,ARRAY6	0.00 0.00 60.00 0.00 0.00 NO PITCH
DU,9,ARRAY6	0.00 0.00 60.00 0.00 0.00 NO HEADING
DU,10,ARRAY6	0.00 0.00 60.00 0.00 0.00 NO TEMPERATURE
DC,1,SPECIAL	"FH00001" MACRO 1

DC,2,SPECIAL "E0003020199" MACRO 2
DC,3,SPECIAL "CF99" MACRO 3
CI,1,SPECIAL "W0108" CRUISE ID GOES HERE
LR,1,SPECIAL " " LORAN FILE NAME GOES HERE

ue4.cnf, user exit configuration file

```
/* UE4.CNF */
/* Possible Wecoma Configuration 1999 Season */

configuration:      /* This keyword is necessary. */
                   /* Use up to two of the
                   following: set_com1:,
                   set_com2:, set_com3:,
                   set_com4:. */

set_com1:          /* Use com1 with following params: */
  baud=  4800      /* 300, 1200, 2400, 9600, 19200 */
  parity: N        /* N, O, E */
  receive: ashtech_1 /* none, nmea_1, nmea_2,
                   ashtech_1, ashtech_2 */
  transmit: none   /* none, ensemble, speed */
end                /* End of com1 setup. */

set_com2:          /* Same things for com2. */
  baud=  4800
  irq=  3          /* This is not really needed
                   for com2, because IRQ 3 is
                   the default and is highly
                   standardized. More
                   typically, the irq= option
                   would be used to override
                   the defaults of 5 and 7 for
                   com3 and com4,
                   respectively. */
  parity: N
  receive: none
  transmit: none
end

rdi_style_ensemble /* send ensemble with extra
                   characters */

correct_clock      /* Include this and the
                   following only if the
                   automatic clock reset
                   function is desired. */

min_correction= 2  /* Reset the clock only if it
                   is x or more seconds off */
```

```

max_correction= 32760 /* Don't make any correction
                    larger than this. */
max_dt_difference= 2 /* Make a correction only if
                    the pc-gps difference at
                    the start of an ensemble is
                    at least this close to the
                    value at the end of the
                    ensemble */
init_time          /* Attempt a time correction
                    before the first ensemble.
                    (recommended!) */

max_brms= 0.060    /* Ashtech editing parameters */
max_mrms= 0.005
max_dh_dev= 5      /* Do not accept any gps-gyro
                    heading difference
                    exceeding the mean by this
                    number of degrees. */
max_p_std_dev= 2.5 /* Reject attitudes if the
                    pitch exceeds the local
                    mean by this number of
                    standard deviations. */
max_r_std_dev= 2.5 /* Same for roll. */

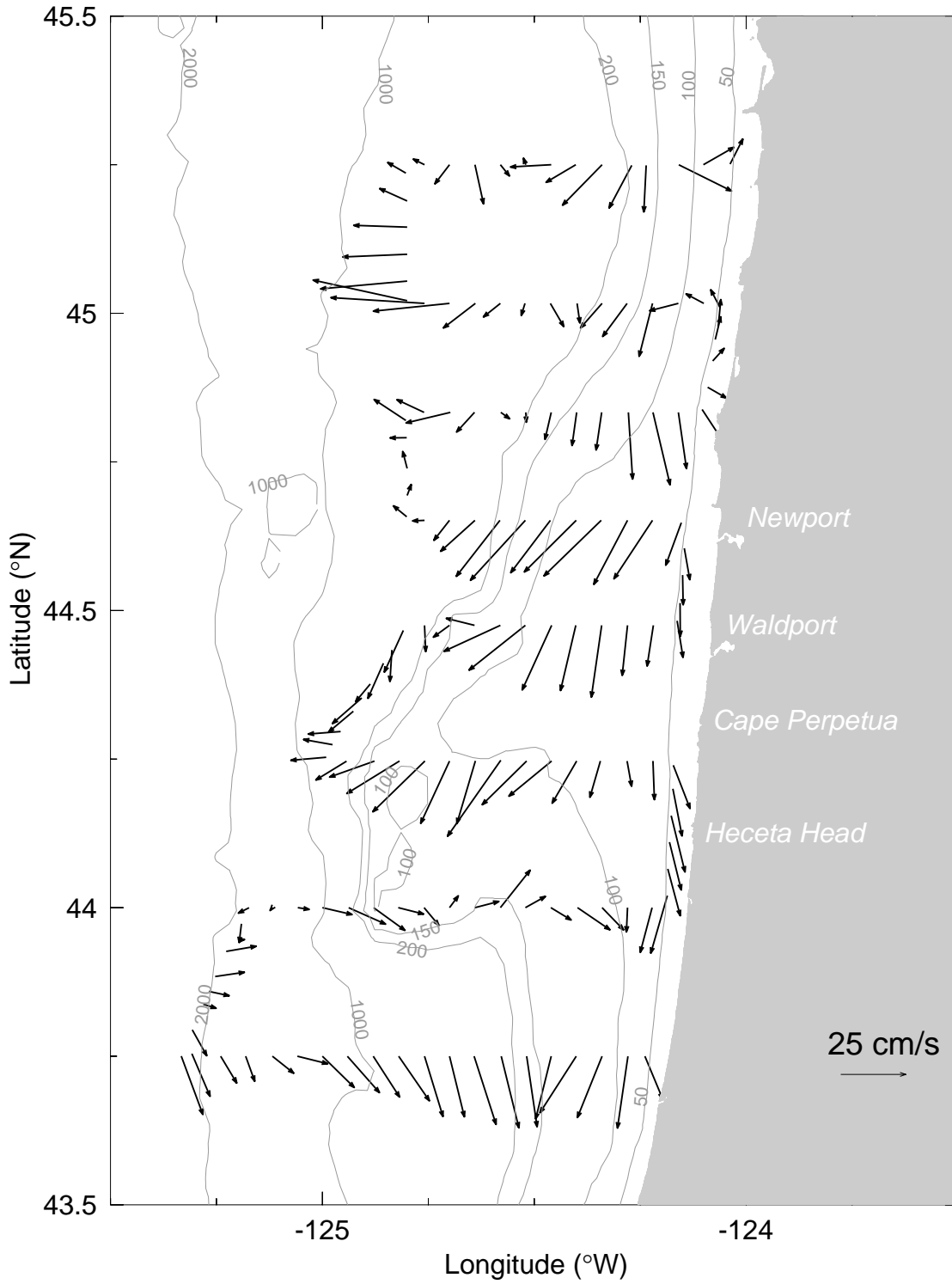
/* Raw agc recording parameters: */
/* Keep these for 2000 Globec cruises */
amp_subsample= 2
sw_subsample= 10
amp_sw_nbins= 48          awagc    minutes_per_file= 60
amp_sw_drive_path: c:dcp248
min_kbytes_free= 2000

end                    /* This "end" is necessary. */

```

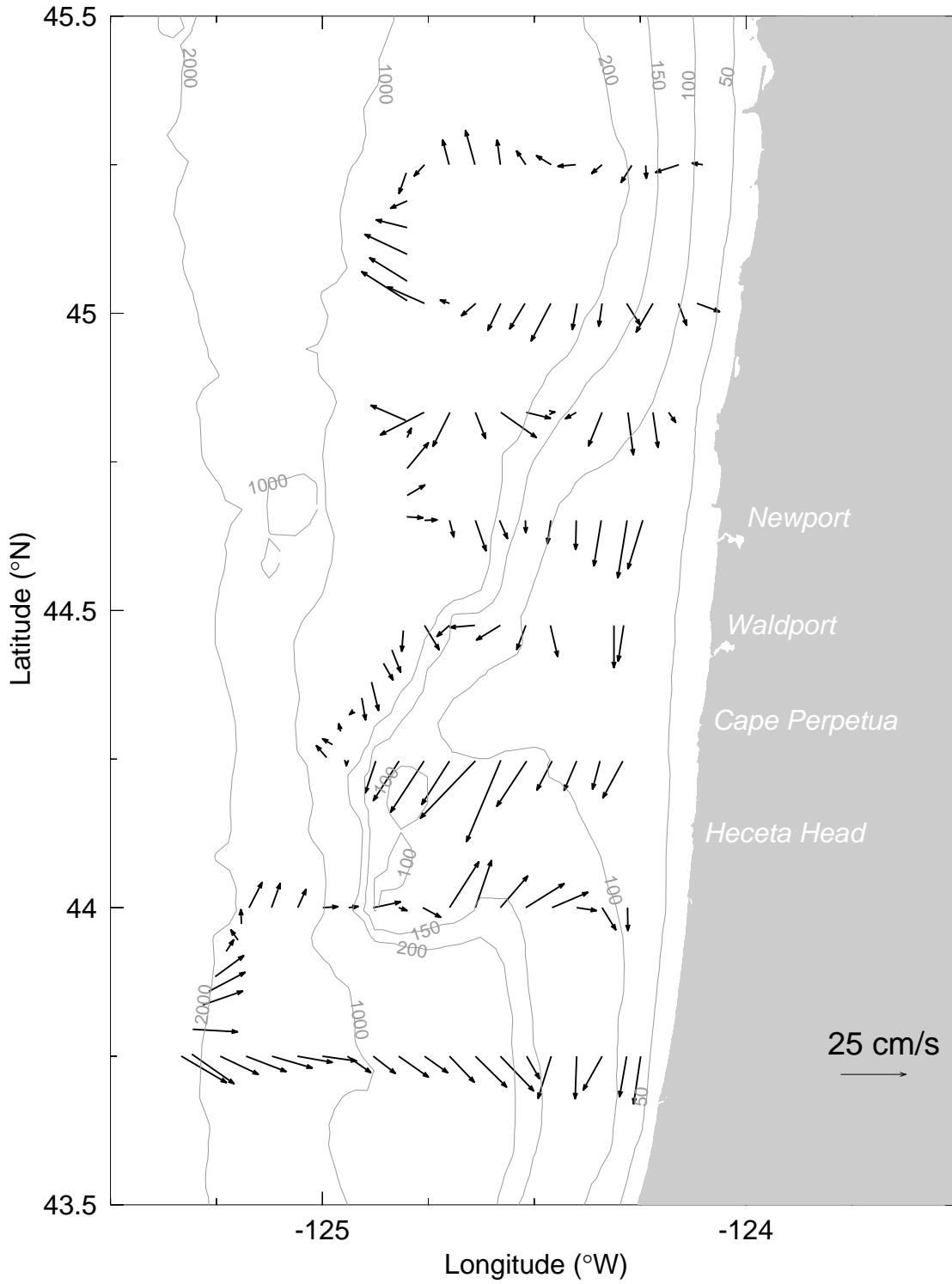
COAST W0108: Big box 1

17 m ADCP, 219.0965 to 221.2931, 07-Aug-01 02:18 to 09-Aug-01 07:02



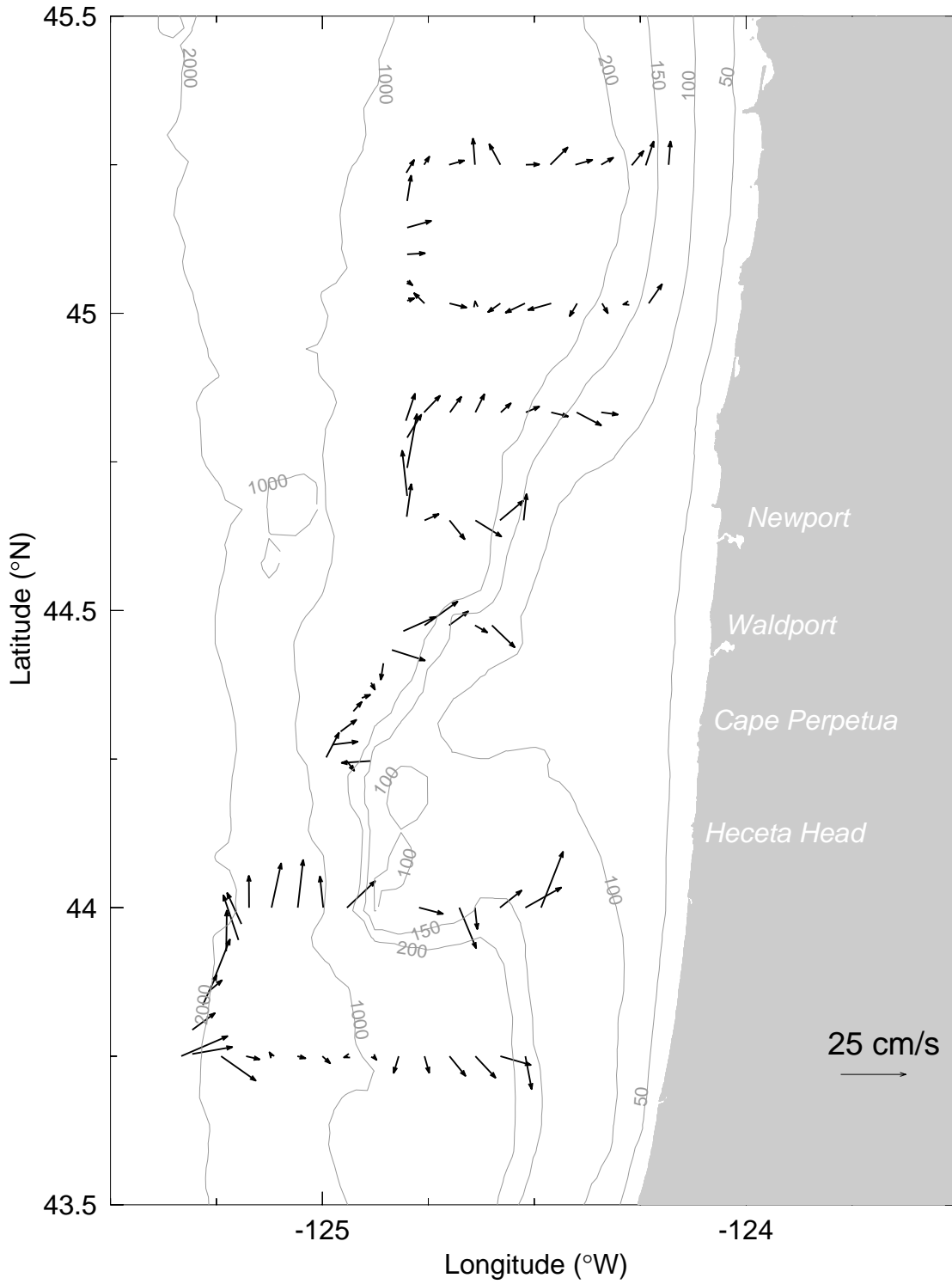
COAST W0108: Big box 1

50 m ADCP, 219.0965 to 221.2931, 07-Aug-01 02:18 to 09-Aug-01 07:02



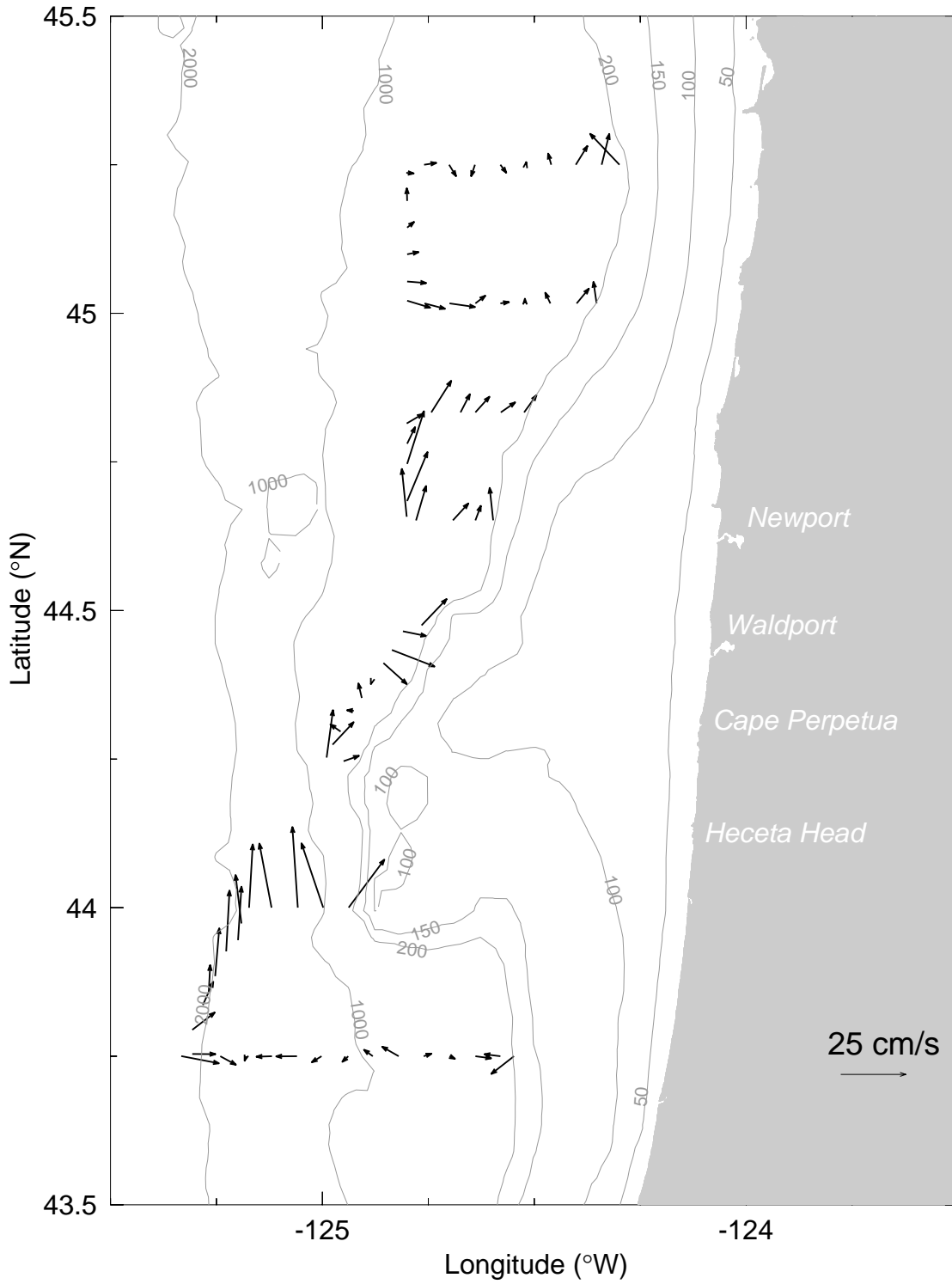
COAST W0108: Big box 1

100 m ADCP, 219.0965 to 221.2931, 07-Aug-01 02:18 to 09-Aug-01 07:02



COAST W0108: Big box 1

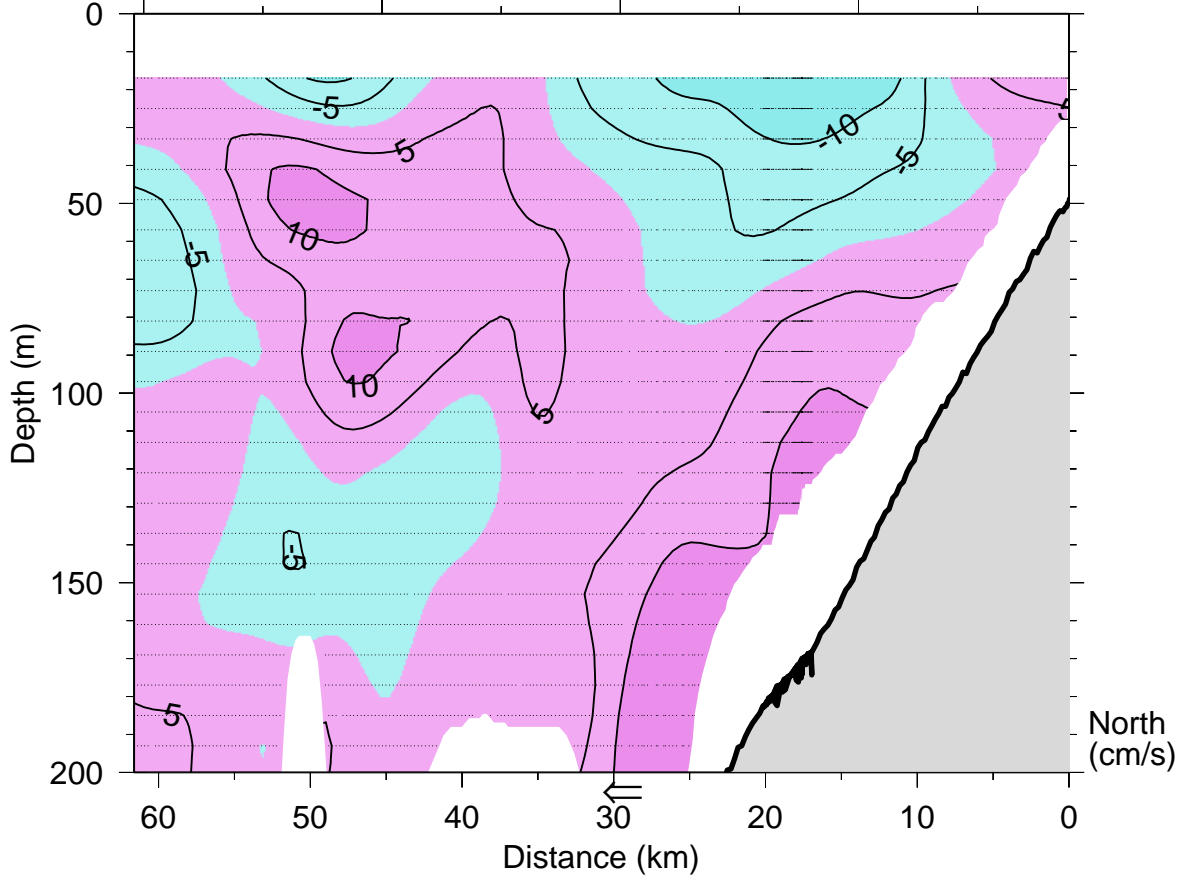
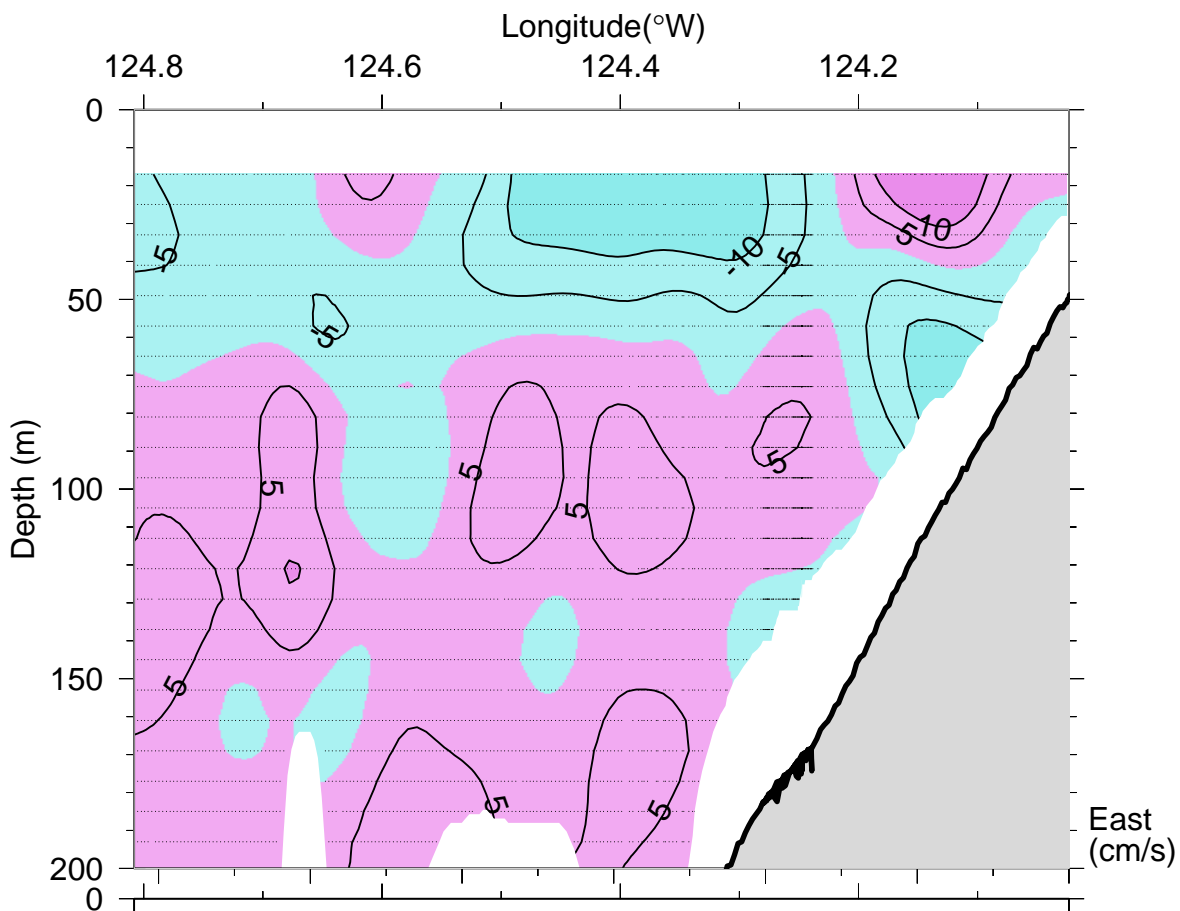
150 m ADCP, 219.0965 to 221.2931, 07-Aug-01 02:18 to 09-Aug-01 07:02



COAST W0108: Big box 1

line1 at 45.25°N (07-Aug-01 02:25 to 07-Aug-01 08:01)

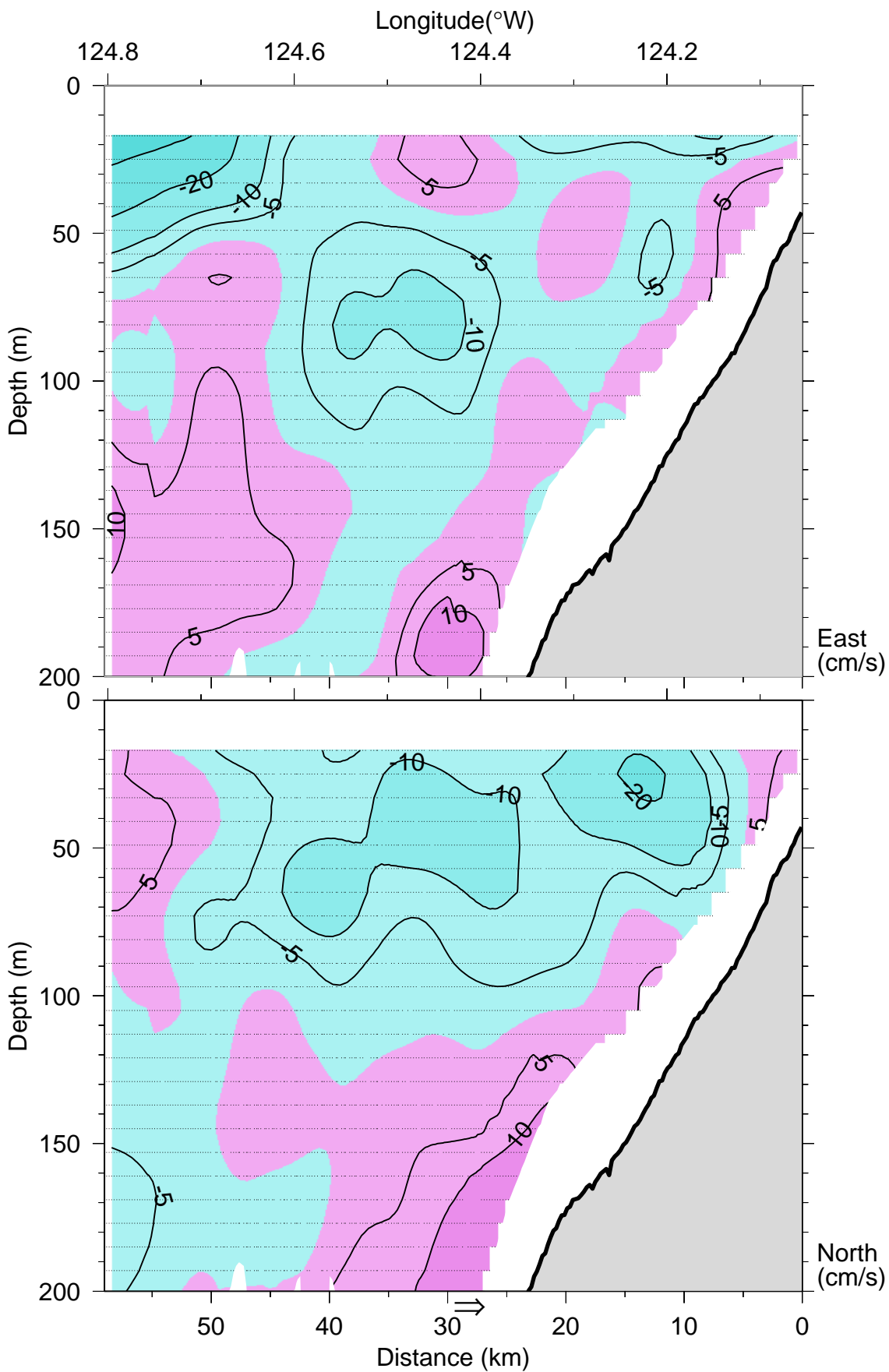
(219.101303 to 219.334702)



COAST W0108: Big box 1

line2 at 45.02°N (07-Aug-01 09:47 to 07-Aug-01 14:11)

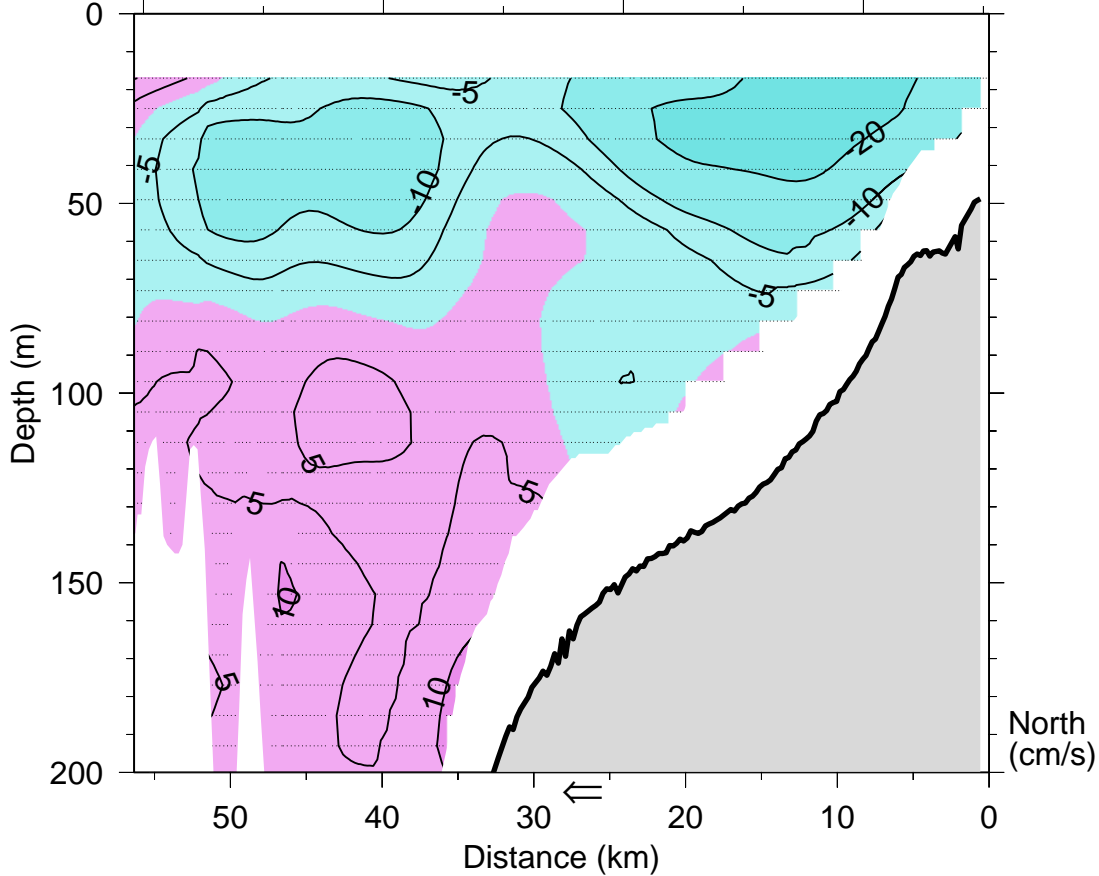
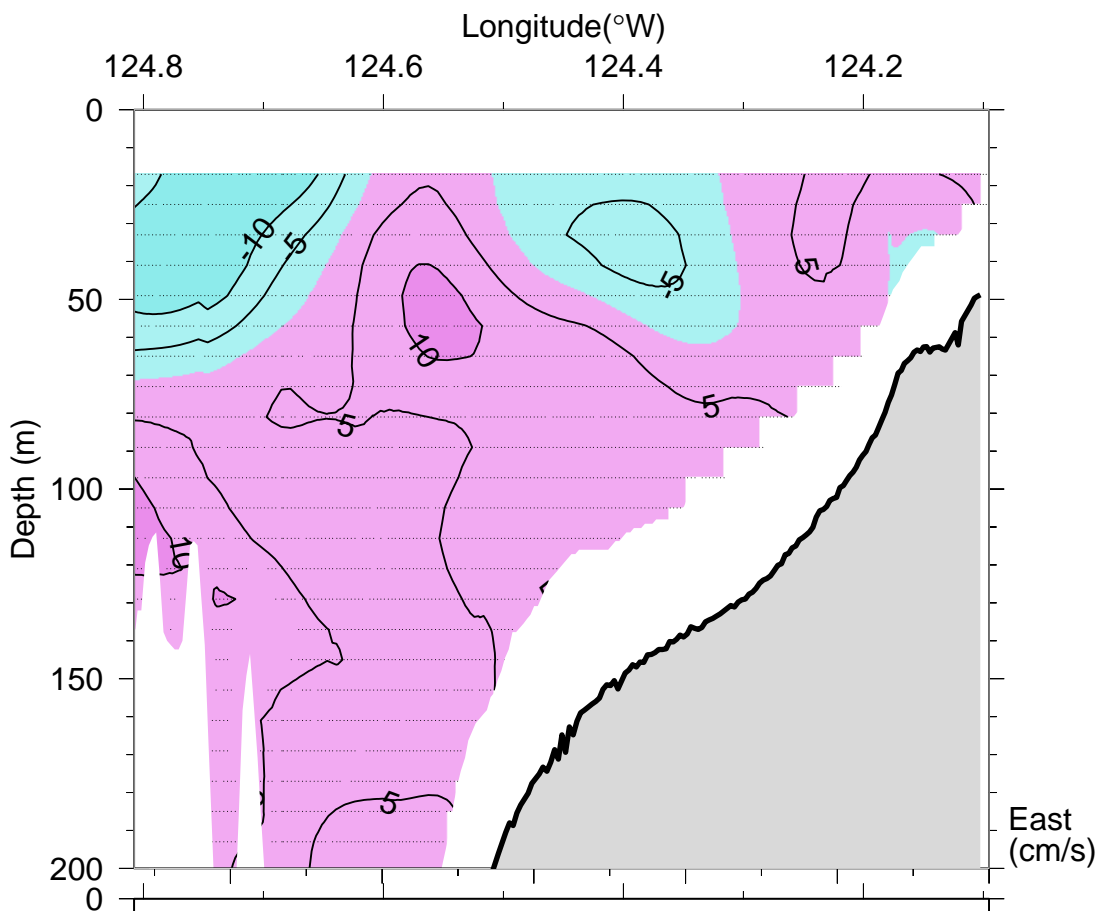
(219.408295 to 219.591400)



COAST W0108: Big box 1

line3 at 44.83°N (07-Aug-01 15:54 to 07-Aug-01 19:55)

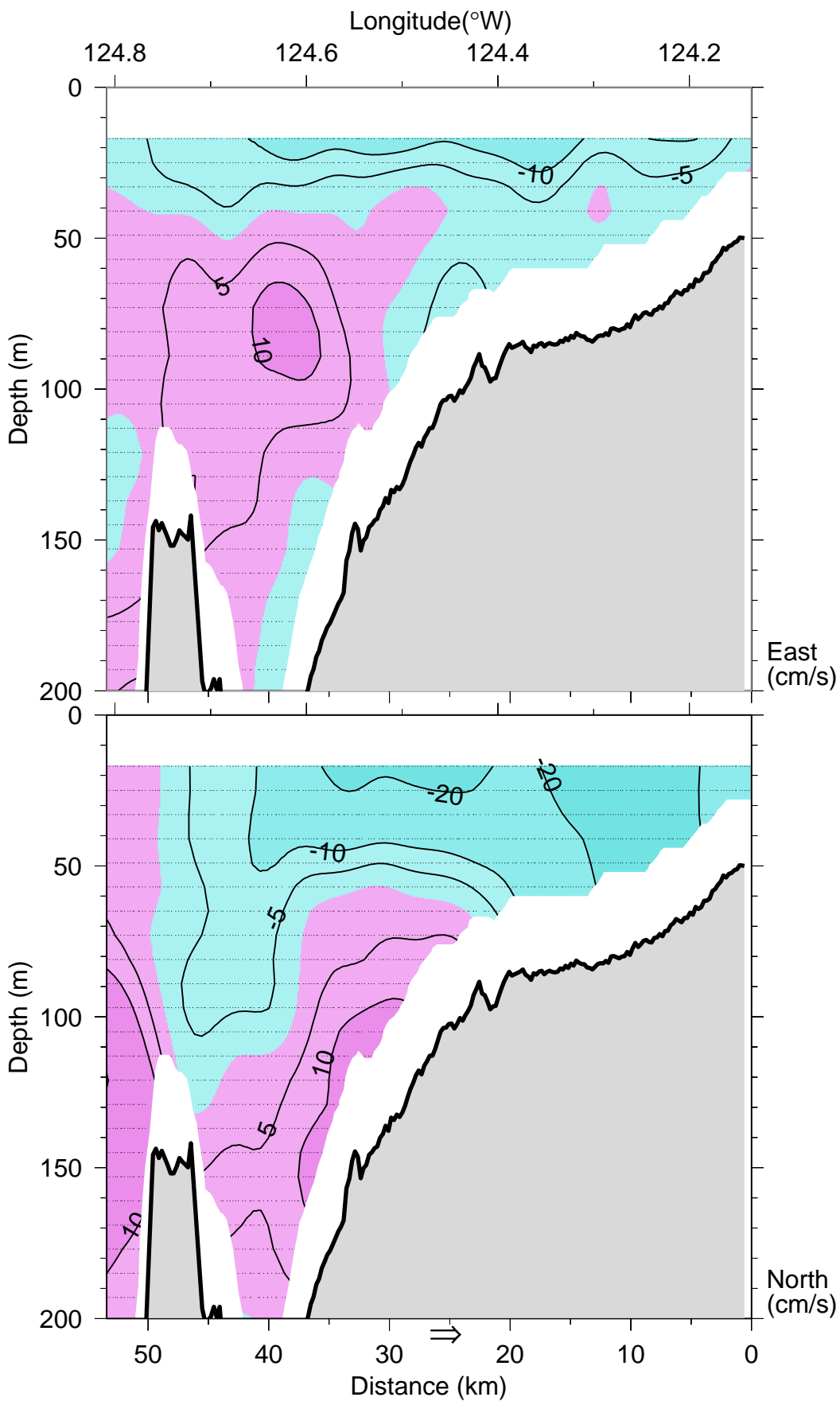
(219.662903 to 219.830307)



COAST W0108: Big box 1

line4 at 44.65°N (07-Aug-01 21:52 to 08-Aug-01 01:50)

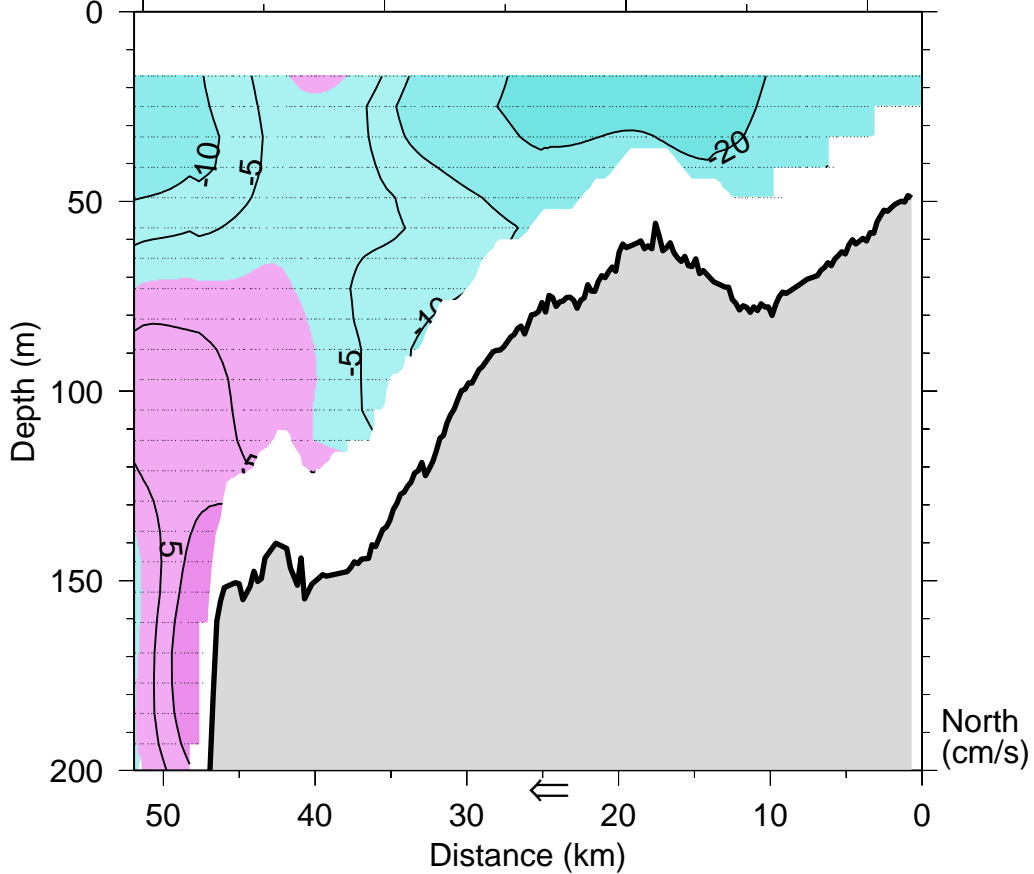
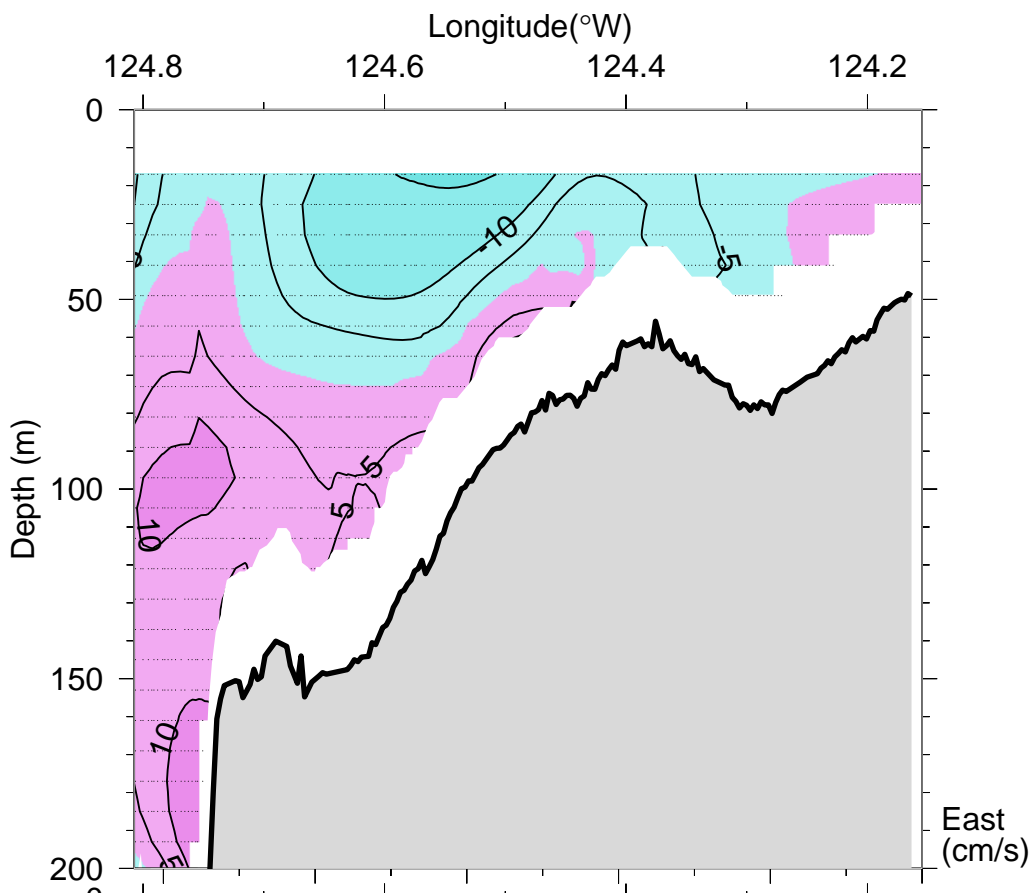
(219.911194 to 220.076401)



COAST W0108: Big box 1

line5 at 44.47°N (08-Aug-01 03:37 to 08-Aug-01 07:20)

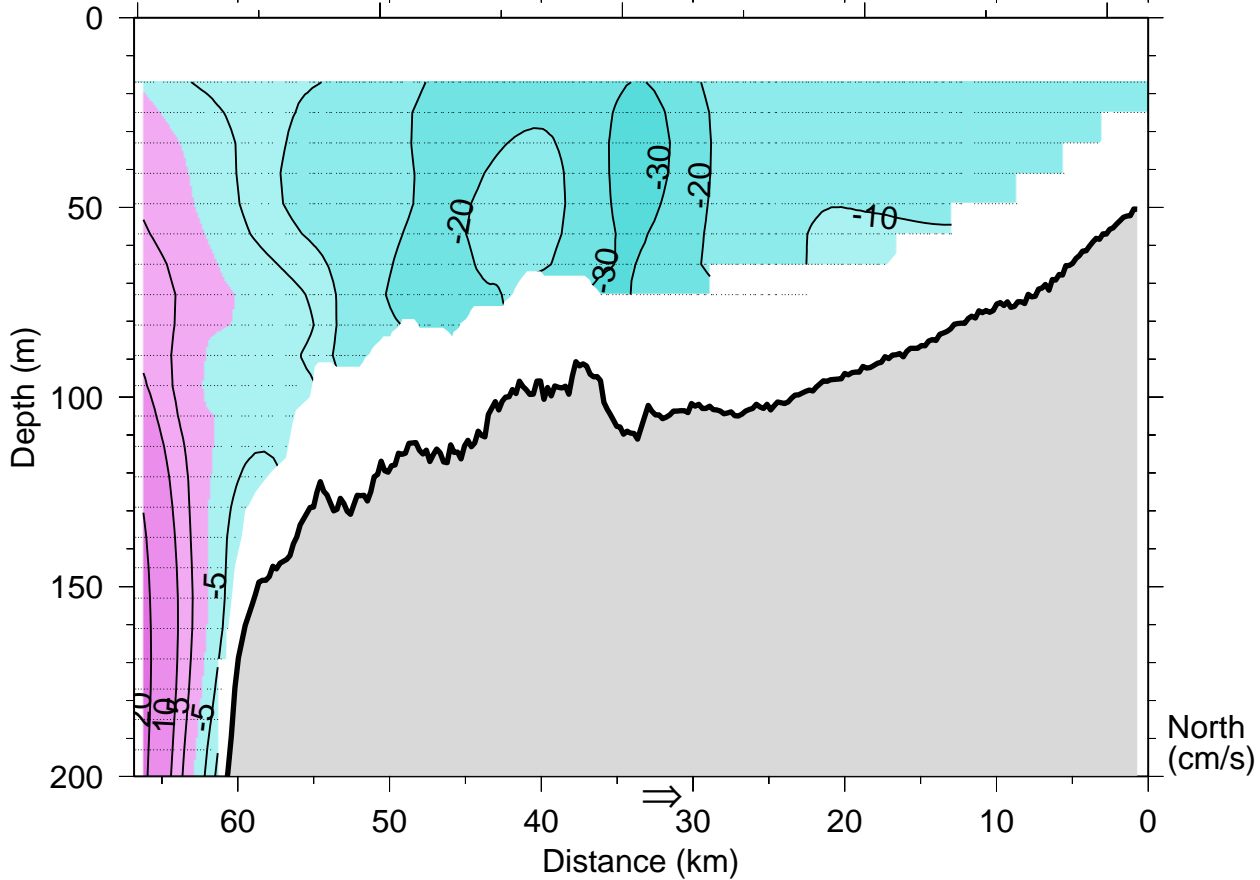
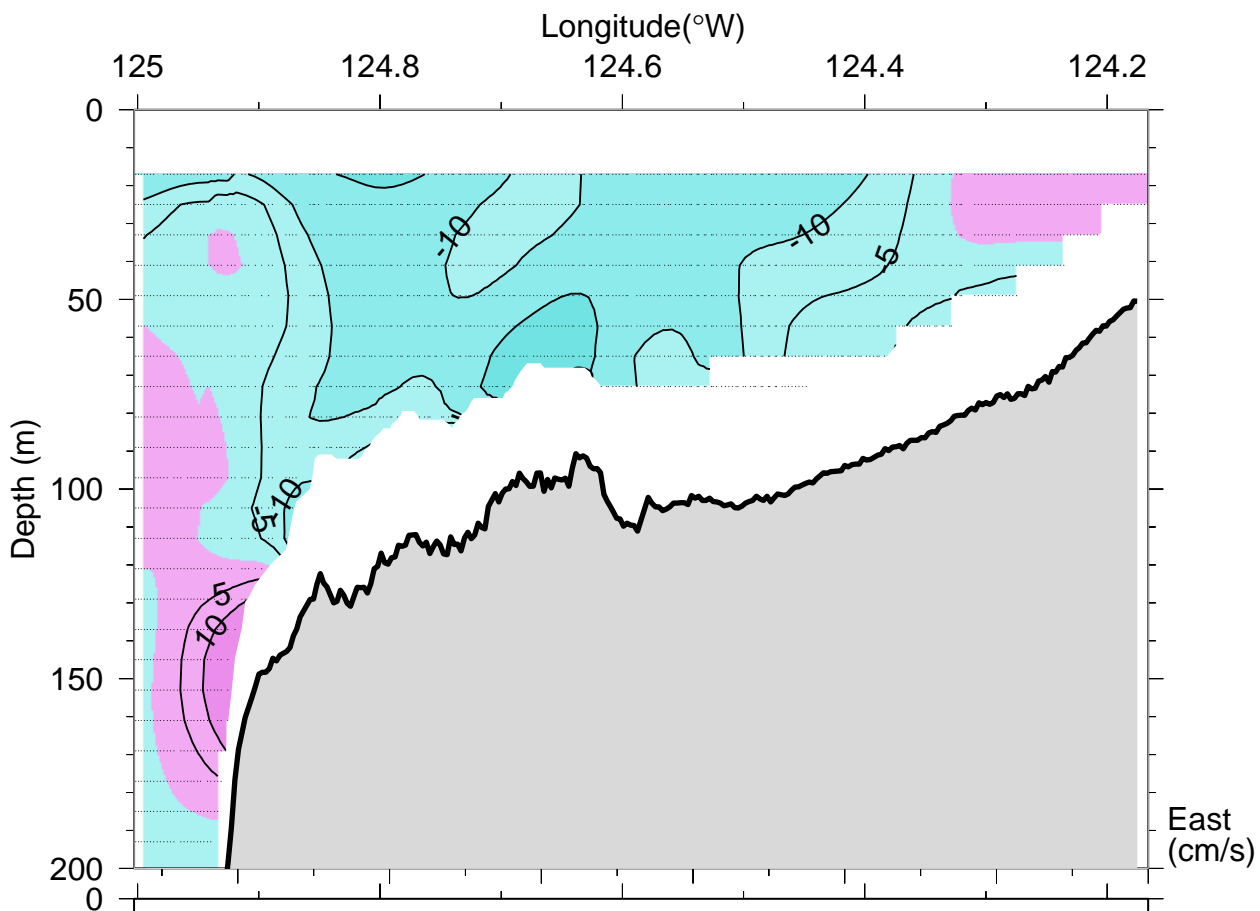
(220.150696 to 220.305893)



COAST W0108: Big box 1

line6 at 44.25°N (08-Aug-01 09:21 to 08-Aug-01 14:17)

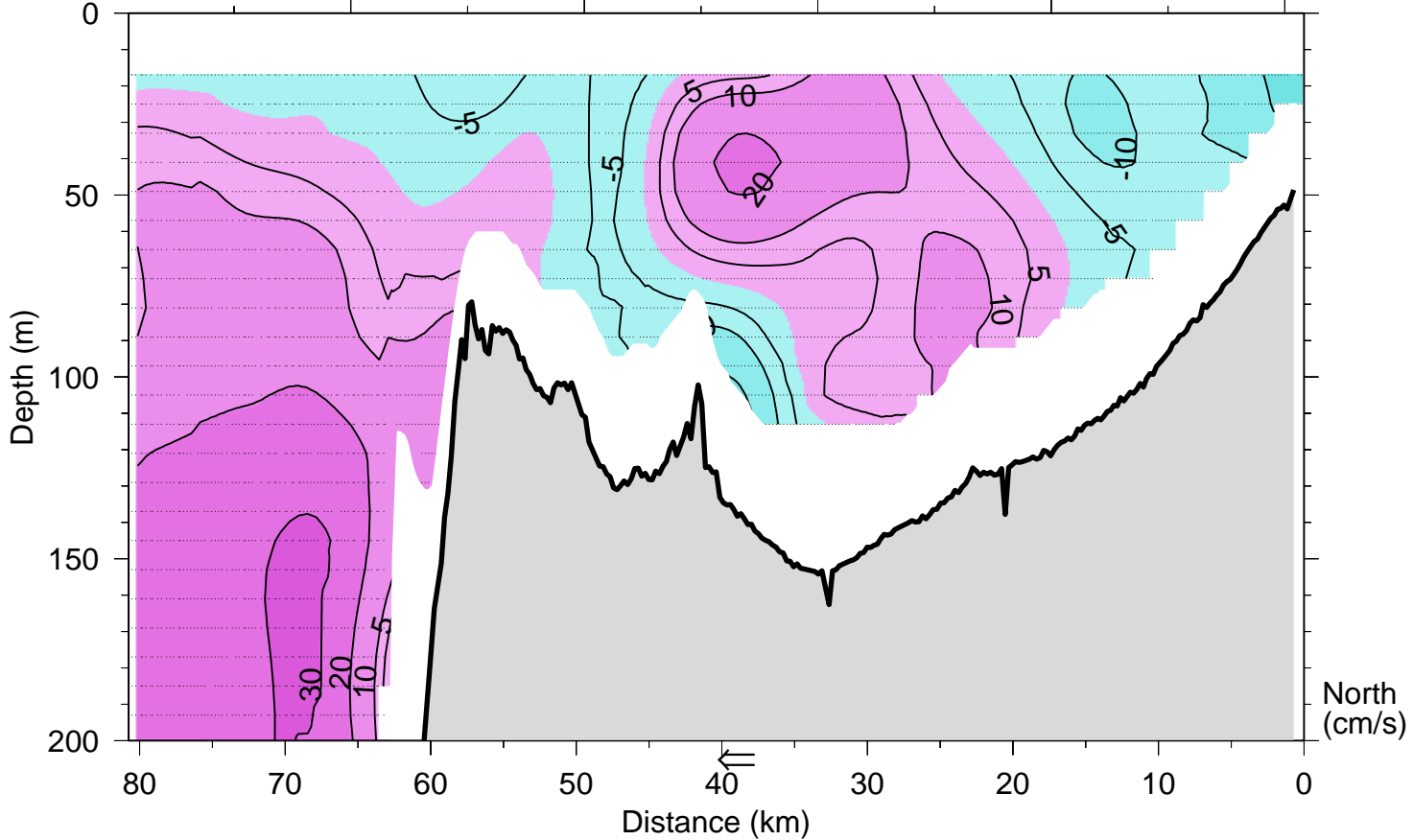
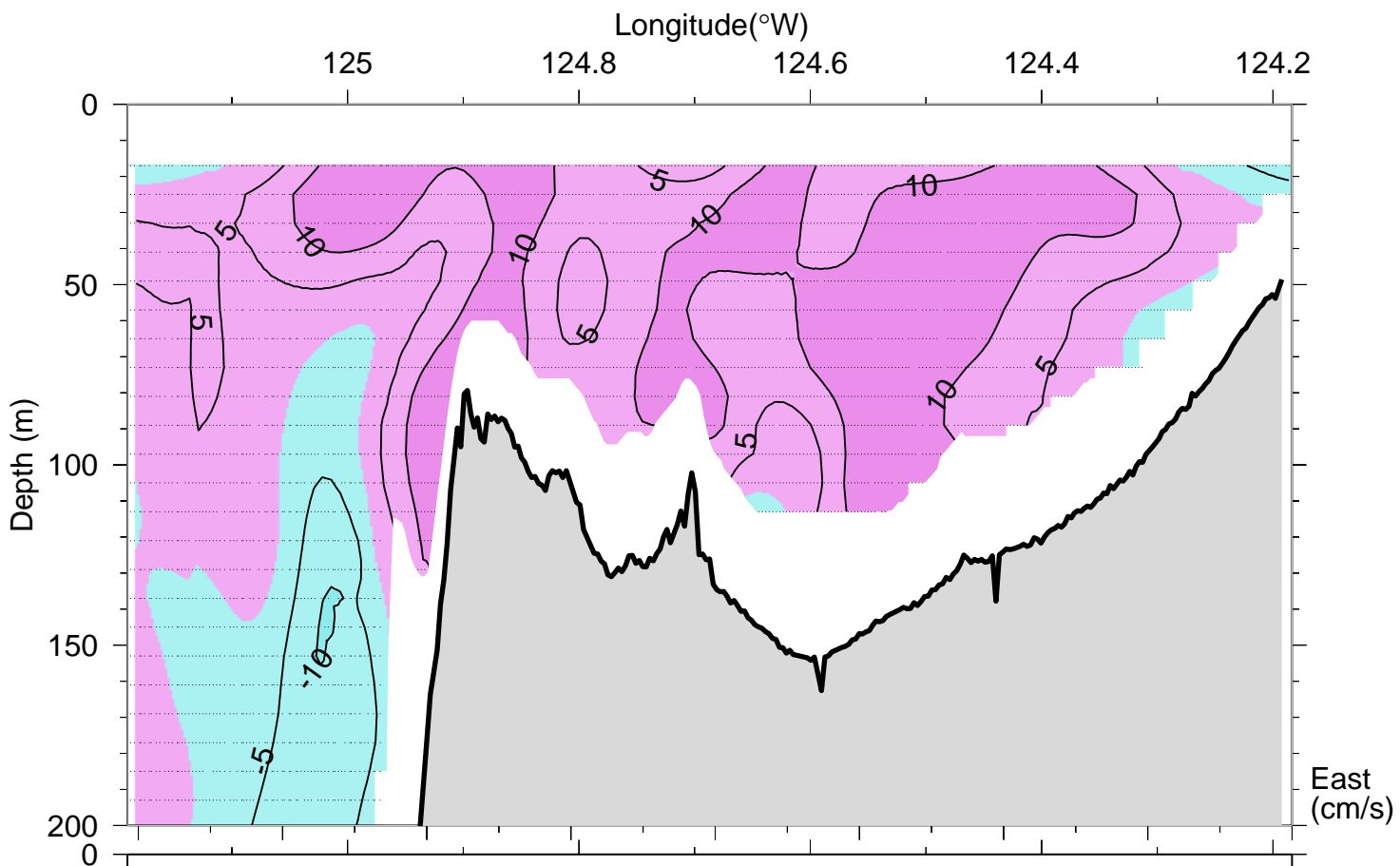
(220.390198 to 220.595306)



COAST W0108: Big box 1

line7 at 44.00°N (08-Aug-01 16:18 to 08-Aug-01 22:03)

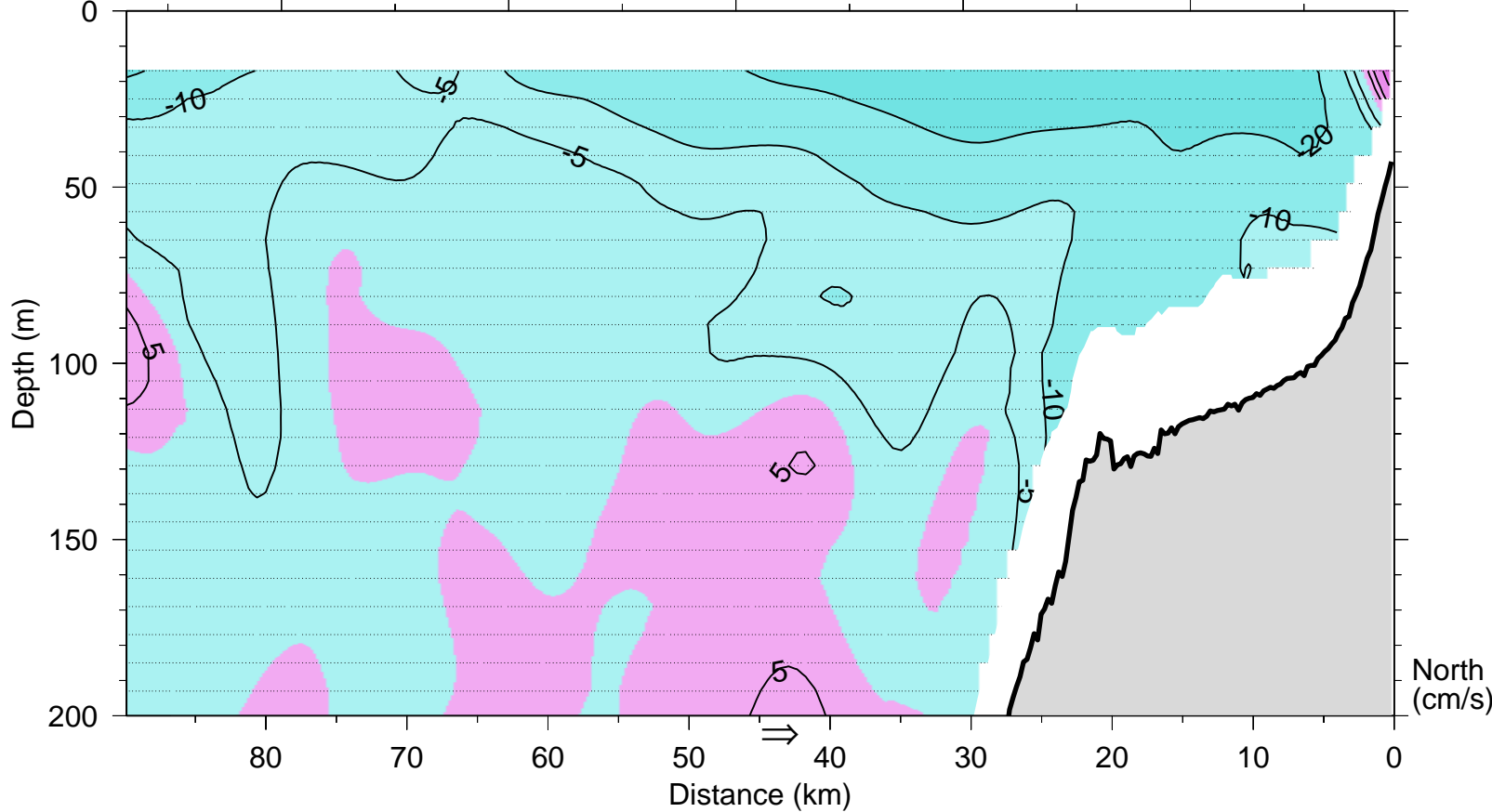
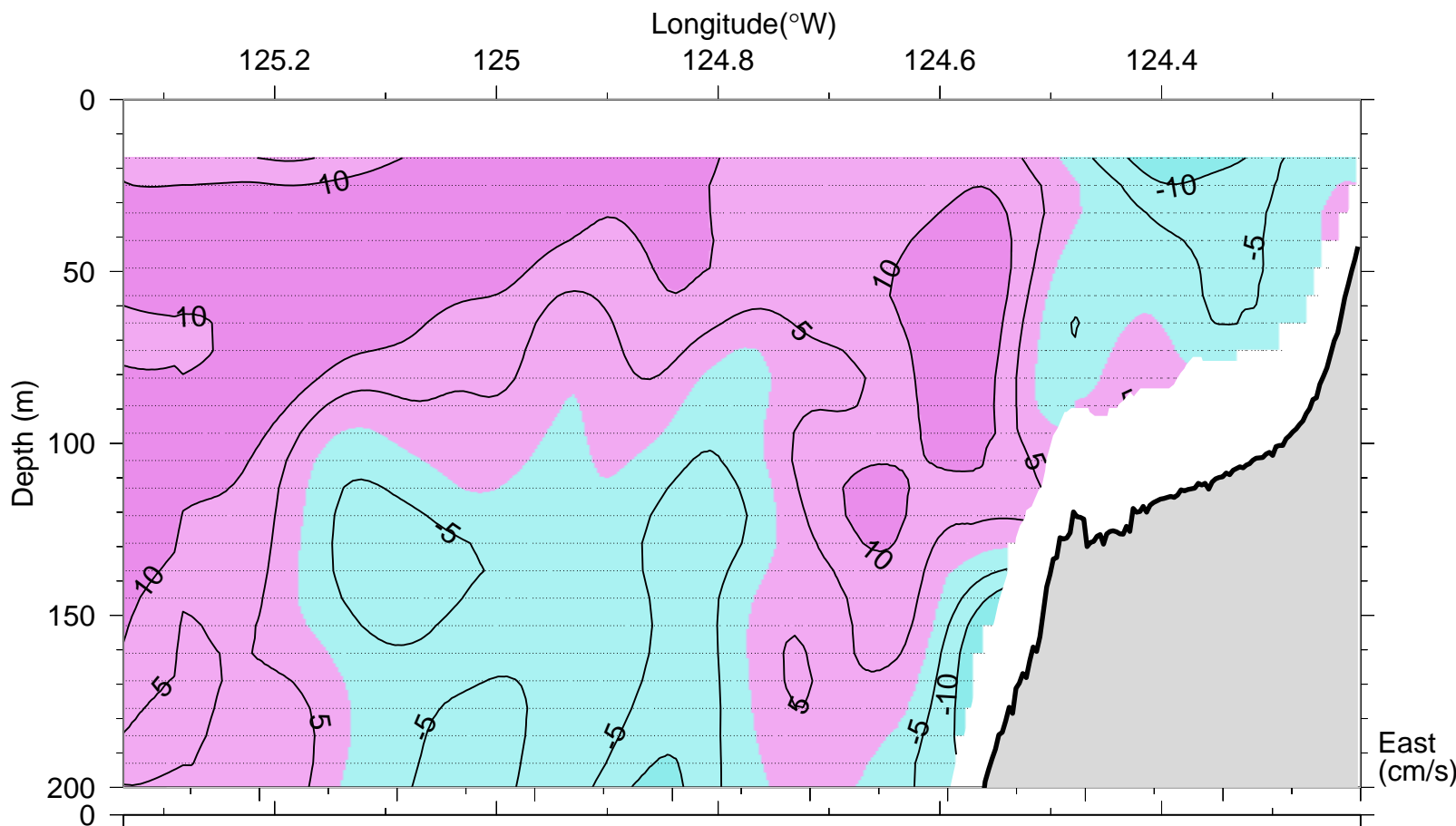
(220.679306 to 220.919098)



COAST W0108: Big box 1

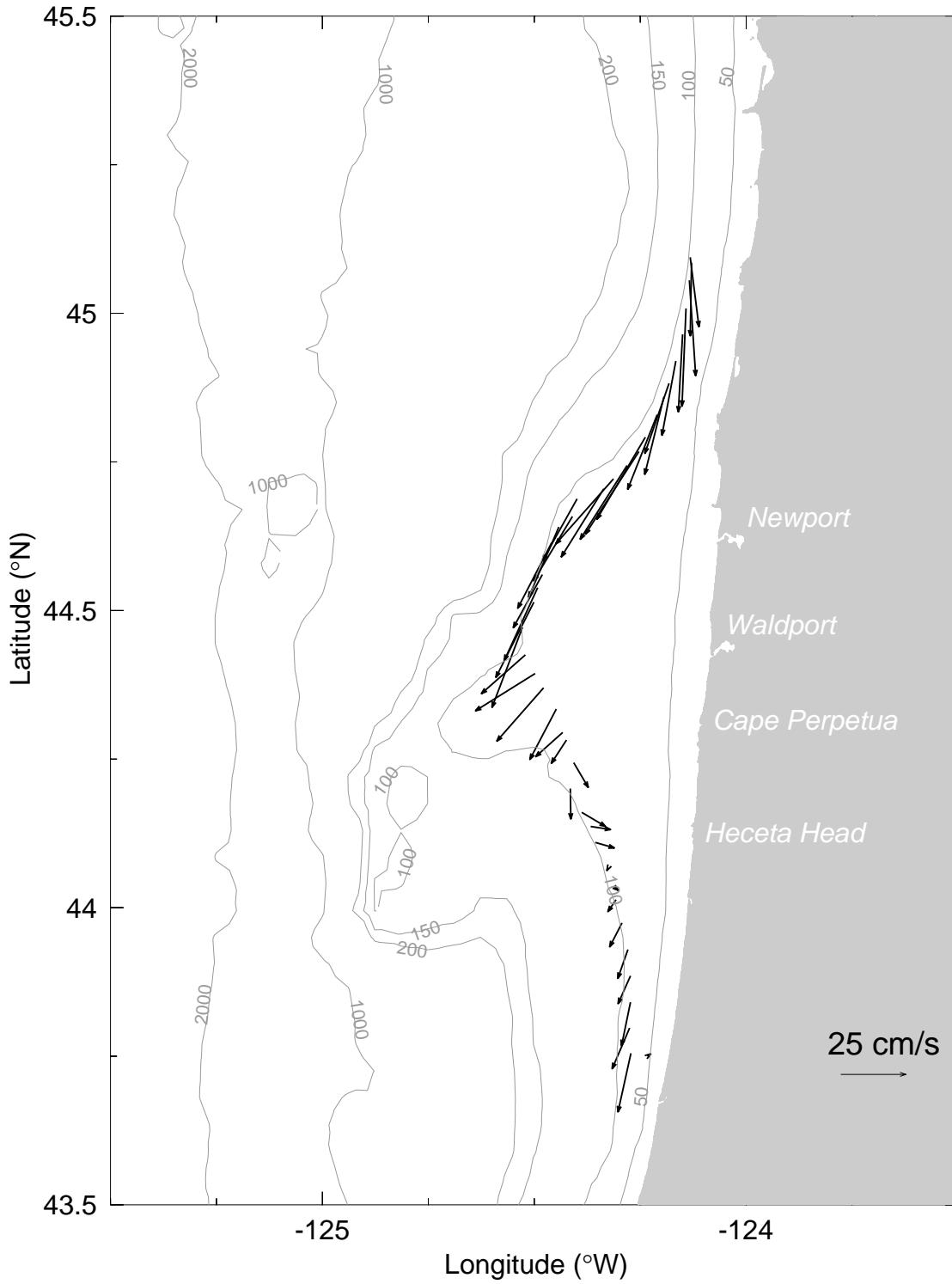
line8 at 43.75°N (09-Aug-01 00:58 to 09-Aug-01 07:04)

(221.040894 to 221.294998)



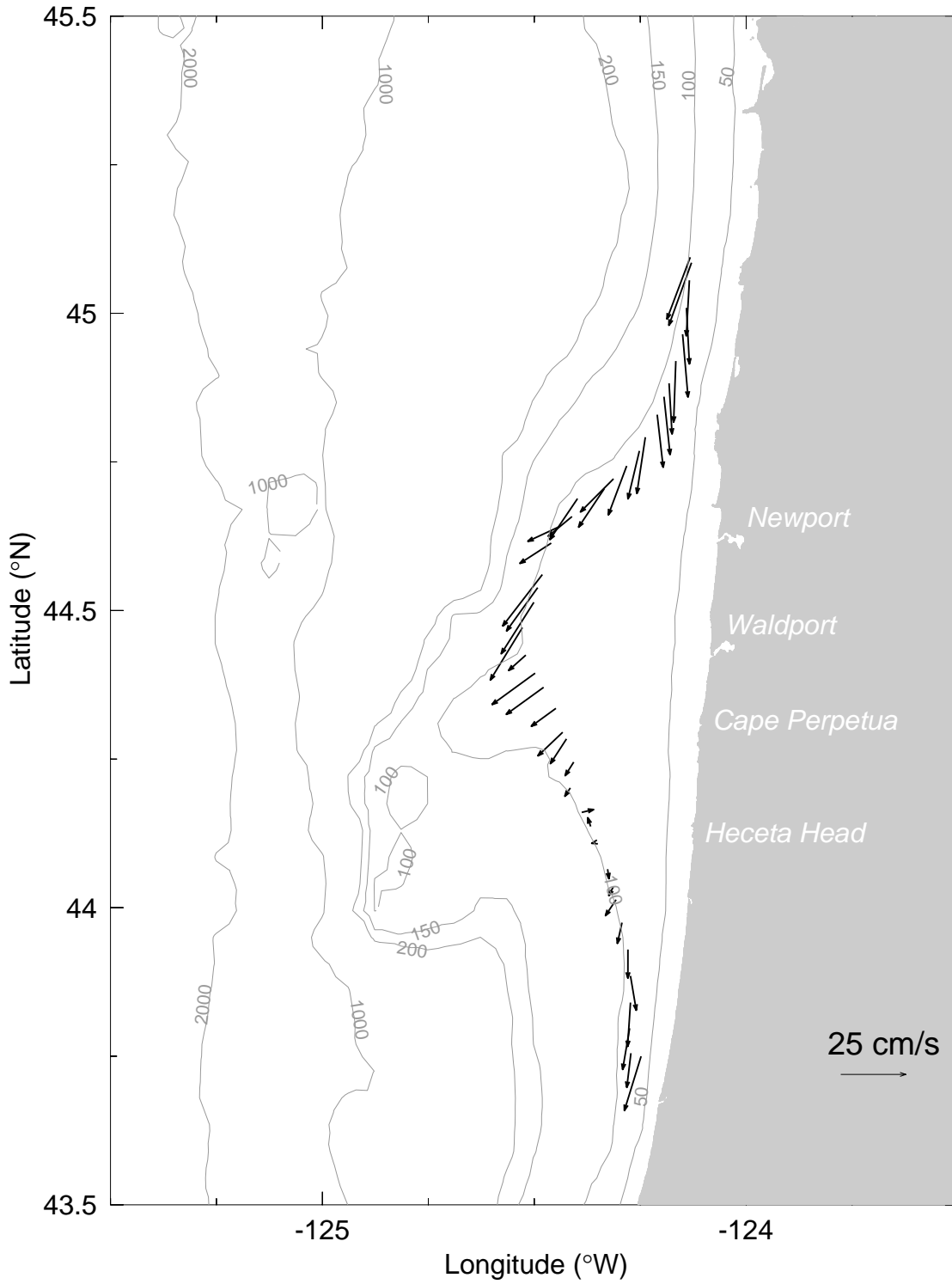
COAST W0108: 90m isobath transit

17 m ADCP, 221.2931 to 221.8785, 09-Aug-01 07:02 to 09-Aug-01 21:05



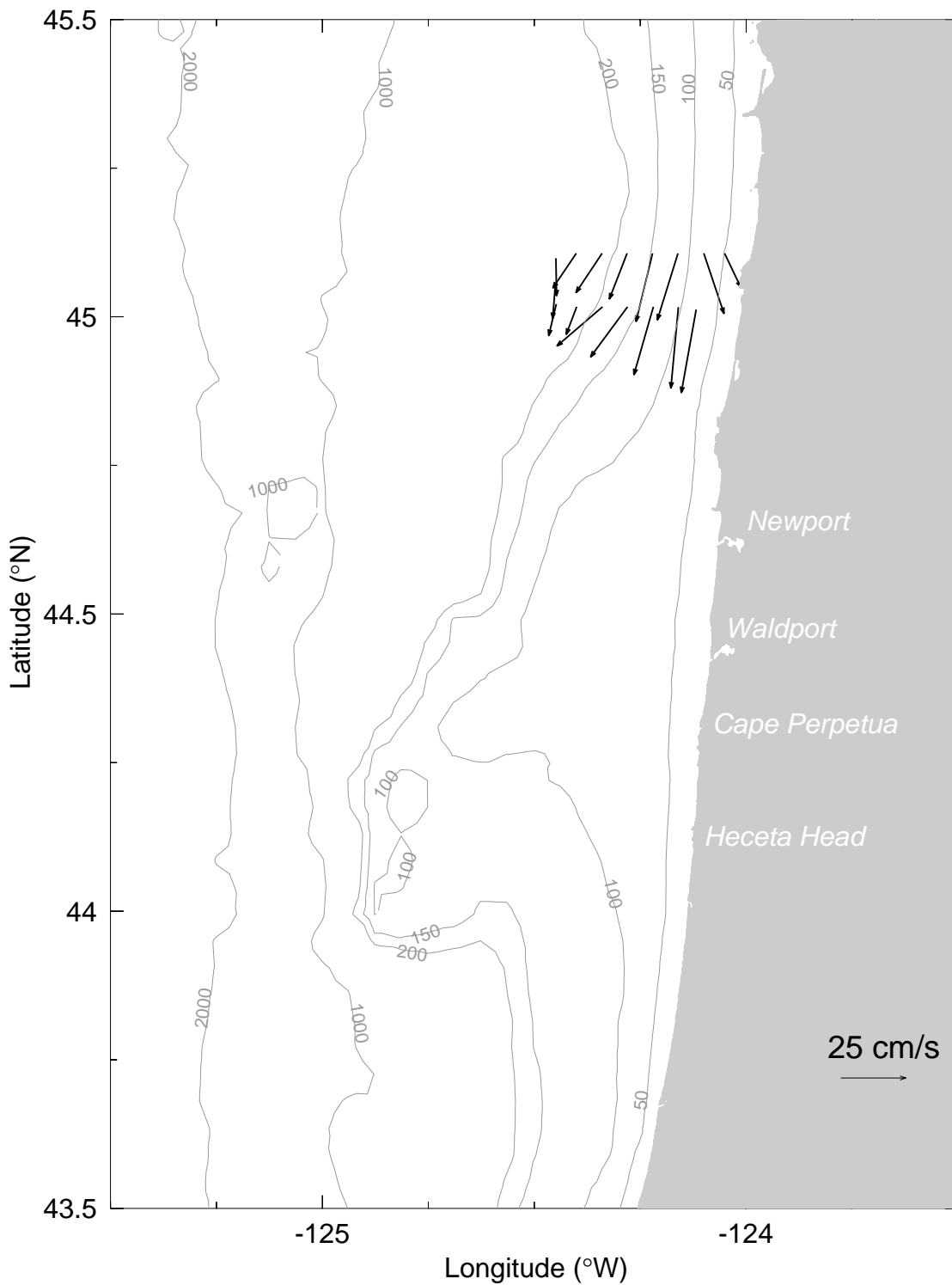
COAST W0108: 90m isobath transit

50 m ADCP, 221.2931 to 221.8785, 09-Aug-01 07:02 to 09-Aug-01 21:05



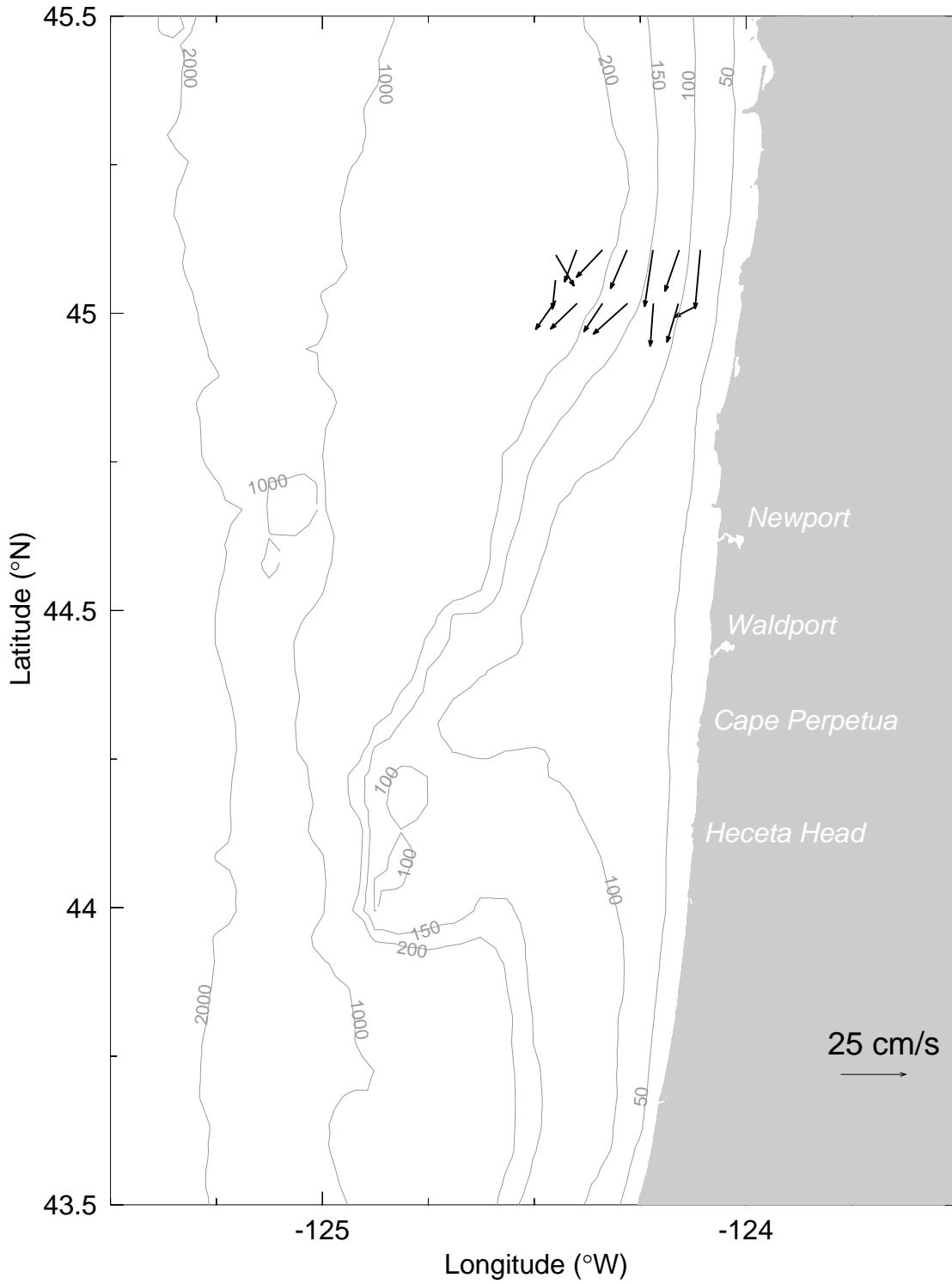
COAST W0108: Small box north 1

17 m ADCP, 221.9056 to 222.1125, 09-Aug-01 21:44 to 10-Aug-01 02:42



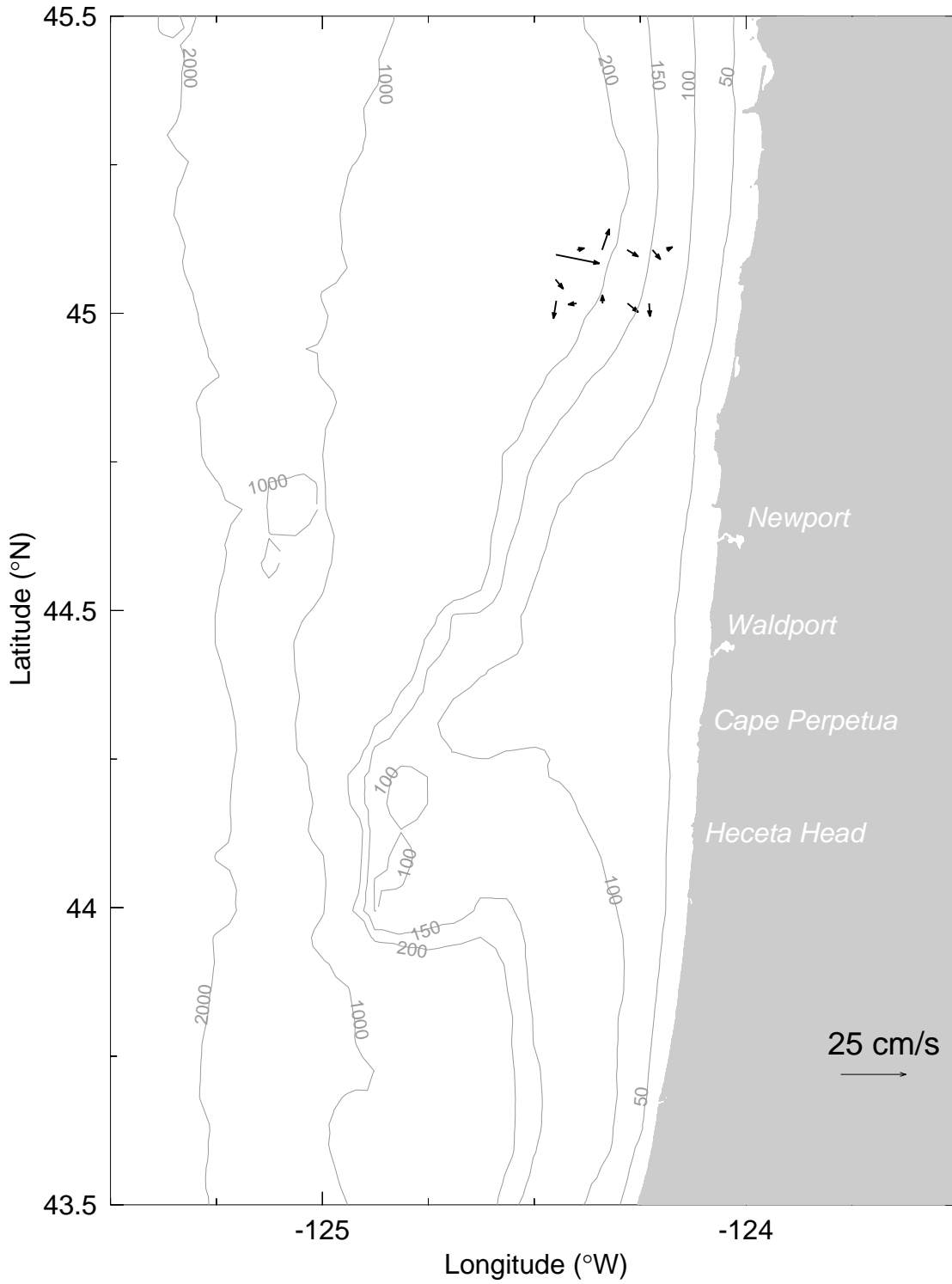
COAST W0108: Small box north 1

50 m ADCP, 221.9056 to 222.1125, 09-Aug-01 21:44 to 10-Aug-01 02:42



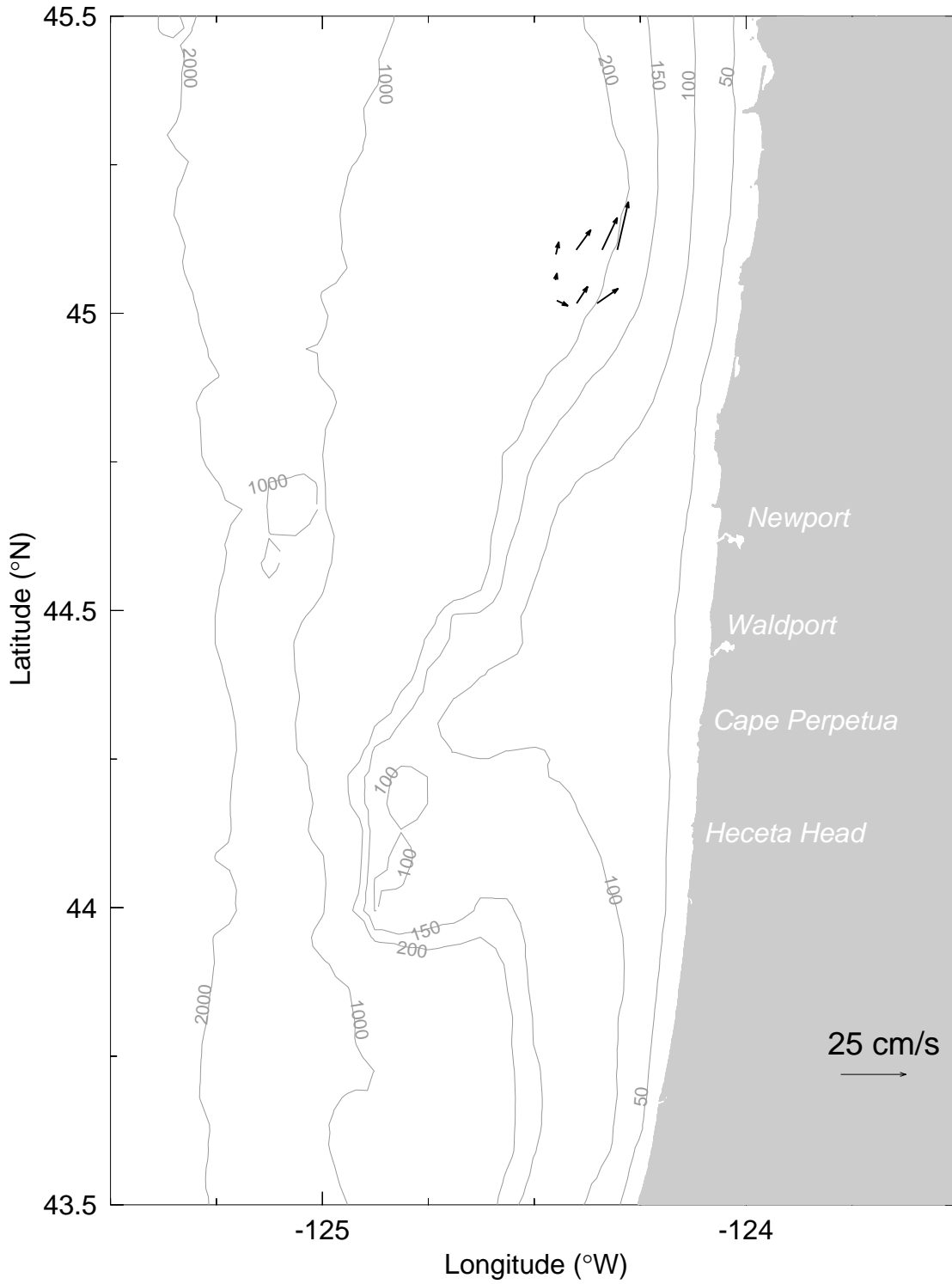
COAST W0108: Small box north 1

100 m ADCP, 221.9056 to 222.1125, 09-Aug-01 21:44 to 10-Aug-01 02:42

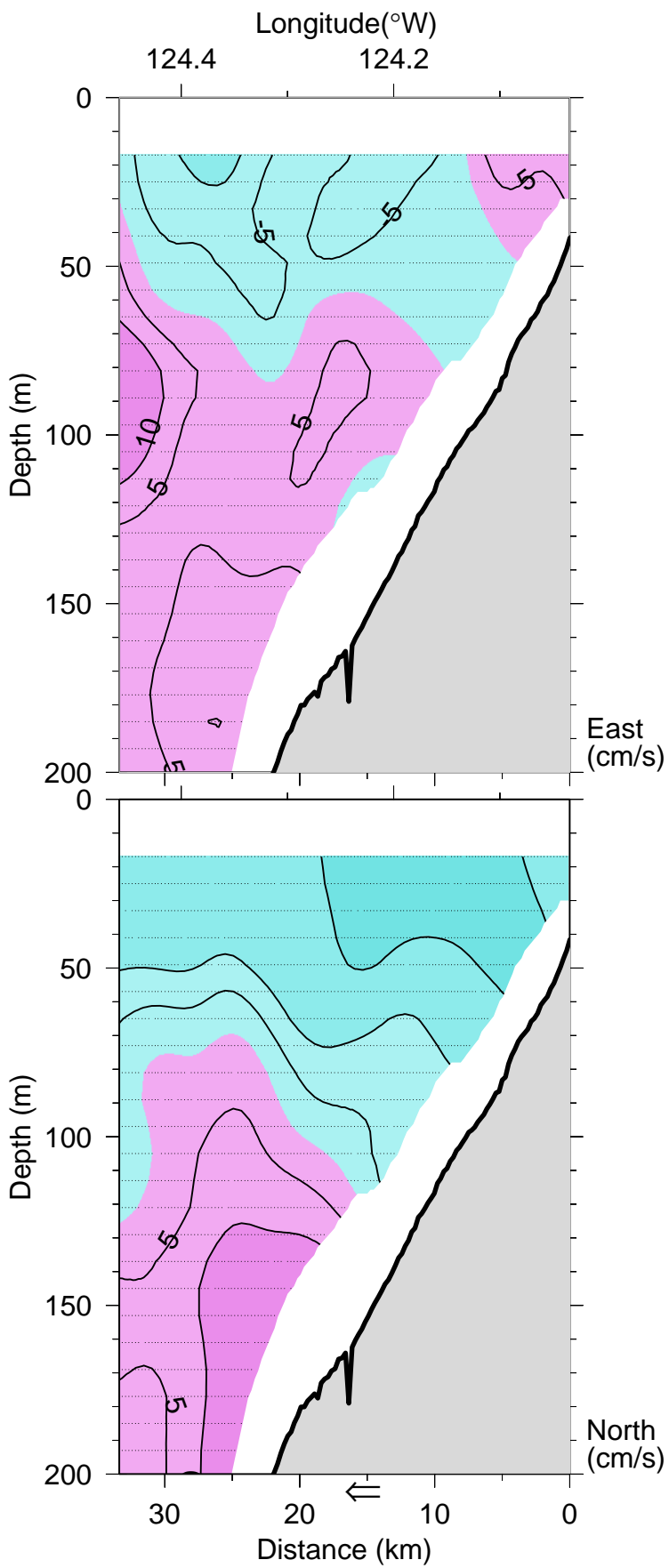


COAST W0108: Small box north 1

150 m ADCP, 221.9056 to 222.1125, 09-Aug-01 21:44 to 10-Aug-01 02:42



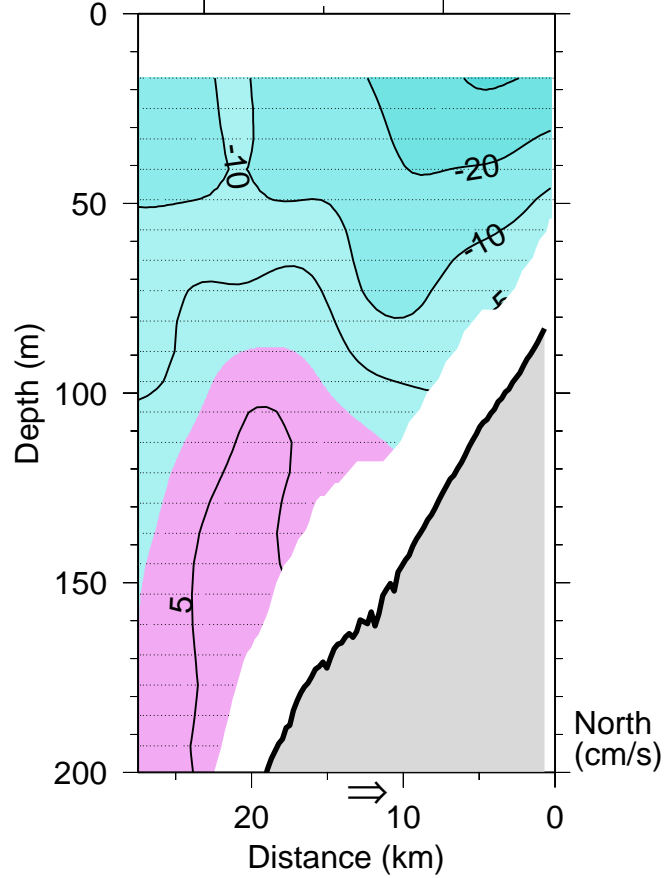
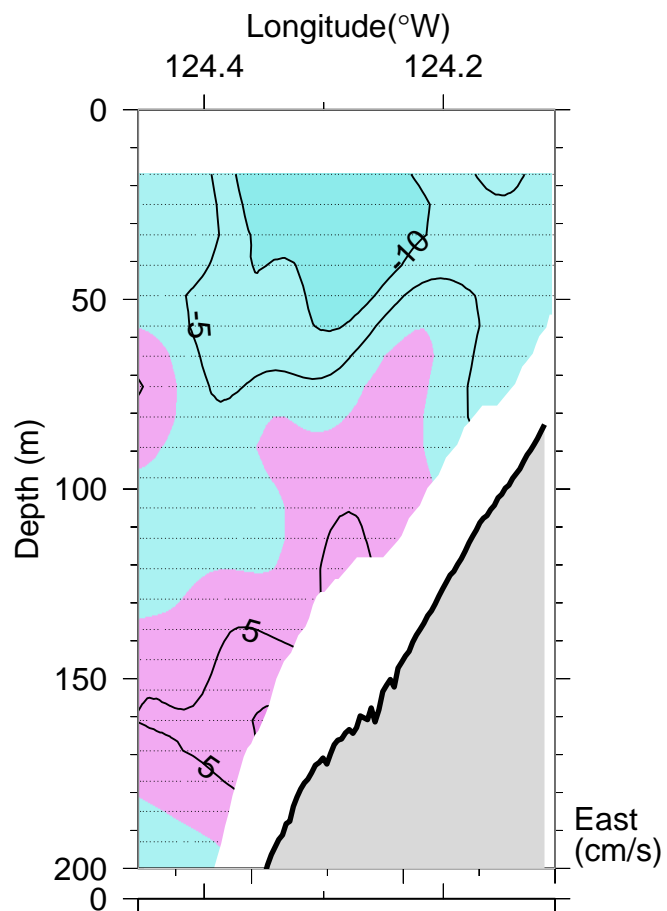
COAST W0108: Small box north 1
lineA at 45.11°N (09-Aug-01 21:48 to 10-Aug-01 00:07)
(221.908600 to 222.005203)



COAST W0108: Small box north 1

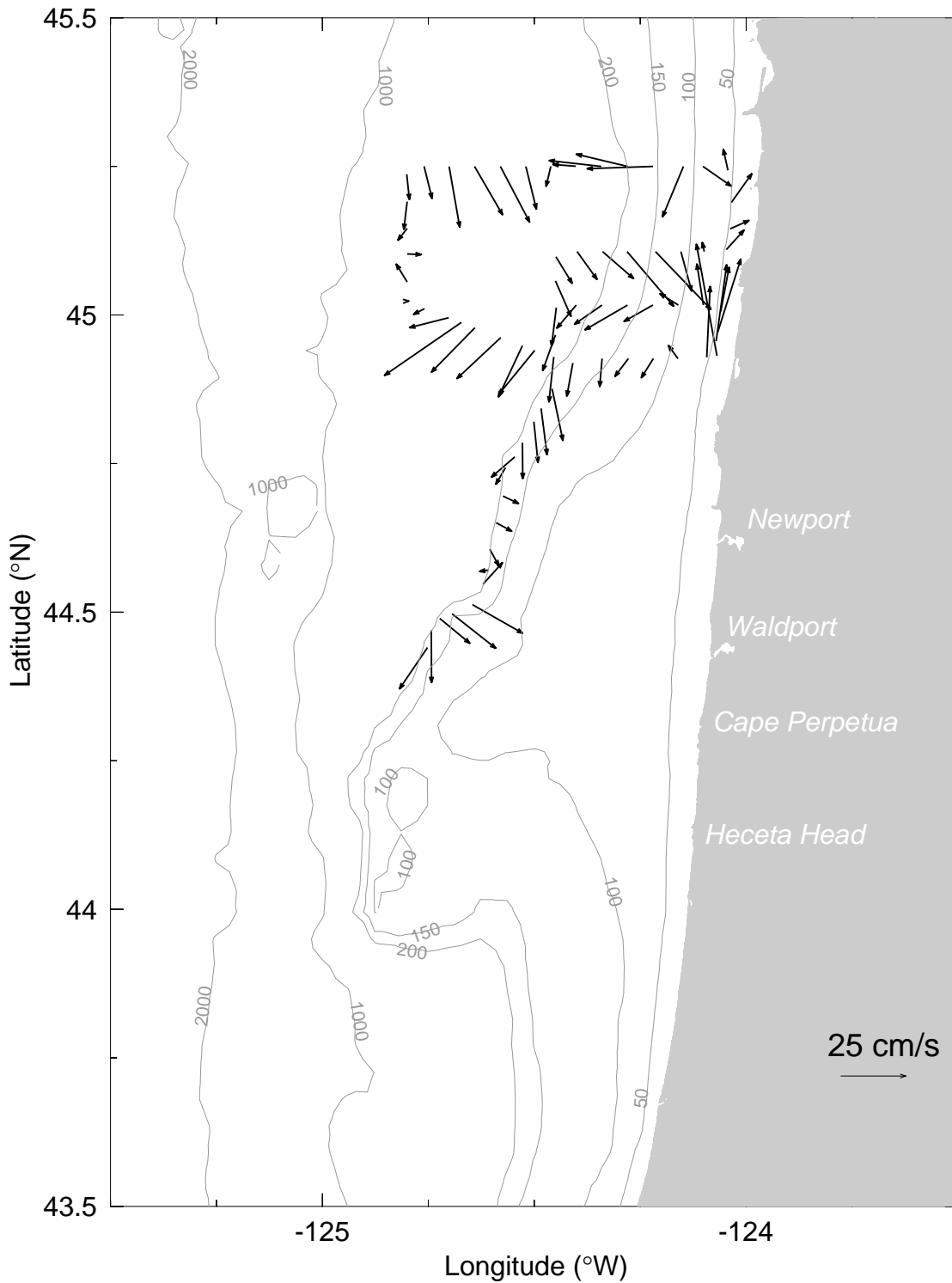
lineB at 45.02°N (10-Aug-01 00:47 to 10-Aug-01 02:42)

(222.033005 to 222.112793)



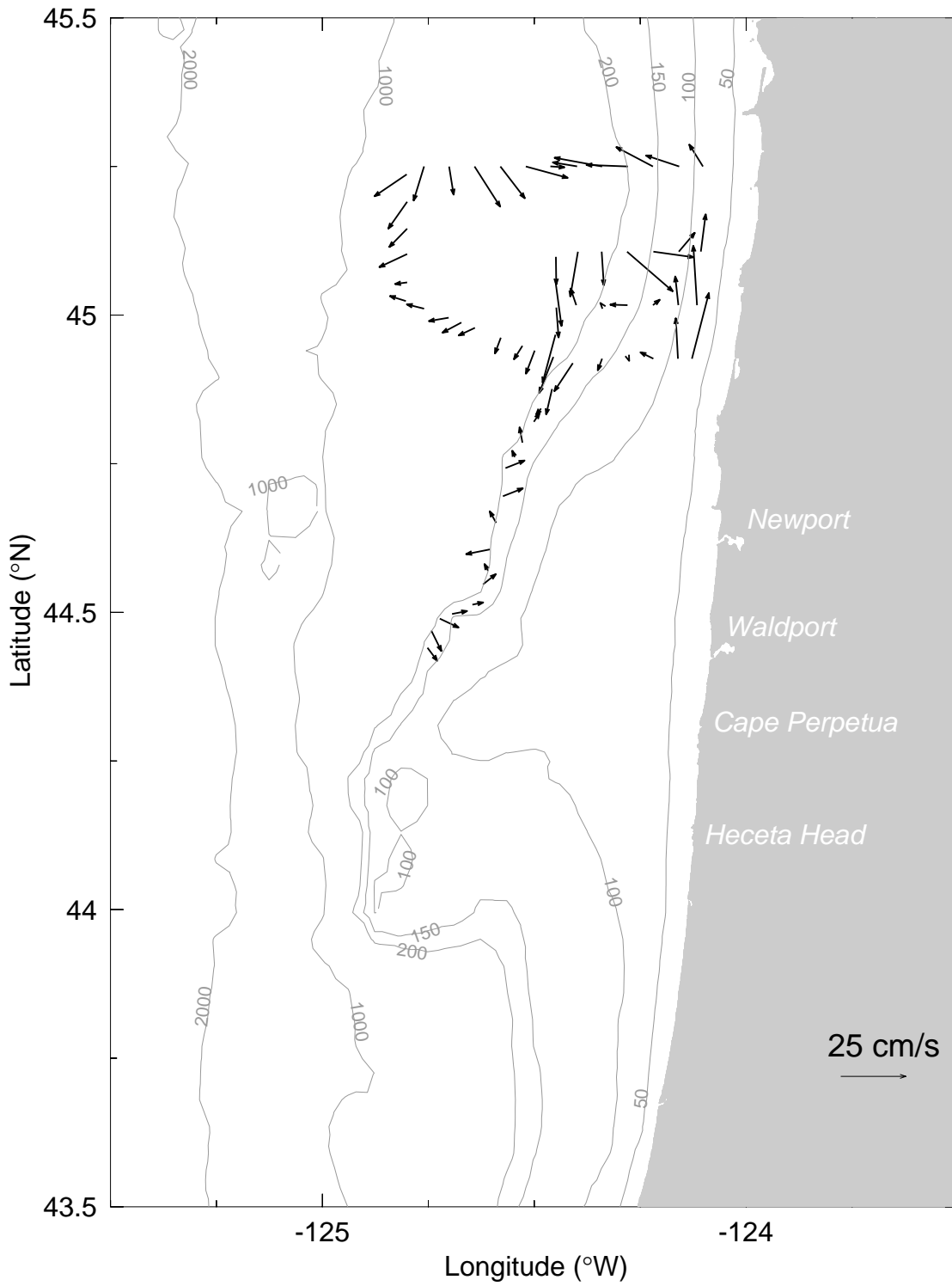
COAST W0108: Big box 2 and small box north 2

17 m ADCP, 222.9777 to 223.9708, 10-Aug-01 23:27 to 11-Aug-01 23:17



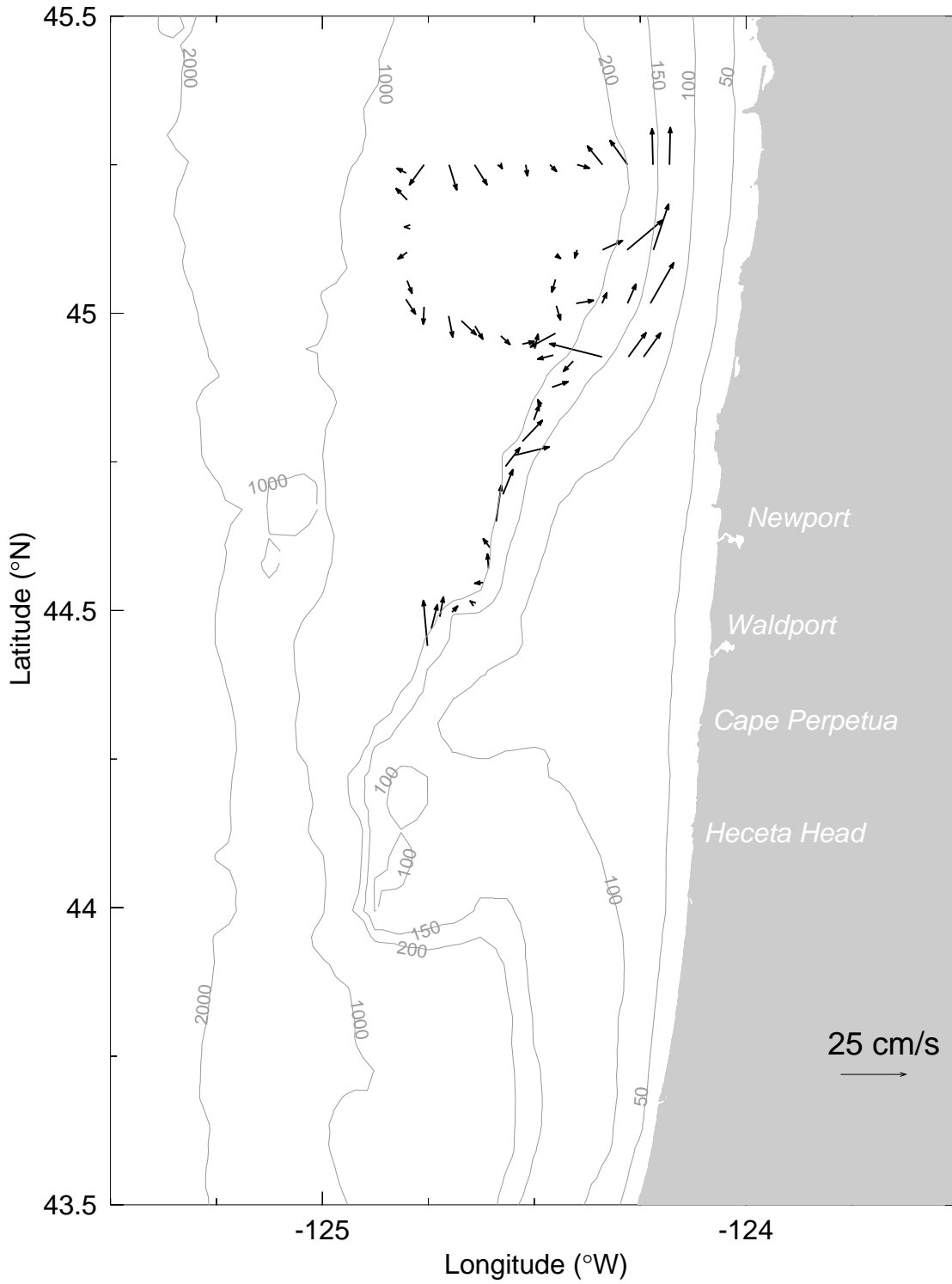
COAST W0108: Big box 2 and small box north 2

50 m ADCP, 222.9777 to 223.9708, 10-Aug-01 23:27 to 11-Aug-01 23:17



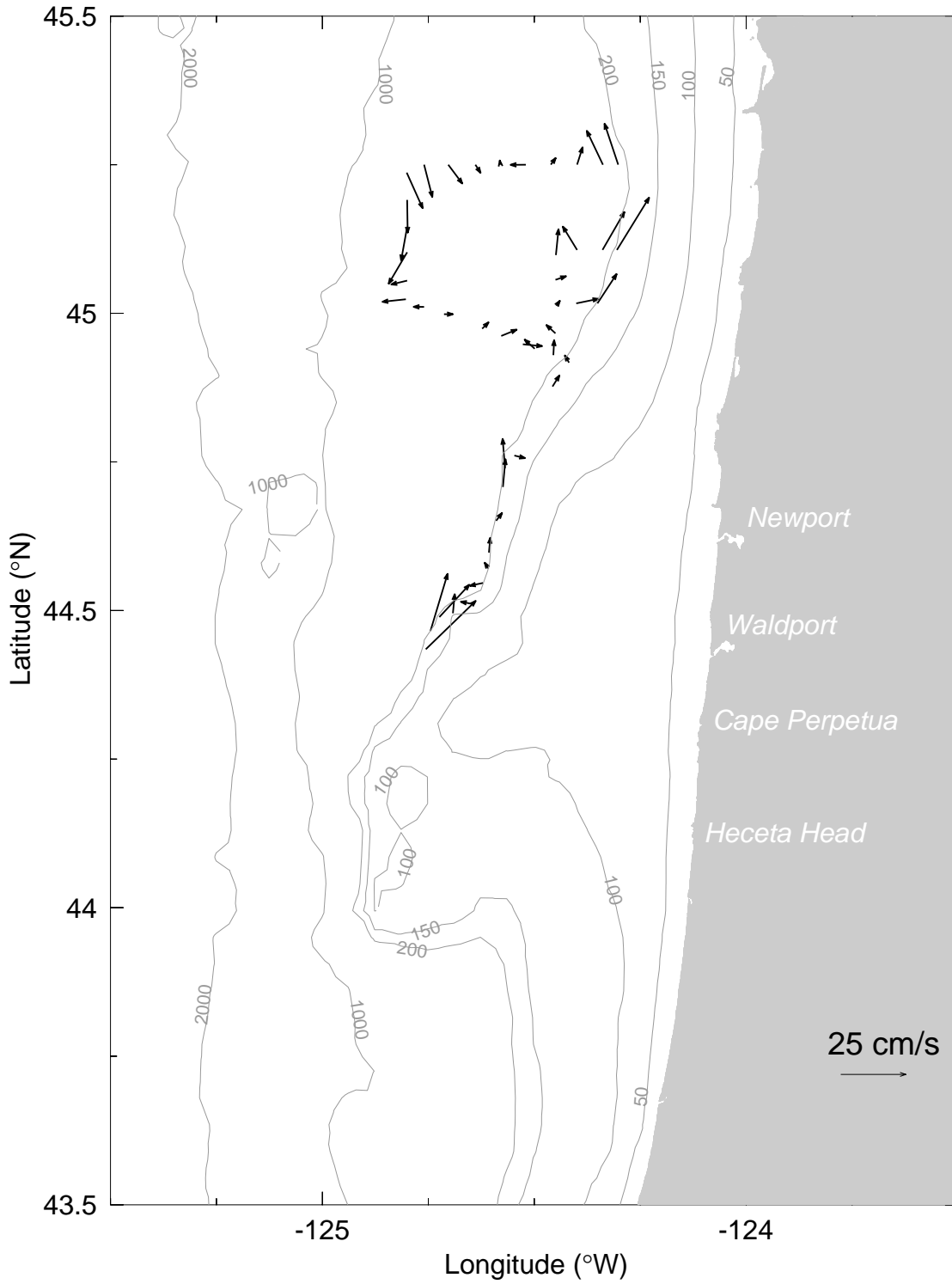
COAST W0108: Big box 2 and small box north 2

100 m ADCP, 222.9777 to 223.9708, 10-Aug-01 23:27 to 11-Aug-01 23:17

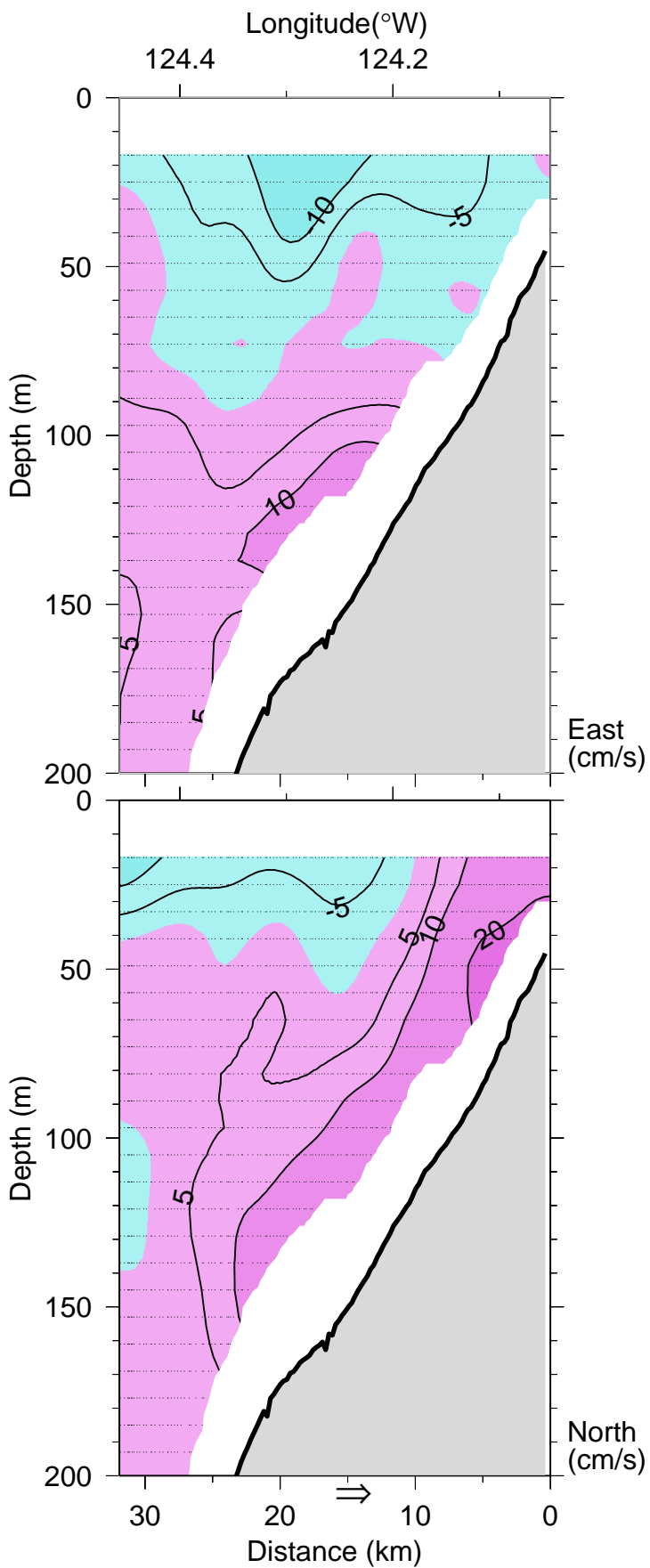


COAST W0108: Big box 2 and small box north 2

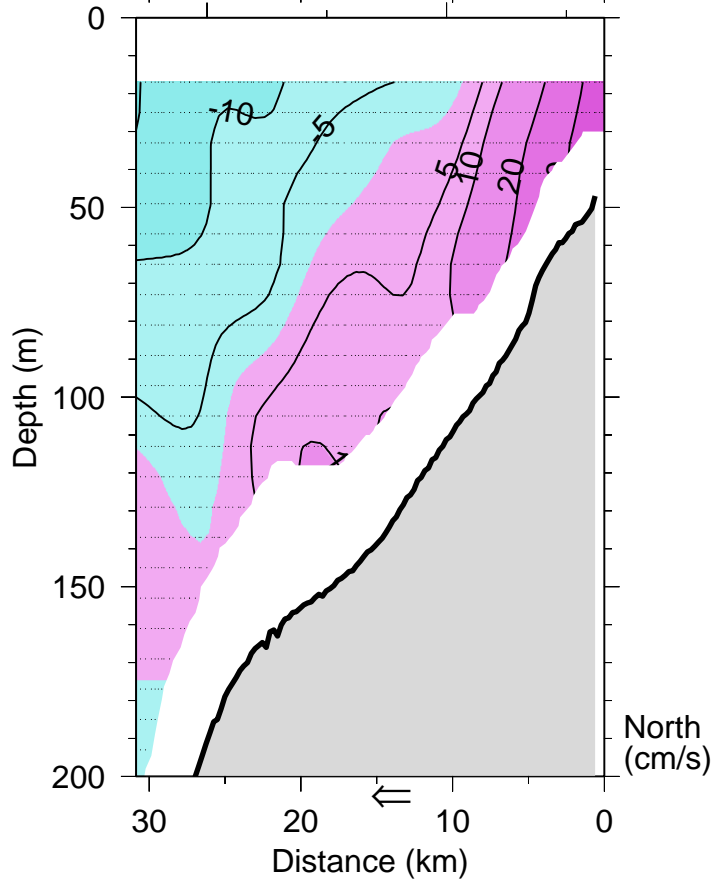
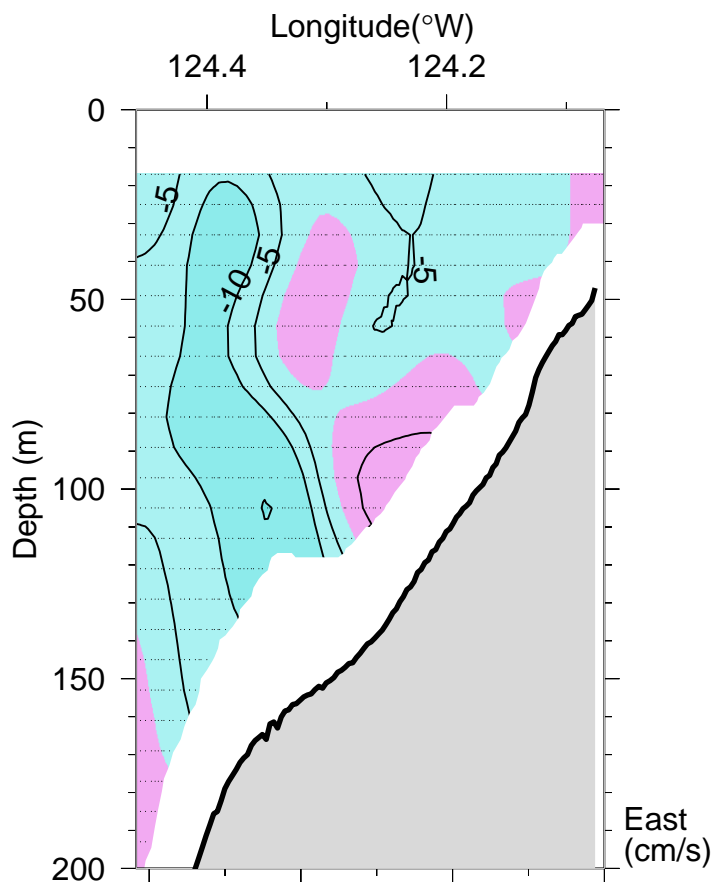
150 m ADCP, 222.9777 to 223.9708, 10-Aug-01 23:27 to 11-Aug-01 23:17



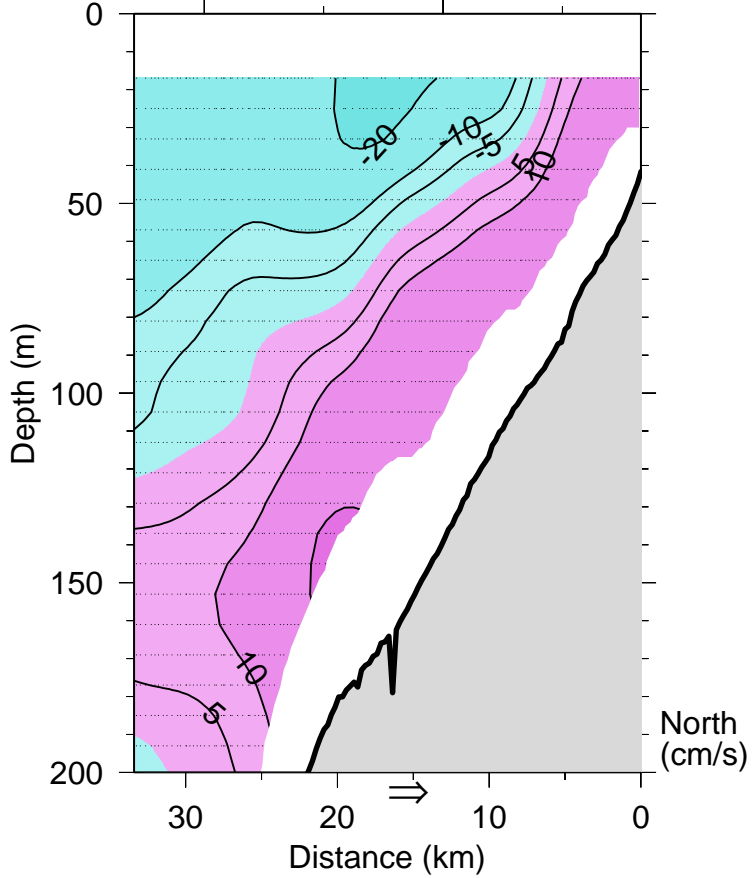
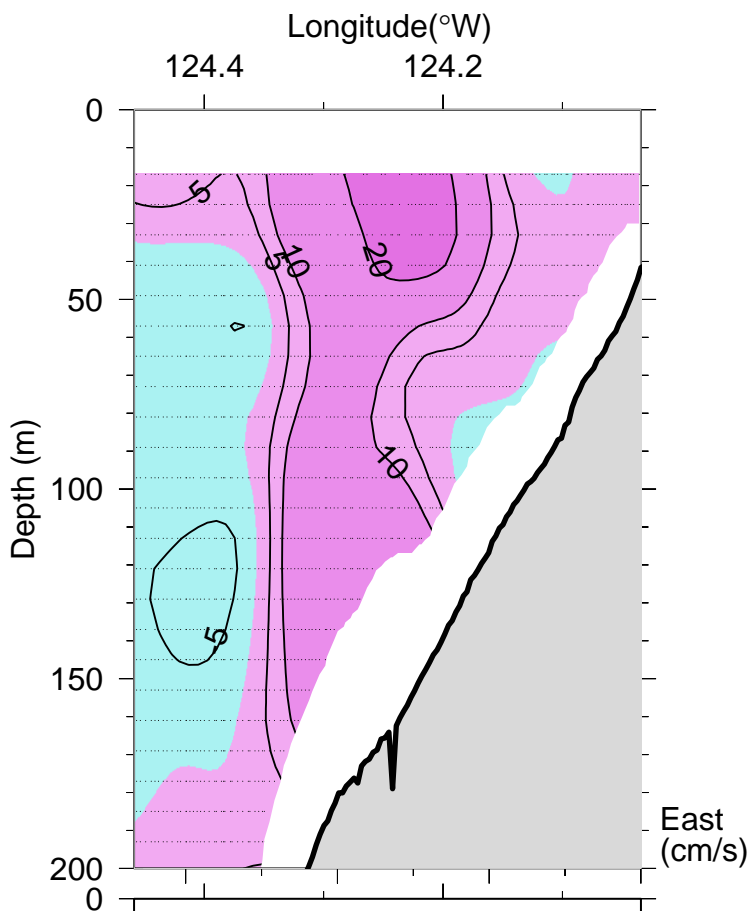
COAST W0108: Big box 2 and small box north 2
lineB at 45.02°N (10-Aug-01 23:26 to 11-Aug-01 01:48)
(222.976700 to 223.075607)



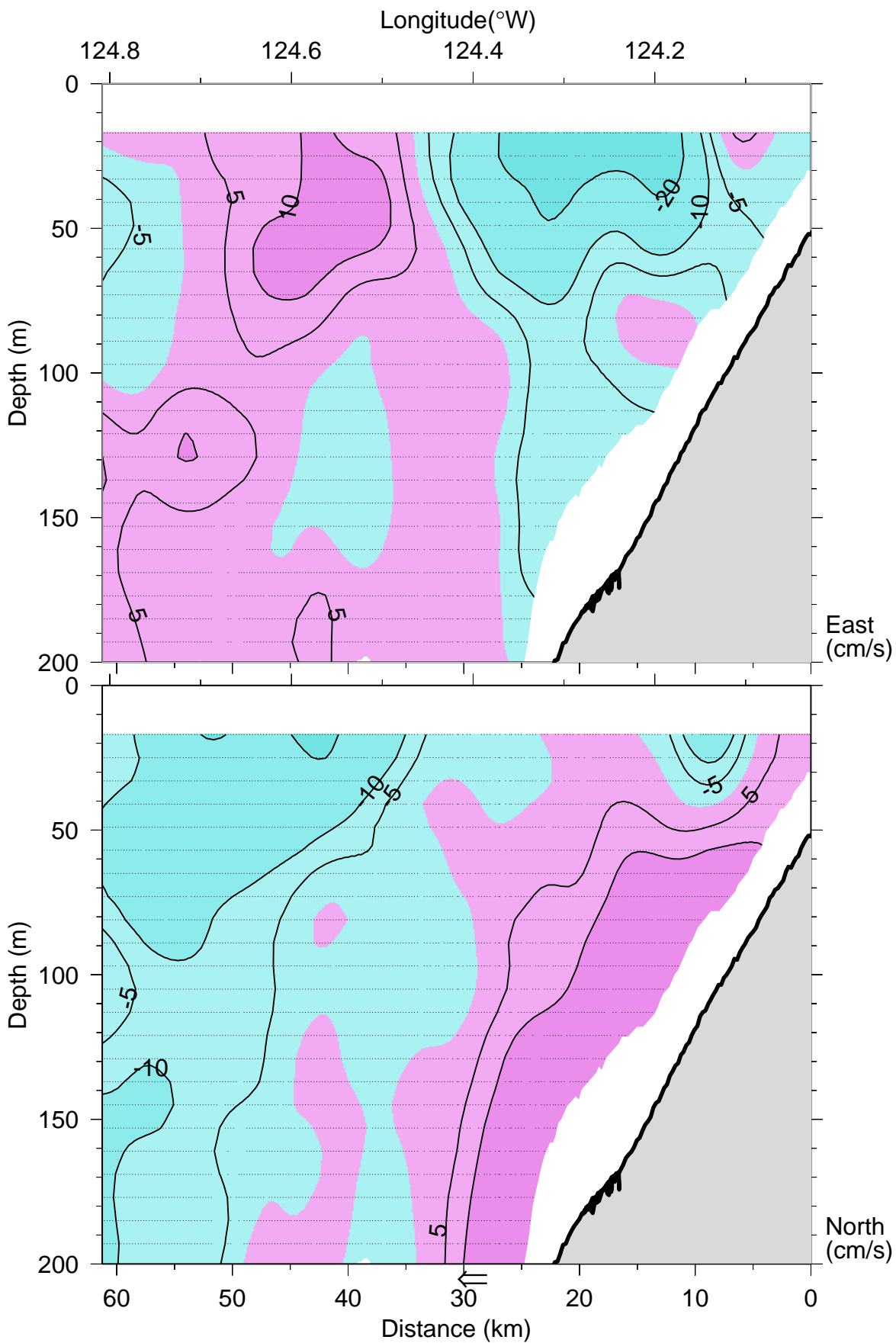
COAST W0108: Big box 2 and small box north 2
lineC at 44.93°N (11-Aug-01 02:37 to 11-Aug-01 04:52)
(223.109695 to 223.203094)



COAST W0108: Big box 2 and small box north 2
lineA at 45.11°N (11-Aug-01 06:20 to 11-Aug-01 08:42)
(223.264206 to 223.363098)

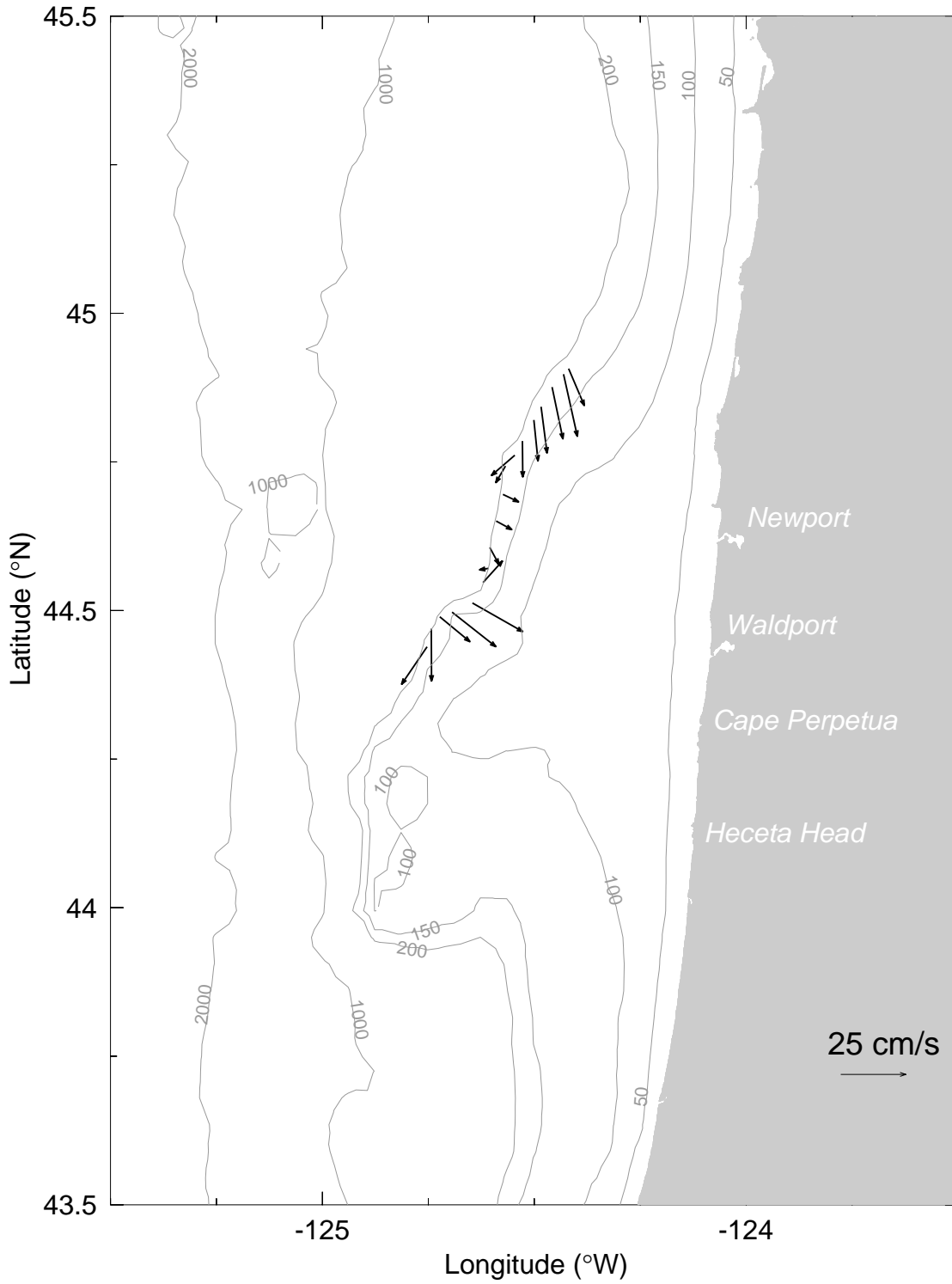


COAST W0108: Big box 2 and small box north 2
line1 at 45.25°N (11-Aug-01 09:48 to 11-Aug-01 14:02)
(223.408493 to 223.585205)



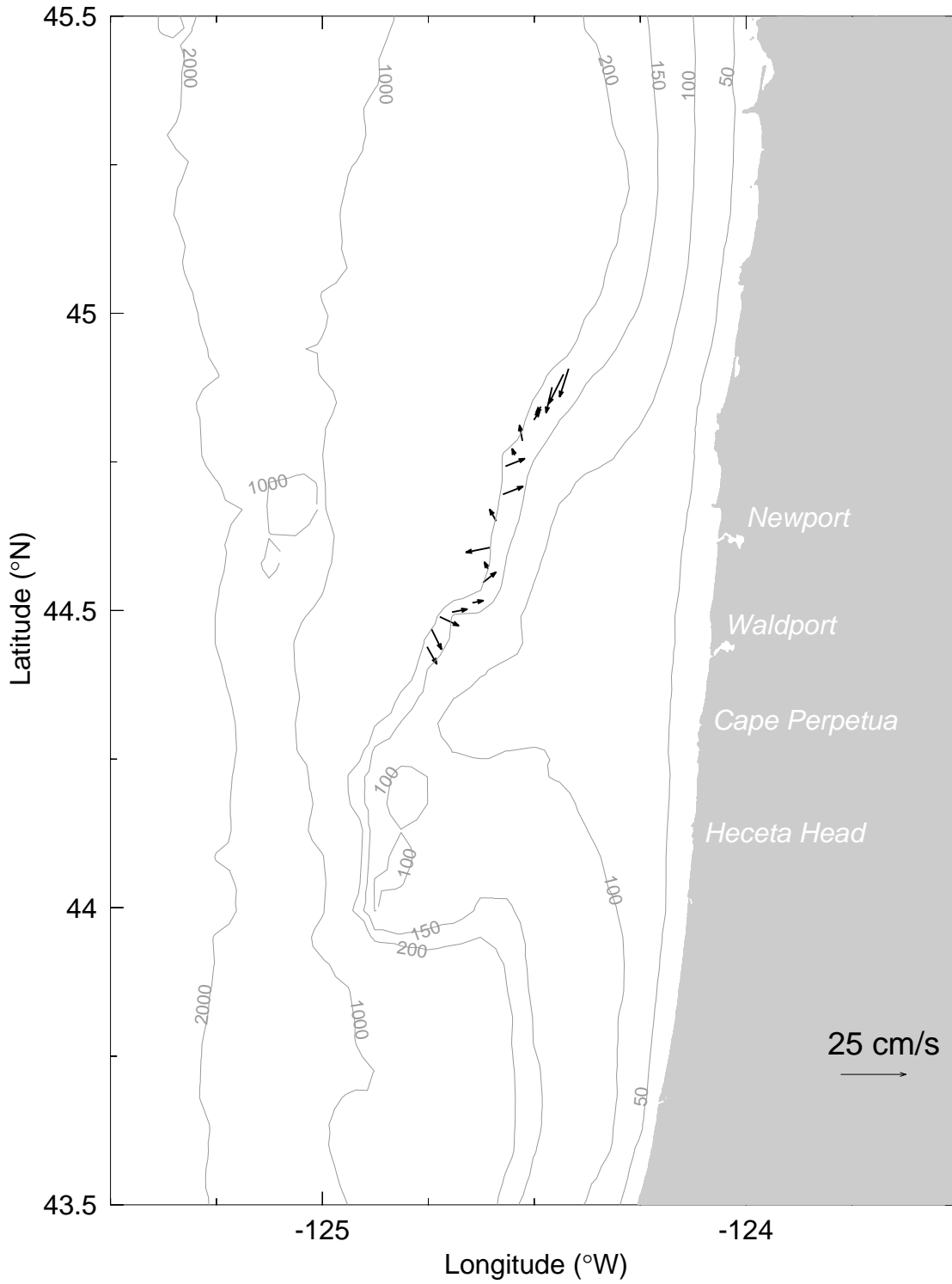
COAST W0108: 180m isobath transit

17 m ADCP, 223.7750 to 223.9722, 11-Aug-01 18:36 to 11-Aug-01 23:19



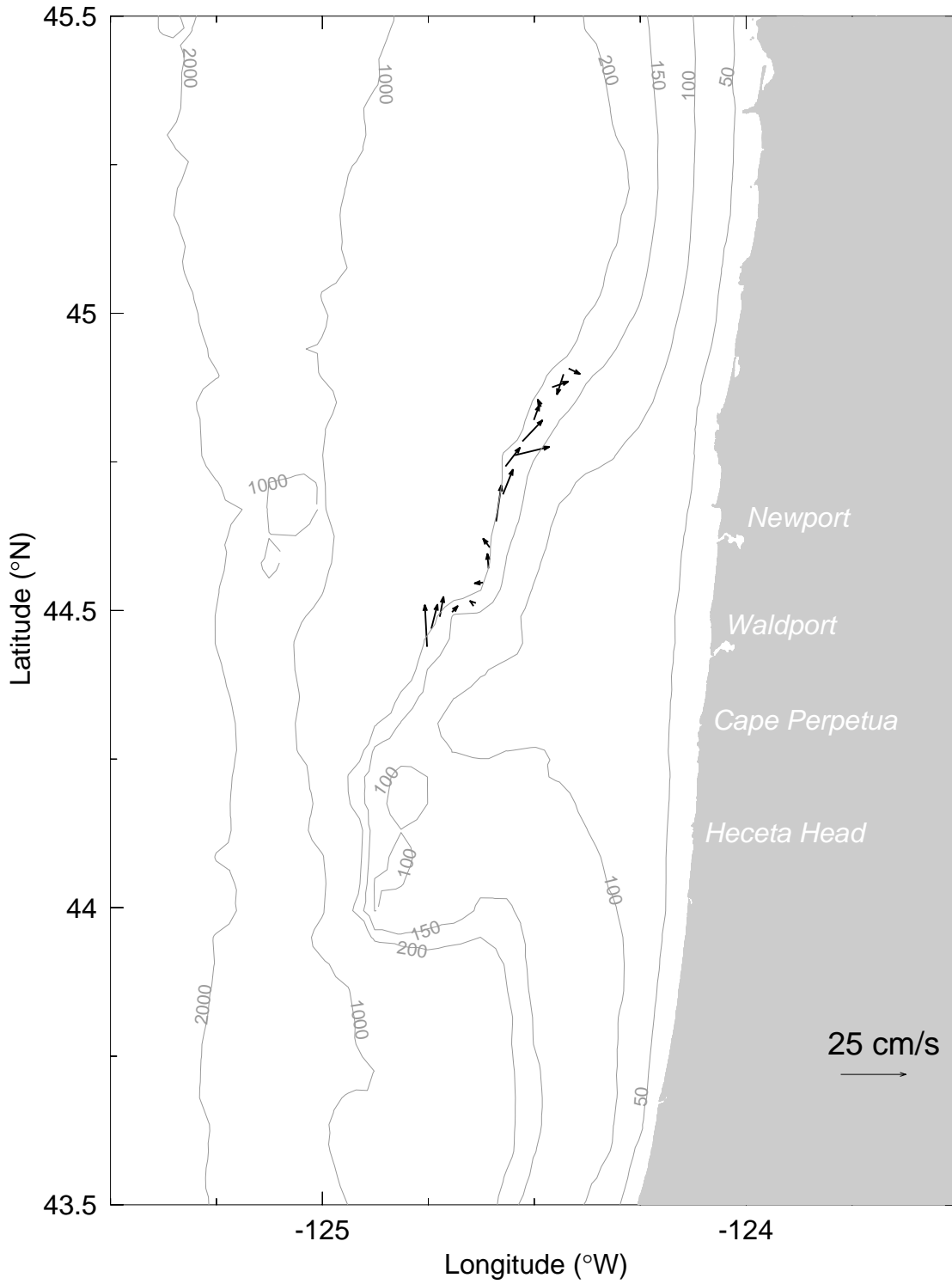
COAST W0108: 180m isobath transit

50 m ADCP, 223.7750 to 223.9722, 11-Aug-01 18:36 to 11-Aug-01 23:19



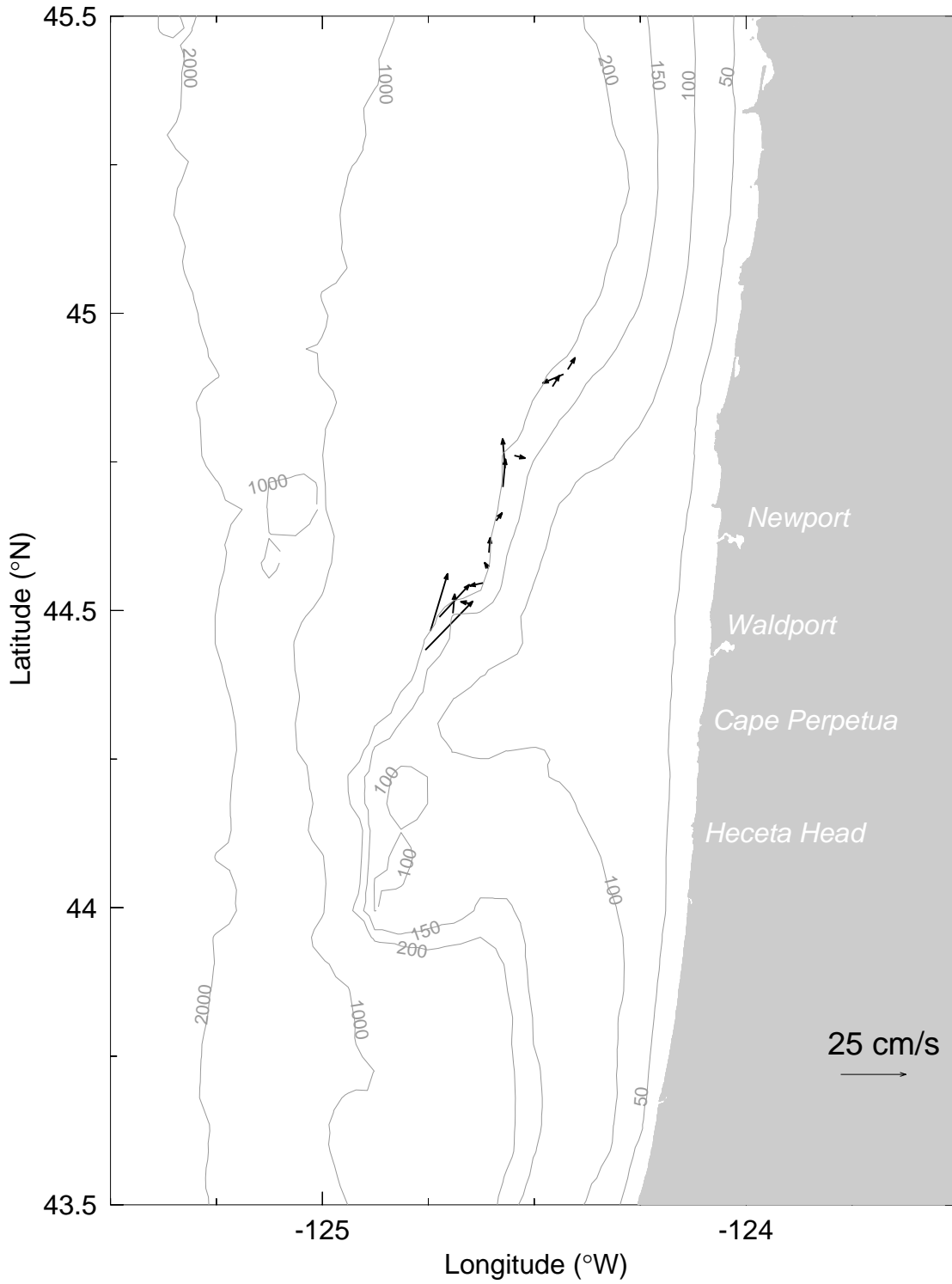
COAST W0108: 180m isobath transit

100 m ADCP, 223.7750 to 223.9722, 11-Aug-01 18:36 to 11-Aug-01 23:19



COAST W0108: 180m isobath transit

150 m ADCP, 223.7750 to 223.9722, 11-Aug-01 18:36 to 11-Aug-01 23:19



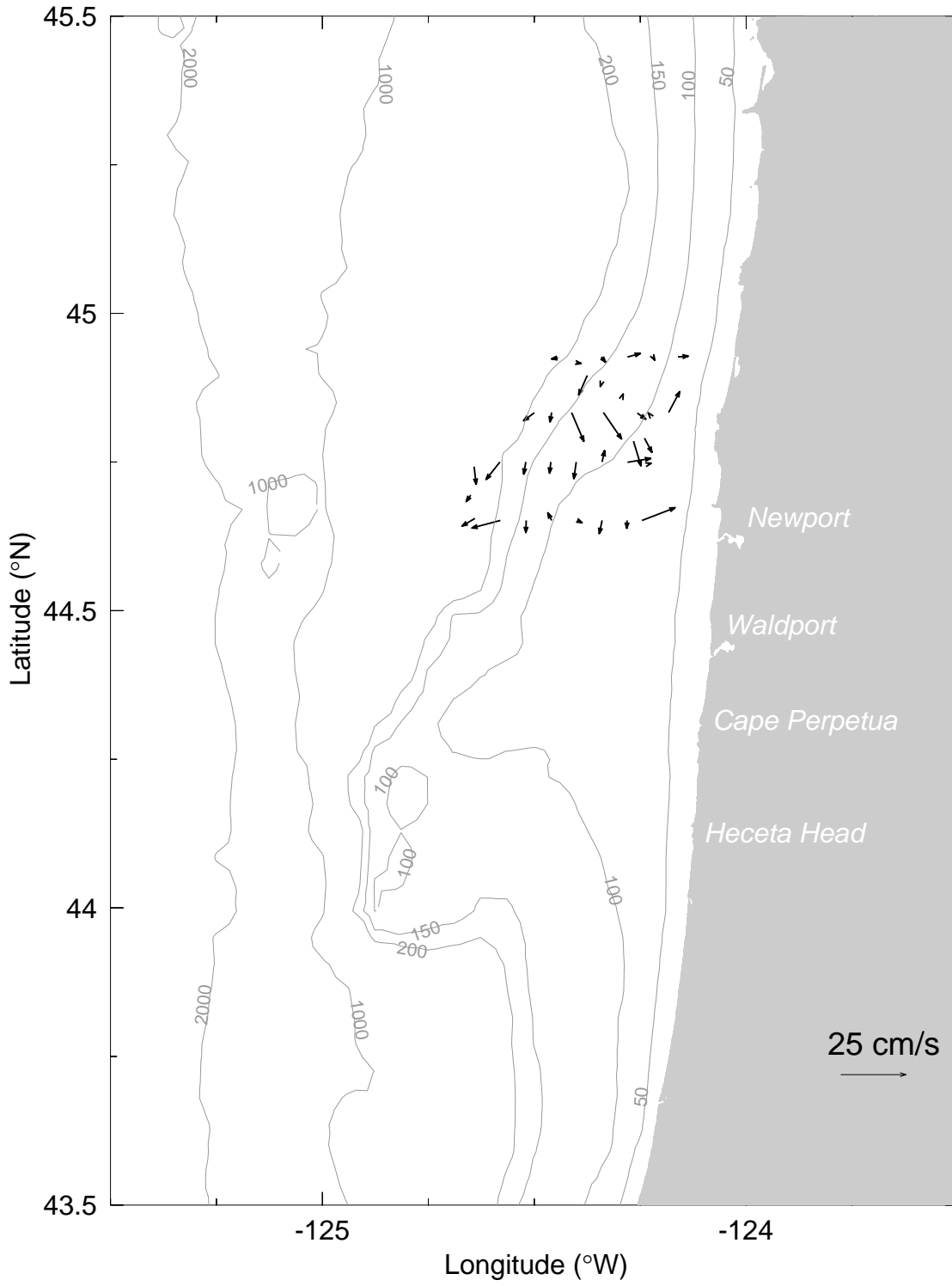
COAST W0108: Dye study

17 m ADCP, 225.3236 to 226.6431, 13-Aug-01 07:45 to 14-Aug-01 15:26



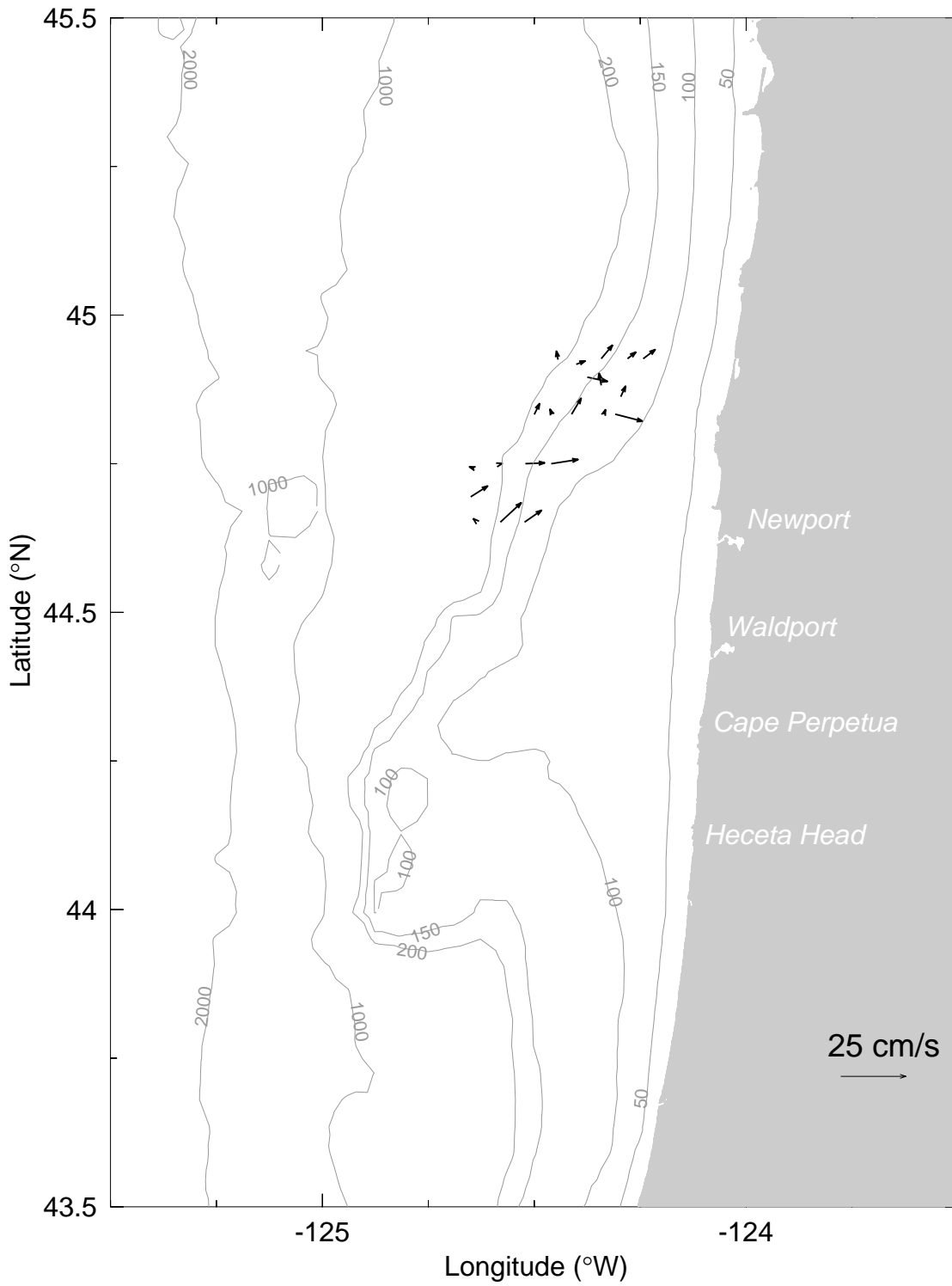
COAST W0108: Dye study

50 m ADCP, 225.3236 to 226.6431, 13-Aug-01 07:45 to 14-Aug-01 15:26



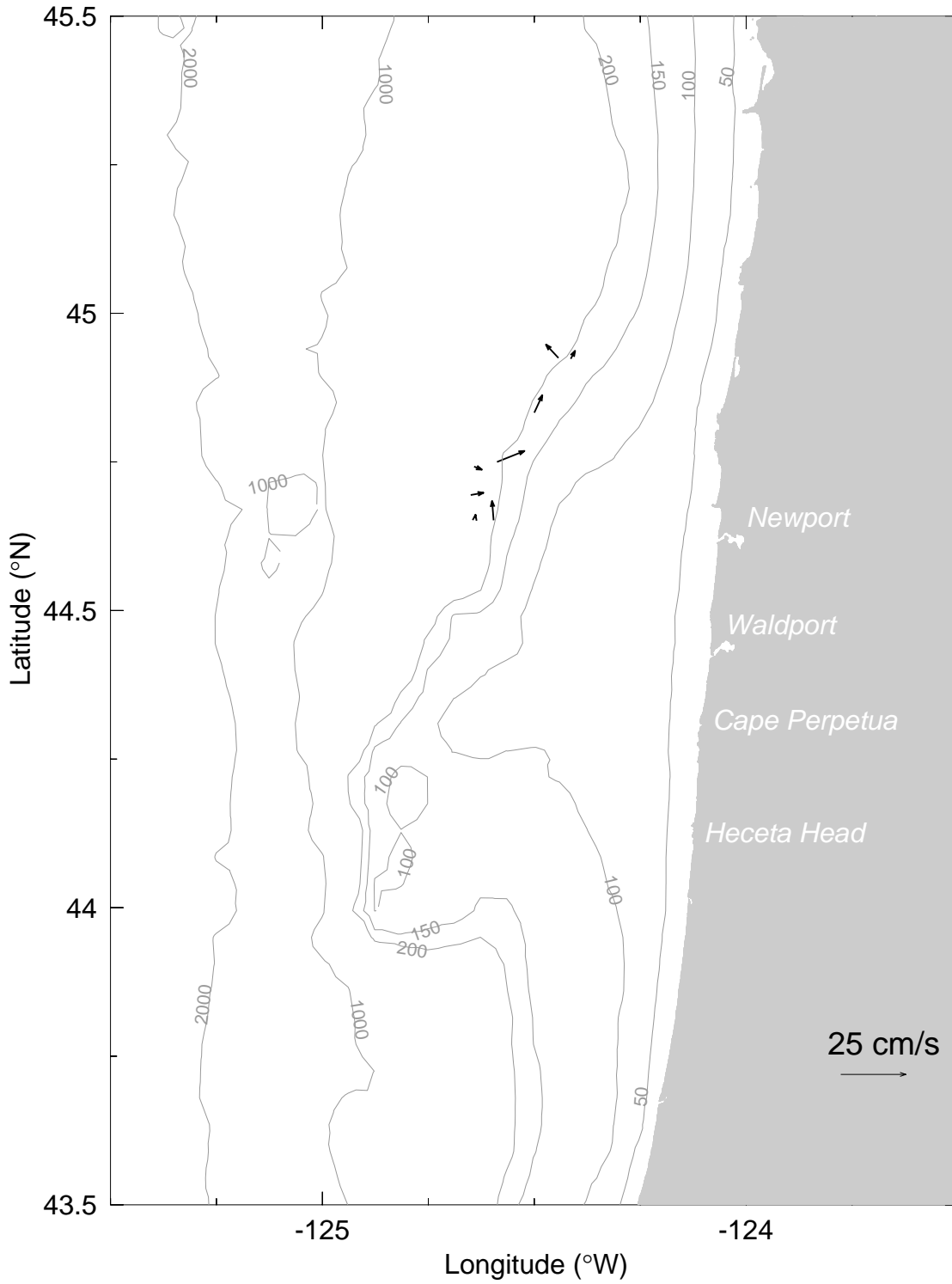
COAST W0108: Dye study

100 m ADCP, 225.3236 to 226.6431, 13-Aug-01 07:45 to 14-Aug-01 15:26



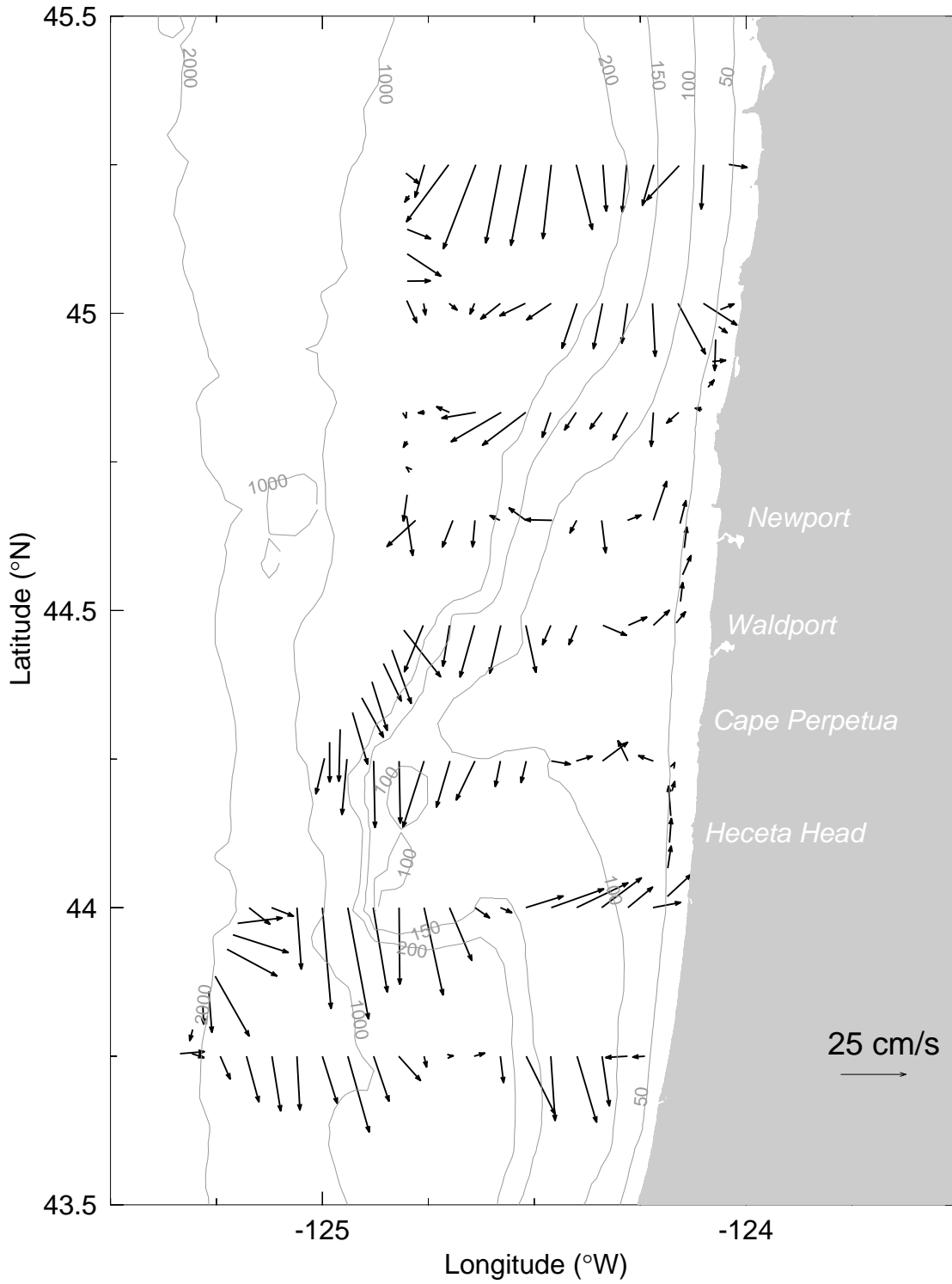
COAST W0108: Dye study

150 m ADCP, 225.3236 to 226.6431, 13-Aug-01 07:45 to 14-Aug-01 15:26



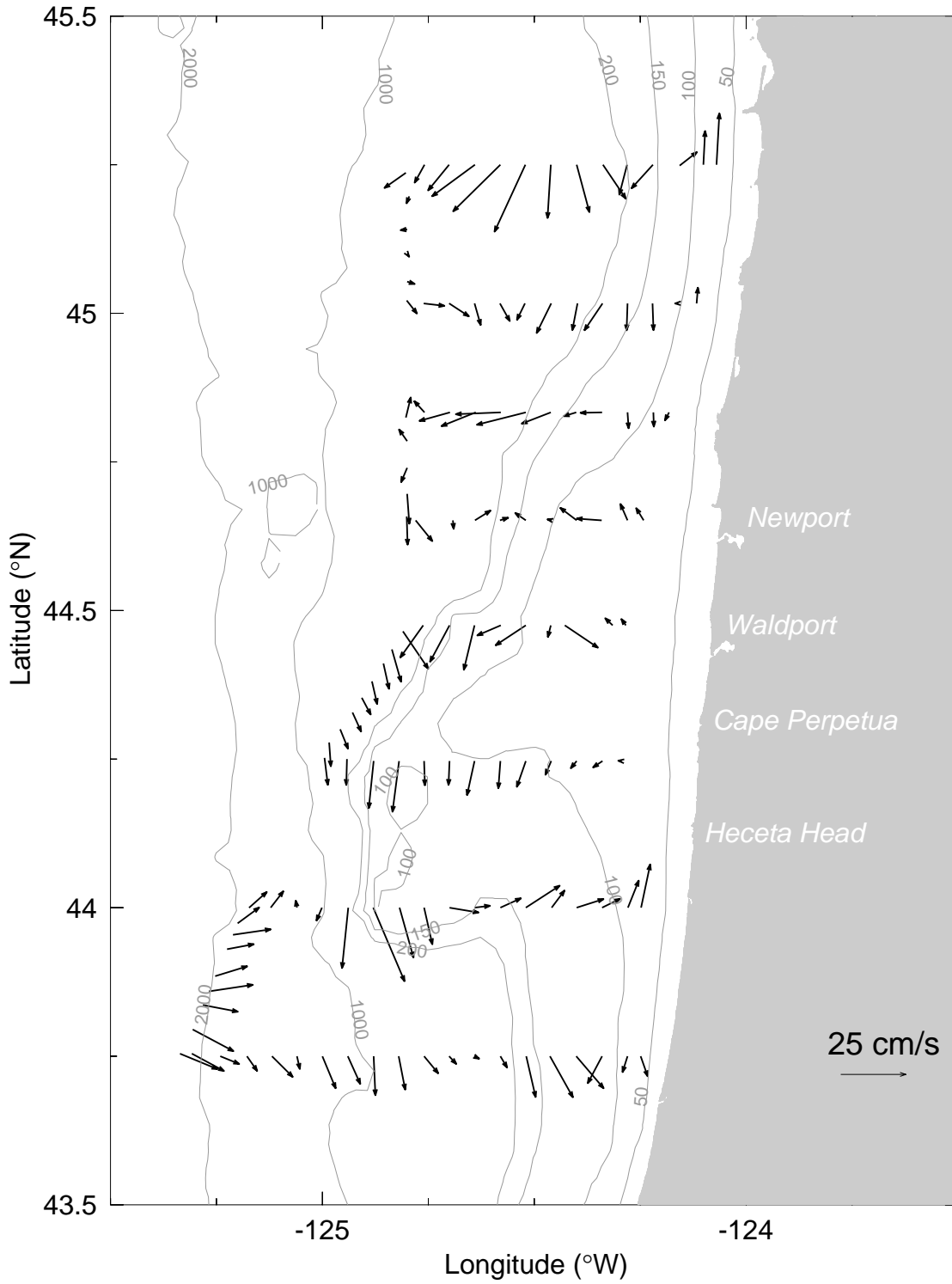
COAST W0108: Big box 3

17 m ADCP, 227.1361 to 229.2938, 15-Aug-01 03:15 to 17-Aug-01 07:03



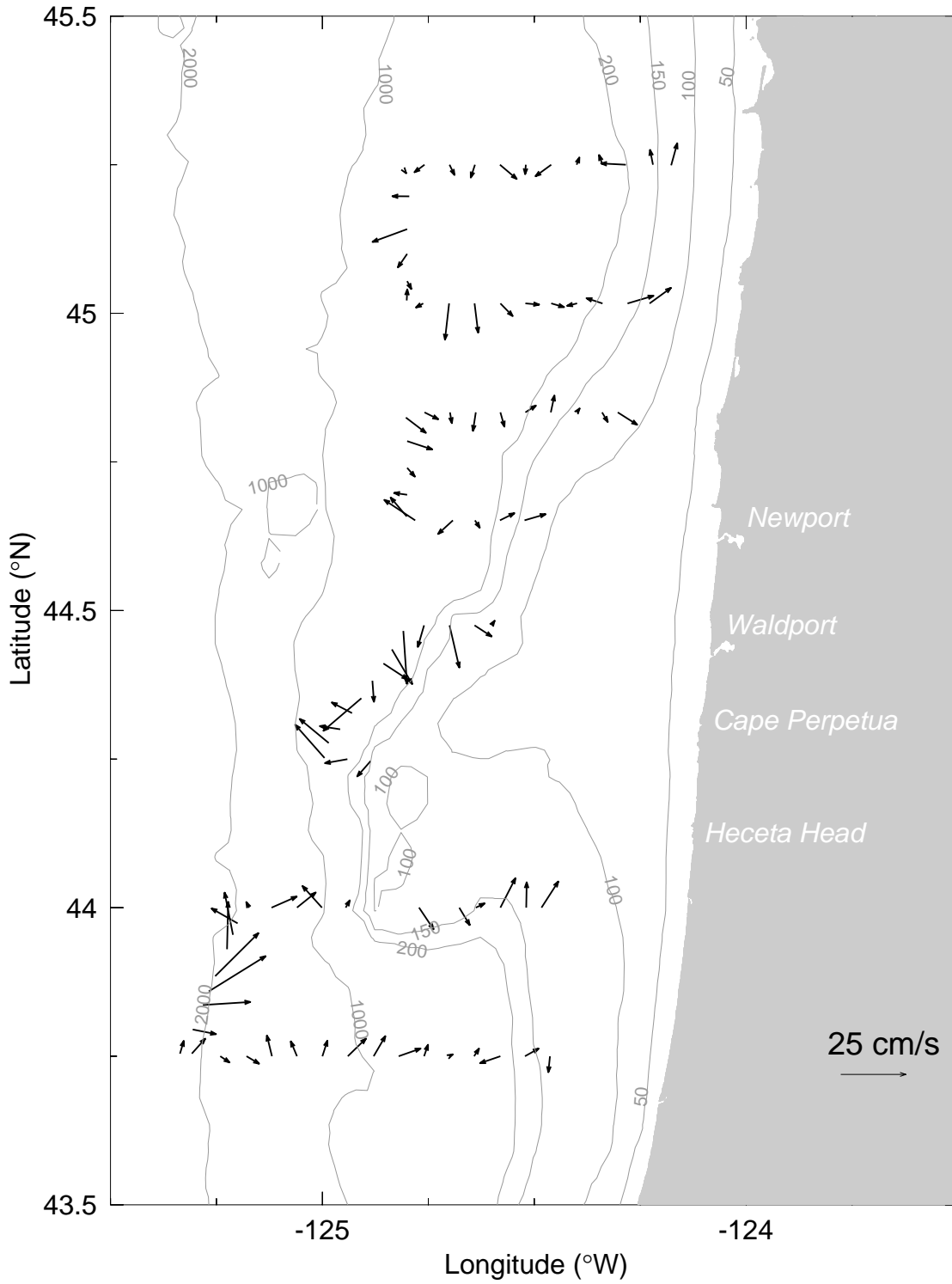
COAST W0108: Big box 3

50 m ADCP, 227.1361 to 229.2938, 15-Aug-01 03:15 to 17-Aug-01 07:03



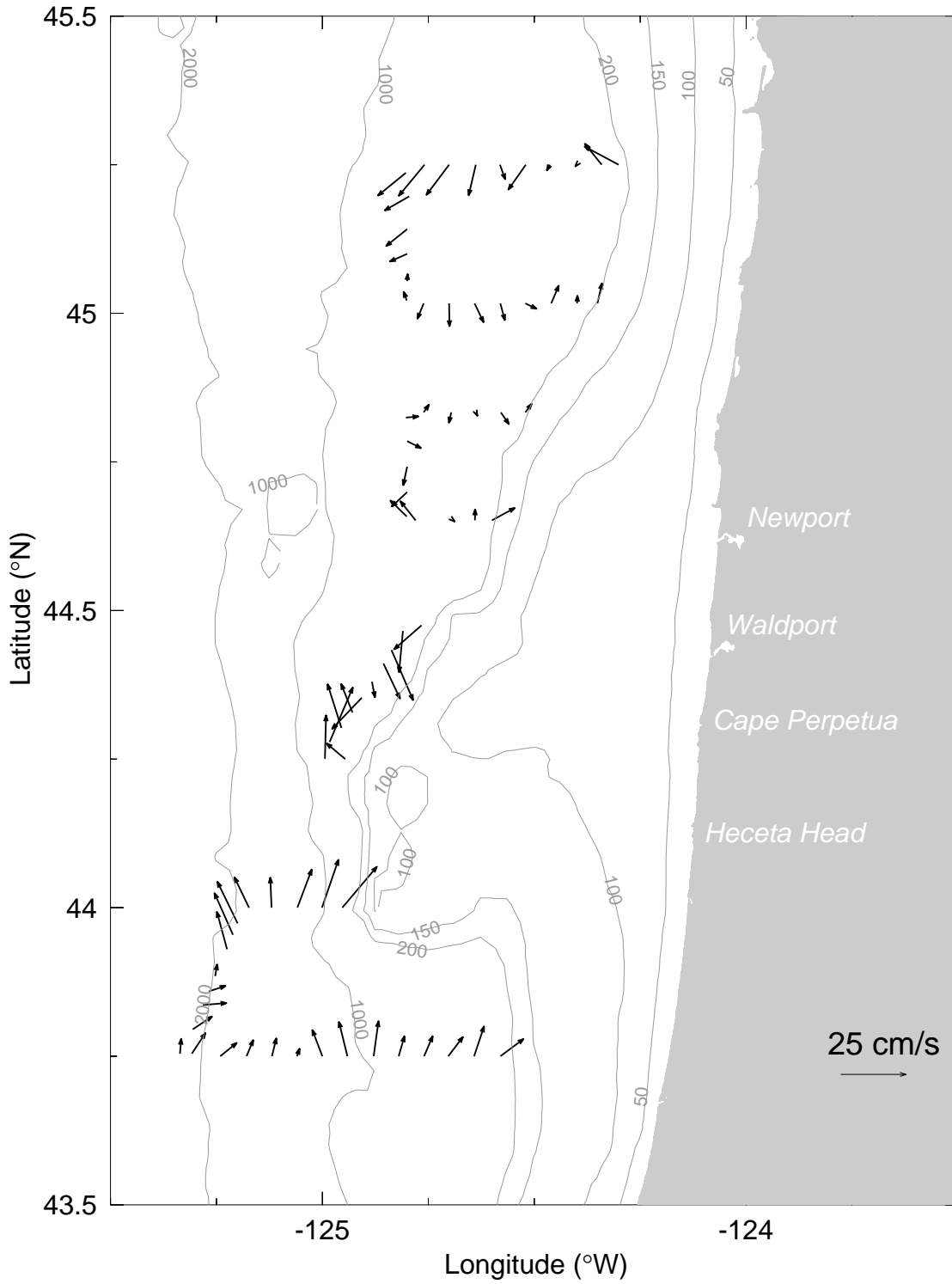
COAST W0108: Big box 3

100 m ADCP, 227.1361 to 229.2938, 15-Aug-01 03:15 to 17-Aug-01 07:03



COAST W0108: Big box 3

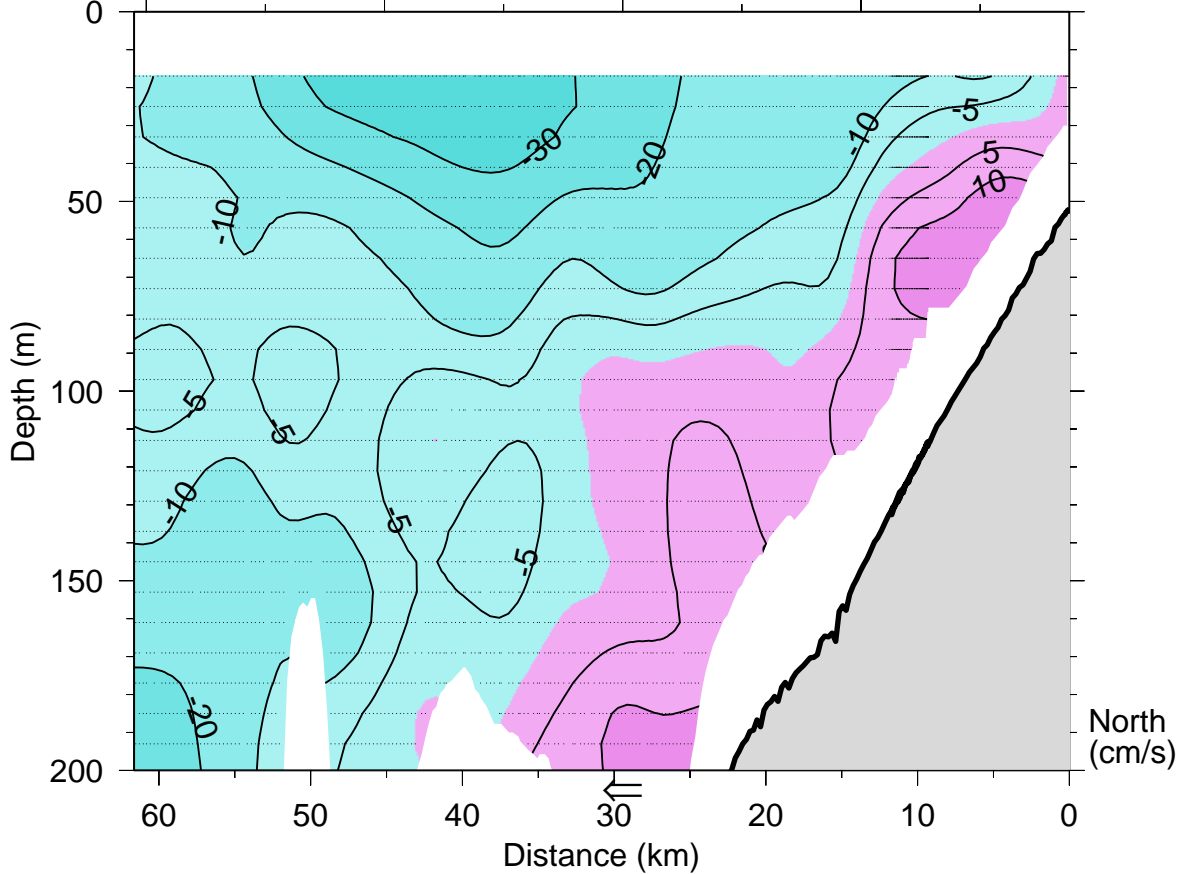
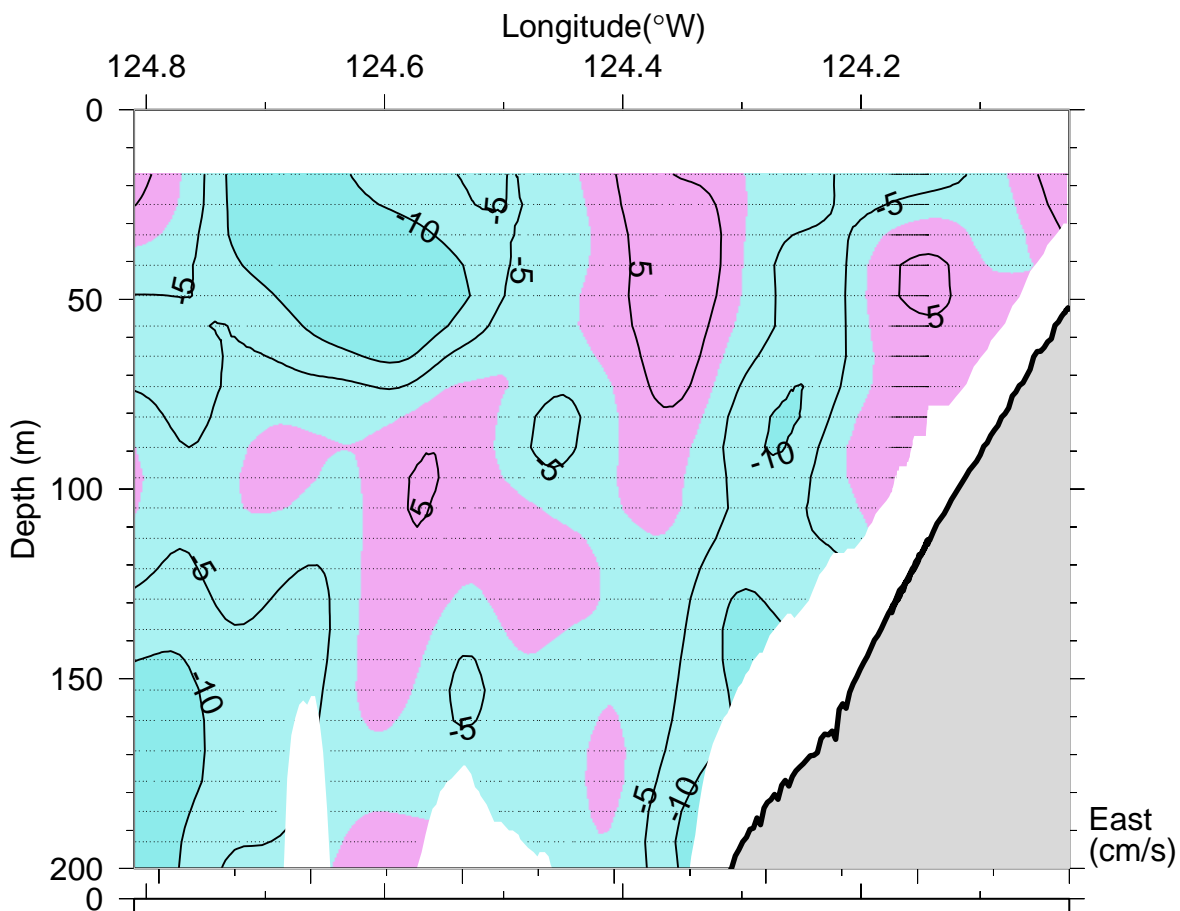
150 m ADCP, 227.1361 to 229.2938, 15-Aug-01 03:15 to 17-Aug-01 07:03



COAST W0108: Big box 3

line1 at 45.25°N (15-Aug-01 03:17 to 15-Aug-01 08:41)

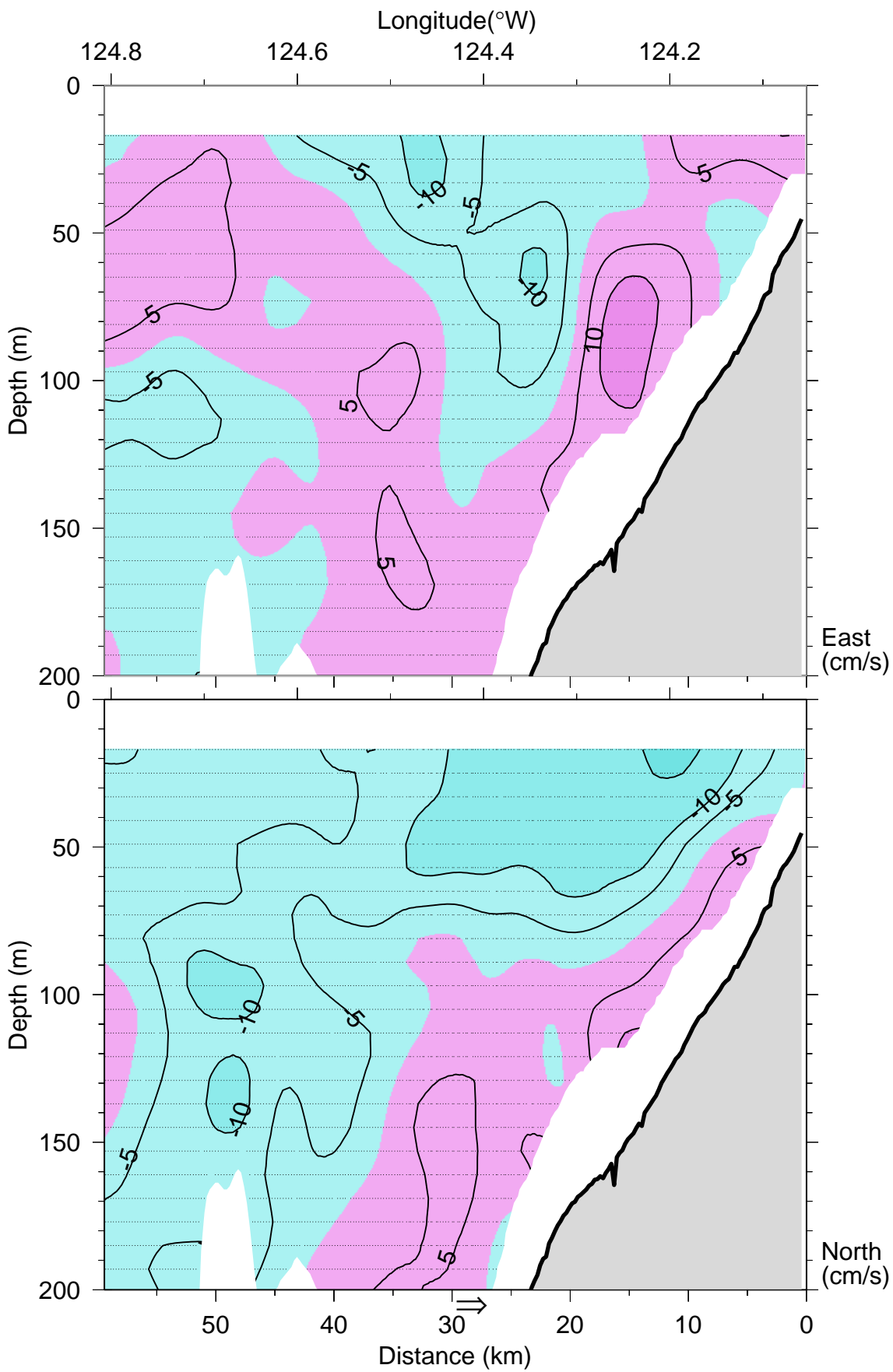
(227.137299 to 227.362106)



COAST W0108: Big box 3

line2 at 45.02°N (15-Aug-01 10:23 to 15-Aug-01 14:38)

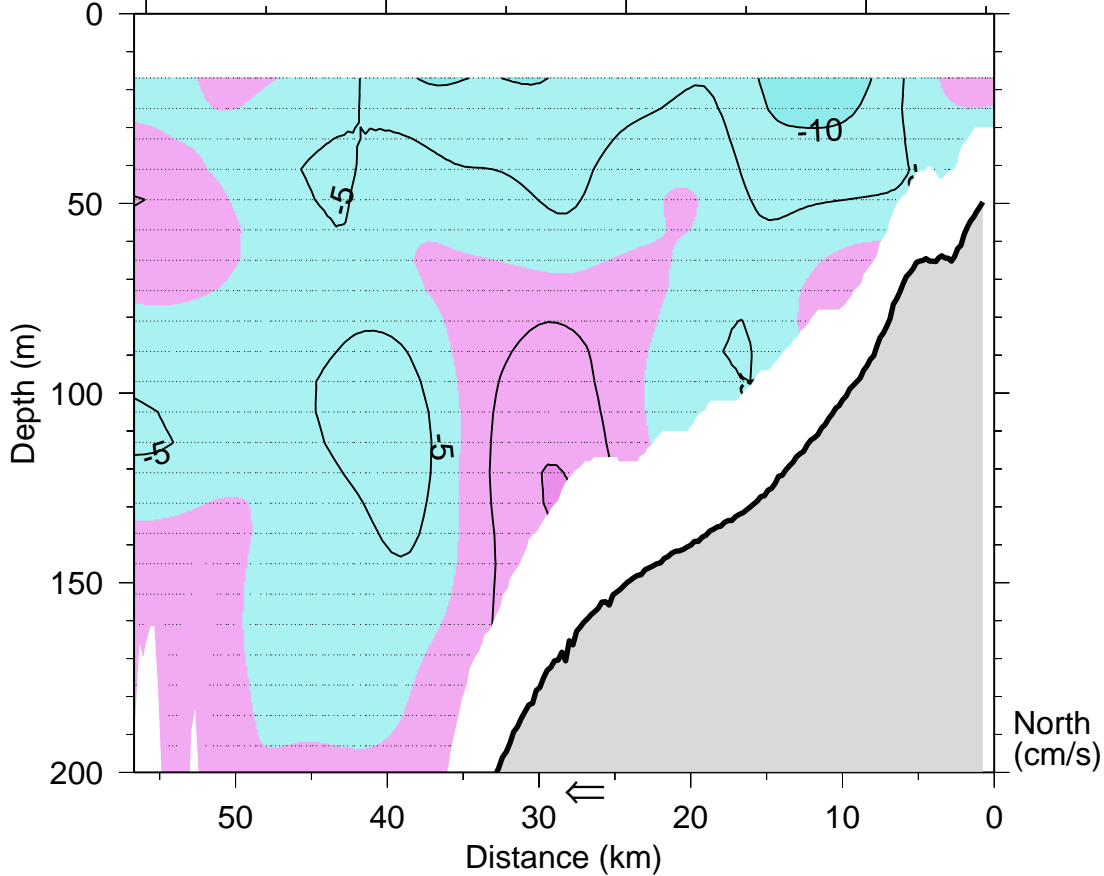
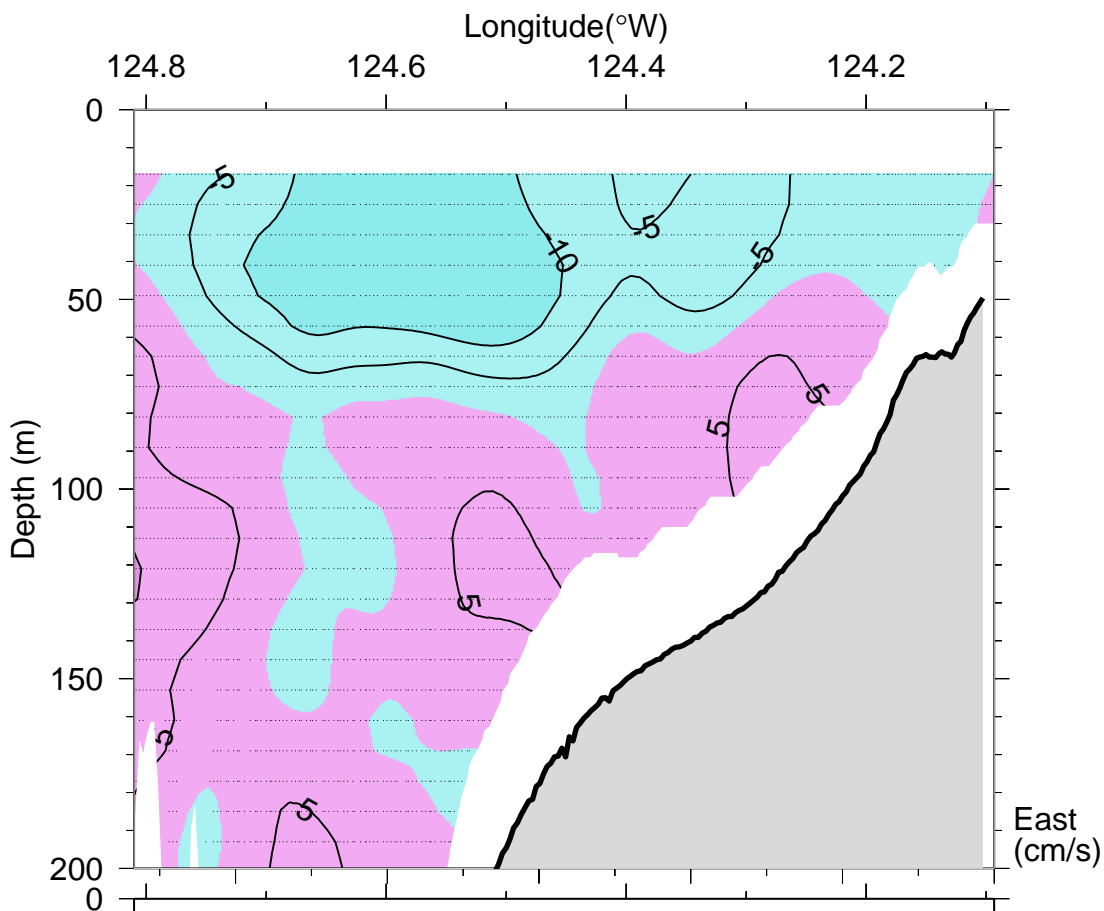
(227.432907 to 227.610199)



COAST W0108: Big box 3

line3 at 44.83°N (15-Aug-01 16:20 to 15-Aug-01 20:22)

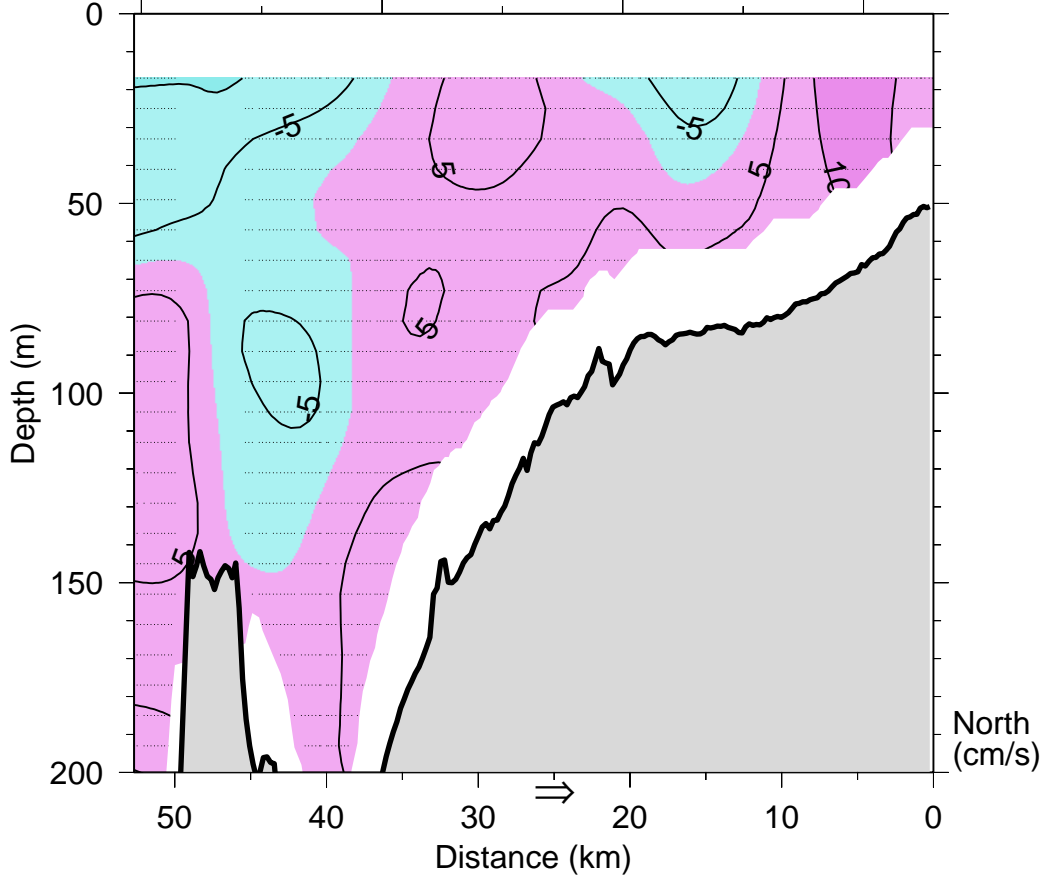
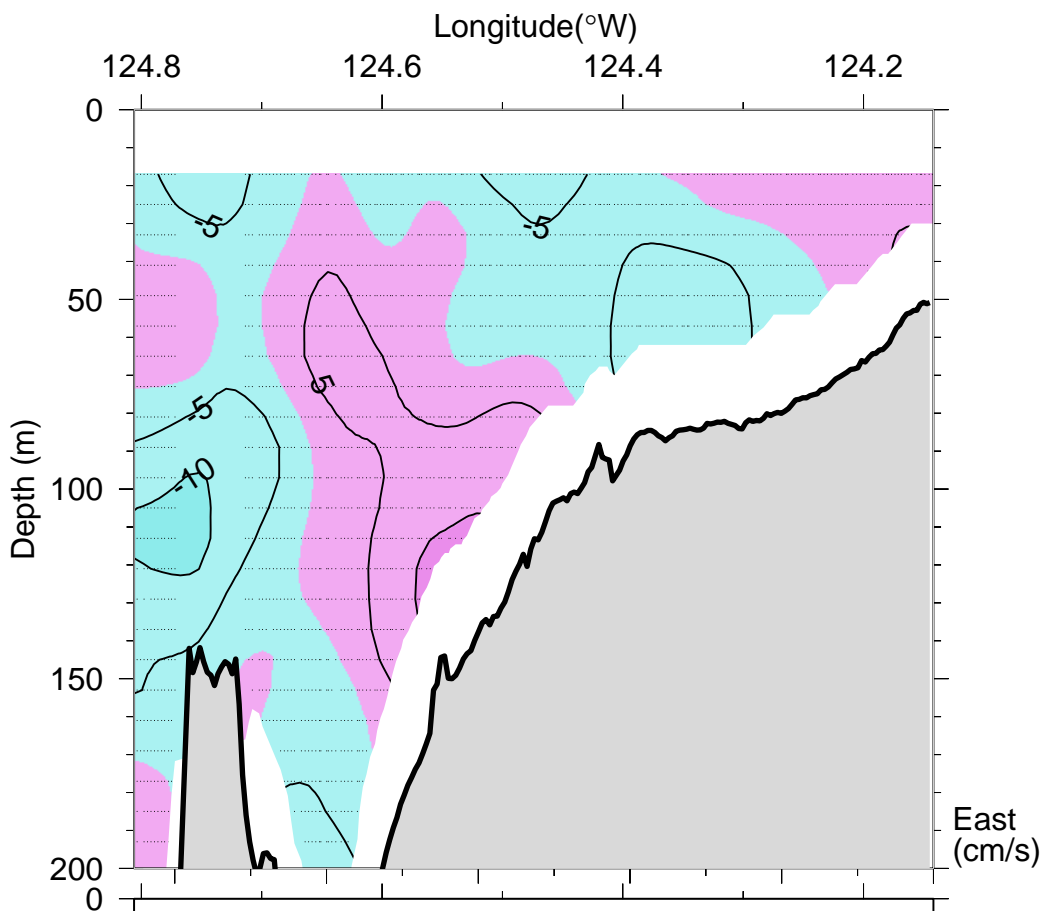
(227.681107 to 227.848694)



COAST W0108: Big box 3

line4 at 44.65°N (15-Aug-01 21:43 to 16-Aug-01 01:30)

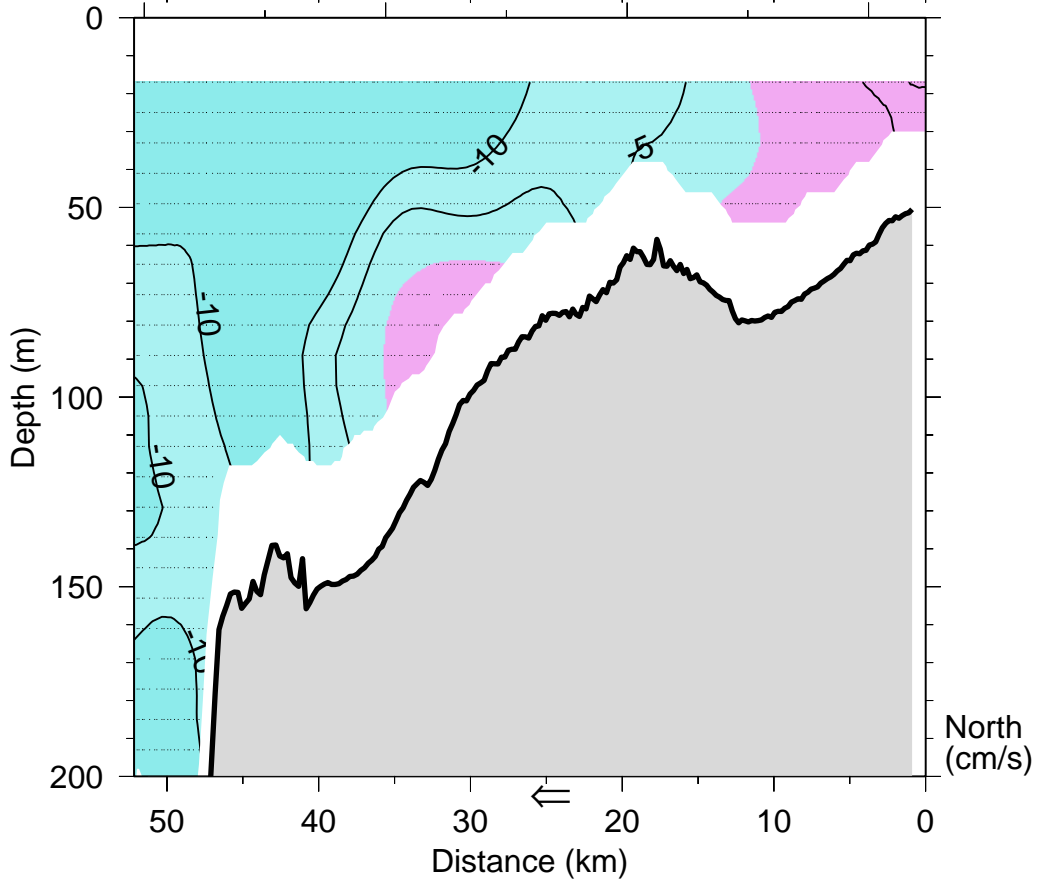
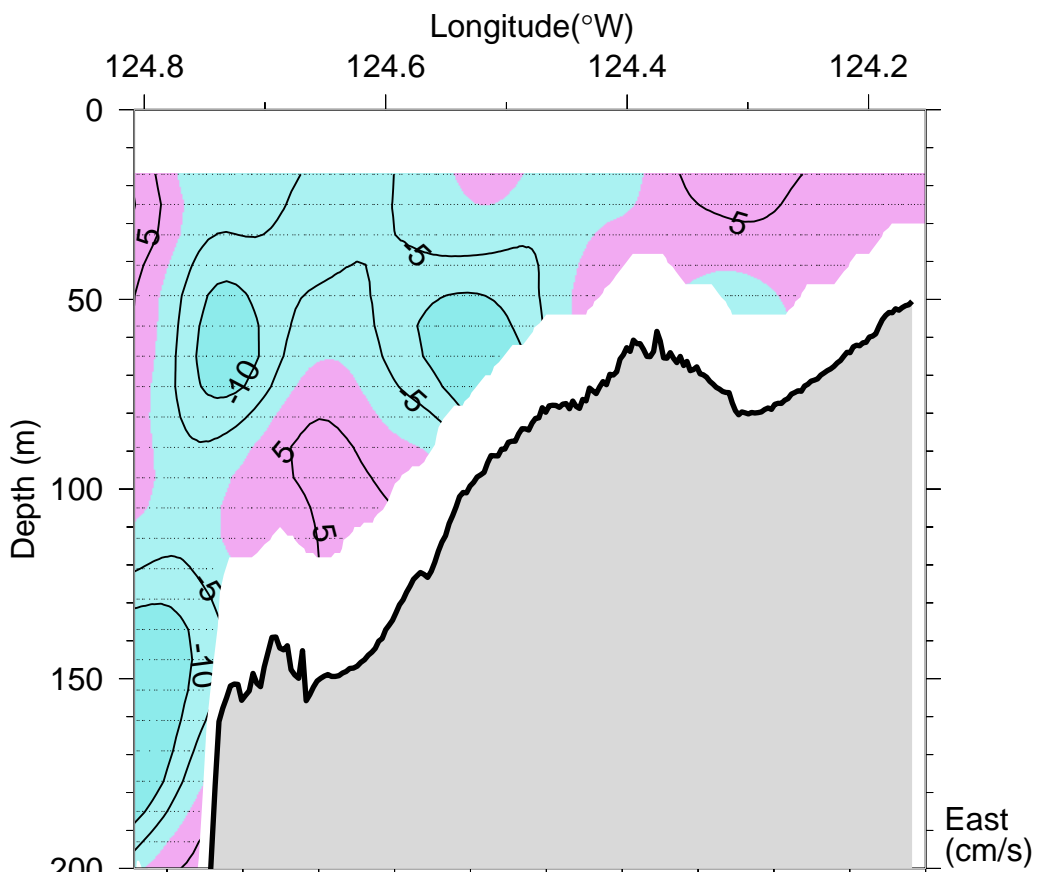
(227.904999 to 228.062607)



COAST W0108: Big box 3

line5 at 44.48°N (16-Aug-01 03:01 to 16-Aug-01 06:53)

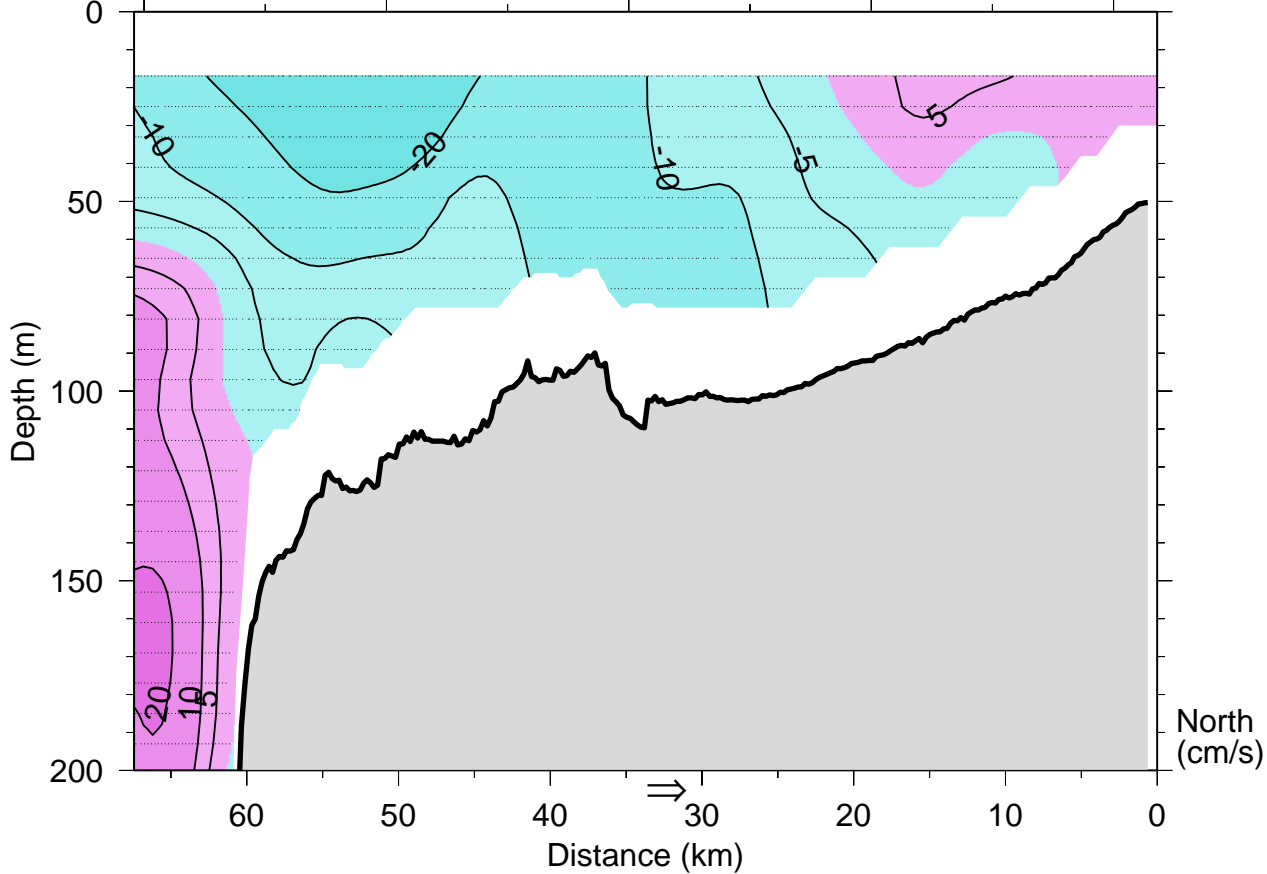
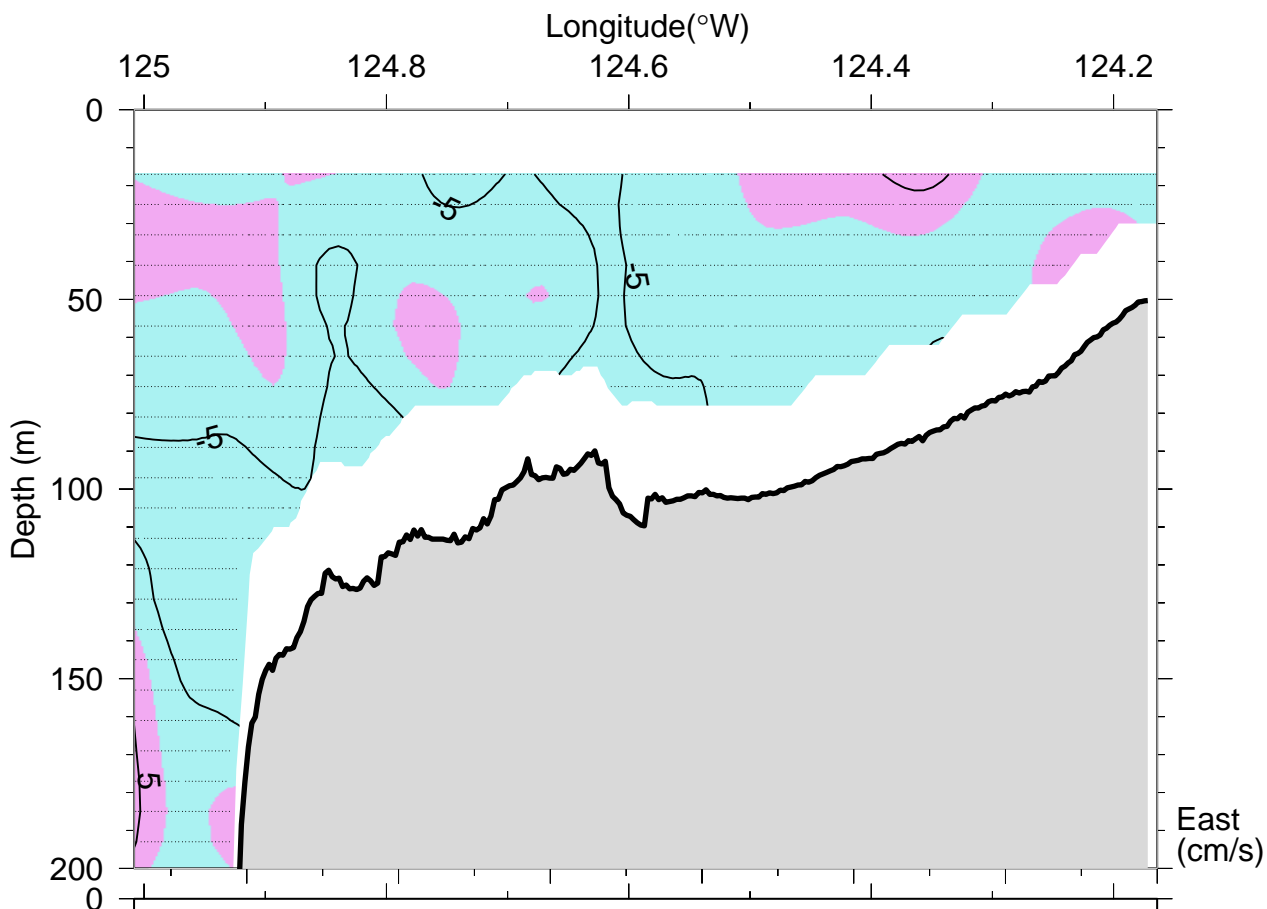
(228.125793 to 228.287292)



COAST W0108: Big box 3

line6 at 44.25°N (16-Aug-01 08:57 to 16-Aug-01 13:55)

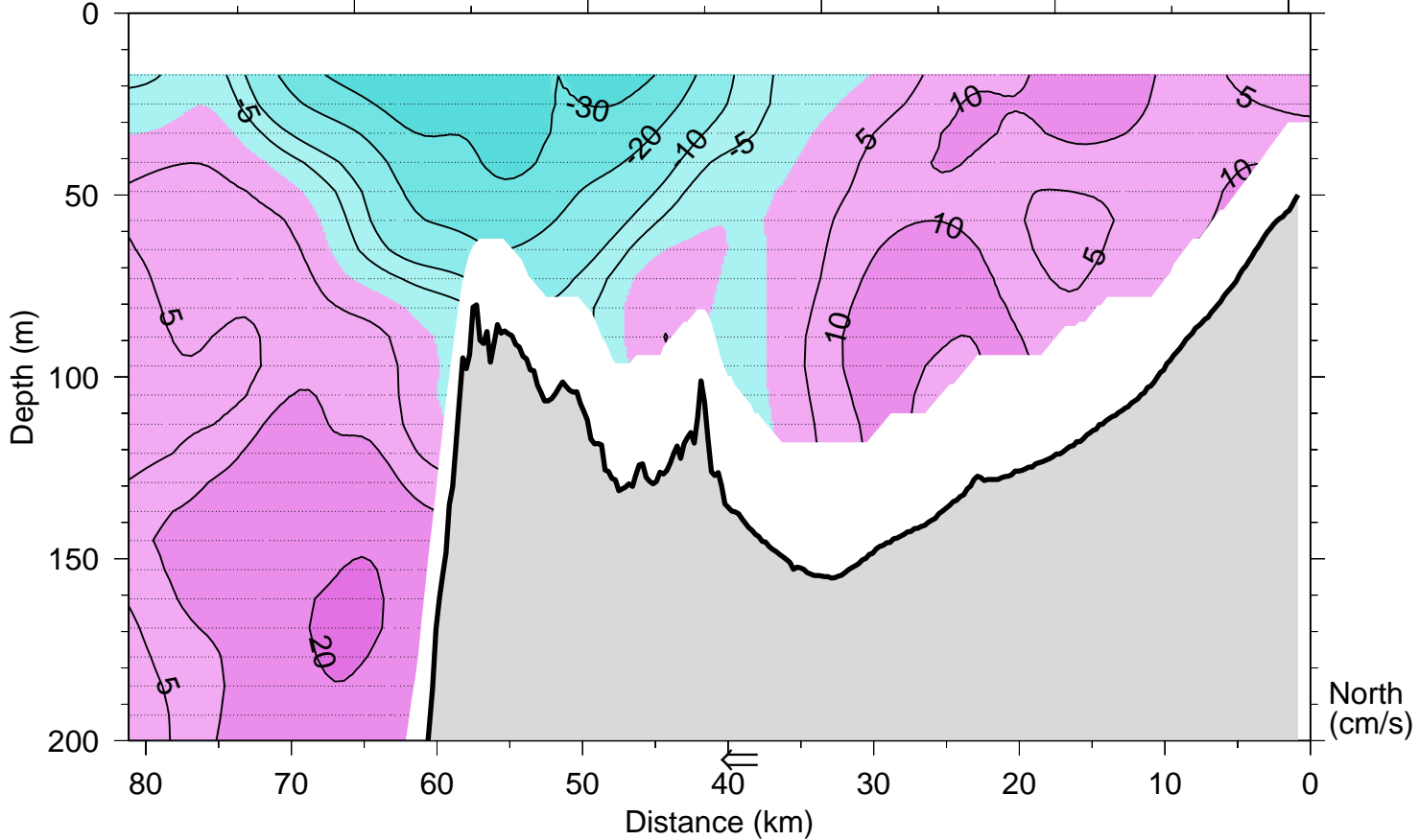
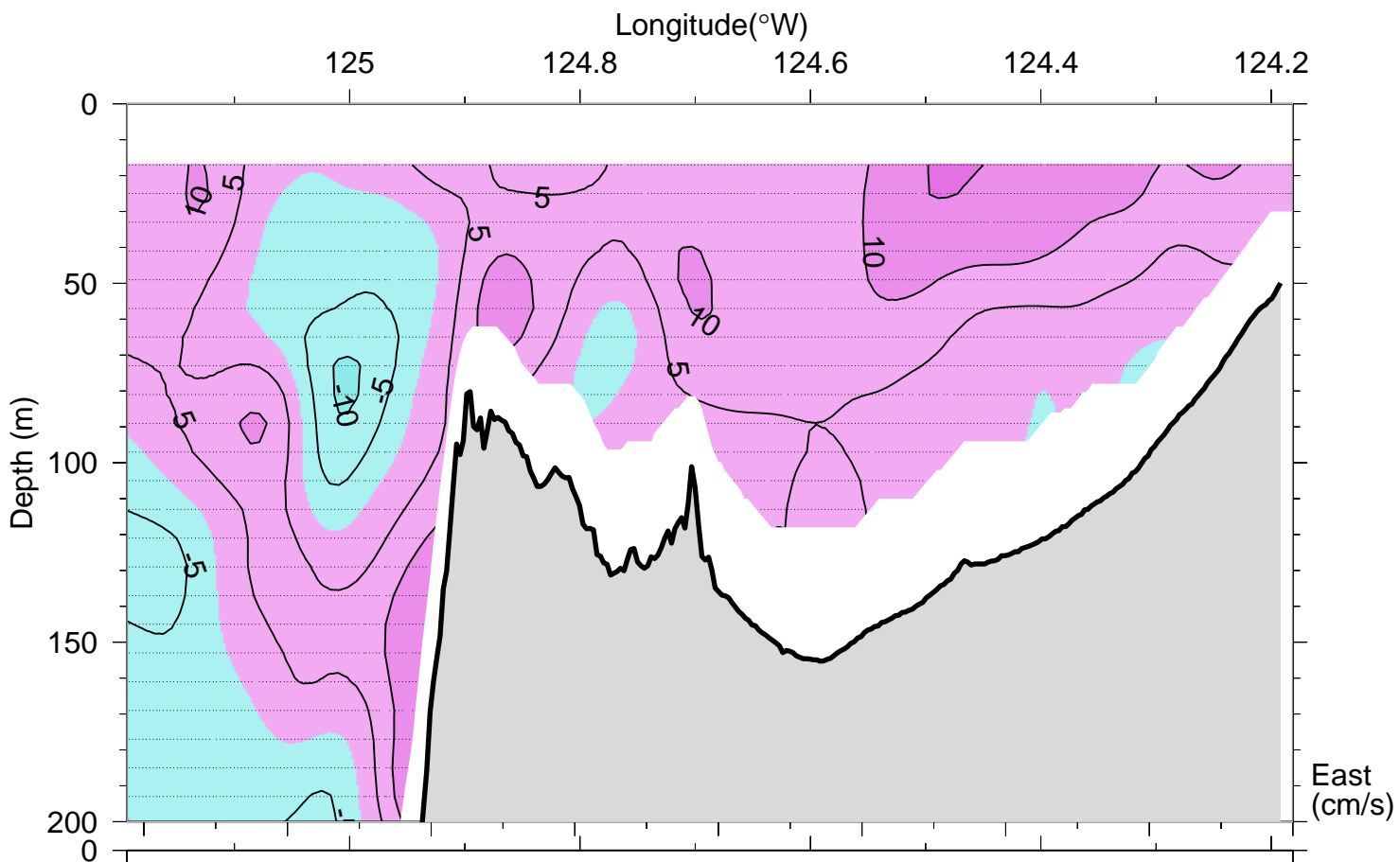
(228.373001 to 228.580200)



COAST W0108: Big box 3

line7 at 44.00°N (16-Aug-01 16:05 to 16-Aug-01 21:55)

(228.670593 to 228.913300)



COAST W0108: Big box 3

line8 at 43.75°N (17-Aug-01 00:39 to 17-Aug-01 07:06)

(229.027206 to 229.296097)

