Acoustic Doppler current profiler observations during the Coastal Ocean Advances in Shelf Transport (COAST) Survey III: R/V Wecoma cruise W0301B, 19 January - 9 February 2003

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We present velocity observations from a shipboard acoustic Doppler current profiler (ADCP) on R/V *Wecoma* during cruise W0301b (19 January - 3 February 2003). The cruise was a component (Survey III) 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 P-code GPS navigation in combination with the ship's gyrocompass. Bottom-tracking was enabled when the bottom depth was less than about 400 m. Our processing methods are generally standard ones, primarily making using 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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#DATA_DATES: 19-Jan-2003 18:40:36 to 09-Feb-2005 14:02:59
#LON_RANGE: 125.500 W to 124.004 W
#LAT_RANGE: 43.747 N to 45.270 N
#DEPTH_RANGE: 17 to 385 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: W0301b -or- COAST Survey III
#PORTS: Newport, OR, USA --- to --- Newport, OR, USA
#GEOGRAPHIC_REGION: Oregon coast
#PROCESSED_BY: Stephen D. Pierce (spierce@coas.oregonstate.edu)
#NAVIGATION: GPS (Pcode)
#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 - 385 m (bin centers)
 BIN LENGTH : 8 m
 NUMBER OF BINS : 64
 TRANSMIT PULSE LENGTH : 8

BLANKING INTERVAL : 4
ENSEMBLE AVERAGING INTERVAL : 60 s
SOUND SPEED CALCULATION : function of temp at transducer
BOTTOM TRACKING : YES (when shallower than about 400 m)
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 December 2004

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
BOTTOM TRACK METHOD : YES
WATER TRACK METHOD : NO
FINAL SELECTION : AMPLITUDE= 1.008 PHASE= -1.039
SOUND SPEED CORRECTIONS : NO

NAVIGATION CALCULATION
NAVIGATION USED : gps
REFERENCE LAYER DEPTH RANGE : bins 2 to 4
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
CG,VH,WHOLE           100 HIGHEST VELOCITY ON GRAPH
GC,DL,WHOLE             0 LOWEST DEPTHS ON GRAPH
GC,DH,WHOLE           400 HIGHEST DEPTHS ON GRAPH
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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
```

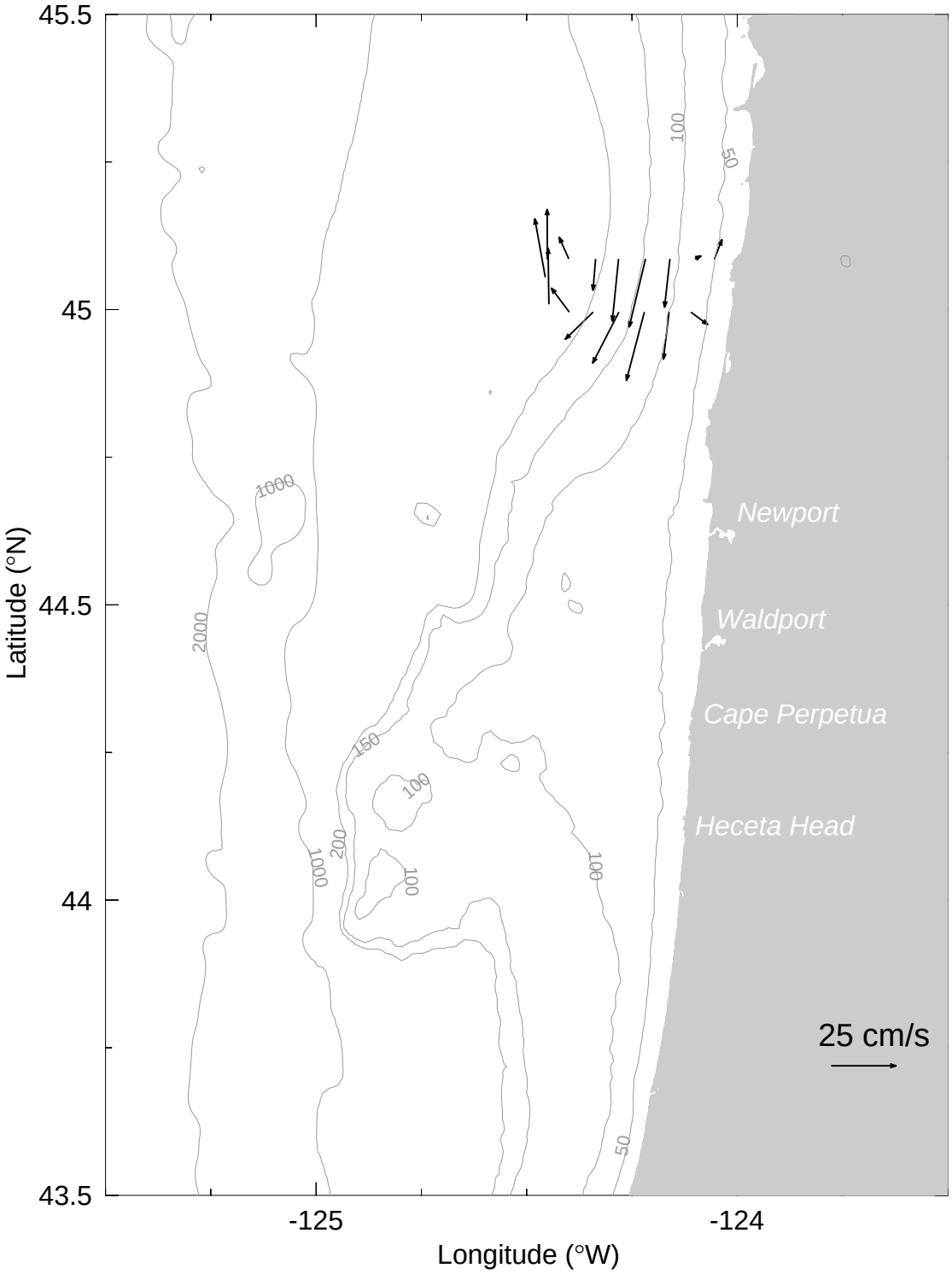
DC,2,SPECIAL "E0003020199" MACRO 2
DC,3,SPECIAL "CF99" MACRO 3
CI,1,SPECIAL "W0301" CRUISE ID GOES HERE
LR,1,SPECIAL " " LORAN FILE NAME GOES HERE

ue4.cnf, user exit configuration file

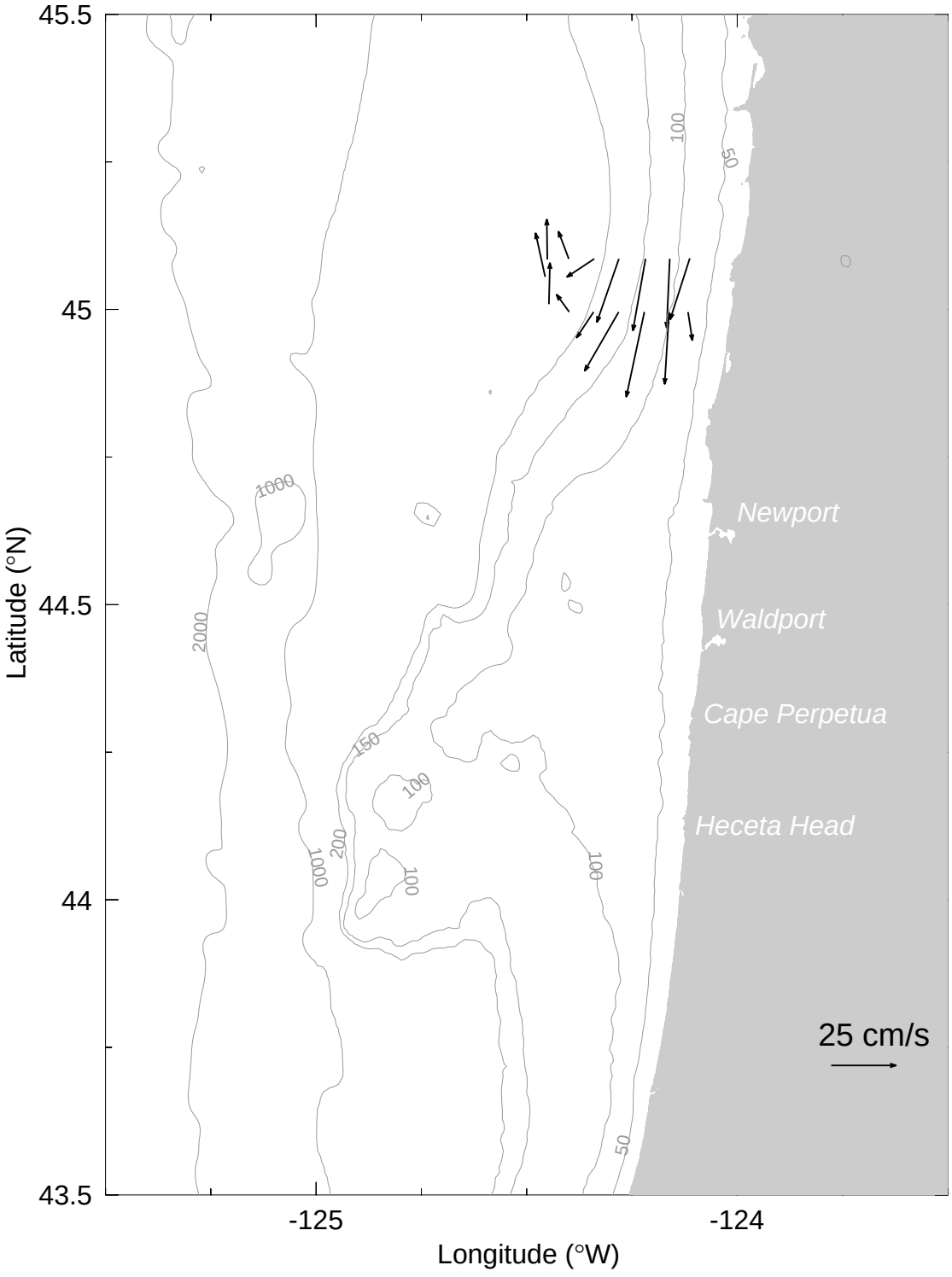
```
/* UE4.CNF  */
/* Possible Wecoma Configuration 1999 Season */

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
      amp_sw_drive_path: c:dcp248
                                awagc       minutes_per_file= 60
      min_kbytes_free= 2000

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

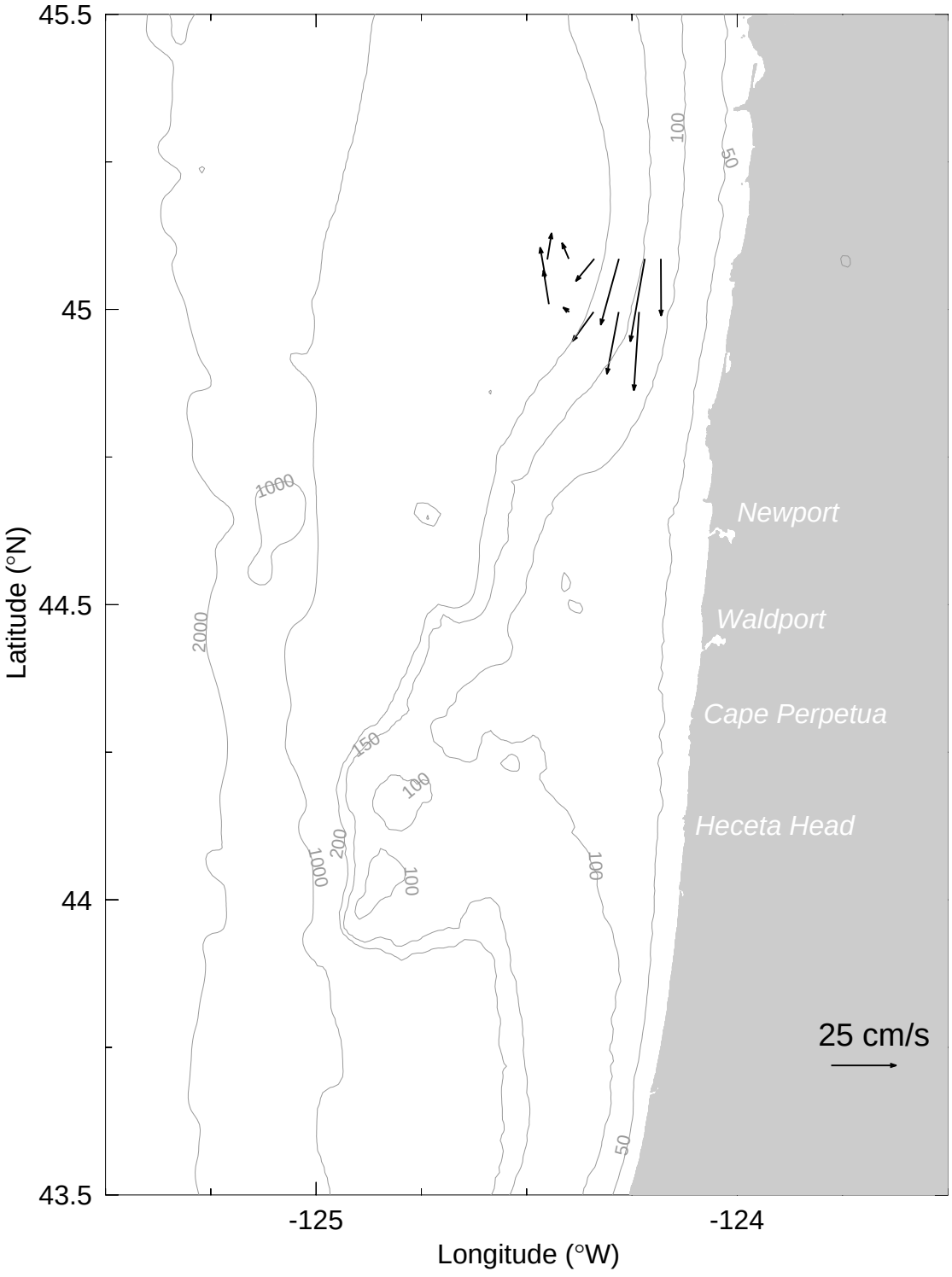
COAST III (W0301b) NB-ADCP: Small box north 1
17 m, 20.0081 - 20.2232, 20-Jan-03 00:11 to 20-Jan-03 05:21 UTC



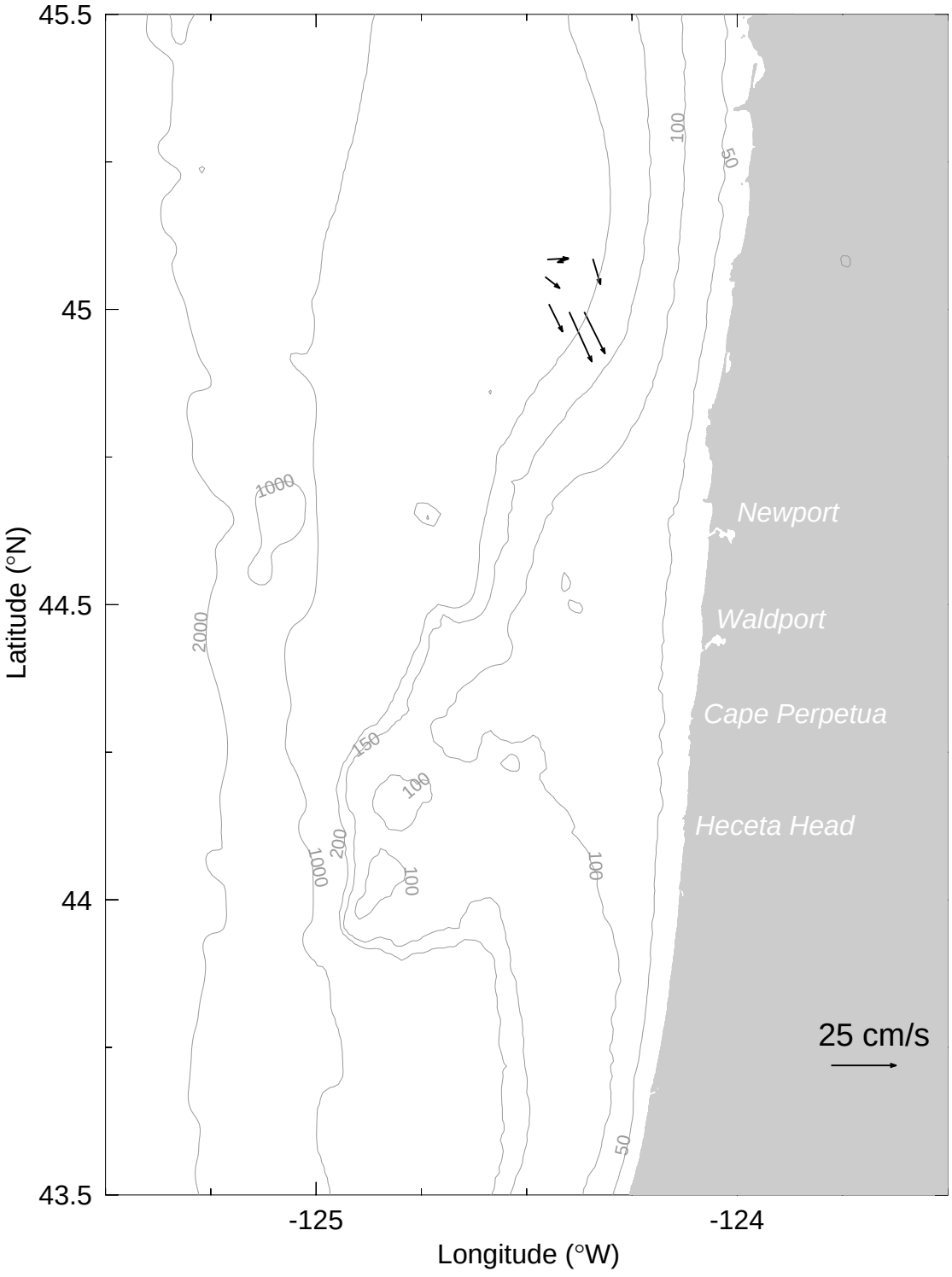
COAST III (W0301b) NB-ADCP: Small box north 1
50 m, 20.0081 - 20.2232, 20-Jan-03 00:11 to 20-Jan-03 05:21 UTC



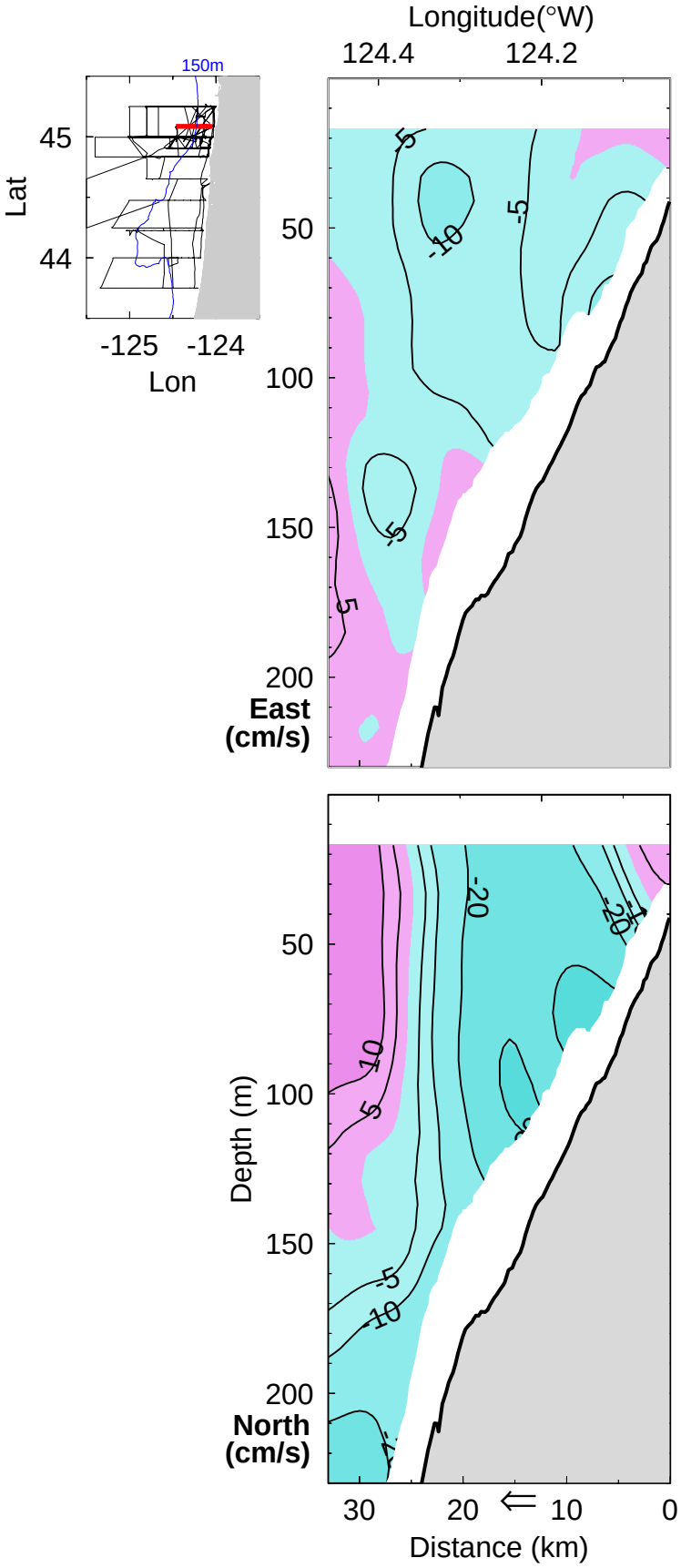
COAST III (W0301b) NB-ADCP: Small box north 1
100 m, 20.0081 - 20.2232, 20-Jan-03 00:11 to 20-Jan-03 05:21 UTC



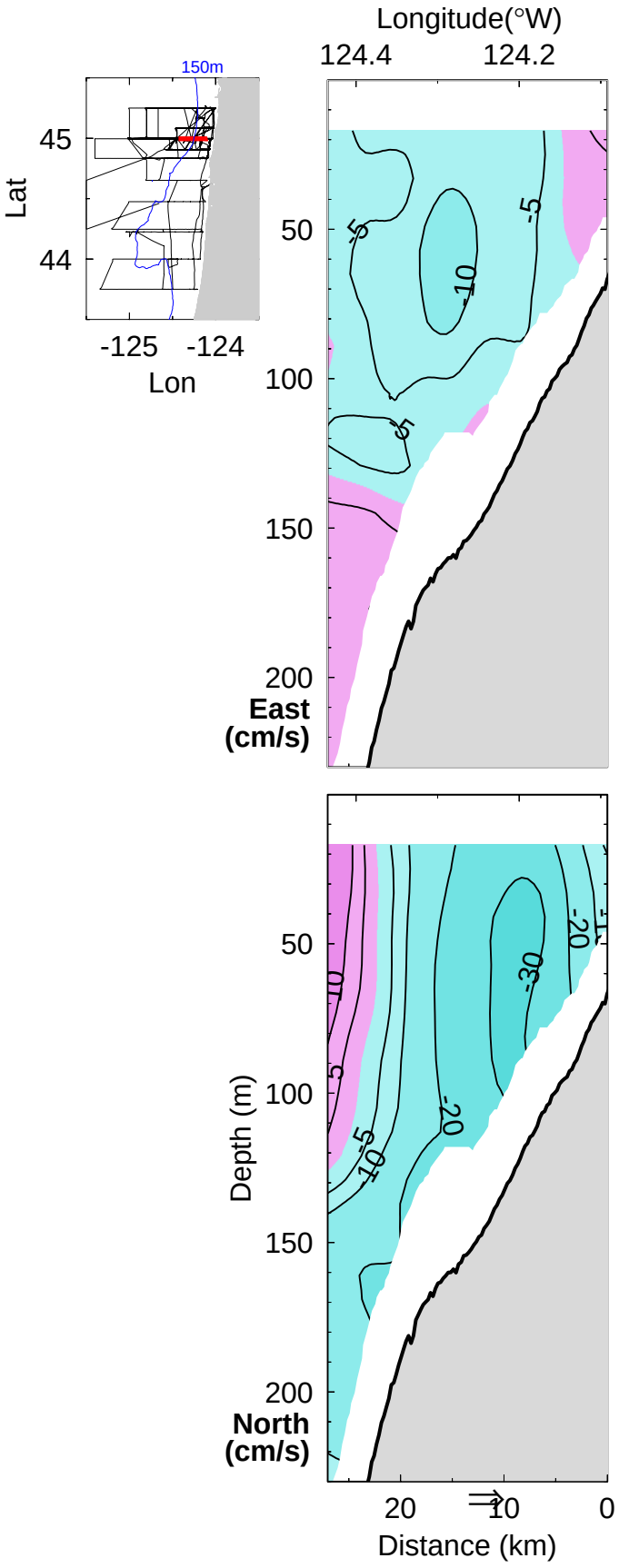
COAST III (W0301b) NB-ADCP: Small box north 1
150 m, 20.0081 - 20.2232, 20-Jan-03 00:11 to 20-Jan-03 05:21 UTC



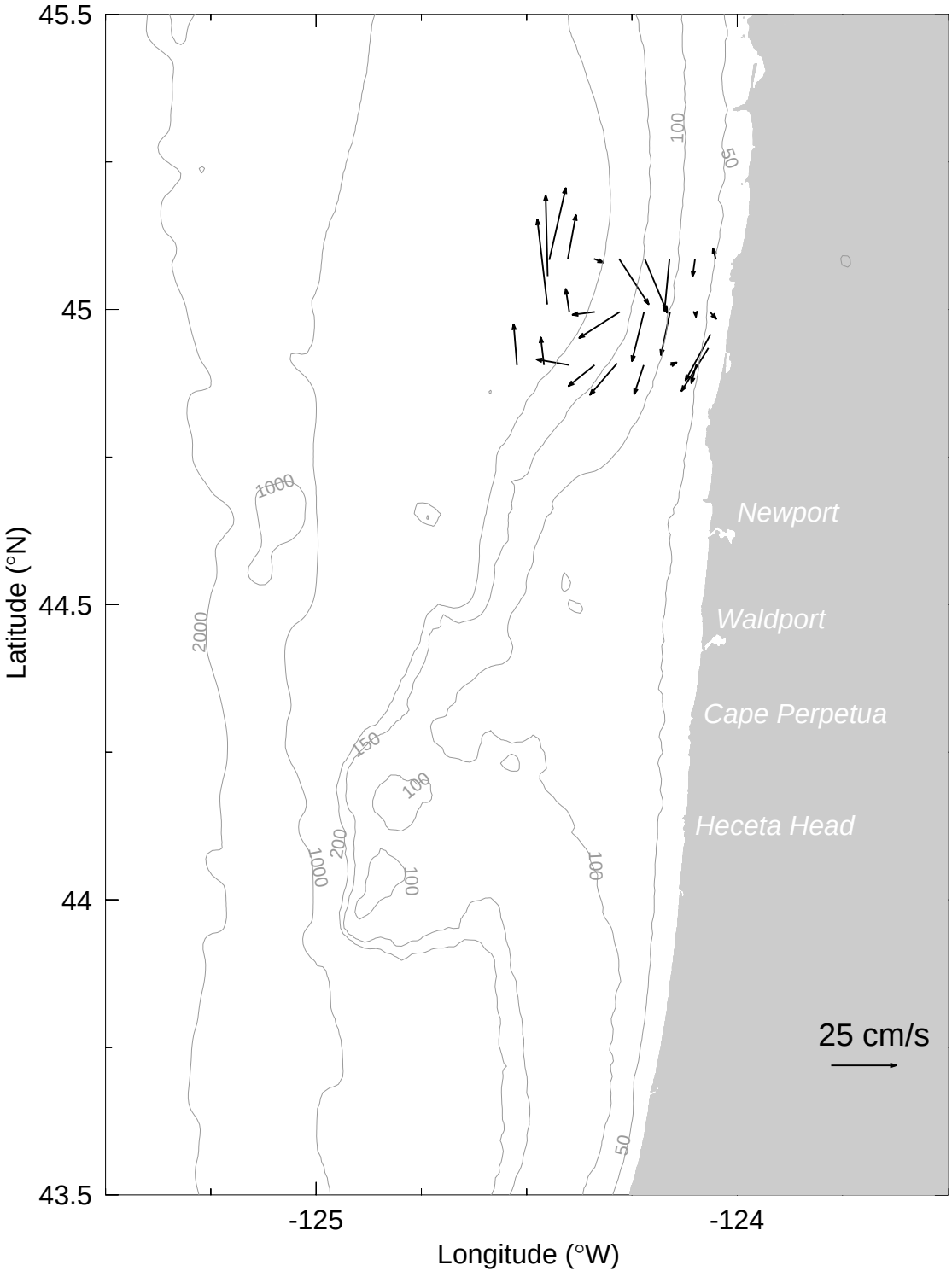
COAST III (W0301b) NB-ADCP: Small box north 1
lineA at 45.09°N (20-Jan-03 00:20 to 20-Jan-03 02:39 UTC)
(yearday 20.0143 - 20.1111)



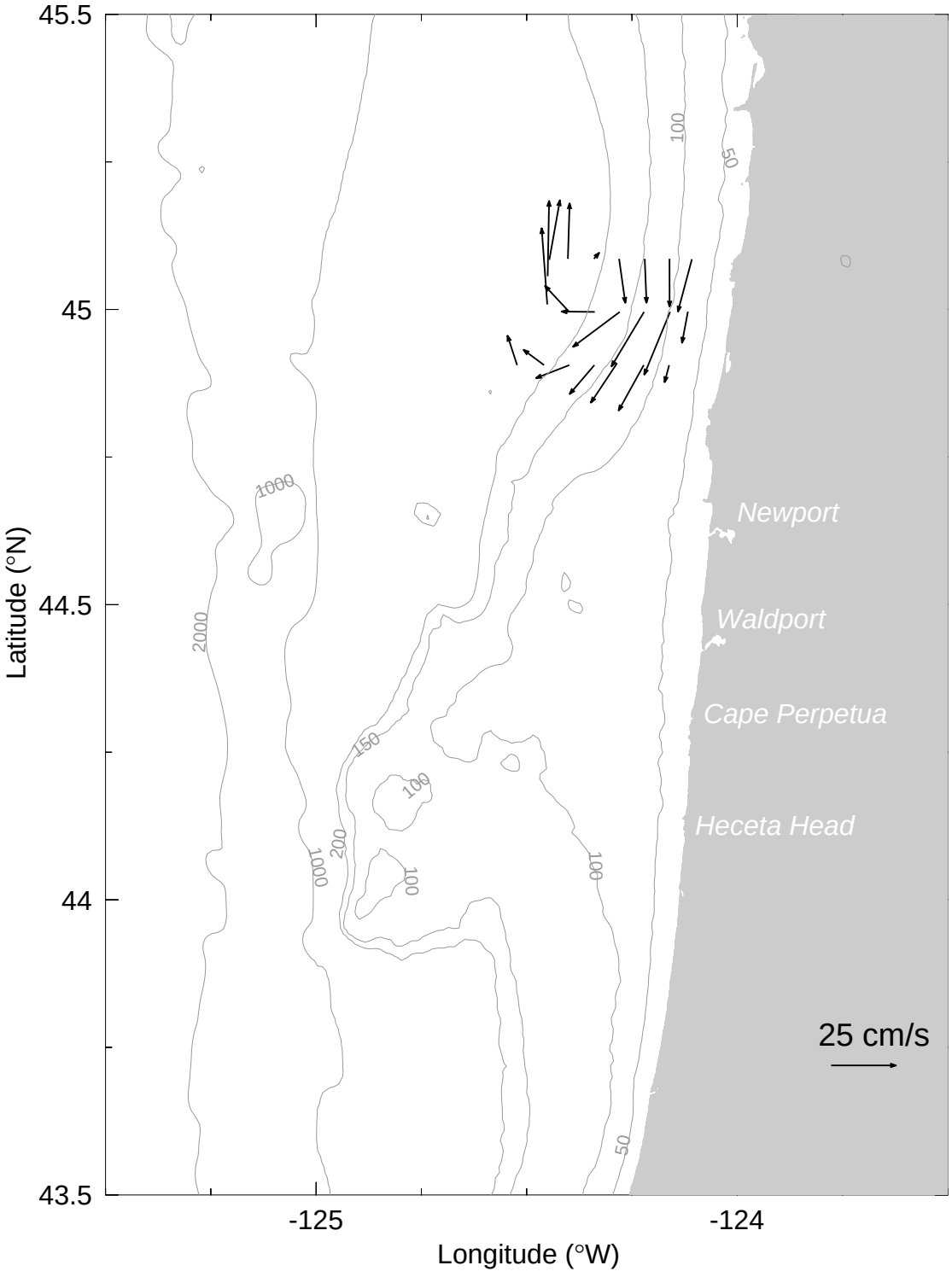
COAST III (W0301b) NB-ADCP: Small box north 1
lineB at 45.00°N (20-Jan-03 03:28 to 20-Jan-03 05:21 UTC)
(yearday 20.1445 - 20.2230)



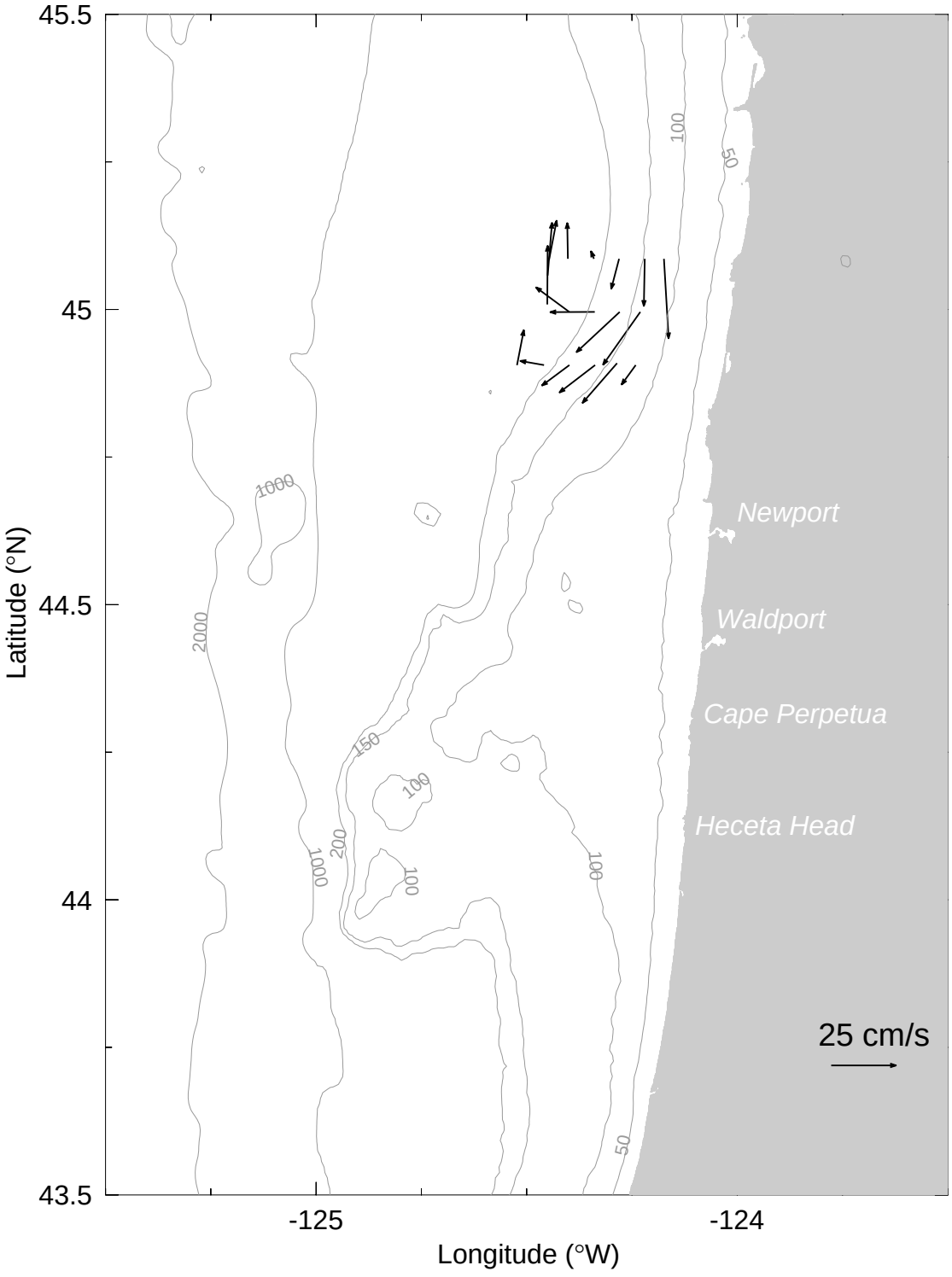
COAST III (W0301b) NB-ADCP: Small box north 2
17 m, 20.5558 - 20.9485, 20-Jan-03 13:20 to 20-Jan-03 22:45 UTC



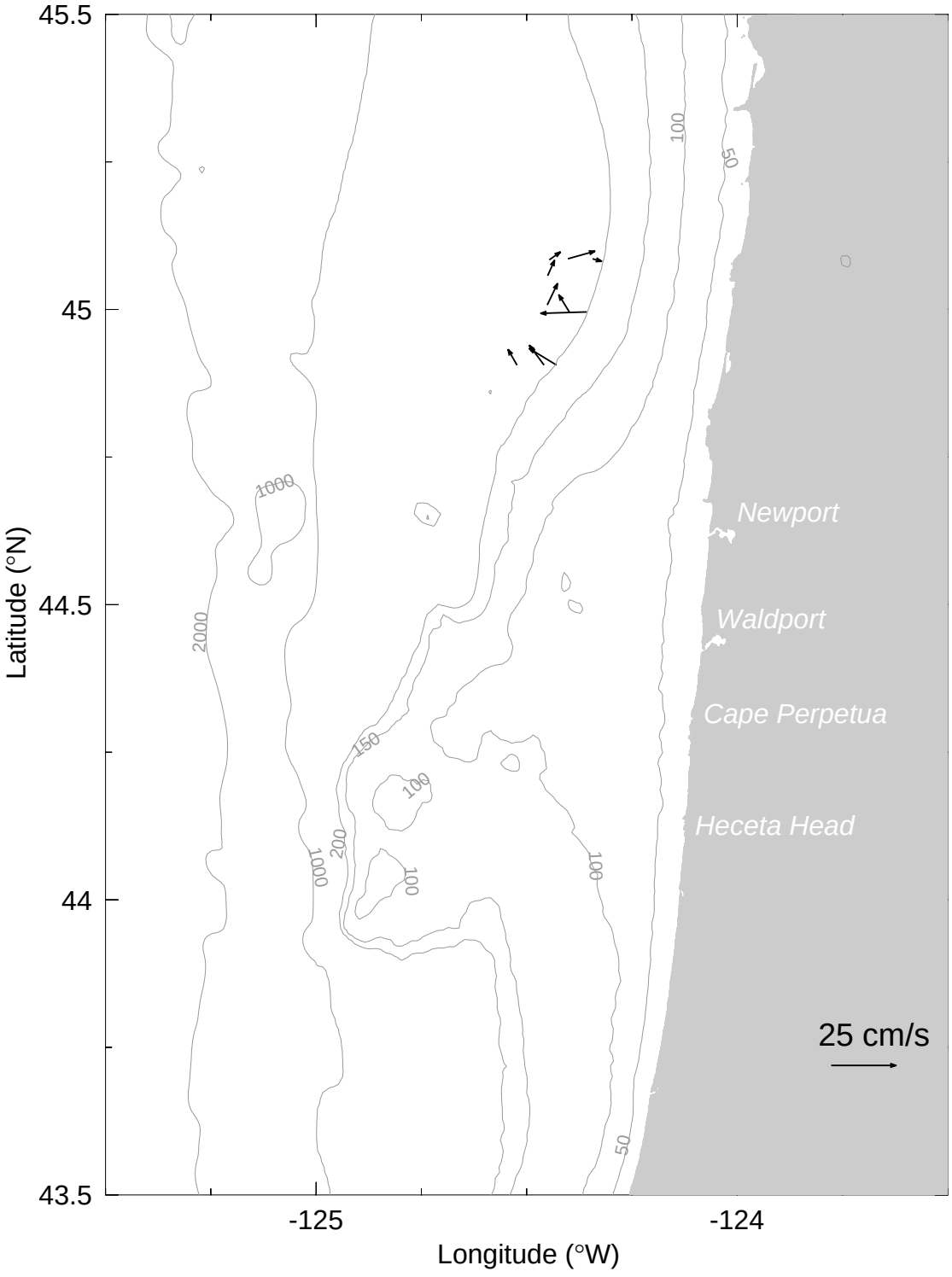
COAST III (W0301b) NB-ADCP: Small box north 2
50 m, 20.5558 - 20.9485, 20-Jan-03 13:20 to 20-Jan-03 22:45 UTC



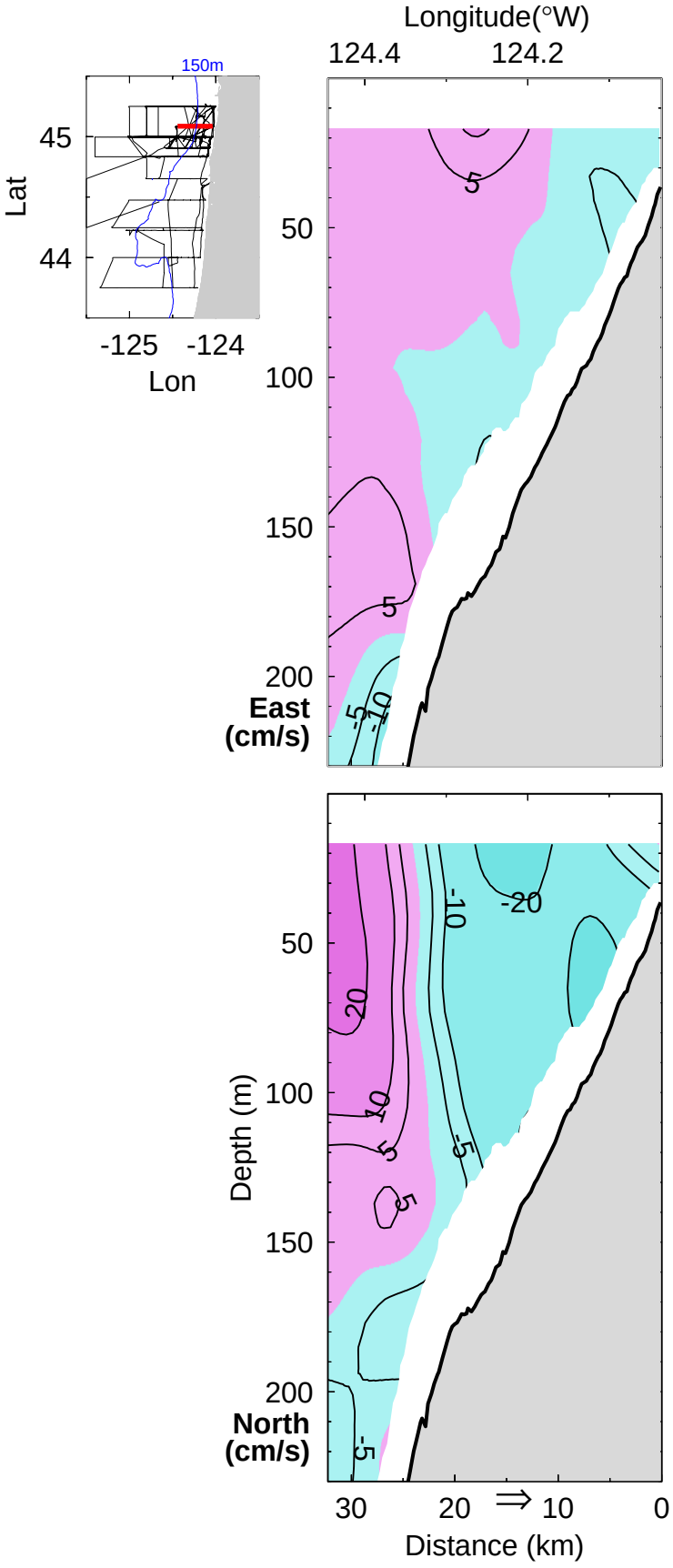
COAST III (W0301b) NB-ADCP: Small box north 2
100 m, 20.5558 - 20.9485, 20-Jan-03 13:20 to 20-Jan-03 22:45 UTC



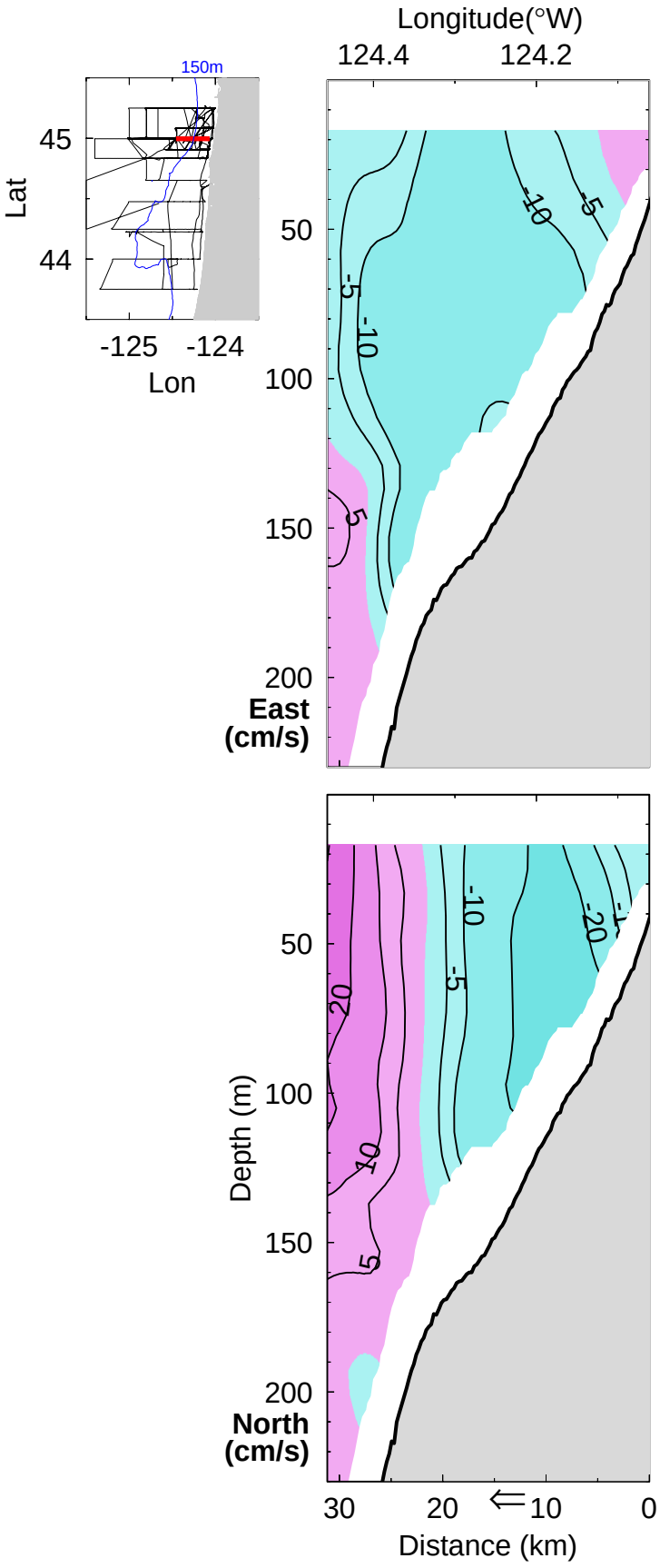
COAST III (W0301b) NB-ADCP: Small box north 2
150 m, 20.5558 - 20.9485, 20-Jan-03 13:20 to 20-Jan-03 22:45 UTC



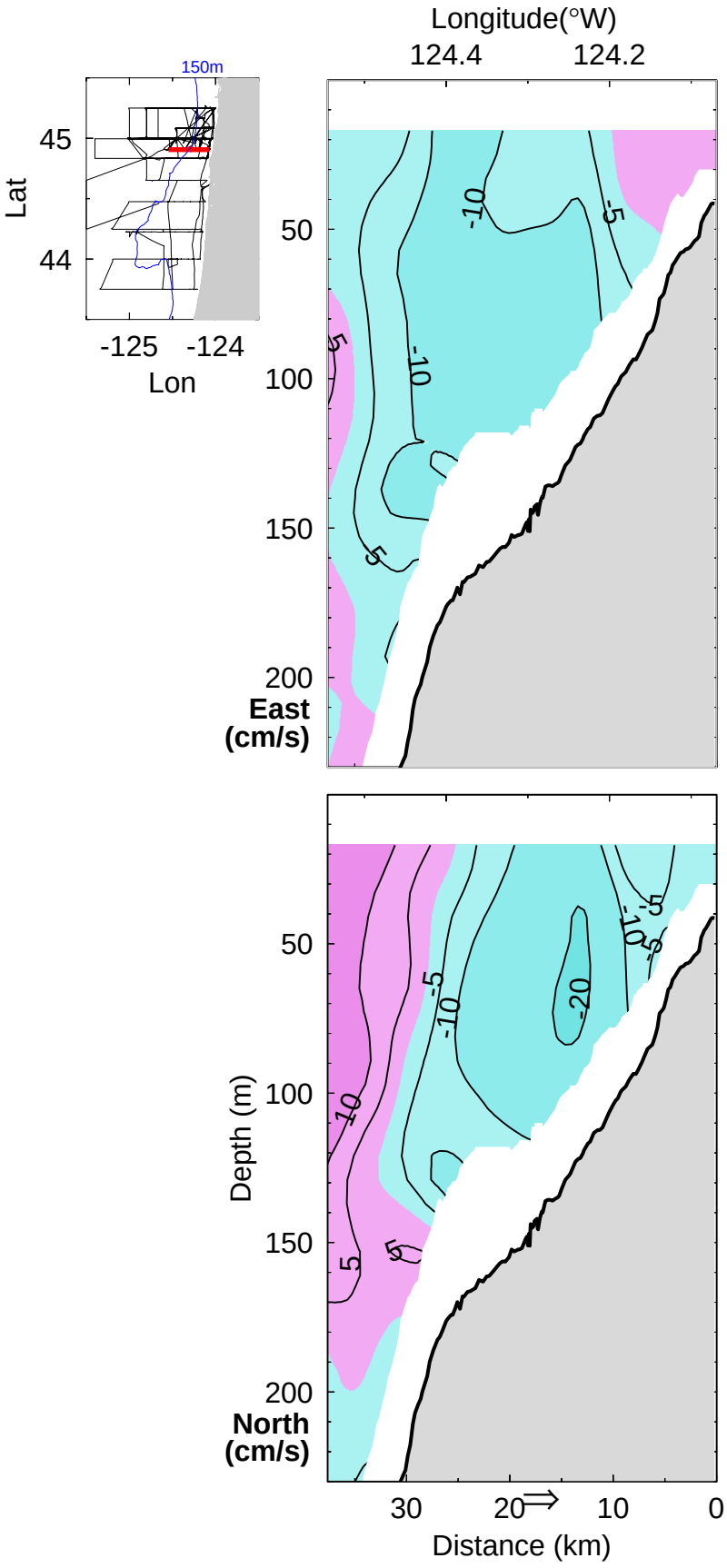
COAST III (W0301b) NB-ADCP: Small box north 2
lineA at 45.09°N (20-Jan-03 20:21 to 20-Jan-03 22:43 UTC)
(yearday 20.8483 - 20.9466)



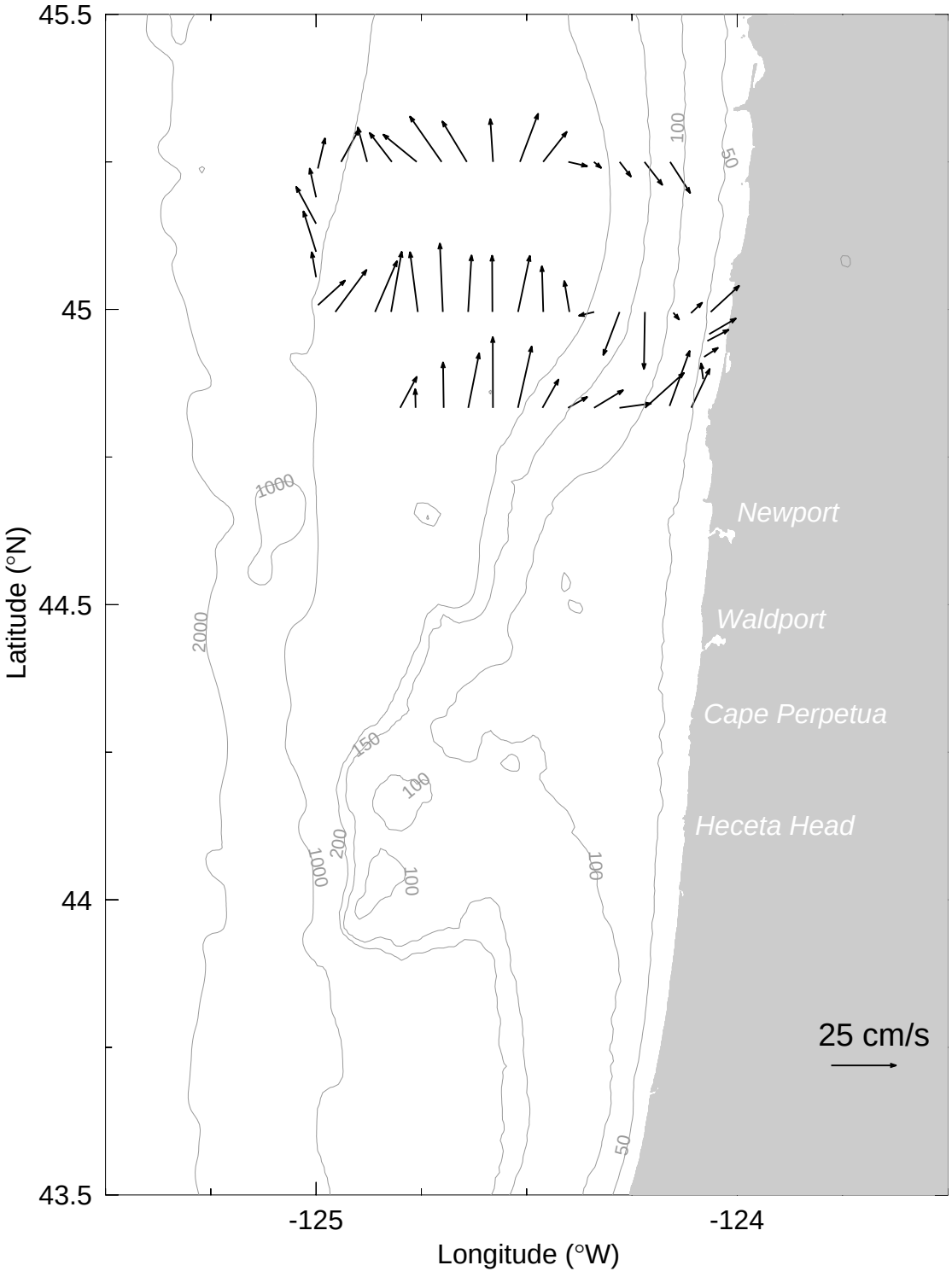
COAST III (W0301b) NB-ADCP: Small box north 2
lineB at 45.00°N (20-Jan-03 17:24 to 20-Jan-03 19:37 UTC)
(yearday 20.7250 - 20.8174)



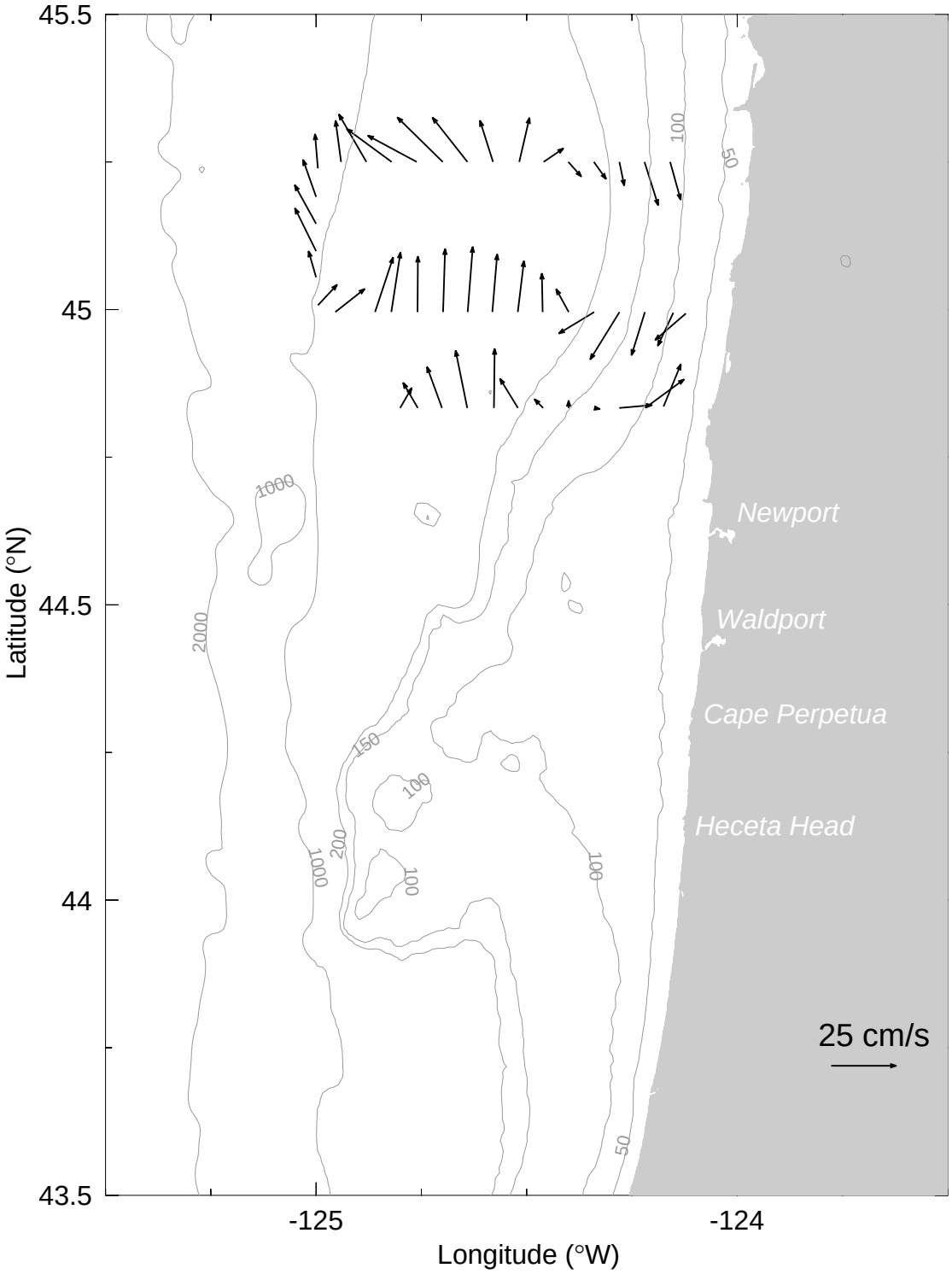
COAST III (W0301b) NB-ADCP: Small box north 2
lineC at 44.91°N (20-Jan-03 13:20 to 20-Jan-03 16:26 UTC)
(yearday 20.5559 - 20.6848)



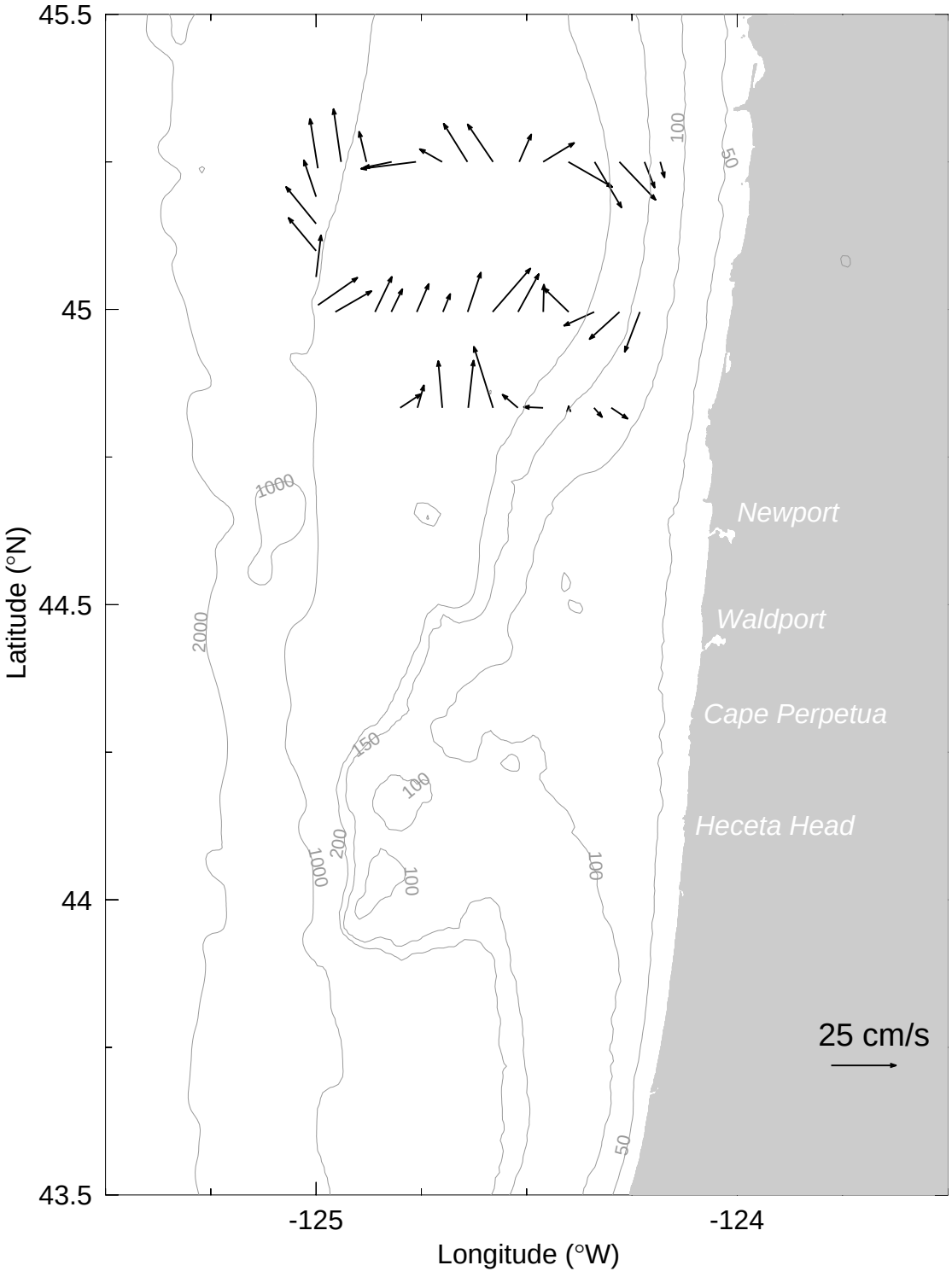
COAST III (W0301b) NB-ADCP: Big box 1
17 m, 21.1746 - 21.9583, 21-Jan-03 04:11 to 21-Jan-03 22:59 UTC



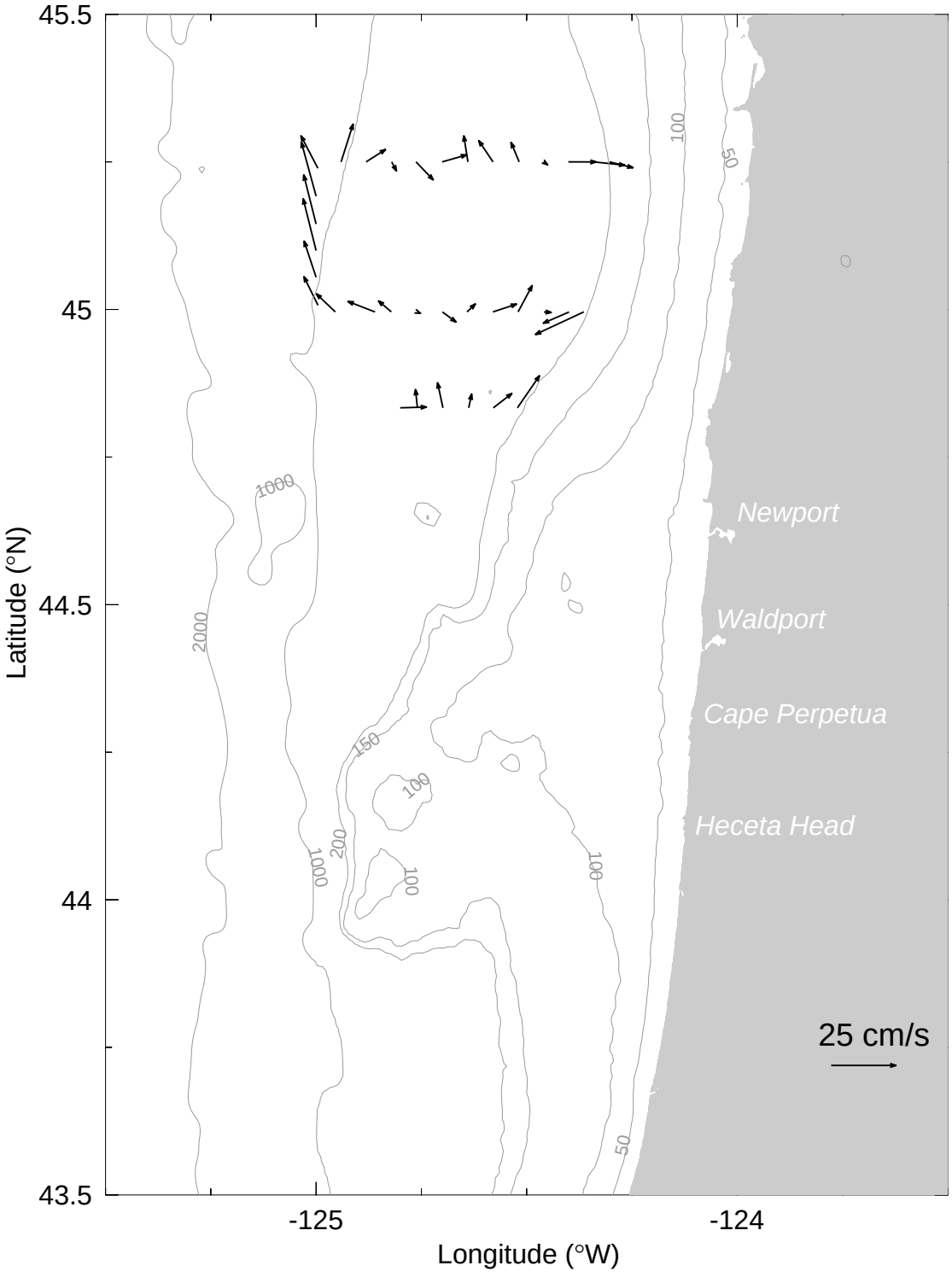
COAST III (W0301b) NB-ADCP: Big box 1
50 m, 21.1746 - 21.9583, 21-Jan-03 04:11 to 21-Jan-03 22:59 UTC



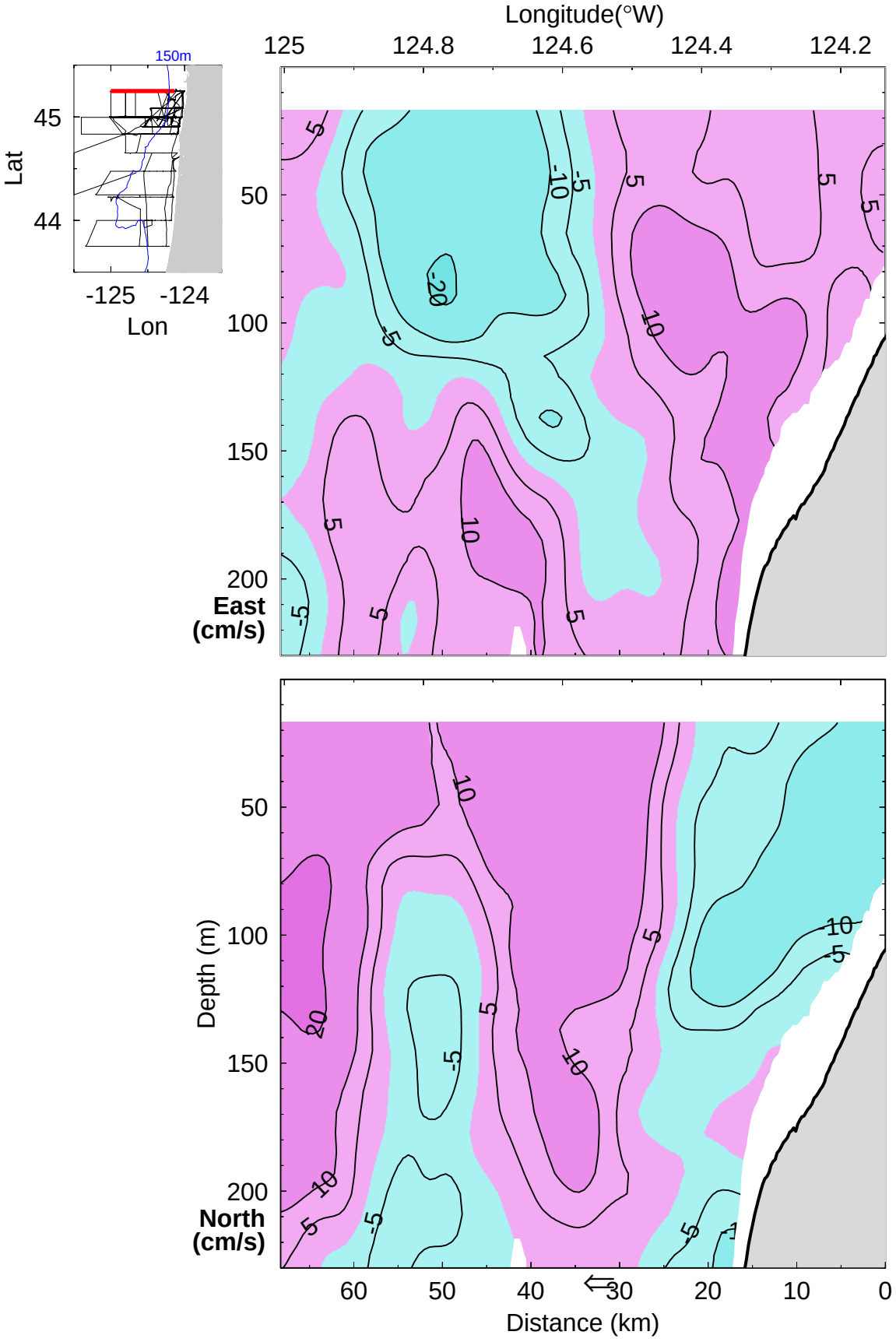
COAST III (W0301b) NB-ADCP: Big box 1
100 m, 21.1746 - 21.9583, 21-Jan-03 04:11 to 21-Jan-03 22:59 UTC



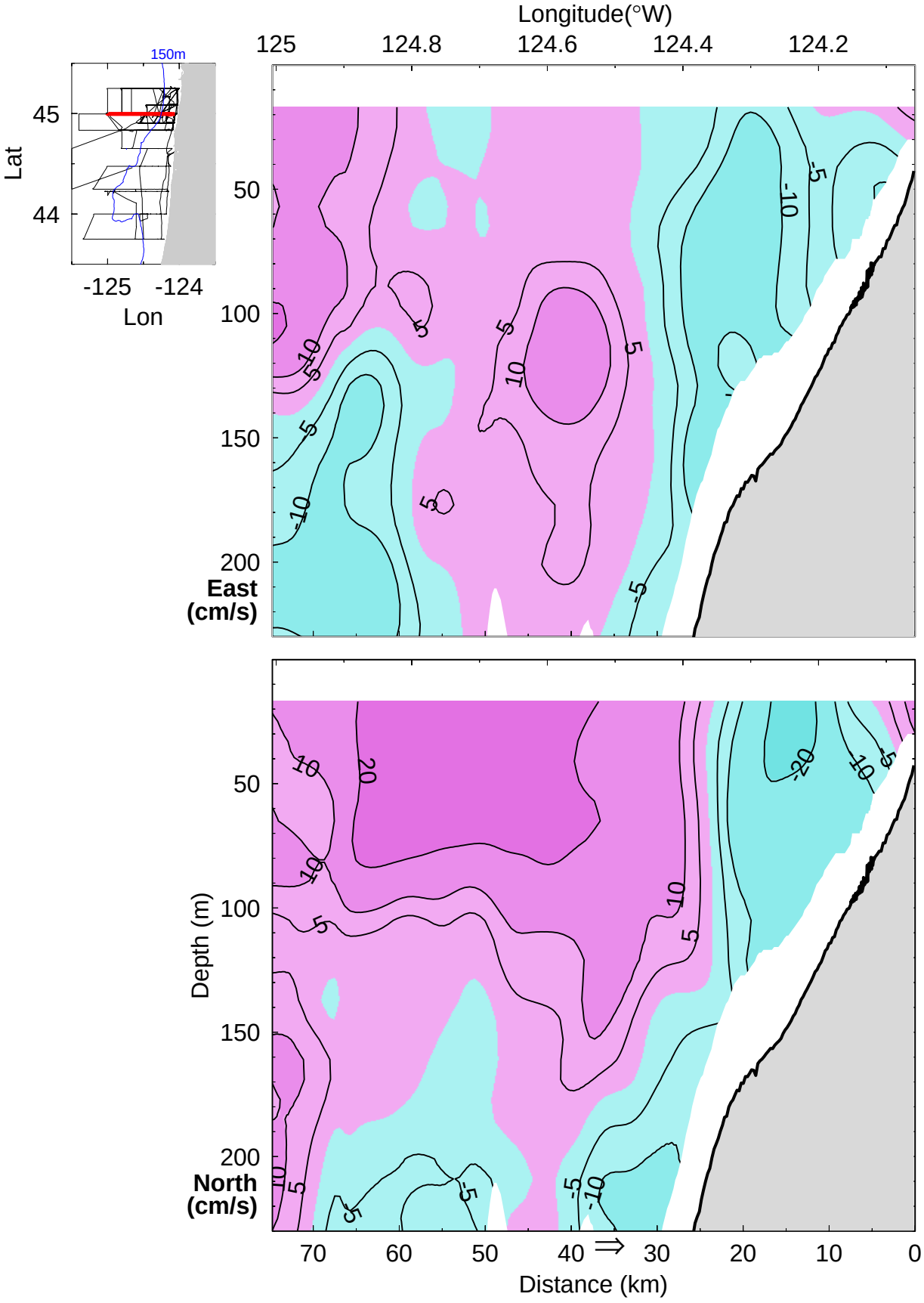
COAST III (W0301b) NB-ADCP: Big box 1
150 m, 21.1746 - 21.9583, 21-Jan-03 04:11 to 21-Jan-03 22:59 UTC



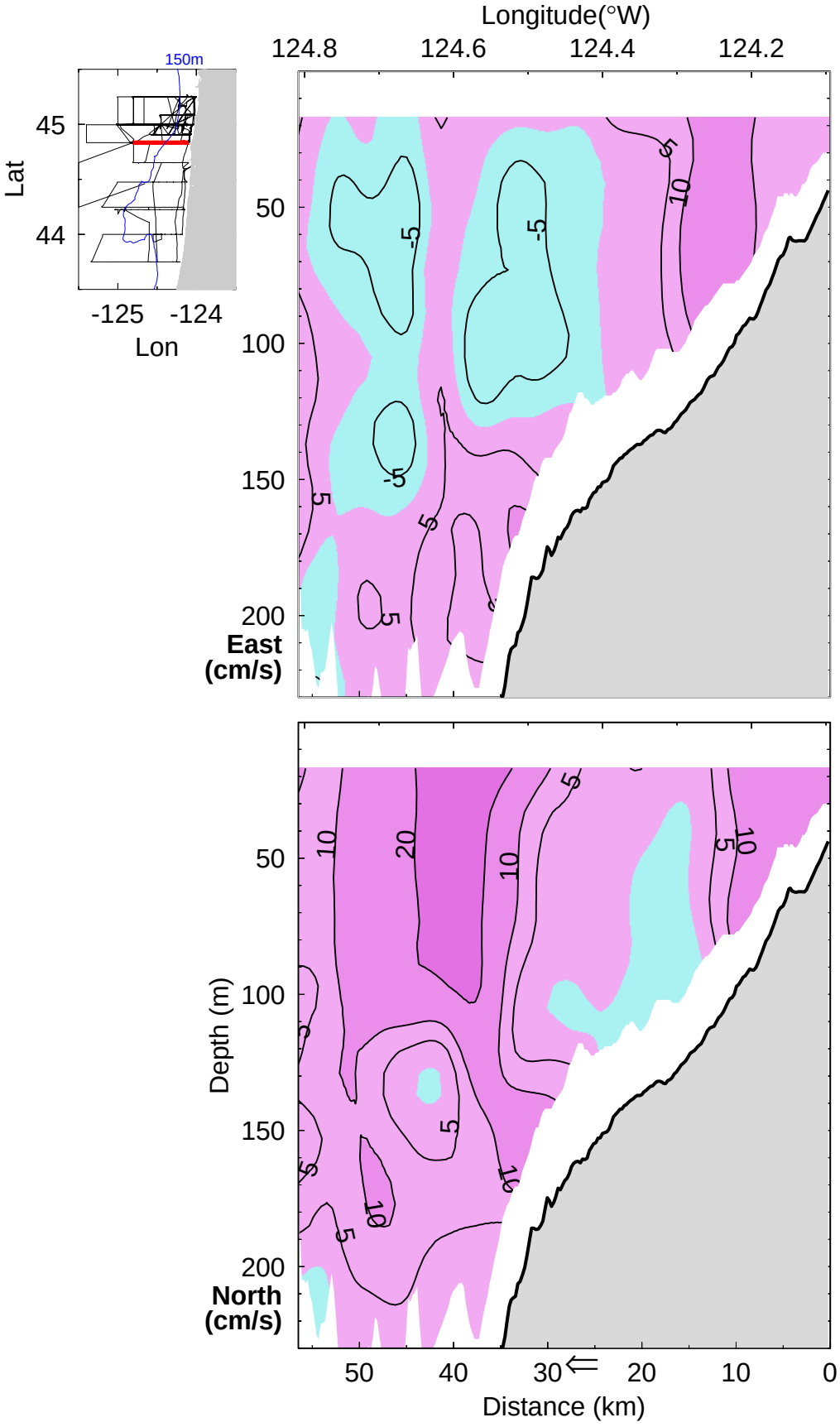
COAST III (W0301b) NB-ADCP: Big box 1
line1 at 45.25°N (21-Jan-03 04:12 to 21-Jan-03 09:04 UTC)
(yearday 21.1754 - 21.3782)



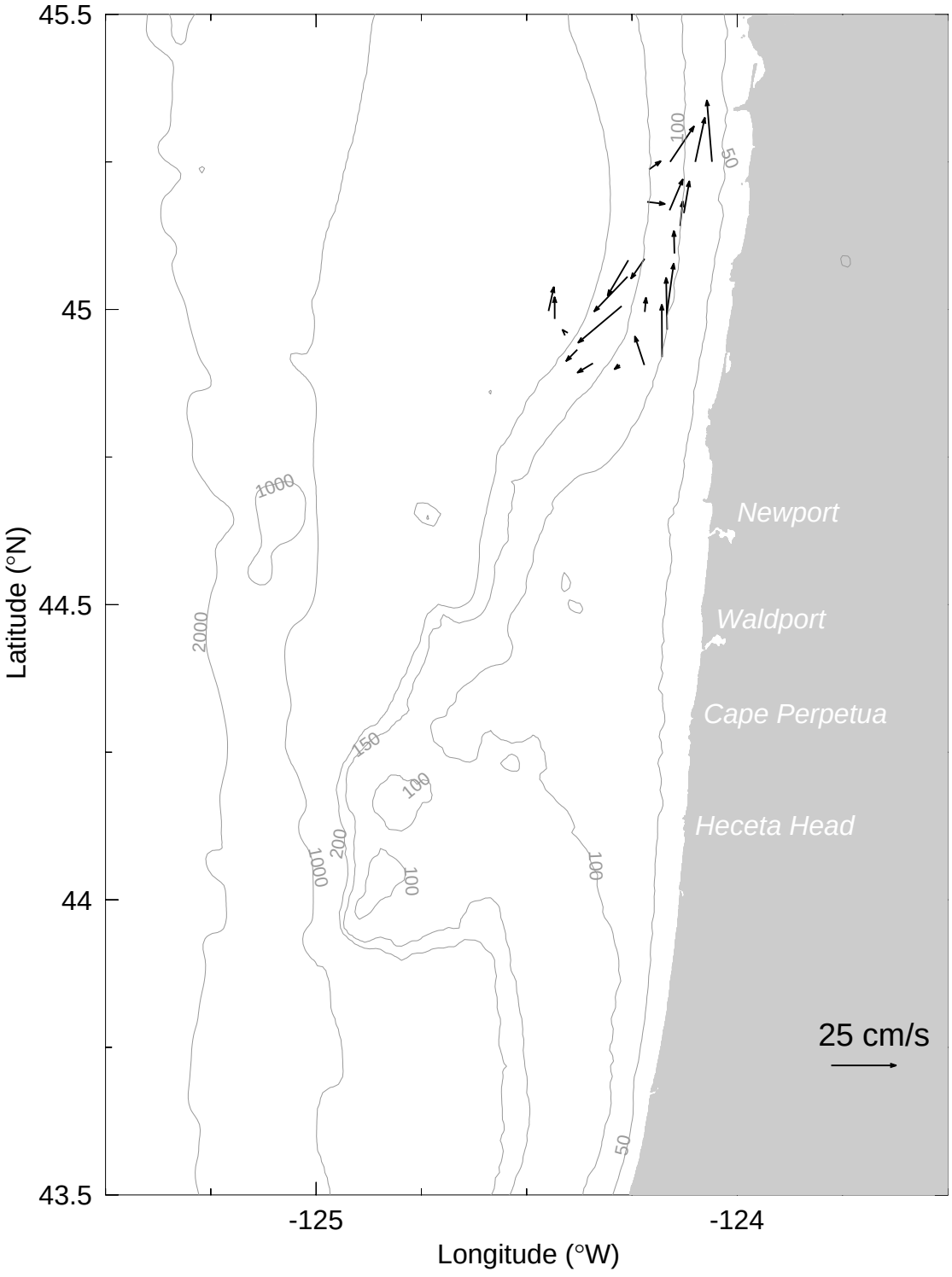
COAST III (W0301b) NB-ADCP: Big box 1
line2 at 45.00°N (21-Jan-03 11:12 to 21-Jan-03 17:00 UTC)
(yearday 21.4670 - 21.7088)



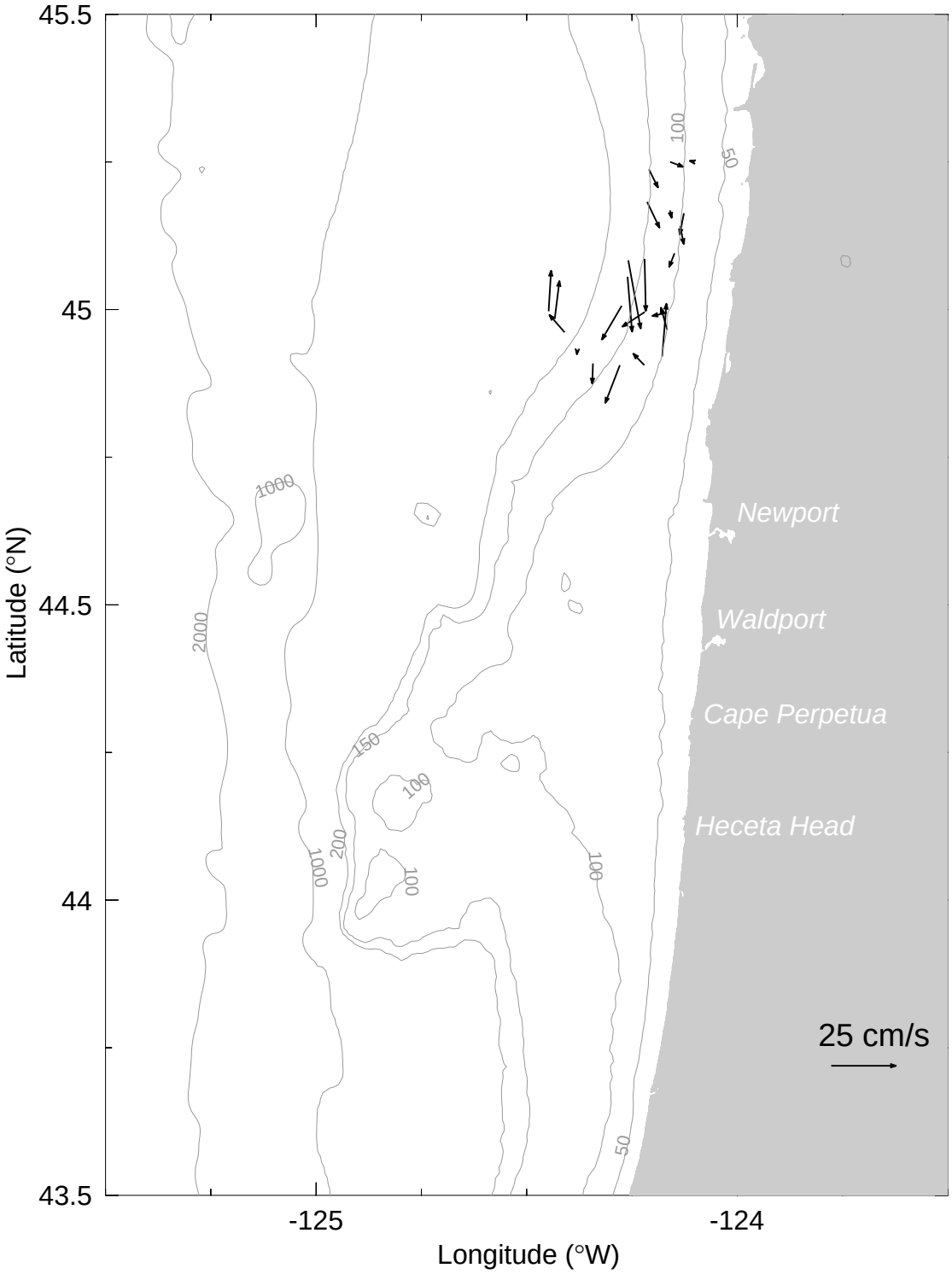
COAST III (W0301b) NB-ADCP: Big box 1
line3 at 44.83°N (21-Jan-03 18:35 to 21-Jan-03 22:59 UTC)
(yearday 21.7746 - 21.9582)



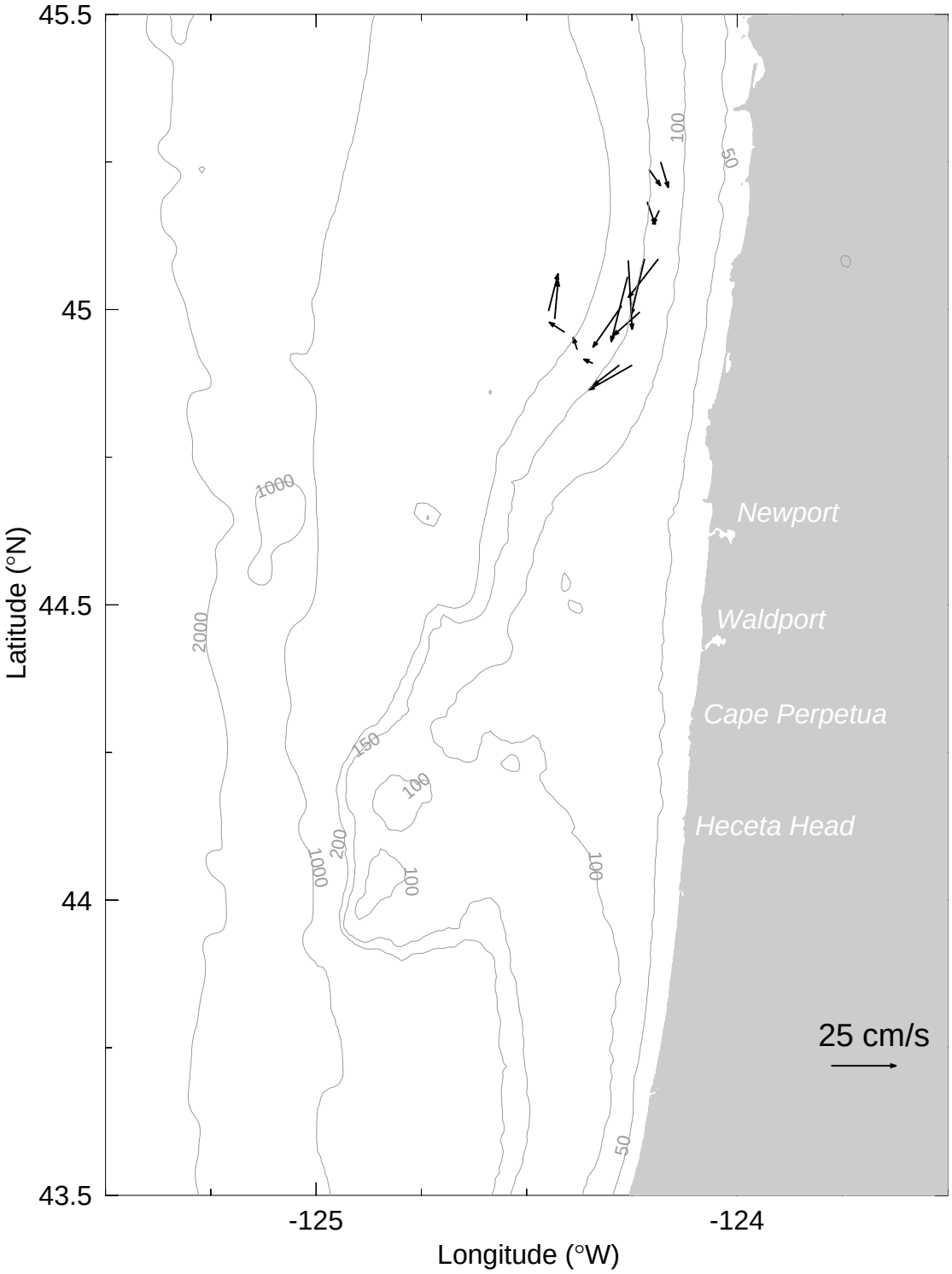
COAST III (W0301b) NB-ADCP: Ladder 1
17 m, 22.3596 - 22.6855, 22-Jan-03 08:37 to 22-Jan-03 16:27 UTC



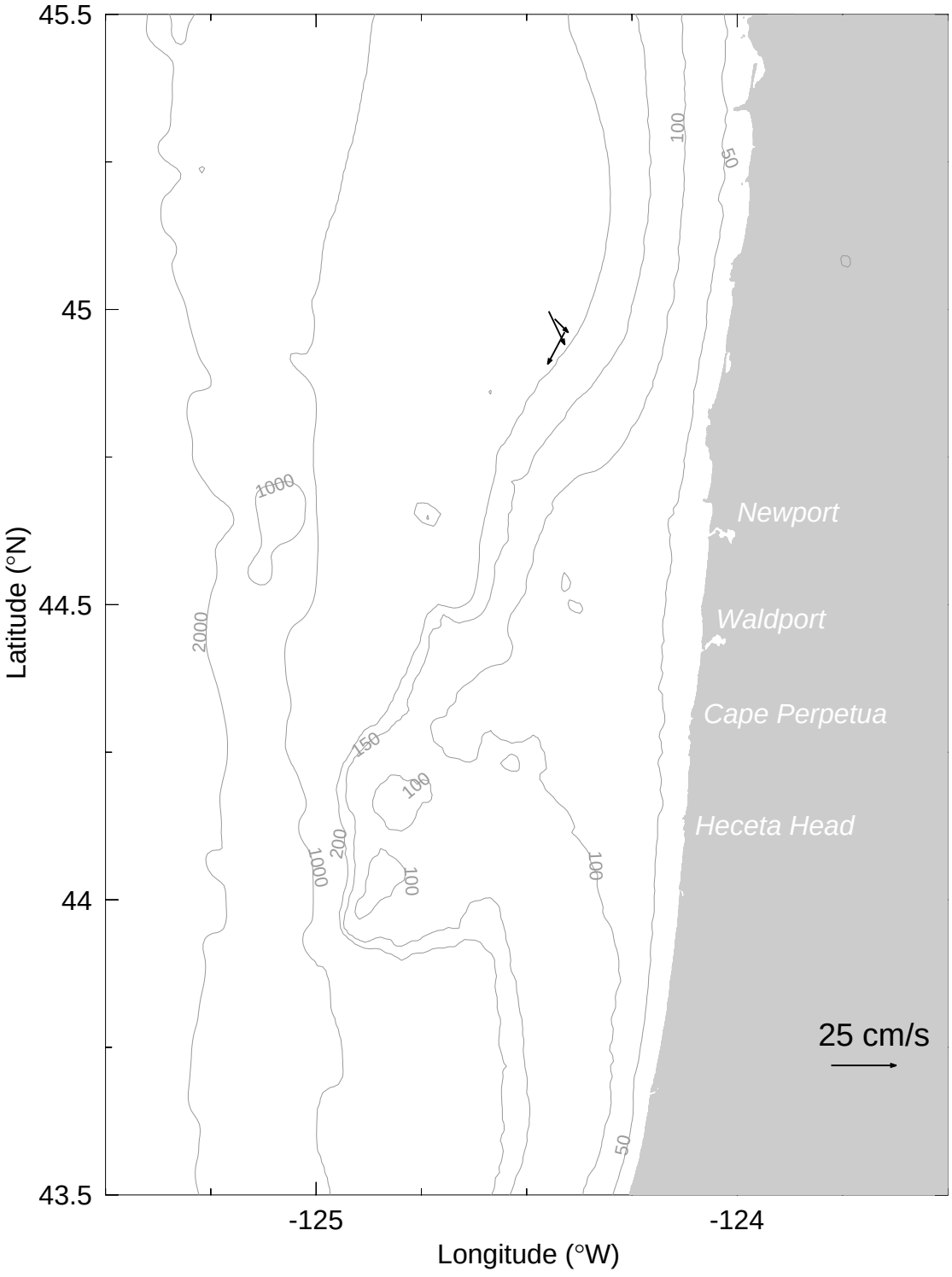
COAST III (W0301b) NB-ADCP: Ladder 1
50 m, 22.3596 - 22.6855, 22-Jan-03 08:37 to 22-Jan-03 16:27 UTC



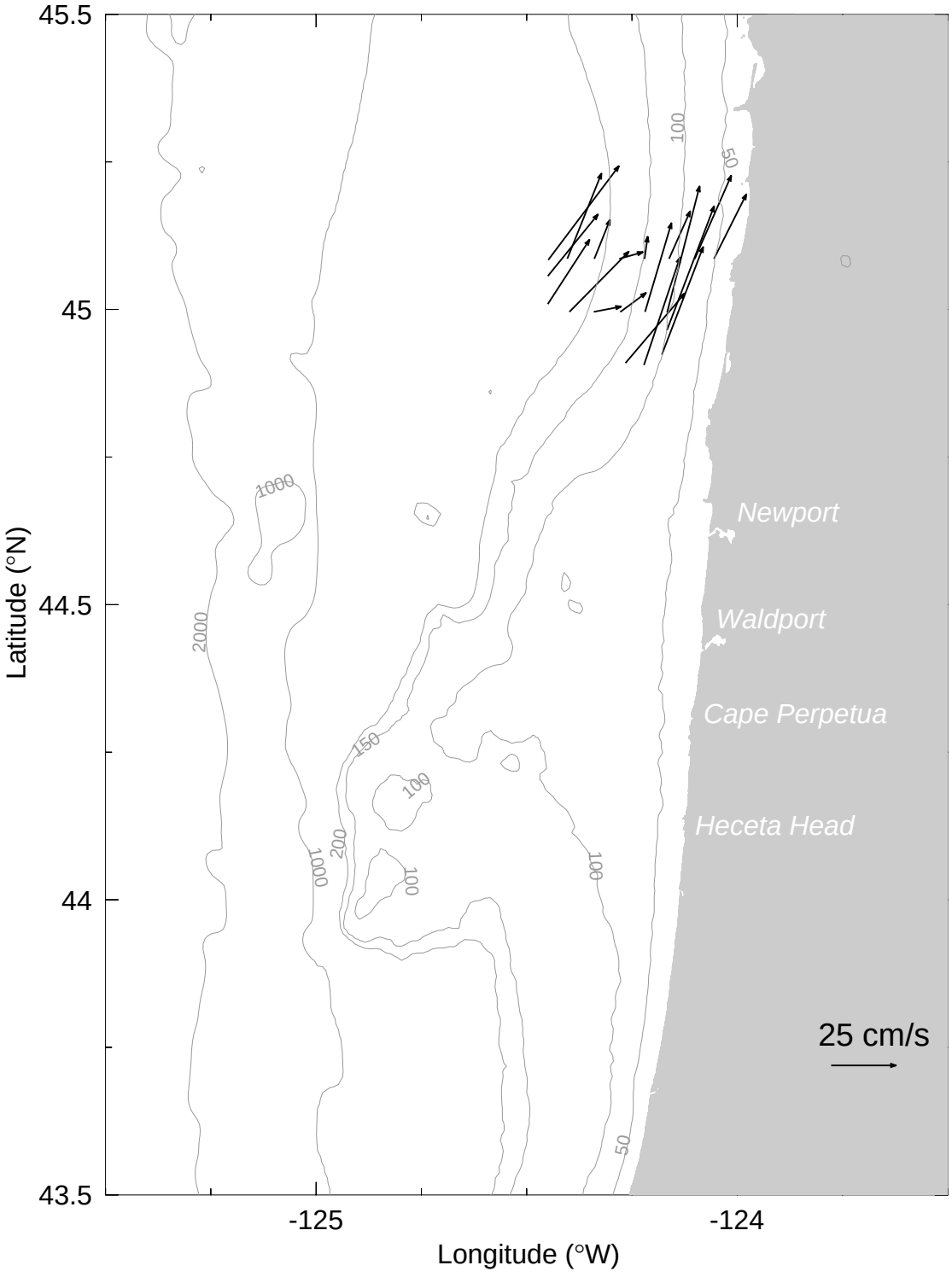
COAST III (W0301b) NB-ADCP: Ladder 1
100 m, 22.3596 - 22.6855, 22-Jan-03 08:37 to 22-Jan-03 16:27 UTC



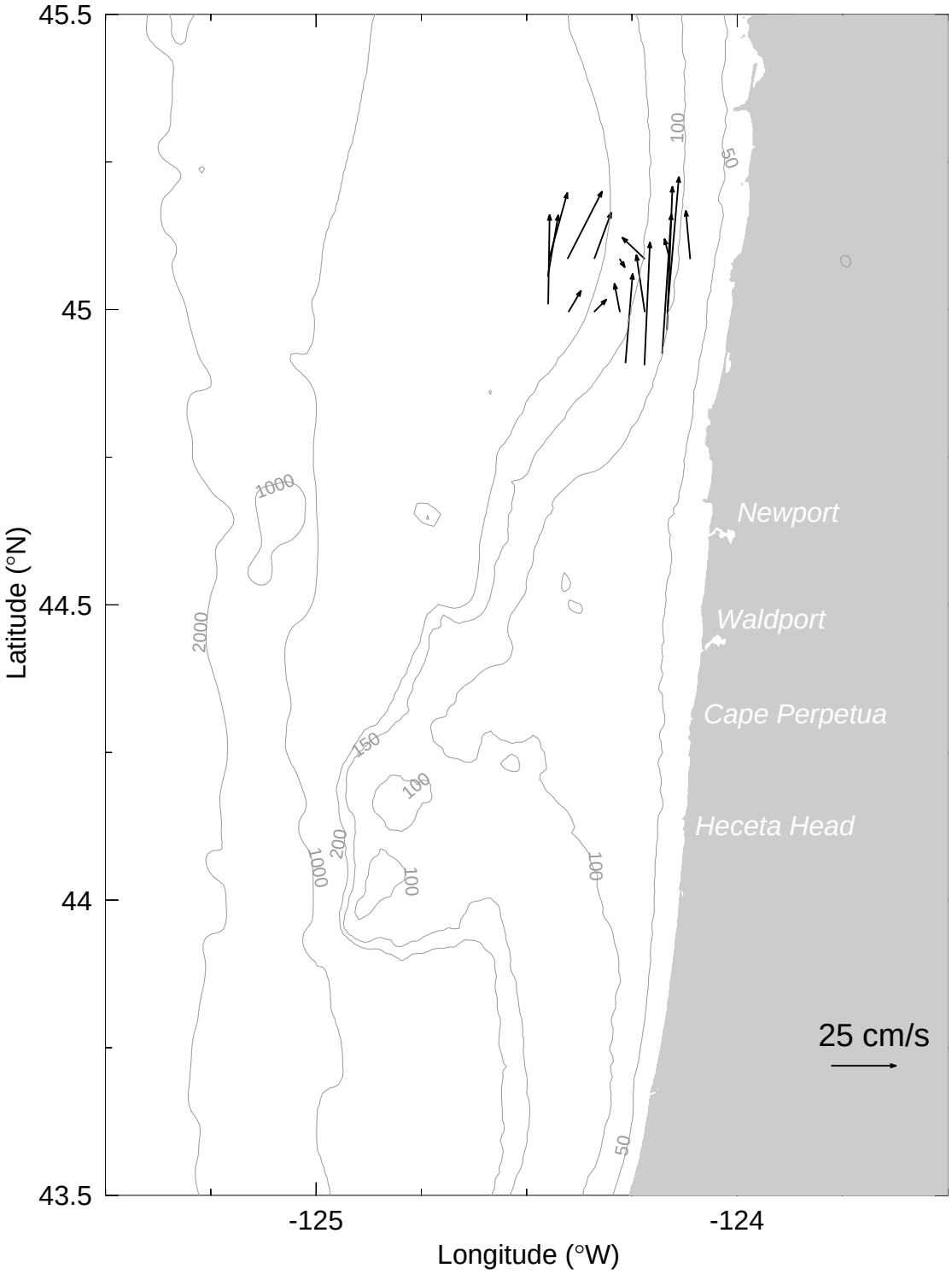
COAST III (W0301b) NB-ADCP: Ladder 1
150 m, 22.3596 - 22.6855, 22-Jan-03 08:37 to 22-Jan-03 16:27 UTC



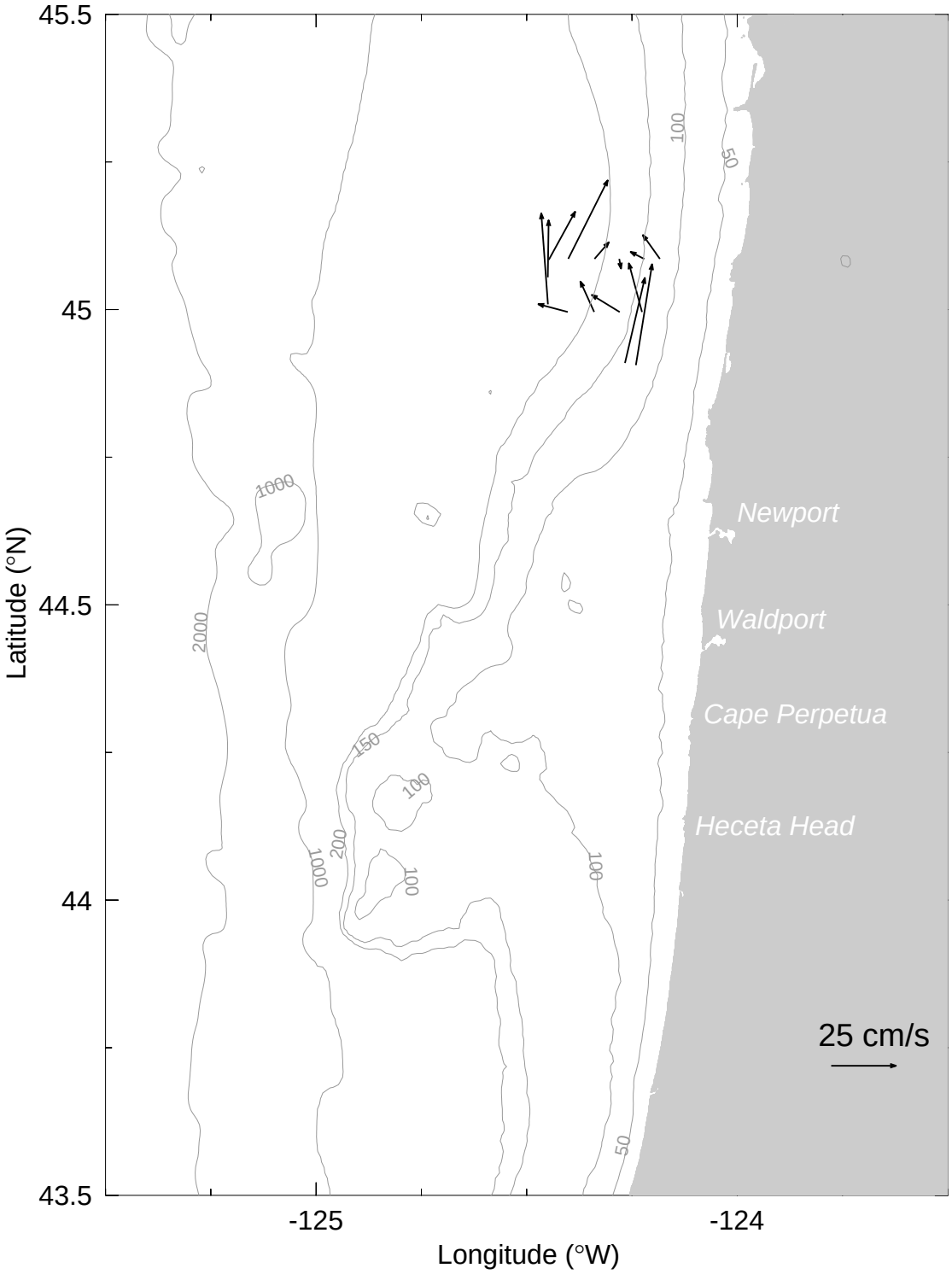
COAST III (W0301b) NB-ADCP: Small box north 3
17 m, 22.7522 - 23.02, 22-Jan-03 18:03 to 23-Jan-03 00:28 UTC



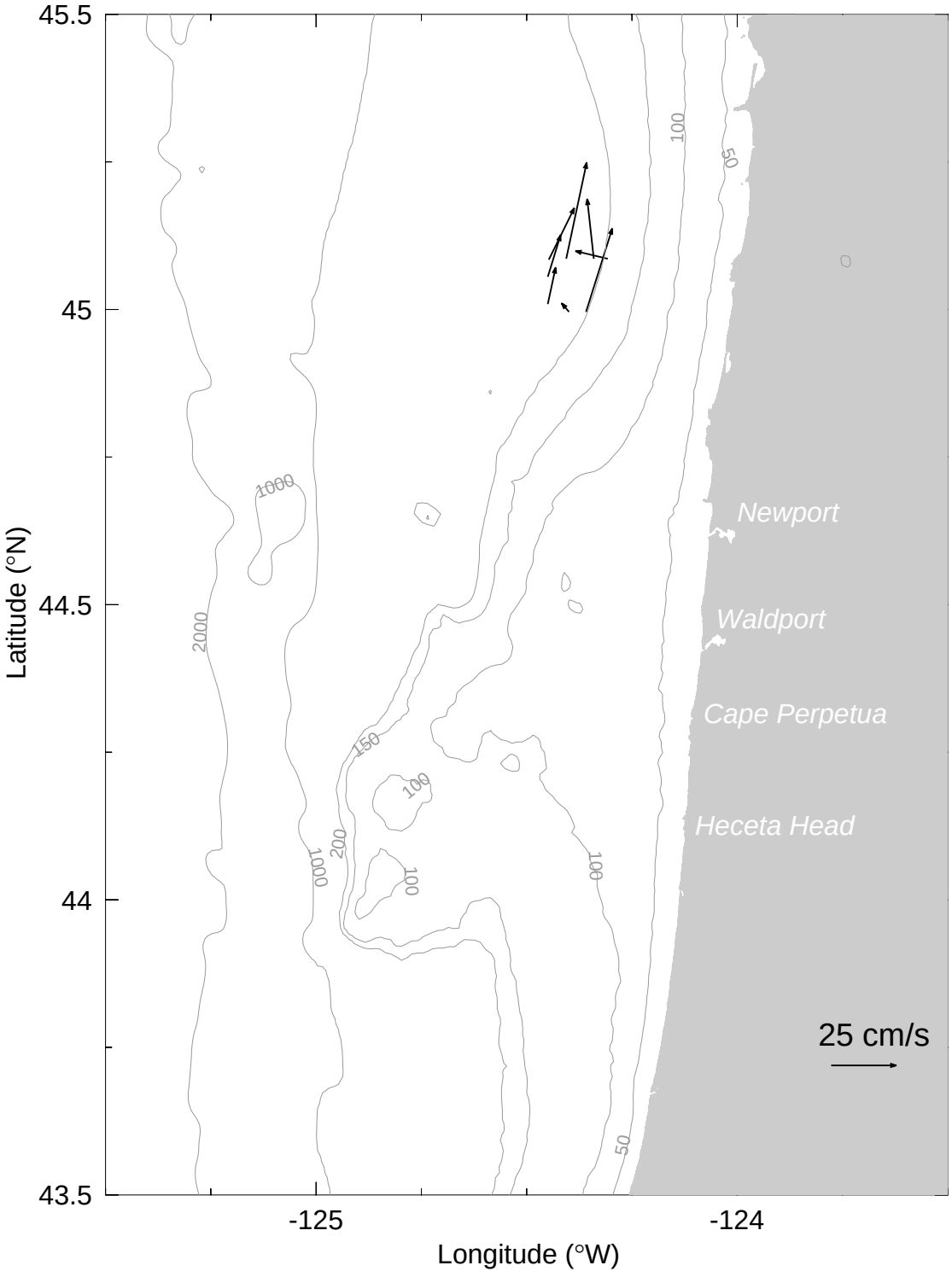
COAST III (W0301b) NB-ADCP: Small box north 3
50 m, 22.7522 - 23.02, 22-Jan-03 18:03 to 23-Jan-03 00:28 UTC



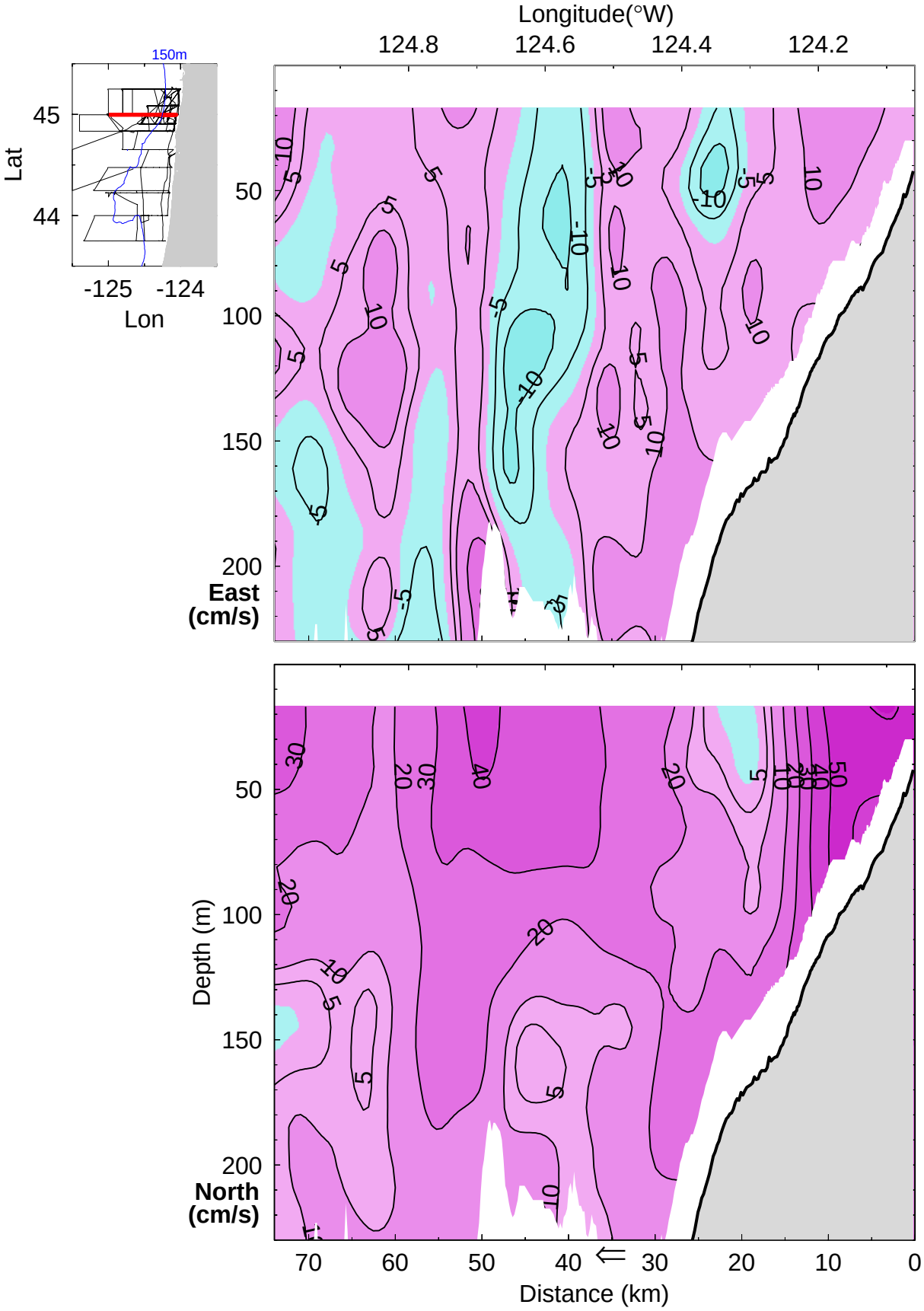
COAST III (W0301b) NB-ADCP: Small box north 3
100 m, 22.7522 - 23.02, 22-Jan-03 18:03 to 23-Jan-03 00:28 UTC



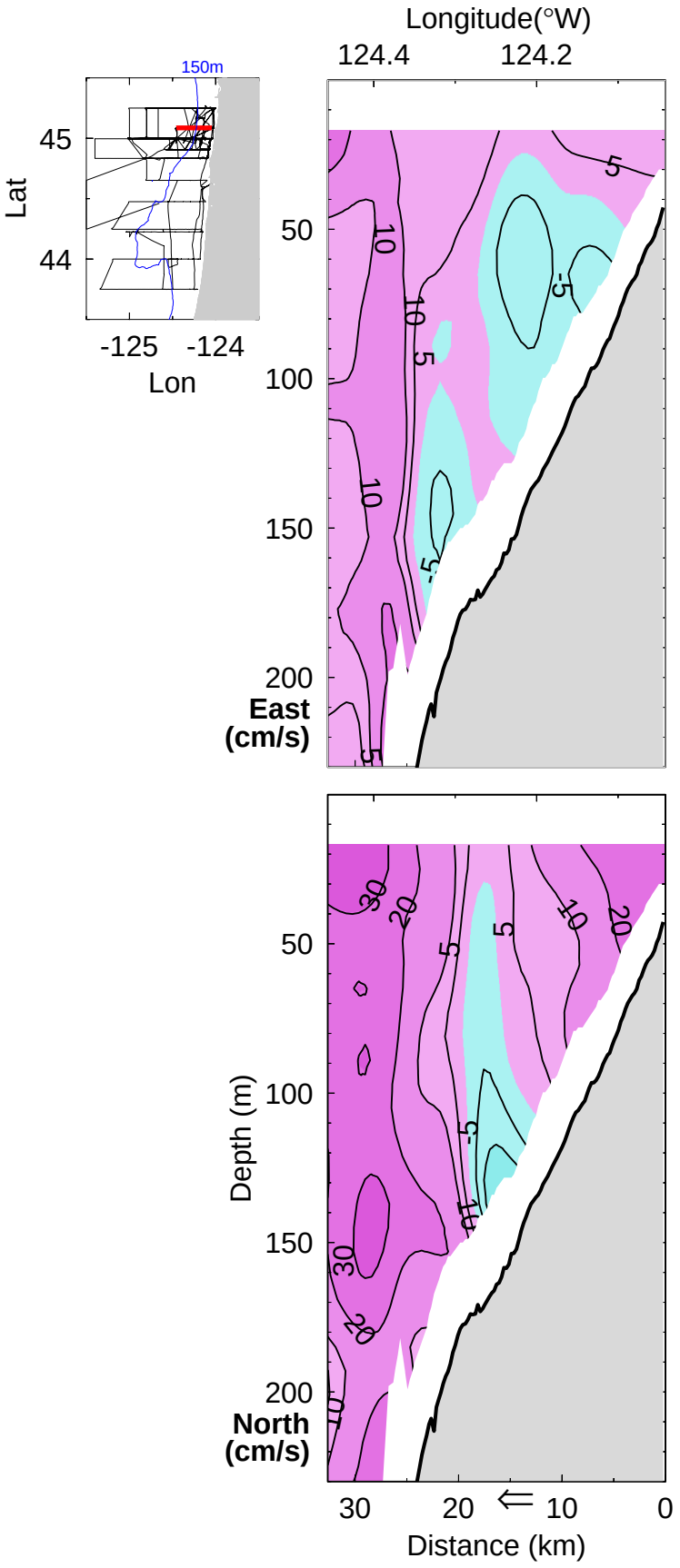
COAST III (W0301b) NB-ADCP: Small box north 3
150 m, 22.7522 - 23.02, 22-Jan-03 18:03 to 23-Jan-03 00:28 UTC



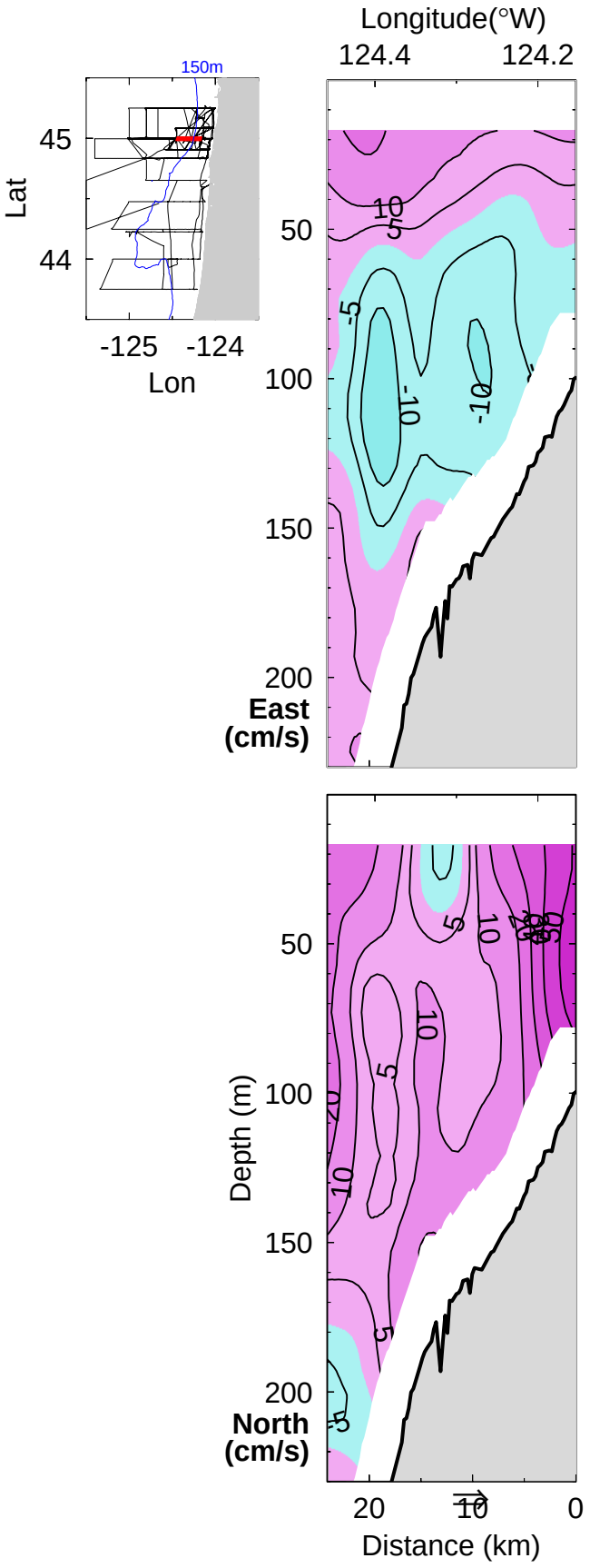
COAST III (W0301b) NB-ADCP: Small box north 3
line2 at 45.00°N (23-Jan-03 02:01 to 23-Jan-03 09:28 UTC)
(yearday 23.0843 - 23.3947)



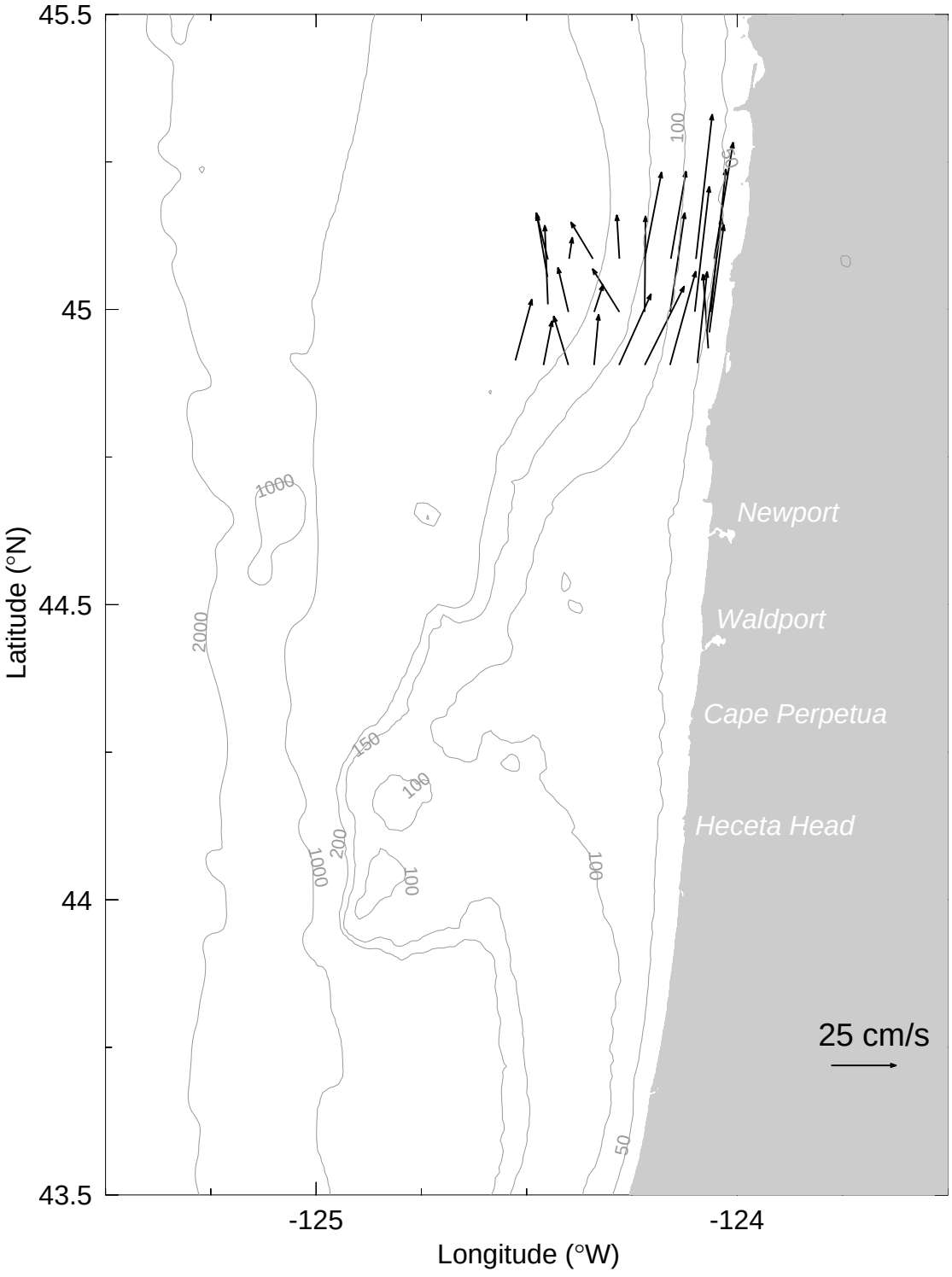
COAST III (W0301b) NB-ADCP: Small box north 3
lineA at 45.09°N (22-Jan-03 18:10 to 22-Jan-03 20:34 UTC)
(yearday 22.7572 - 22.8572)



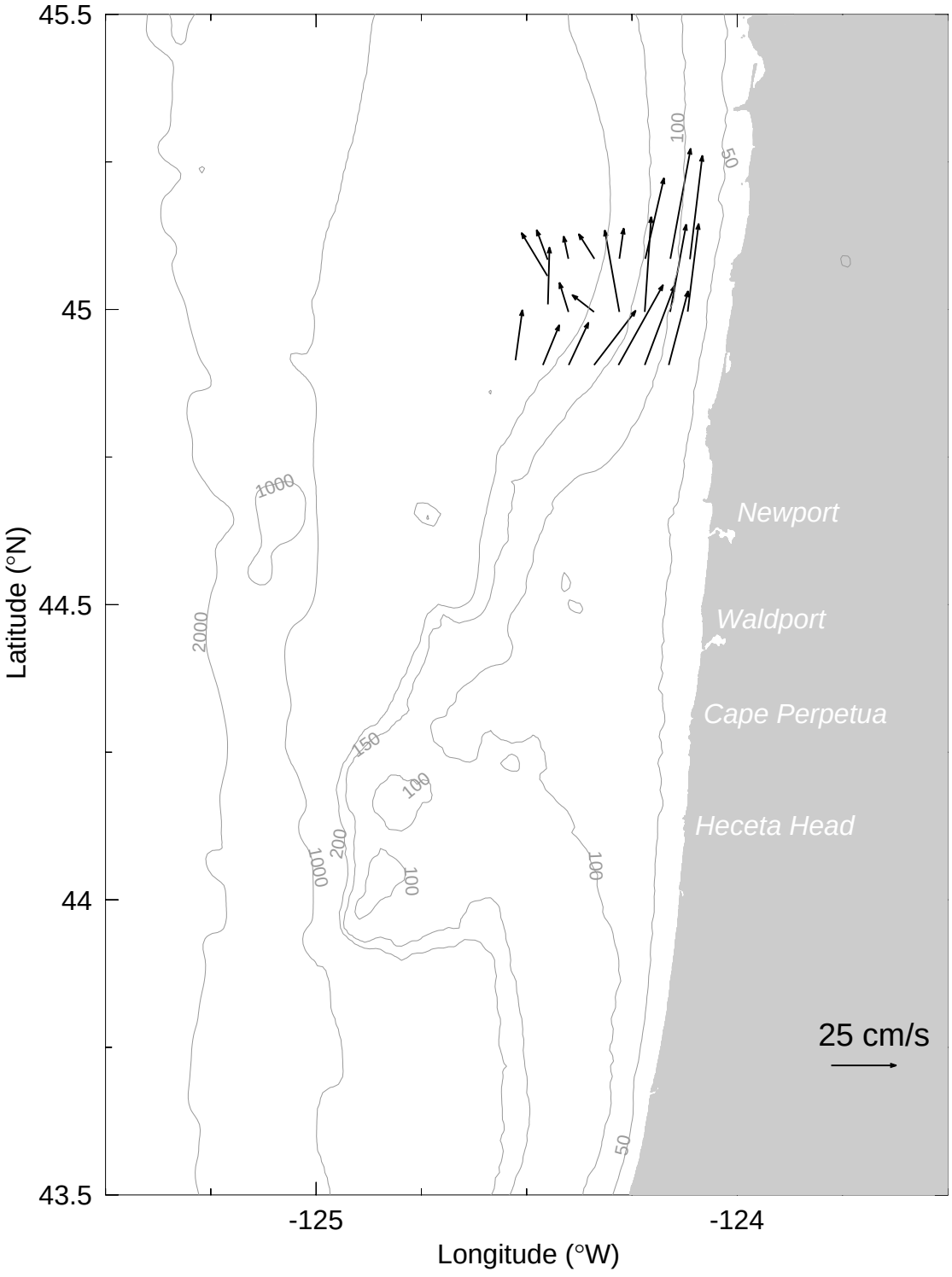
COAST III (W0301b) NB-ADCP: Small box north 3
lineB at 45.00°N (22-Jan-03 21:23 to 22-Jan-03 23:09 UTC)
(yearday 22.8912 - 22.9648)



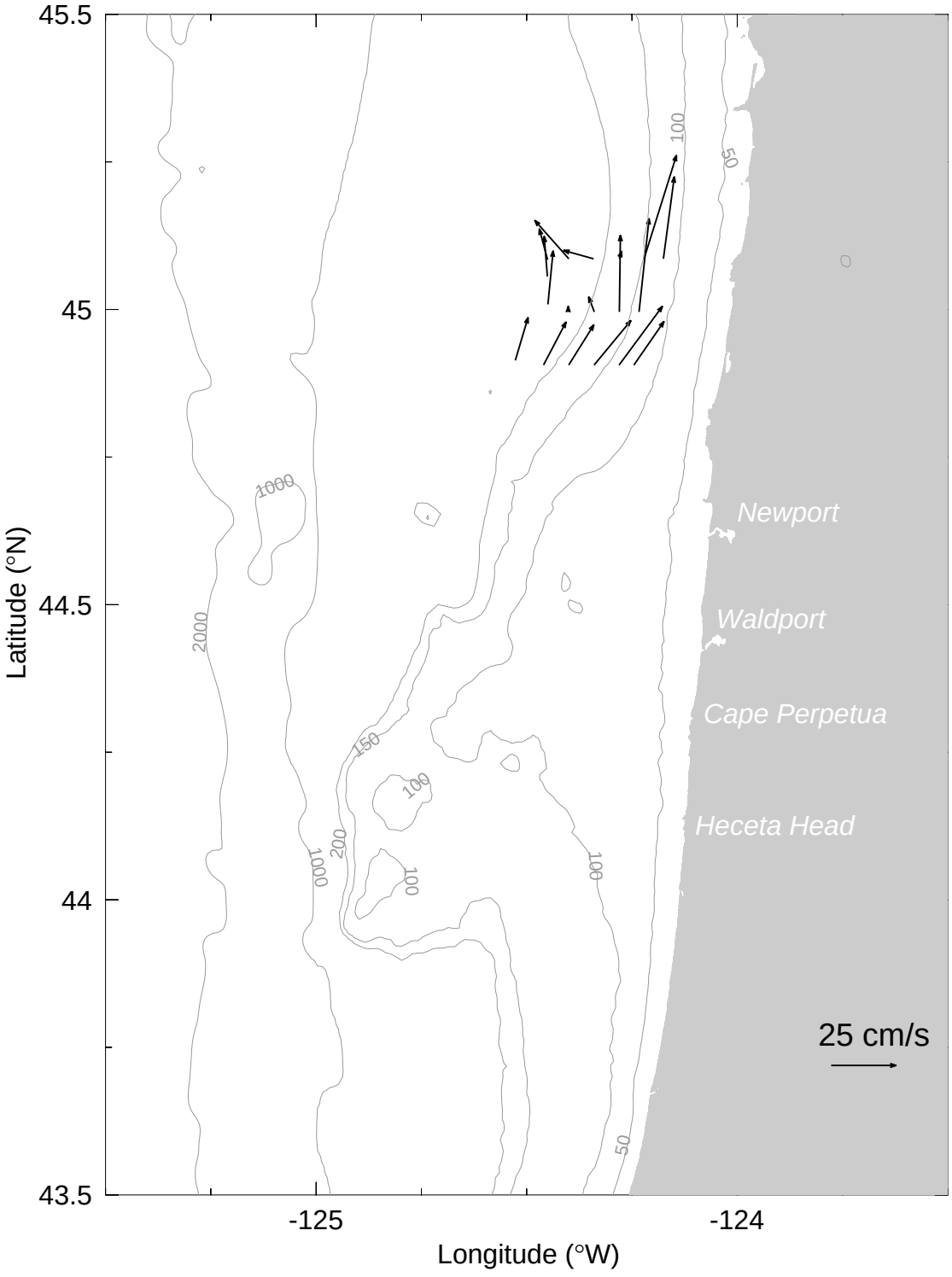
COAST III (W0301b) NB-ADCP: Small box north 4
17 m, 23.7017 - 24.0851, 23-Jan-03 16:50 to 24-Jan-03 02:02 UTC



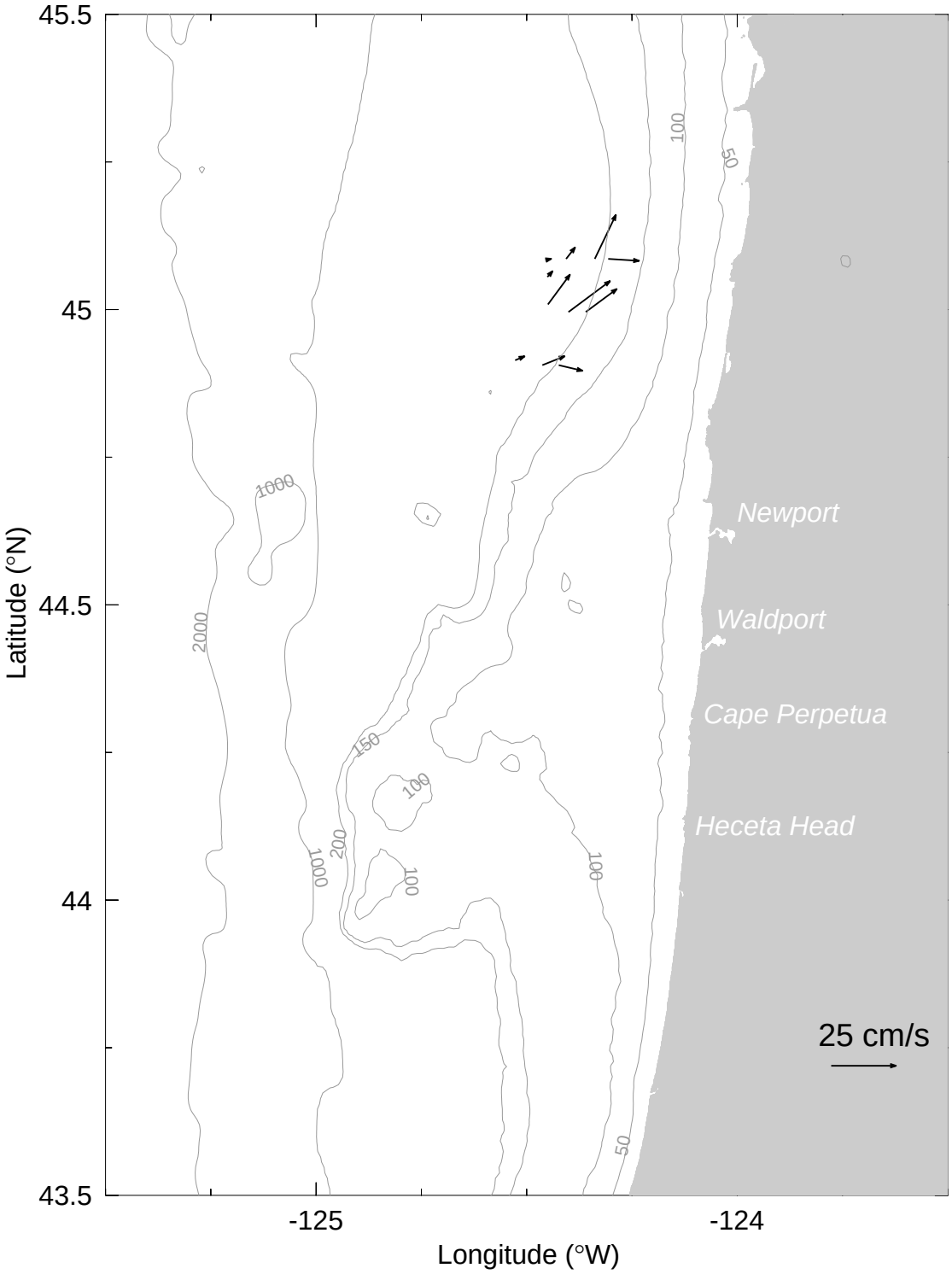
COAST III (W0301b) NB-ADCP: Small box north 4
50 m, 23.7017 - 24.0851, 23-Jan-03 16:50 to 24-Jan-03 02:02 UTC



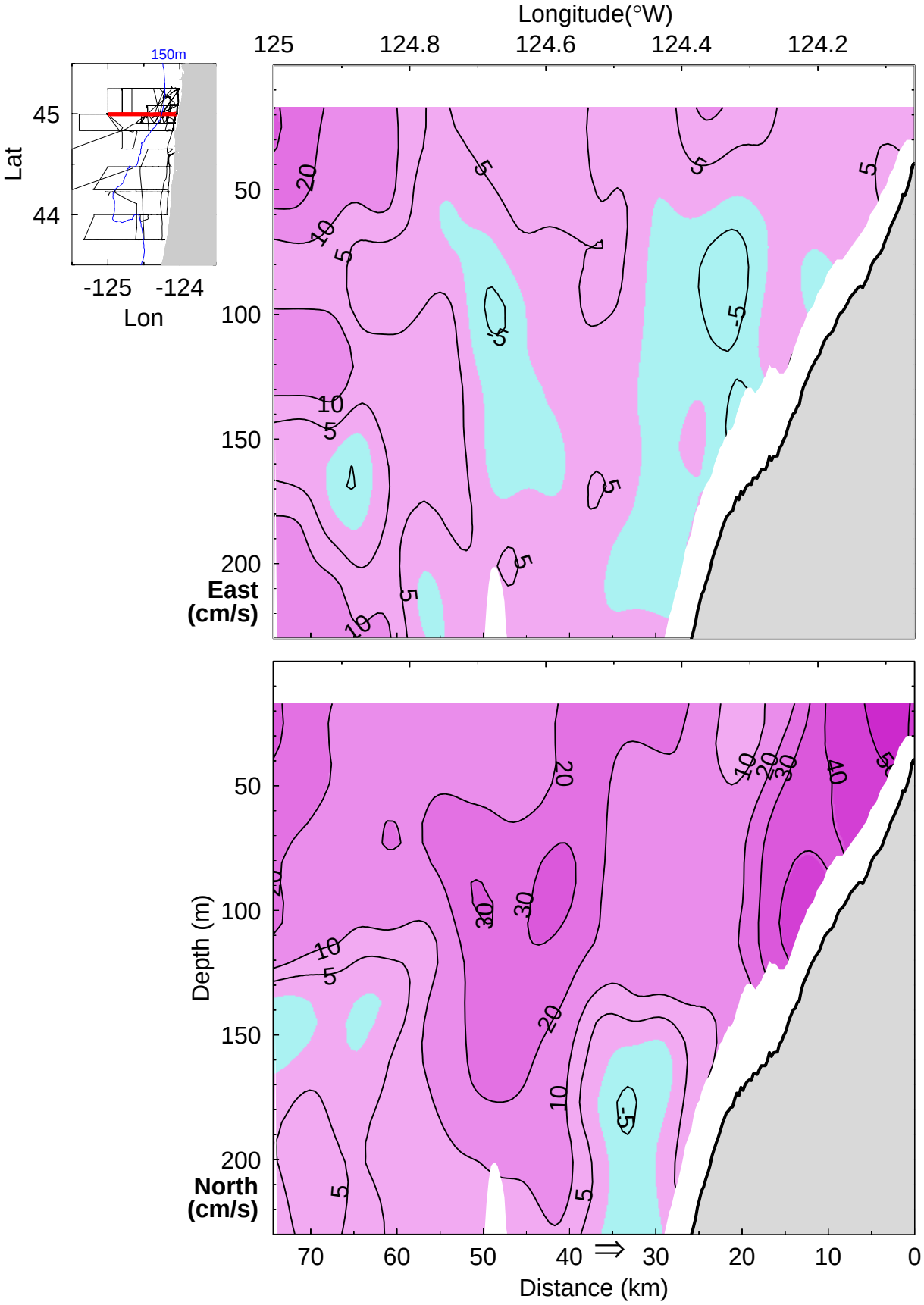
COAST III (W0301b) NB-ADCP: Small box north 4
100 m, 23.7017 - 24.0851, 23-Jan-03 16:50 to 24-Jan-03 02:02 UTC



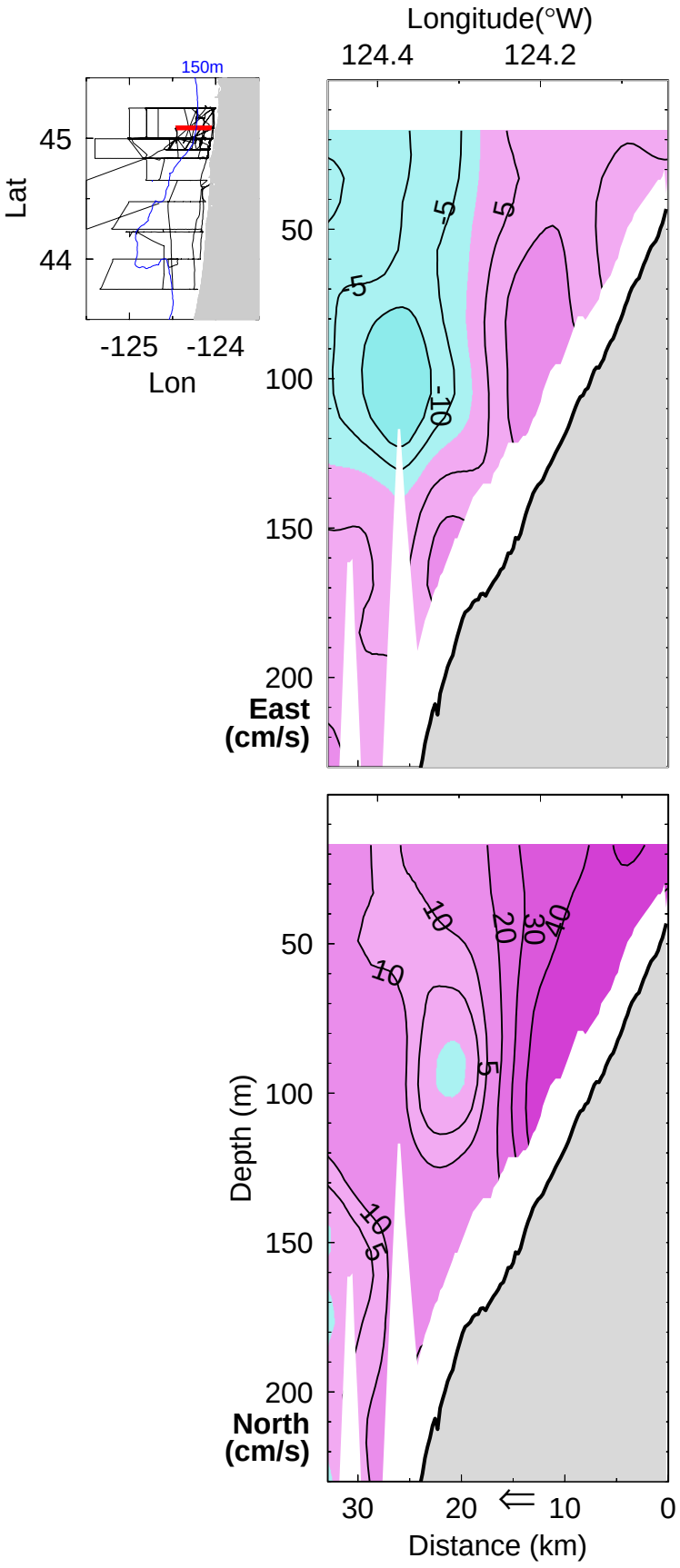
COAST III (W0301b) NB-ADCP: Small box north 4
150 m, 23.7017 - 24.0851, 23-Jan-03 16:50 to 24-Jan-03 02:02 UTC



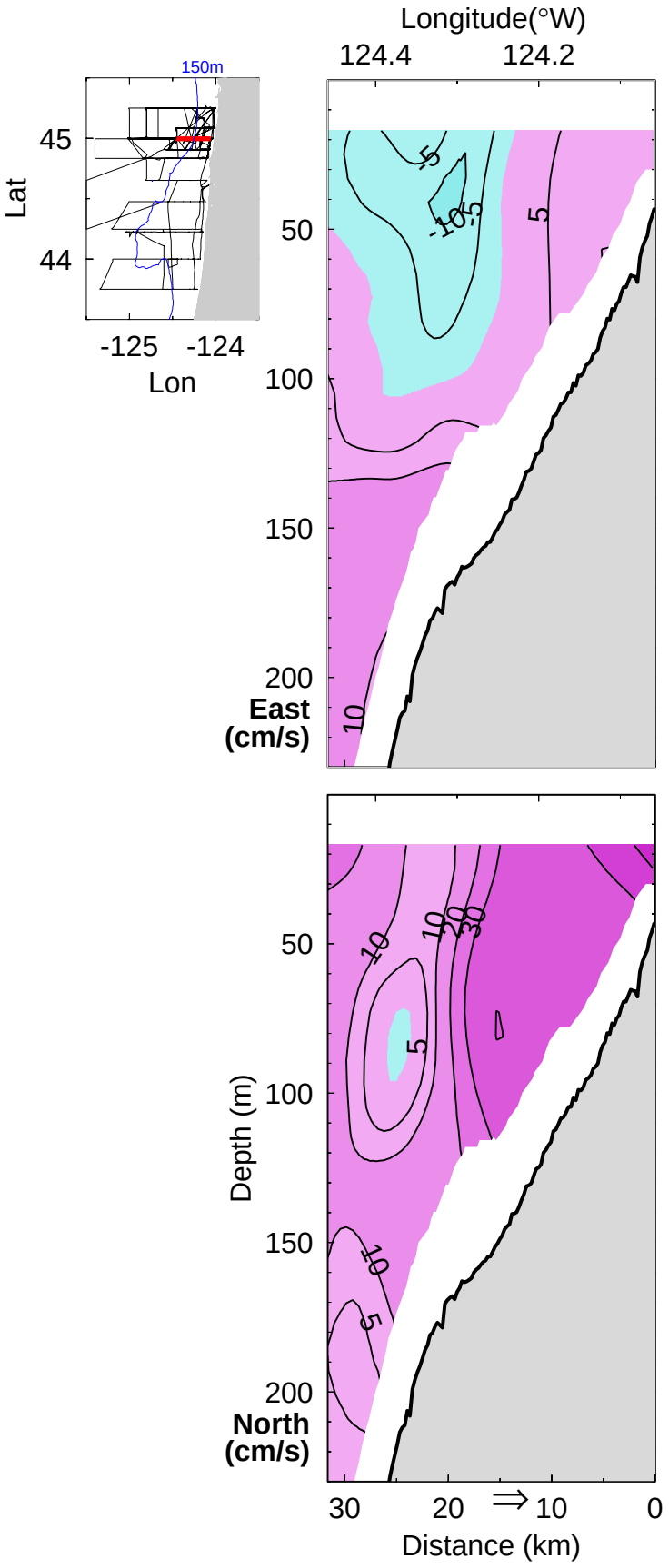
COAST III (W0301b) NB-ADCP: Small box north 4
line2 at 45.00°N (23-Jan-03 09:30 to 23-Jan-03 15:33 UTC)
(yearday 23.3961 - 23.6482)



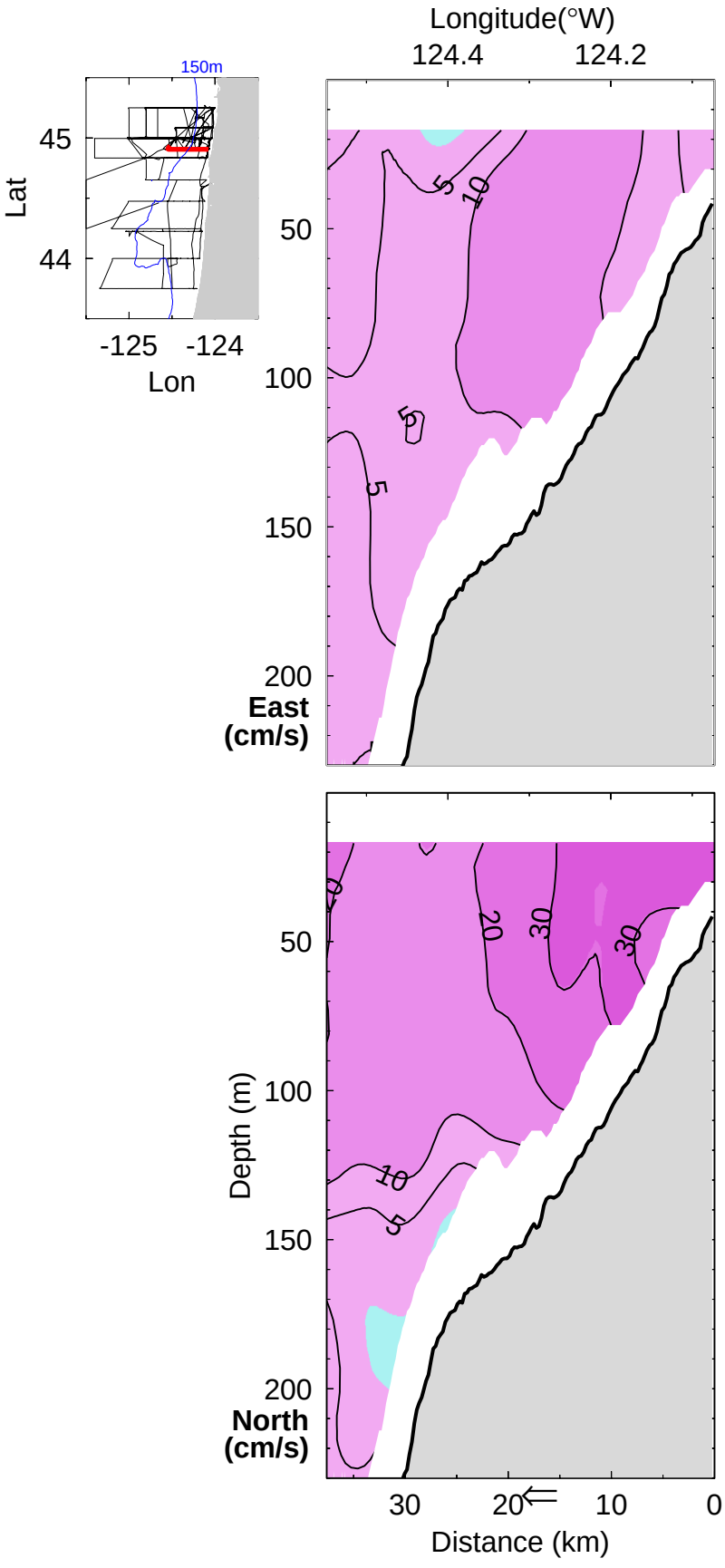
COAST III (W0301b) NB-ADCP: Small box north 4
lineA at 45.09°N (23-Jan-03 16:57 to 23-Jan-03 19:16 UTC)
(yearday 23.7065 - 23.8031)



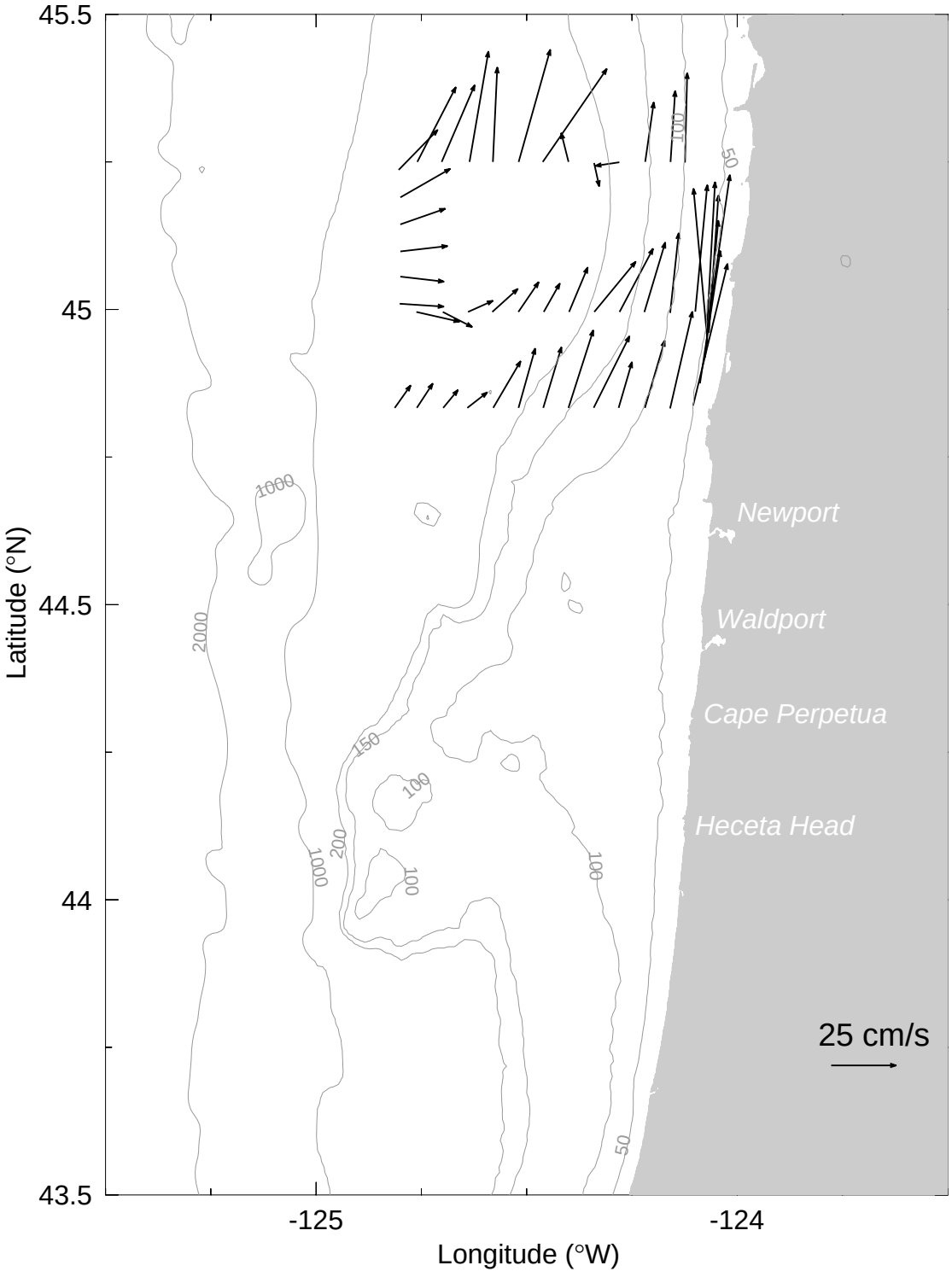
COAST III (W0301b) NB-ADCP: Small box north 4
lineB at 45.00°N (23-Jan-03 19:59 to 23-Jan-03 22:14 UTC)
(yearday 23.8330 - 23.9267)



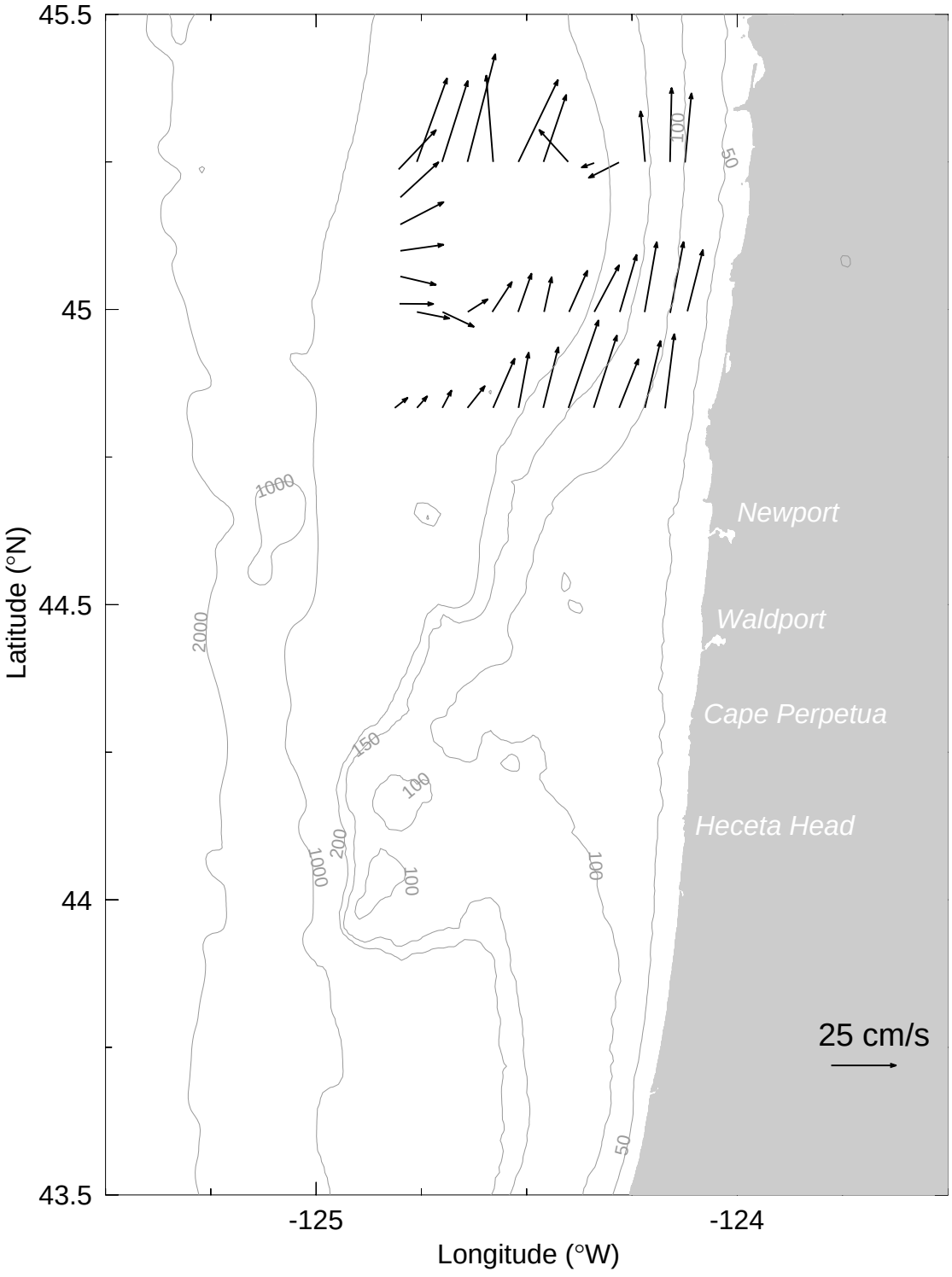
COAST III (W0301b) NB-ADCP: Small box north 4
lineC at 44.91°N (23-Jan-03 23:05 to 24-Jan-03 02:02 UTC)
(yearday 23.9621 - 24.0850)



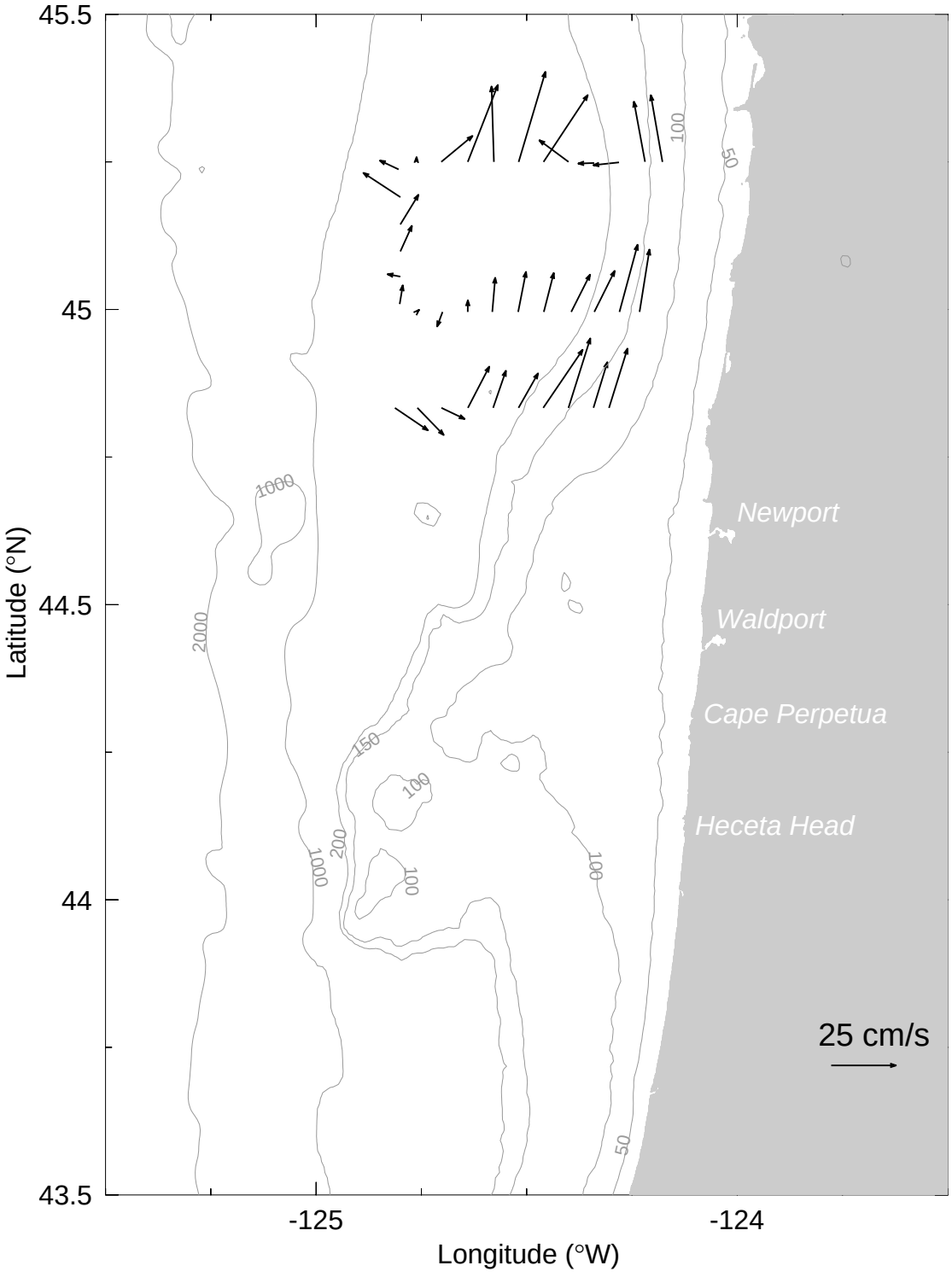
COAST III (W0301b) NB-ADCP: Big box 2
17 m, 24.5149 - 25.1619, 24-Jan-03 12:21 to 25-Jan-03 03:53 UTC



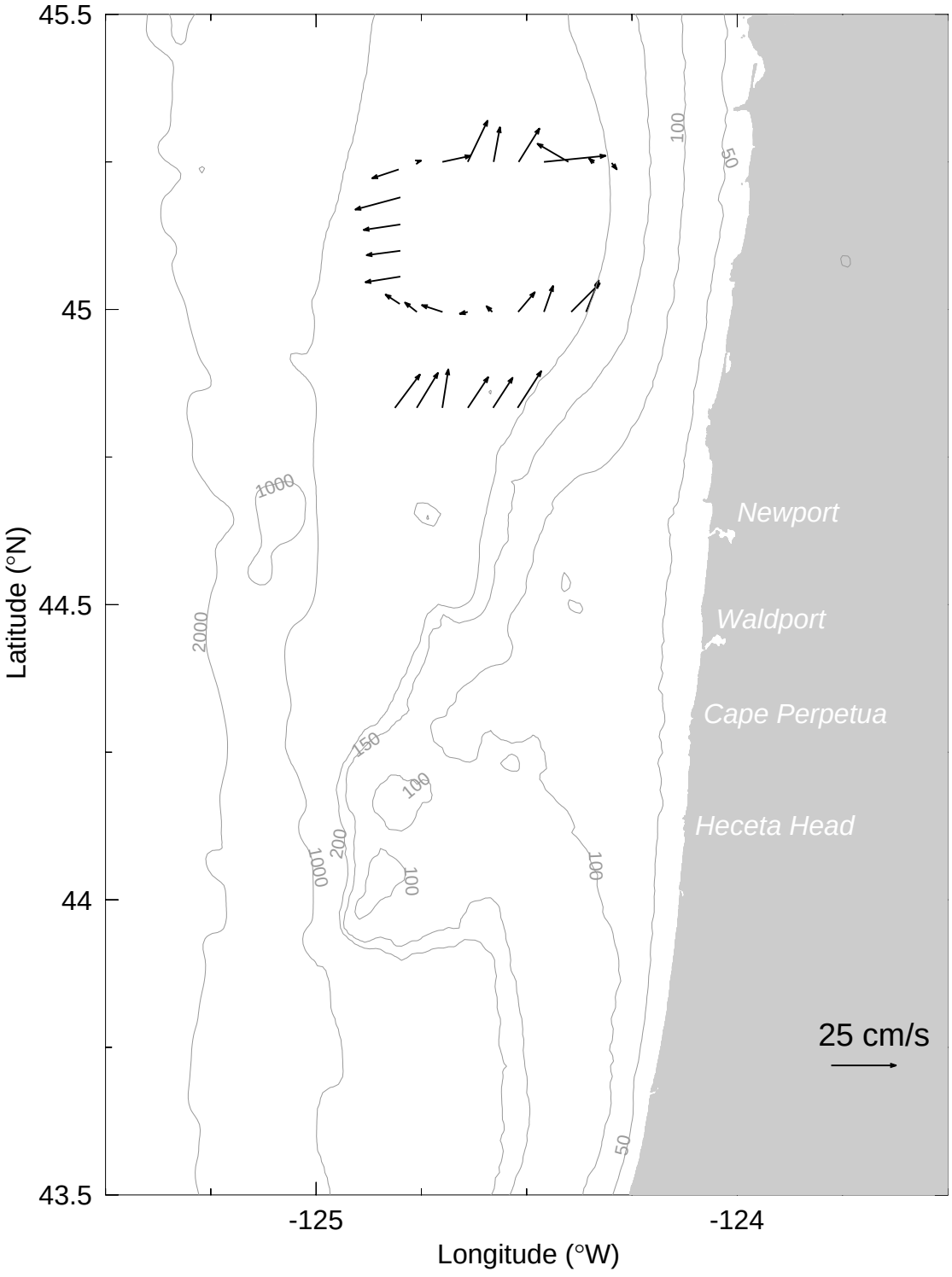
COAST III (W0301b) NB-ADCP: Big box 2
50 m, 24.5149 - 25.1619, 24-Jan-03 12:21 to 25-Jan-03 03:53 UTC



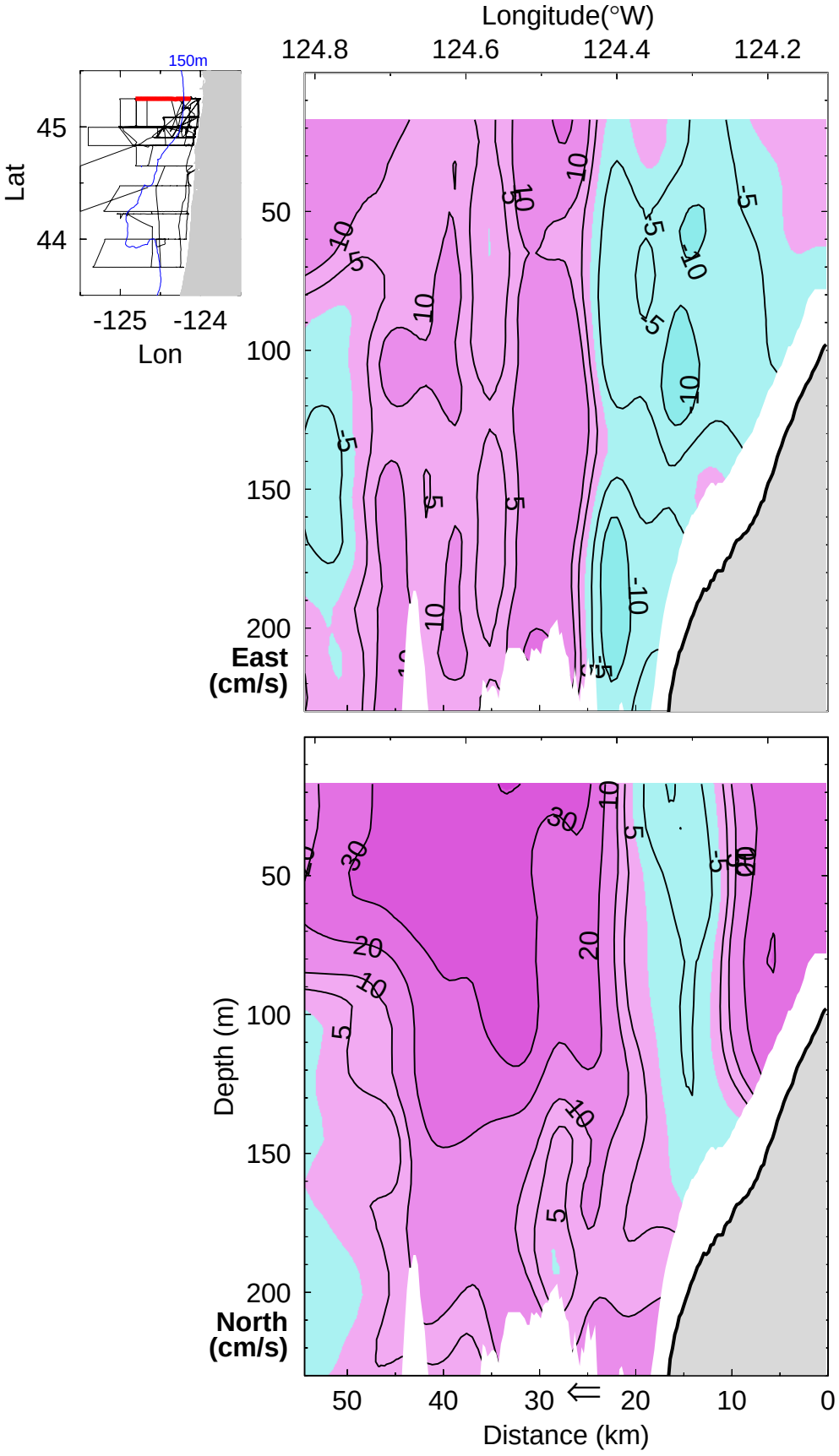
COAST III (W0301b) NB-ADCP: Big box 2
100 m, 24.5149 - 25.1619, 24-Jan-03 12:21 to 25-Jan-03 03:53 UTC



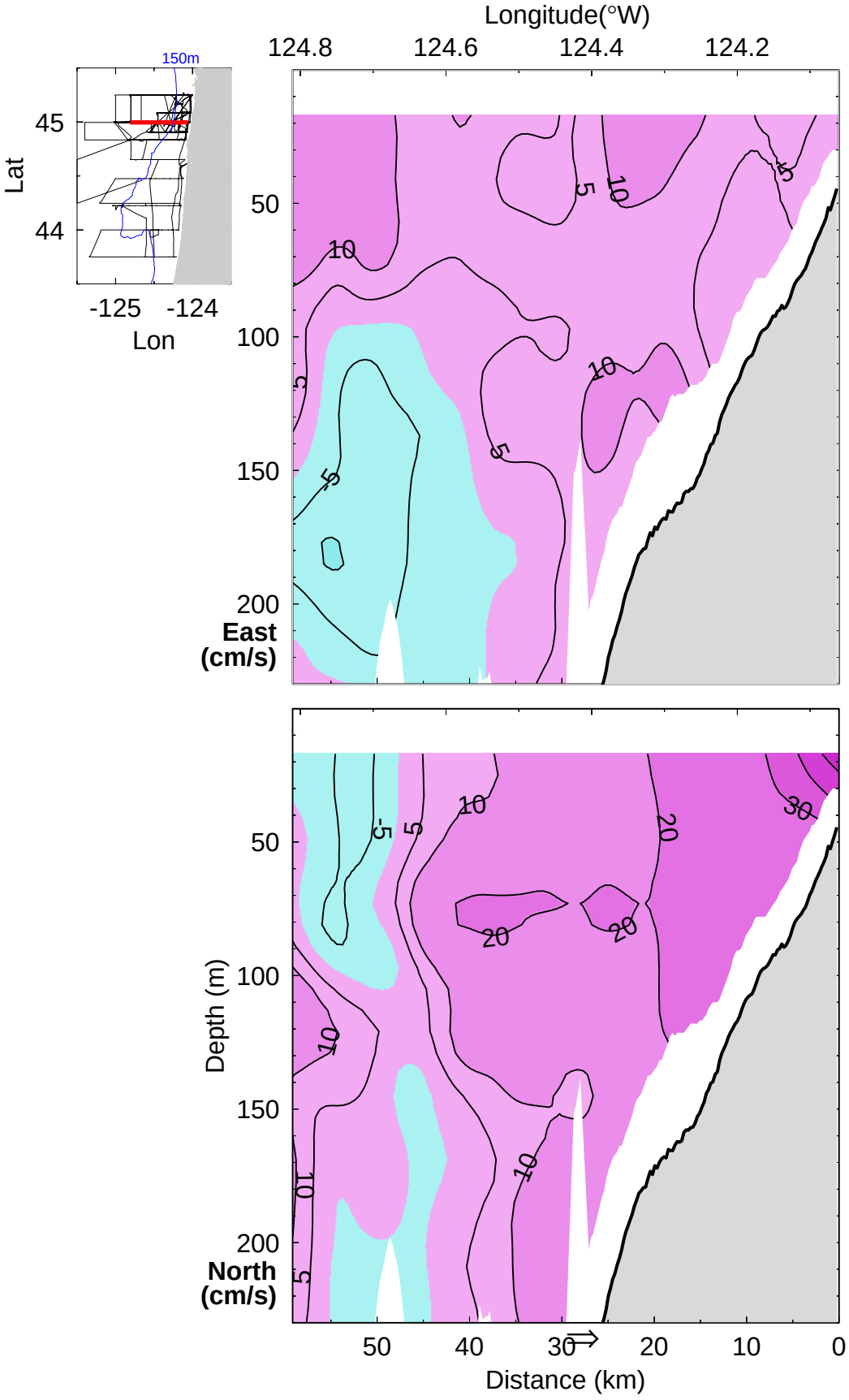
COAST III (W0301b) NB-ADCP: Big box 2
150 m, 24.5149 - 25.1619, 24-Jan-03 12:21 to 25-Jan-03 03:53 UTC



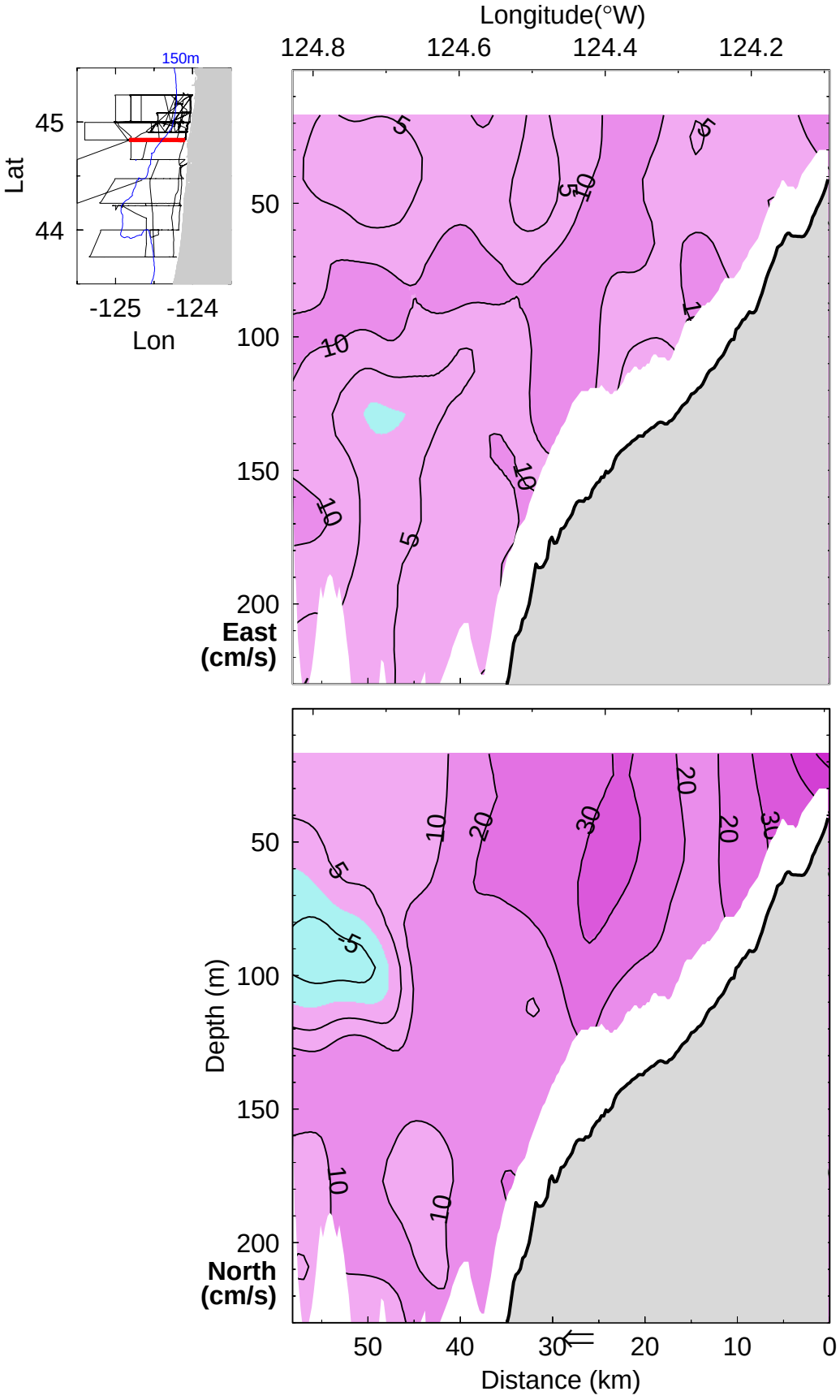
COAST III (W0301b) NB-ADCP: Big box 2
line1 at 45.25°N (24-Jan-03 12:22 to 24-Jan-03 16:13 UTC)
(yearday 24.5156 - 24.6760)



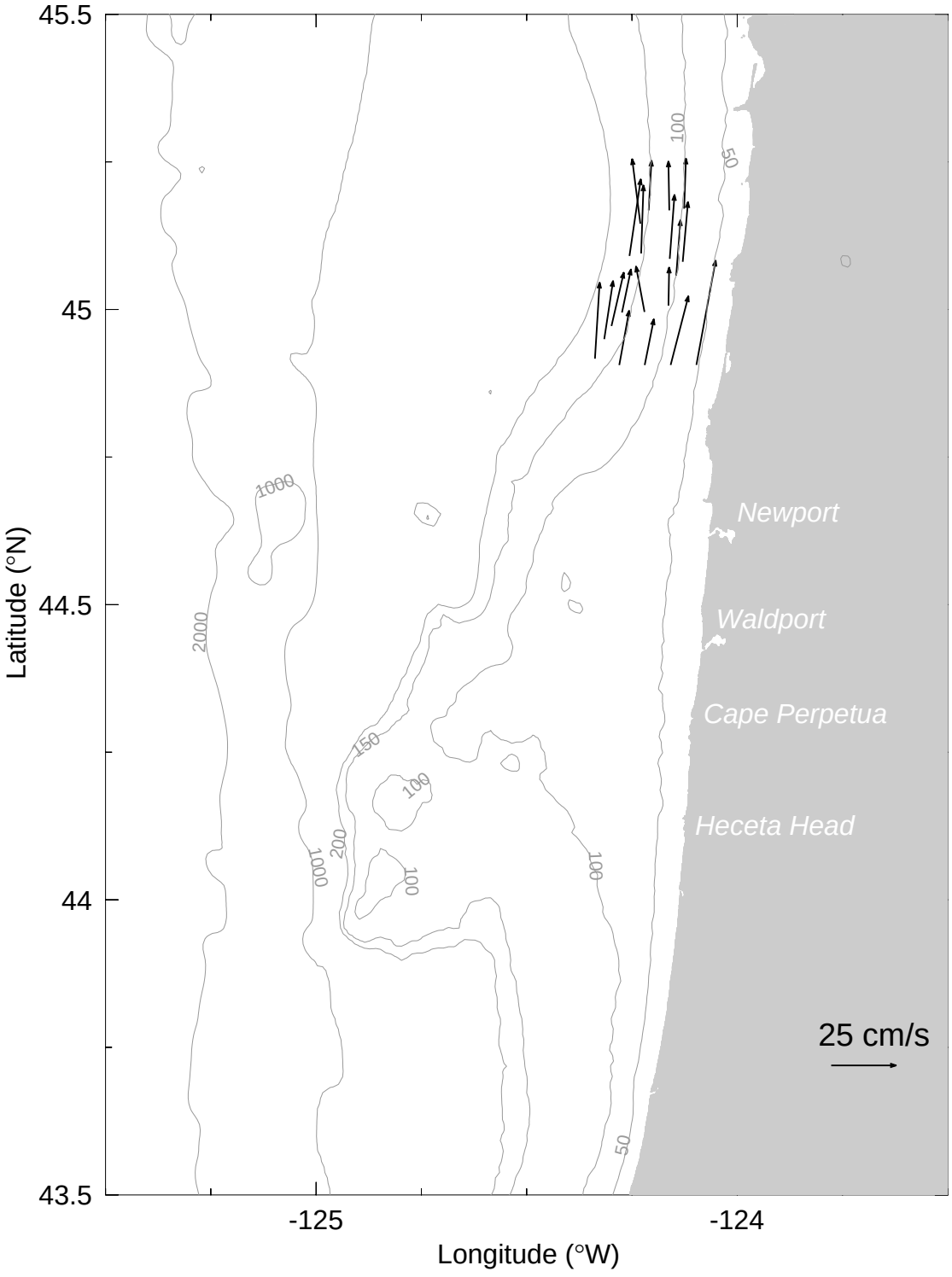
COAST III (W0301b) NB-ADCP: Big box 2
line2 at 45.00°N (24-Jan-03 18:13 to 24-Jan-03 22:21 UTC)
(yearday 24.7596 - 24.9314)



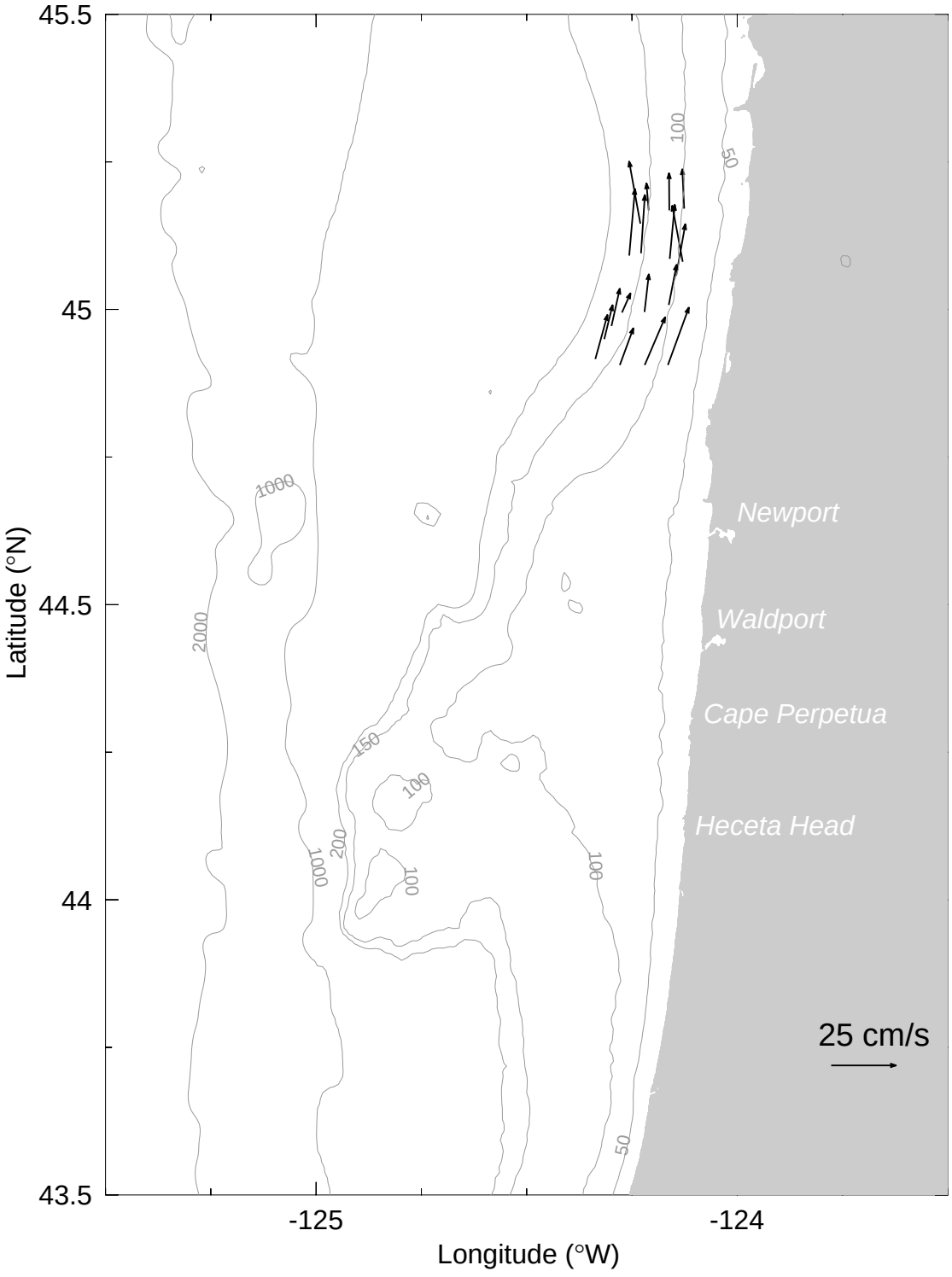
COAST III (W0301b) NB-ADCP: Big box 2
line3 at 44.83°N (24-Jan-03 23:48 to 25-Jan-03 03:52 UTC)
(yearday 24.9918 - 25.1613)



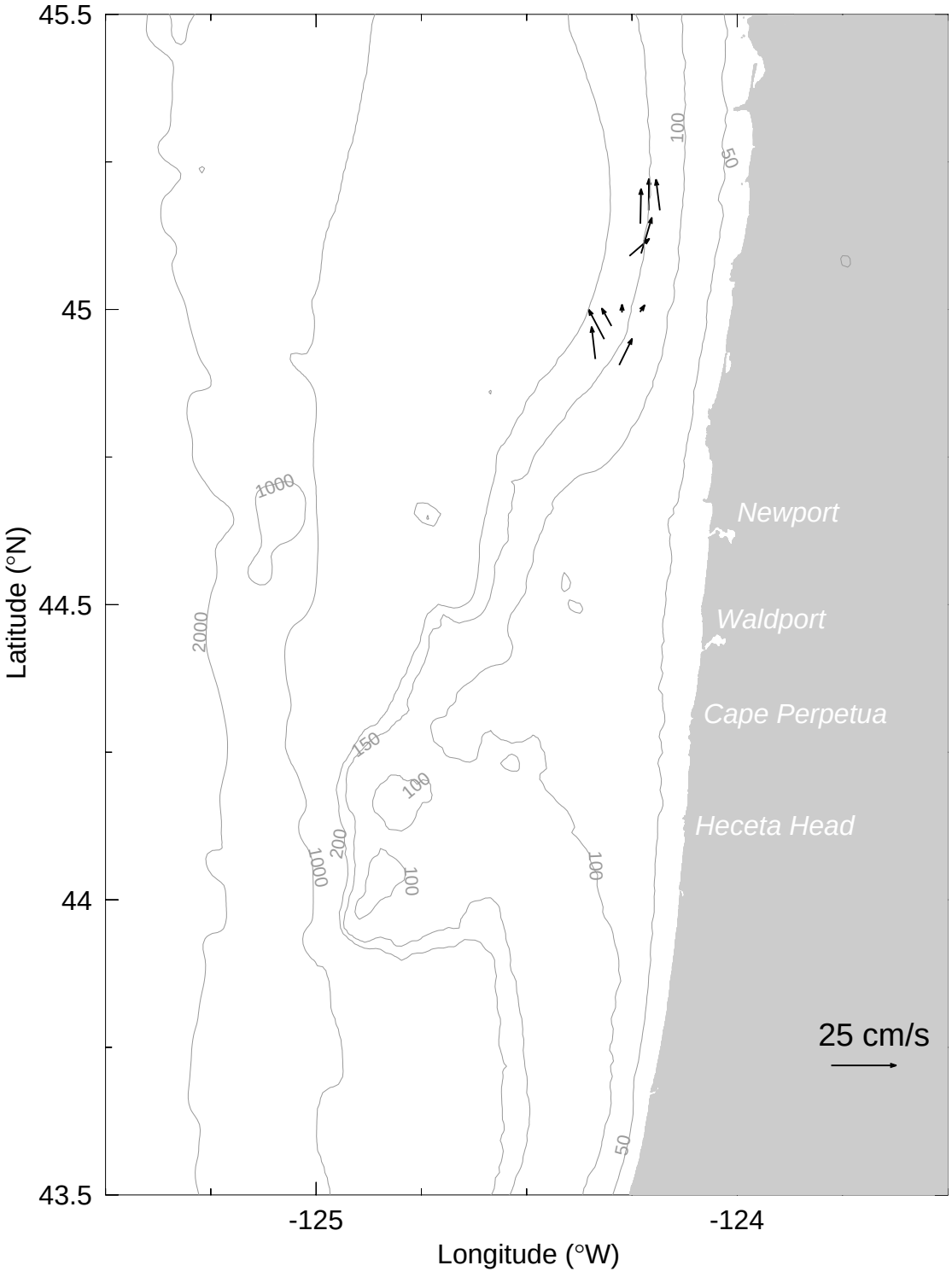
COAST III (W0301b) NB-ADCP: Ladder 2
17 m, 27.0415 - 27.2885, 27-Jan-03 00:59 to 27-Jan-03 06:55 UTC



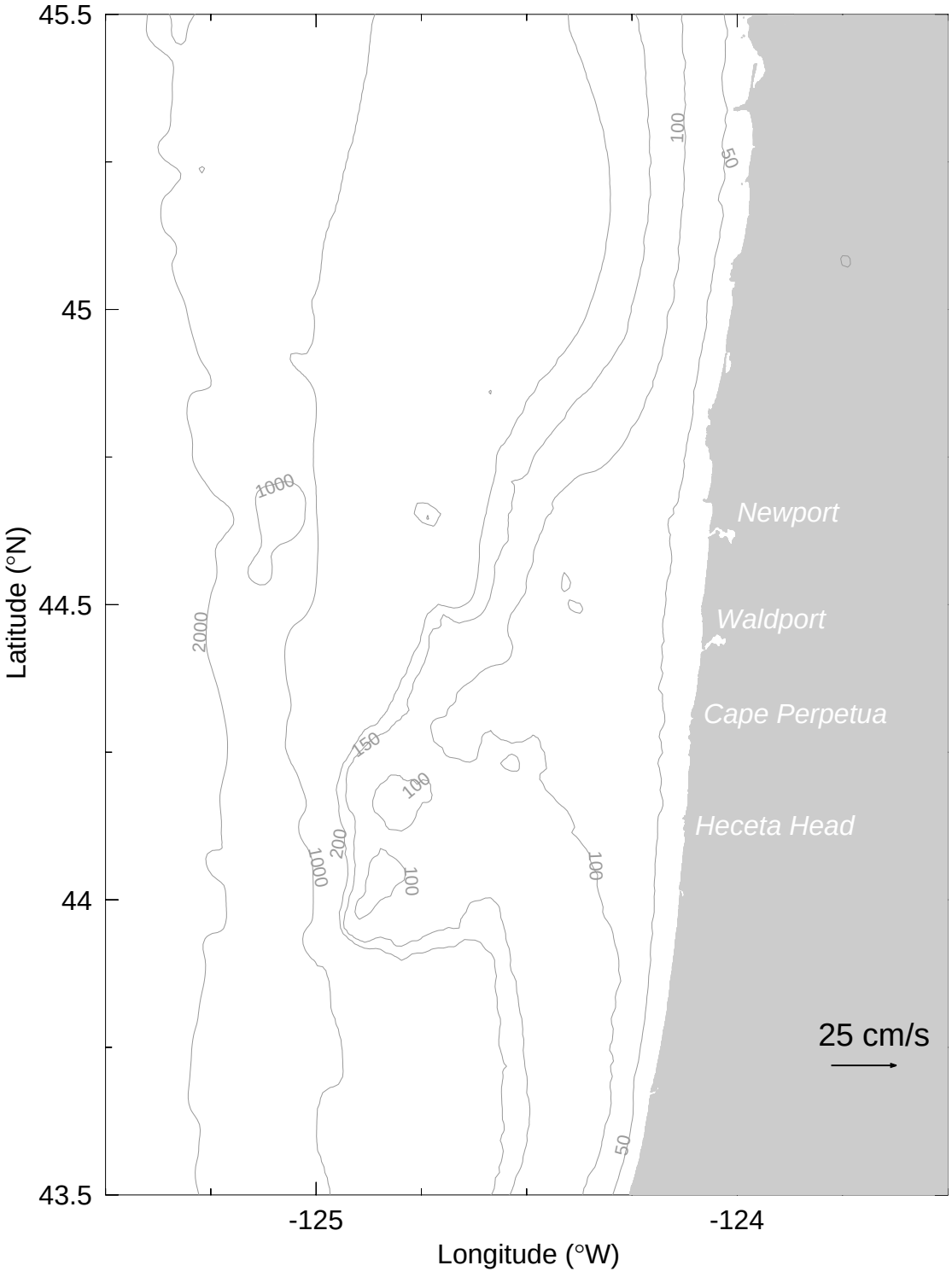
COAST III (W0301b) NB-ADCP: Ladder 2
50 m, 27.0415 - 27.2885, 27-Jan-03 00:59 to 27-Jan-03 06:55 UTC



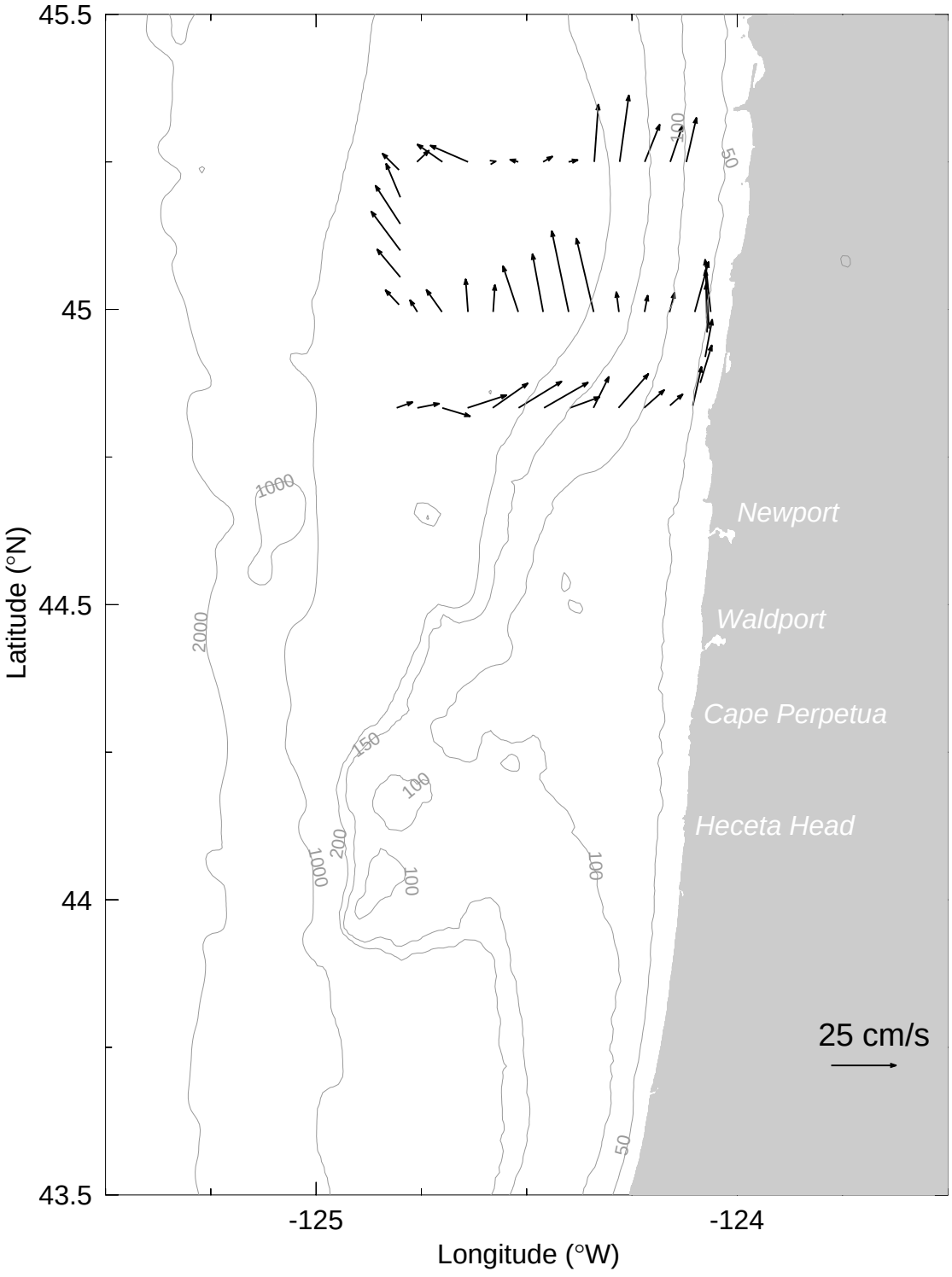
COAST III (W0301b) NB-ADCP: Ladder 2
100 m, 27.0415 - 27.2885, 27-Jan-03 00:59 to 27-Jan-03 06:55 UTC



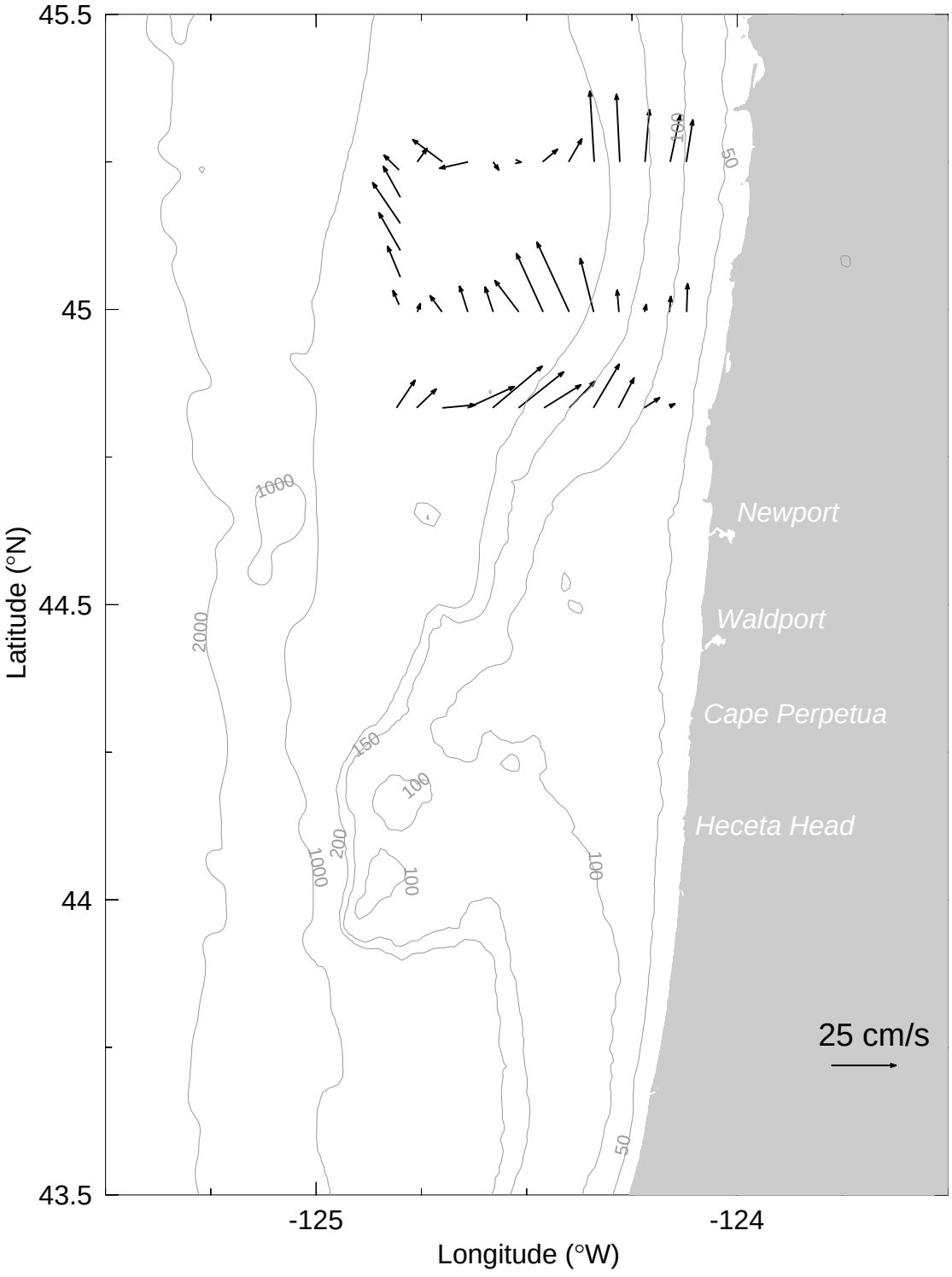
COAST III (W0301b) NB-ADCP: Ladder 2
150 m, 27.0415 - 27.2885, 27-Jan-03 00:59 to 27-Jan-03 06:55 UTC



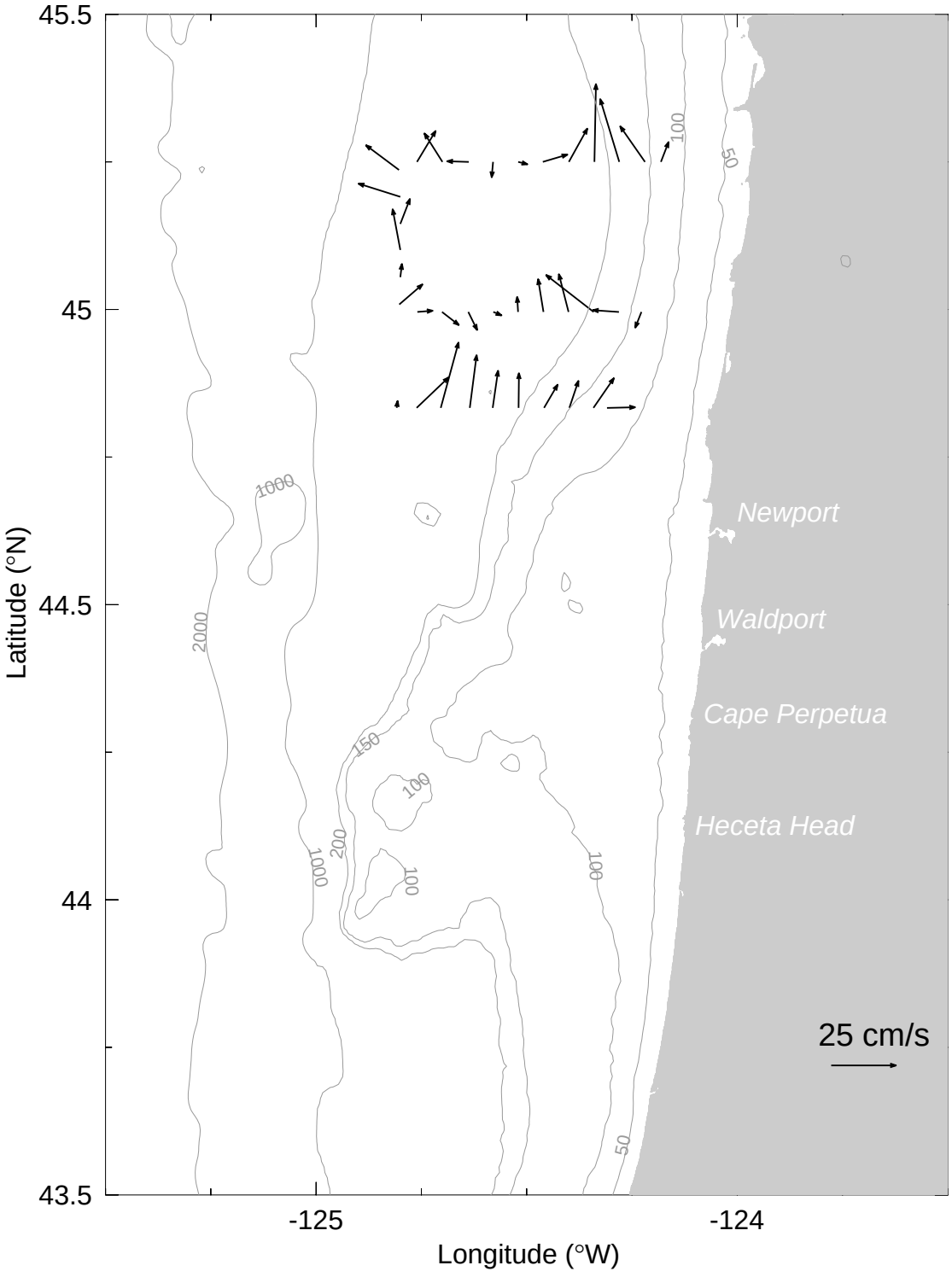
COAST III (W0301b) NB-ADCP: Big box 3
17 m, 27.5059 - 28.1664, 27-Jan-03 12:08 to 28-Jan-03 03:59 UTC



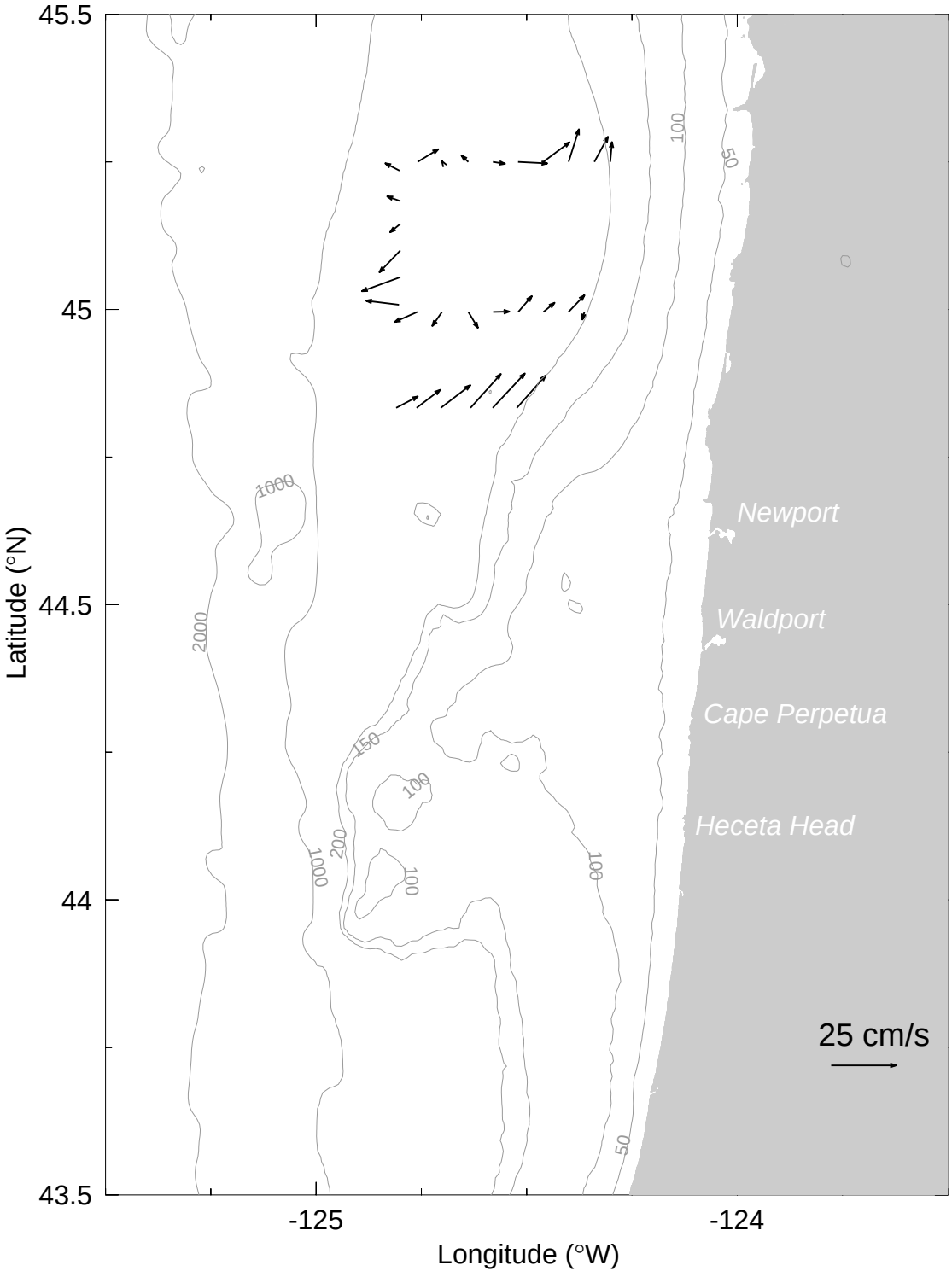
COAST III (W0301b) NB-ADCP: Big box 3
50 m, 27.5059 - 28.1664, 27-Jan-03 12:08 to 28-Jan-03 03:59 UTC



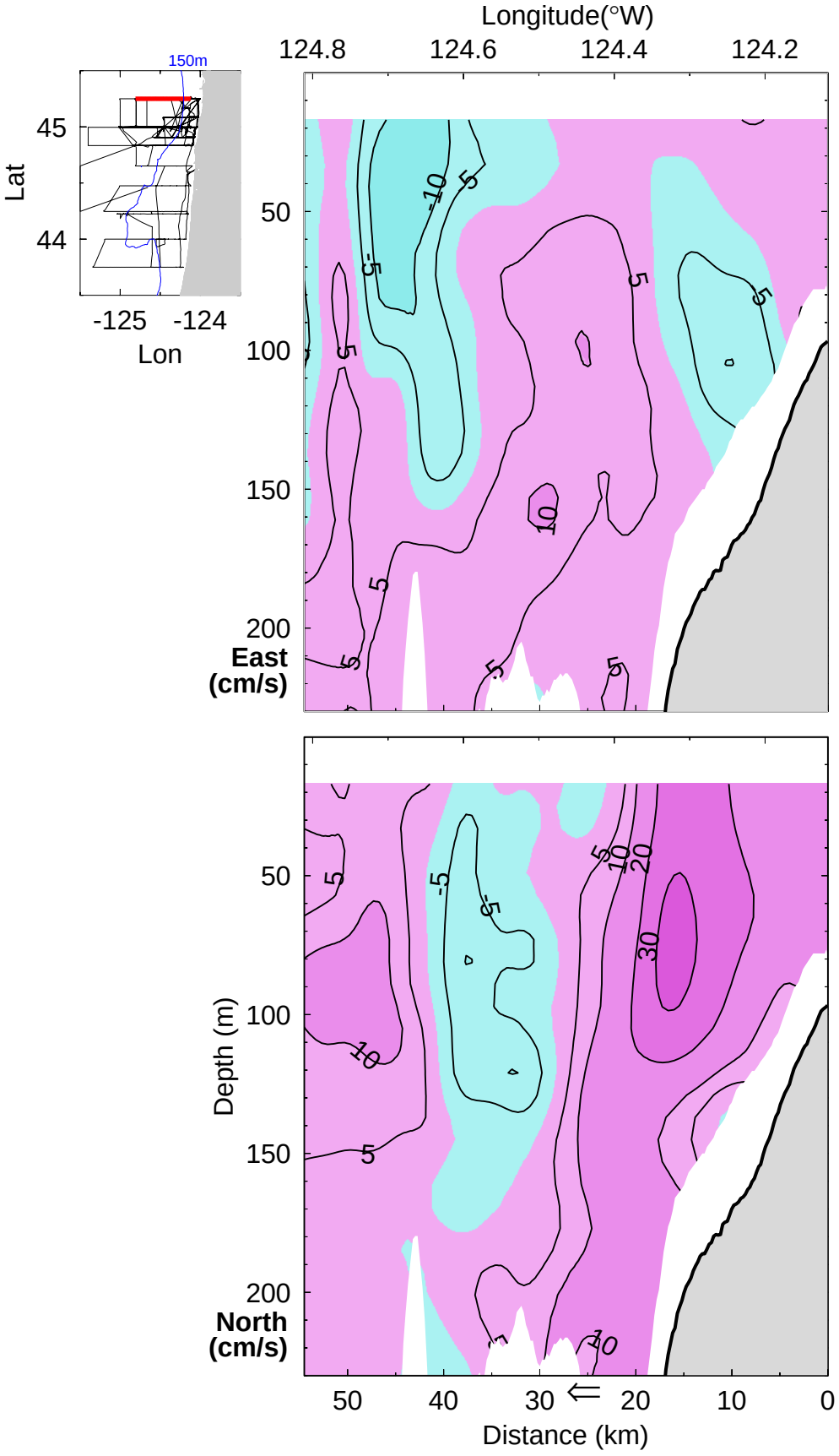
COAST III (W0301b) NB-ADCP: Big box 3
100 m, 27.5059 - 28.1664, 27-Jan-03 12:08 to 28-Jan-03 03:59 UTC



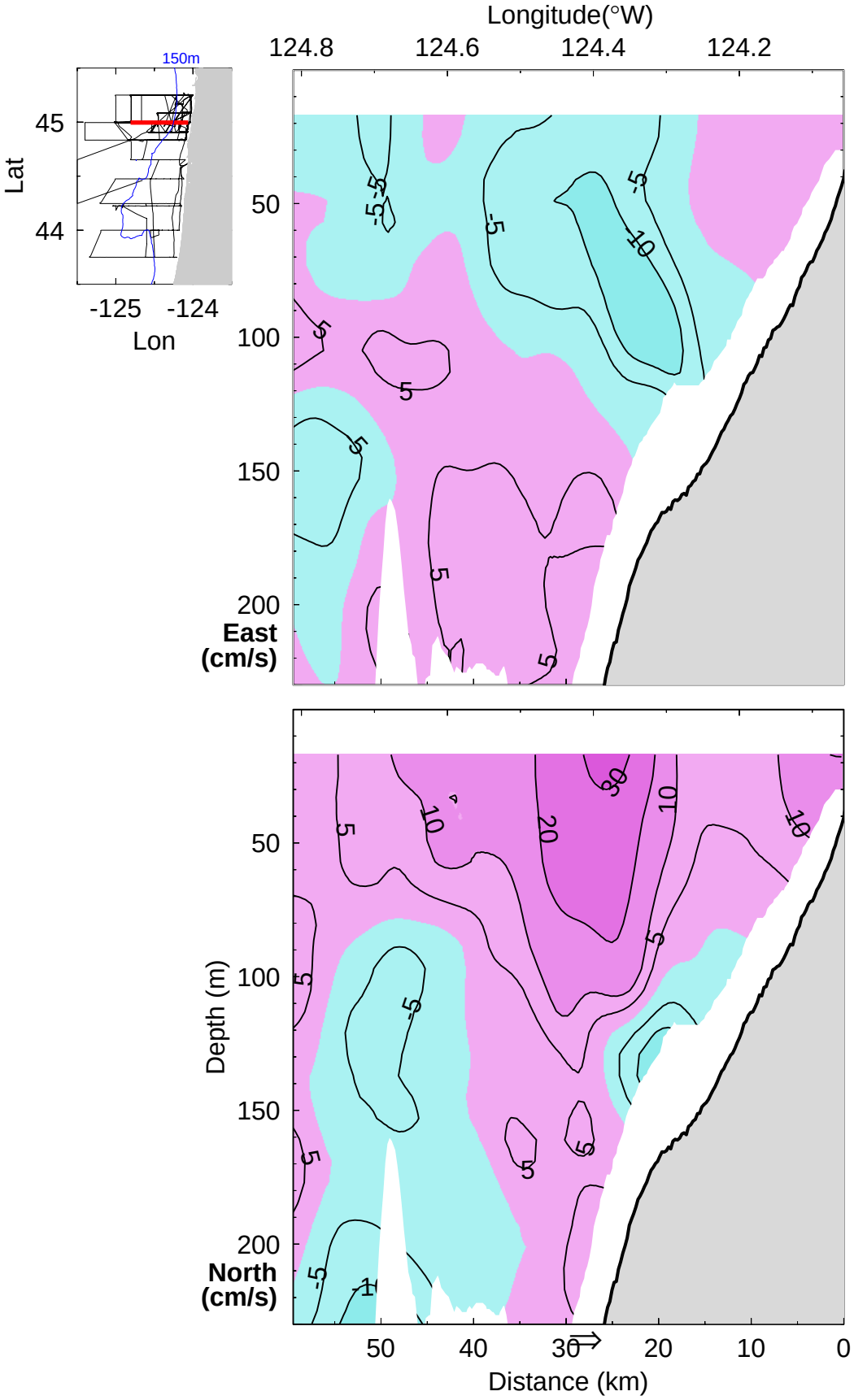
COAST III (W0301b) NB-ADCP: Big box 3
150 m, 27.5059 - 28.1664, 27-Jan-03 12:08 to 28-Jan-03 03:59 UTC



COAST III (W0301b) NB-ADCP: Big box 3
line1 at 45.25°N (27-Jan-03 12:09 to 27-Jan-03 16:04 UTC)
(yearday 27.5064 - 27.6695)



COAST III (W0301b) NB-ADCP: Big box 3
line2 at 45.00°N (27-Jan-03 18:07 to 27-Jan-03 22:20 UTC)
(yearday 27.7549 - 27.9306)



COAST III (W0301b) NB-ADCP: Big box 3
line3 at 44.83°N (27-Jan-03 23:45 to 28-Jan-03 03:58 UTC)
(yearday 27.9896 - 28.1657)