

RDI 75kHz Long Ranger Deployment

Project: Endeavour Ridge "Sea Breeze-Fluxmeter" Year 3

Serial Number: 3868

Cruise: 2005-16

Platform: CCGS John P. Tully (Capt. John Anderson)

Station: ER05 N3

Deployment Date: 1923, 21 July 2005 PDT

Position: 47° 57.474' N, 129° 05.312' W

Depth on Sounder: 2100-2300m

Recovery Date: July 2006 (proposed)

Deployed 6 m above bottom with Aanderaa CM 19m above and microcat below

Parameters

Burst Sampling Interval	01:00:00.00
Ensemble Interval	00:00:01.00
Bin Size	8m
Number of Pings	1
Number of Ensembles per Burst	48
Number of Bins	64
Observations	radial beam velocity, echo intensity correlation, pitch, roll, heading, battery
Ambiguity Velocity	125cm/s
Water Profiling Mode	Mode 1, Narrow Band
Time Zone	UTC
Start Time	1800, 21 July 2005 UTC
Power	High

PREDEPLOYMENT TESTING 3868

```
[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.21
RD Instruments (c) 1996-2002
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>DEPLOY?
Deployment Commands:
RE ----- Recorder ErAsE
RN ----- Set Deployment Name

WD = 111 100 000 ----- Data Out (Vel,Cor,Amp; PG,St,P0; P1,P2,P3)
WF = 0704 ----- Blank After Transmit (cm)
WN = 064 ----- Number of depth cells (1-128)
WP = 00050 ----- Pings per Ensemble (0-16384)
WS = 0800 ----- Depth Cell Size (cm)
WV = 125 ----- Mode 1 Ambiguity Vel (cm/s radial)

TE = 01:00:00.00 ----- Time per Ensemble (hrs:min:sec.sec/100)
TF = **/**/**, **:**:** --- Time of First Ping (yr/mon/day,hour:min:sec)
TP = 00:10.00 ----- Time per Ping (min:sec.sec/100)
TS = 05/07/20,19:34:47 --- Time Set (yr/mon/day,hour:min:sec)

EA = +00000 ----- Heading Alignment (1/100 deg)
EB = +00000 ----- Heading Bias (1/100 deg)
ED = 21000 ----- Transducer Depth (0 - 65535 dm)
ES = 35 ----- Salinity (0-40 pp thousand)
EX = 11111 ----- Coord Transform (Xform: Type,Tilts,3 Bm,Map)
EZ = 111111 ----- Sensor Source (C,D,H,P,R,S,T)

CF = 11101 ----- Flow Ctrl (EnsCyc;PngCyc;Binry;Ser;Rec)
CK ----- Keep Parameters as USER Defaults
CR # ----- Retrieve Parameters (0 = USER, 1 = FACTORY)
CS ----- Start Deployment

>SYSTEM?
System Control, Data Recovery and Testing Commands:
AC ----- Output Active Fluxgate & Tilt Calibration
data
AF ----- Field calibrate to remove hard/soft iron
error
AR ----- Restore factory fluxgate calibration data
AX ----- Examine compass performance
AZ ----- Zero pressure reading

CB = 811 ----- Serial Port Control (Baud; Par; Stop)
CP # ----- Polled Mode (0 = NORMAL, 1 = POLLED)
CZ ----- Power Down Instrument

FC ----- Clear Fault Log
FD ----- Display Fault Log

OL ----- Display Features List

PA ----- Pre-Deployment Tests
PC1 ----- Beam Continuity
PC2 ----- Sensor Data
```

```

PS0 ----- System Configuration
PS3 ----- Transformation Matrices

RR ----- Recorder Directory
RF ----- Recorder Space used/free (bytes)
RY ----- Upload Recorder Files to Host

>TS?
TS = 05/07/20,19:35:32 --- Time Set (yr/mon/day,hour:min:sec)
>PS0
  Instrument S/N: 3868
    Frequency: 76800 HZ
  Configuration: 4 BEAM, JANUS
    Match Layer: 10
    Beam Angle: 20 DEGREES
  Beam Pattern: CONVEX
  Orientation: DOWN
  Sensor(s): HEADING TILT 1 TILT 2 DEPTH TEMPERATURE
PRESSURE
Pressure Sens Coefficients:
    c3 = +4.916395E-11
    c2 = -1.141992E-06
    c1 = +1.040860E+00
  Offset = -2.838990E+02

Temp Sens Offset: -0.38 degrees C

  CPU Firmware: 16.21 [0]
  Boot Code Ver: Required: 1.13 Actual: 1.13
  DEMOD #1 Ver: ad48, Type: 1f
  DEMOD #2 Ver: ad48, Type: 1f
  PWRTIMG Ver: 85d3, Type: 5

Board Serial Number Data:
  5E 00 00 02 FB AE 44 09 DSP727-2001-06F
  DD 00 00 02 48 76 5C 09 HPI727-3007-00A
  6A 00 00 02 FB AC E1 09 TUN727-1005-06X
  D1 00 00 02 FB 91 19 09 CPU727-2000-00H
  91 00 00 03 01 94 45 09 REC727-1004-06X
  D4 00 00 02 48 99 23 09 HPA727-3009-00A
>PA

PRE-DEPLOYMENT TESTS

CPU TESTS:
  RTC.....PASS
  RAM.....PASS
  ROM.....PASS
RECORDER TESTS:
  PC Card #0.....NOT DETECTED
  PC Card #1.....DETECTED
  Card Detect.....PASS
  Communication.....PASS
  DOS Structure.....PASS
  Sector Test (short).....PASS
DSP TESTS:
  Timing RAM.....PASS

```

```

Demod  RAM.....PASS
Demod  REG.....PASS
FIFOs.....PASS
SYSTEM TESTS:
XILINX Interrupts... IRQ3  IRQ3  IRQ3 ...PASS
Receive Loop-Back.....PASS
Wide Bandwidth.....***FAIL***
Narrow Bandwidth.....***FAIL***
RSSI Filter.....PASS
Transmit.....***FAIL***
SENSOR TESTS:
H/W Operation.....PASS
>PC2

```

Press any key to quit sensor display ...

```

Heading  Pitch    Roll    Up/Down    Attitude Temp    Ambient Temp
PRESSURE
 96.530  -0.950  -0.620    Down          21.180C          19.550C
221.3 kPa
>RS  ERR 010:  UNRECOGNIZED COMMAND
>PC1

```

BEAM CONTINUITY TEST

When prompted to do so, vigorously rub the selected beam's face.

If a beam does not PASS the test, send any character to the ADCP to automatically select the next beam.

```

Collecting Statistical Data...
 37  26  49  50

```

```

Rub Beam 1 = PASS
Rub Beam 2 = PASS
Rub Beam 3 = PASS
Rub Beam 4 = PASS

```

>CZ

Powering Down

TIME SET UTC

```
>>>>> Function starting 07/21/05 04:00:45 >>>>>
```

```

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.21
RD Instruments (c) 1996-2002
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>TS050721040049
>CZ

```

Powering Down

[BREAK Wakeup A]
 WorkHorse Broadband ADCP Version 16.21
 RD Instruments (c) 1996-2002
 All Rights Reserved.

>experton

Expert Mode is ON

>ol FEATURES

Feature	Installed
Bottom Track	No
Water Profile	Yes
High Resolution Water Modes	No
Lowered ADCP	No
Wave Gauge Acquisition	No
Shallow Bottom Mode	No
High Rate Pinging	No

See your technical manual or contact RDI for information on how to install additional capability in your WorkHorse.

>az

Pressure Offset Updated in NVRAM.

>c?

CB = 811 ----- Serial Port Control (Baud [8=115200]; Par; Stop)

CC = 000 000 000 ----- Choose External Devices (x;x;x x;x;x x;x;SBMC)

CD = 000 000 000 ----- Serial Data Out (Vel;Cor;Amp PG;St;P0 P1;P2;P3)

CE ----- Retrieve Last Ensemble

CF = 11101 ----- Flow Ctrl (EnsCyc;PngCyc;Binry;Ser;Rec)

CH = 0 ----- Suppress Banner

CI = 000 ----- Instrument ID (0-255)

CK ----- Keep Parameters as USER Defaults

CL = 1 ----- Sleep Enable (0 = Disable, 1 = Enable)

CM = 0 ----- RS-232 Sync Master (0 = OFF, 1 = ON)

CN = 0 ----- Save NVRAM to recorder (0 = ON, 1 = OFF)

CP = 0 ----- PolledMode (1=ON, 0=OFF; BREAK resets)

CQ = 255 ----- Xmt Power (0=Low, 255=High)

CR # ----- Retrieve Parameters (0 = USER, 1 = FACTORY)

CS ----- Go (Start Pinging)

CX = 0 ----- Trigger Enable (0 = OFF, 1 = ON)

CY # ----- Error Status Word (0=Clear, 1=Display)

CZ ----- Power Down Instrument

>ck

[Parameters saved as USER defaults]

>E?

EA = +00000 ----- Heading Alignment (1/100 deg)

EB = +00000 ----- Heading Bias (1/100 deg)

EC = 1500 ----- Speed Of Sound (m/s)

ED = 21000 ----- Transducer Depth (0 - 65535 dm)

EH = 00000 ----- Heading (1/100 deg)

EP = +0000 ----- Tilt 1 Sensor (1/100 deg)

```

ER = +0000 ----- Tilt 2 Sensor (1/100 deg)
ES = 35 ----- Salinity (0-40 pp thousand)
ET = +2500 ----- Temperature (1/100 deg Celsius)
EX = 11111 ----- Coord Transform (Xform:Type; Tilts; 3Bm;
Map)
EZ = 1111111 ----- Sensor Source (C;D;H;P;R;S;T)
>ET250
>et ERR 002: NUMERAL EXPECTED
>et?
ET = +0250 ----- Temperature (1/100 deg Celsius)
>EX00000
>ex?
EX = 00000 ----- Coord Transform (Xform:Type; Tilts; 3Bm;
Map)
>p?
PA ----- Pre-Deployment Tests
PB = 01,00,1 ----- PD12 Bin Select (first;num;sub)
PC ### ----- Built In Tests, PC 0 = Help
PD = 00 ----- Data Stream Select (0-12)
PE = 00001 ----- PD12 Ensemble Select (1-65535)
PM ----- Distance Measure Facility
PO = 1111 ----- PD12 Velocity Component Select (v1;v2;v3;v4)
PS # ----- Show Sys Params
(0=Xdcr,1=FLdr,2=VLdr,3=Mat,4=Seq)
PT ### ----- Built In Tests, PT 0 = Help
>ps0
Instrument S/N: 3868
Frequency: 76800 HZ
Configuration: 4 BEAM, JANUS
Match Layer: 10
Beam Angle: 20 DEGREES
Beam Pattern: CONVEX
Orientation: DOWN
Sensor(s): HEADING TILT 1 TILT 2 DEPTH TEMPERATURE
PRESSURE
Pressure Sens Coefficients:
c3 = +4.916395E-11
c2 = -1.141992E-06
c1 = +1.040860E+00
Offset = -4.955702E+02

Temp Sens Offset: -0.38 degrees C

CPU Firmware: 16.21 [0]
Boot Code Ver: Required: 1.13 Actual: 1.13
DEMOD #1 Ver: ad48, Type: 1f
DEMOD #2 Ver: ad48, Type: 1f
PWRTIMG Ver: 85d3, Type: 5

Board Serial Number Data:
5E 00 00 02 FB AE 44 09 DSP727-2001-06F
DD 00 00 02 48 76 5C 09 HPI727-3007-00A
6A 00 00 02 FB AC E1 09 TUN727-1005-06X
D1 00 00 02 FB 91 19 09 CPU727-2000-00H
91 00 00 03 01 94 45 09 REC727-1004-06X
D4 00 00 02 48 99 23 09 HPA727-3009-00A
>ps1

```

```
TS = 05/07/21,05:45:04 --- Time Set (yr/mon/day,hour:min:sec)
```

```

>tf05/07/21,05:50:00
>ts05/07/21,05:40:00
>W?
WA = 050 ----- False Target Threshold (Max) (0-255 counts)
WB = 1 ----- Bandwidth Control (0=Wid,1=Nar)
WC = 064 ----- Correlation Threshold
WD = 111 100 000 ----- Data Out (Vel;Cor;Amp PG;St;P0 P1;P2;P3)
WE = 2000 ----- Error Velocity Threshold (0-5000 mm/s)
WF = 0704 ----- Blank After Transmit (cm)
WI = 0 ----- Clip Data Past Bottom (0=OFF,1=ON)
WJ = 1 ----- Rcvr Gain Select (0=Low,1=High)
WL = 001,005 ----- Water Reference Layer: Begin Cell (0=OFF),
End Cell
WN = 064 ----- Number of depth cells (1-255)
WP = 00050 ----- Pings per Ensemble (0-16384)
WQ = 0 ----- Sample Ambient Sound (0=OFF,1=ON)
WS = 0800 ----- Depth Cell Size (cm)
WT = 0000 ----- Transmit Length (cm) [0 = Bin Length]
WU = 0 ----- Ping Weighting (0=Box,1=Triangle)
WV = 125 ----- Mode 1 Ambiguity Vel (cm/s radial)
WW = 004 ----- Mode 1 Pings before Mode 4 Re-acquire
WX = 999 ----- Mode 4 Ambiguity Vel (cm/s radial)
WZ = 010 ----- Mode 5 Ambiguity Velocity (cm/s radial)
>
Powering Down

```

```

[BREAK Wakeup A]
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```

```

>wp1
>wp ERR 002: NUMERAL EXPECTED
>wp?
WP = 00001 ----- Pings per Ensemble (0-16384)
>cs

```

FINAL DEPLOYMENT 3868 JULY 2005

Set time between pings to (TP) 00:00.00 from 00:00.20
on advice from RDI

```

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.21
RD Instruments (c) 1996-2002
All Rights Reserved.
>ps0
Instrument S/N: 3868
Frequency: 76800 HZ
Configuration: 4 BEAM, JANUS
Match Layer: 10
Beam Angle: 20 DEGREES
Beam Pattern: CONVEX
Orientation: DOWN
Sensor(s): HEADING TILT 1 TILT 2 DEPTH TEMPERATURE
PRESSURE
Pressure Sens Coefficients:

```

```
c3 = +4.916395E-11
c2 = -1.141992E-06
c1 = +1.040860E+00
Offset = -4.955702E+02
```

Temp Sens Offset: -0.38 degrees C

```
CPU Firmware: 16.21 [0]
Boot Code Ver: Required: 1.13 Actual: 1.13
DEMOMD #1 Ver: ad48, Type: 1f
DEMOMD #2 Ver: ad48, Type: 1f
PWRTIMG Ver: 85d3, Type: 5
```

Board Serial Number Data:

```
5E 00 00 02 FB AE 44 09 DSP727-2001-06F
DD 00 00 02 48 76 5C 09 HPI727-3007-00A
6A 00 00 02 FB AC E1 09 TUN727-1005-06X
D1 00 00 02 FB 91 19 09 CPU727-2000-00H
91 00 00 03 01 94 45 09 REC727-1004-06X
D4 00 00 02 48 99 23 09 HPA727-3009-00A
```

>experton

Expert Mode is ON

>az

Pressure Offset Updated in NVRAM.

>az?

-501.486703

>a?

Available Commands:

```
AC ----- Output Active Fluxgate & Tilt Calibration
Data
AD ----- Display Calibration Data
AF ----- Field Calibrate to remove Hard and/or Soft
Iron Error
AR ----- Restore Factory Fluxgate Calibration data:
make factory the active calibration data
AX ----- Examine Compass Performance
AZ -501.486703 ----- Zero pressure reading
A? ----- Display Public Sensor Commands
```

>az

Pressure Offset Updated in NVRAM.

>az?

-502.053390

>c?

```
CB = 811 ----- Serial Port Control (Baud [8=115200]; Par;
Stop)
CC = 000 000 000 ----- Choose External Devices (x;x;x x;x;x
x;x;SBMC)
CD = 000 000 000 ----- Serial Data Out (Vel;Cor;Amp PG;St;P0
P1;P2;P3)
```

```

CE ----- Retrieve Last Ensemble
CF = 11101 ----- Flow Ctrl (EnsCyc;PngCyc;Binry;Ser;Rec)
CH = 0 ----- Suppress Banner
CI = 000 ----- Instrument ID (0-255)
CK ----- Keep Parameters as USER Defaults
CL = 1 ----- Sleep Enable (0 = Disable, 1 = Enable)
CM = 0 ----- RS-232 Sync Master (0 = OFF, 1 = ON)
CN = 0 ----- Save NVRAM to recorder (0 = ON, 1 = OFF)
CP = 0 ----- PolledMode (1=ON, 0=OFF; BREAK resets)
CQ = 255 ----- Xmt Power (0=Low, 255=High)
CR # ----- Retrieve Parameters (0 = USER, 1 = FACTORY)
CS ----- Go (Start Pinging)
CX = 0 ----- Trigger Enable (0 = OFF, 1 = ON)
CY # ----- Error Status Word (0=Clear, 1=Display)
CZ ----- Power Down Instrument

```

>e?

```

EA = +00000 ----- Heading Alignment (1/100 deg)
EB = +00000 ----- Heading Bias (1/100 deg)
EC = 1500 ----- Speed Of Sound (m/s)
ED = 21000 ----- Transducer Depth (0 - 65535 dm)
EH = 00000 ----- Heading (1/100 deg)
EP = +0000 ----- Tilt 1 Sensor (1/100 deg)
ER = +0000 ----- Tilt 2 Sensor (1/100 deg)
ES = 35 ----- Salinity (0-40 pp thousand)
ET = +0250 ----- Temperature (1/100 deg Celsius)
EX = 00000 ----- Coord Transform (Xform:Type; Tilts; 3Bm;
Map)
EZ = 1111111 ----- Sensor Source (C;D;H;P;R;S;T)

```

>rb

RECORDER TESTS:

```

  PC Card #0.....NOT DETECTED
  PC Card #1.....DETECTED
  Card Detect.....PASS
  Communication.....PASS
  DOS Structure.....PASS
  Sector Test (Short).....PASS

```

Recorder tests complete.

>rr

Recorder Directory:

Volume serial number for device #1 is b09b-6bcf

```

  3868_000 000          693711 07-21-05   3:08:48p r a [  2]

```

```

  Bytes used on device #1 = 693711
  Total capacity   = 1034469376 bytes
  Total bytes used =      693711 bytes in 1 files
  Total bytes free = 1033764864 bytes

```

>re ErAsE erasing...

Recorder erased.

>rr

Recorder Directory:

Volume serial number for device #1 is b09b-6bcf

```

No files found.

Bytes used on device #1 = 0
Total capacity   = 1034469376 bytes
Total bytes used =          0 bytes in 0 files
Total bytes free = 1034469376 bytes

>rnERR:  Deployment Name must be 5 characters!

>rn?

Current deployment name = 3868_

>t?
TB = 01:00:00.00 ----- Time per Burst (hrs:min:sec.sec/100)
TC = 00048 ----- Ensembles Per Burst (0-65535)
TE = 00:00:01.00 ----- Time per Ensemble (hrs:min:sec.sec/100)
TF = **/**/**, **:**:** --- Time of First Ping (yr/mon/day, hour:min:sec)
TG = ****/**/**, **:**:** - Time of First Ping (CCYY/MM/DD, hh:mm:ss)
TP = 00:00.20 ----- Time per Ping (min:sec.sec/100)
TS = 05/07/21, 17:24:14 --- Time Set (yr/mon/day, hour:min:sec)
TT = 2005/07/21, 17:24:14 - Time Set (CCYY/MM/DD, hh:mm:ss)
>tp00:00.00
>tp?
TP = 00:00.00 ----- Time per Ping (min:sec.sec/100)
>tf05/07/21, 17:45:00.00 ERR 005:  EXTRA PARAMETERS ENCOUNTERED
>T?
TB = 01:00:00.00 ----- Time per Burst (hrs:min:sec.sec/100)
TC = 00048 ----- Ensembles Per Burst (0-65535)
TE = 00:00:01.00 ----- Time per Ensemble (hrs:min:sec.sec/100)
TF = **/**/**, **:**:** --- Time of First Ping (yr/mon/day, hour:min:sec)
TG = ****/**/**, **:**:** - Time of First Ping (CCYY/MM/DD, hh:mm:ss)
TP = 00:00.00 ----- Time per Ping (min:sec.sec/100)
TS = 05/07/21, 17:29:24 --- Time Set (yr/mon/day, hour:min:sec)
TT = 2005/07/21, 17:29:24 - Time Set (CCYY/MM/DD, hh:mm:ss)
>TF05/07/21, 17:45:00
>TF?
TF = 05/07/21, 17:45:00 --- Time of First Ping (yr/mon/day, hour:min:sec)
>T?
TB = 01:00:00.00 ----- Time per Burst (hrs:min:sec.sec/100)
TC = 00048 ----- Ensembles Per Burst (0-65535)
TE = 00:00:01.00 ----- Time per Ensemble (hrs:min:sec.sec/100)
TF = 05/07/21, 17:45:00 --- Time of First Ping (yr/mon/day, hour:min:sec)
TG = 2005/07/21, 17:45:00 - Time of First Ping (CCYY/MM/DD, hh:mm:ss)
TP = 00:00.00 ----- Time per Ping (min:sec.sec/100)
TS = 05/07/21, 17:31:11 --- Time Set (yr/mon/day, hour:min:sec)
TT = 2005/07/21, 17:31:11 - Time Set (CCYY/MM/DD, hh:mm:ss)
>W?
WA = 050 ----- False Target Threshold (Max) (0-255 counts)
WB = 1 ----- Bandwidth Control (0=Wid, 1=Nar)
WC = 064 ----- Correlation Threshold
WD = 111 100 000 ----- Data Out (Vel;Cor;Amp PG;St;P0 P1;P2;P3)
WE = 2000 ----- Error Velocity Threshold (0-5000 mm/s)
WF = 0704 ----- Blank After Transmit (cm)
WI = 0 ----- Clip Data Past Bottom (0=OFF, 1=ON)
WJ = 1 ----- Rcvr Gain Select (0=Low, 1=High)

```

```

WL = 001,005 ----- Water Reference Layer: Begin Cell (0=OFF),
End Cell
WN = 064 ----- Number of depth cells (1-255)
WP = 00001 ----- Pings per Ensemble (0-16384)
WQ = 0 ----- Sample Ambient Sound (0=OFF,1=ON)
WS = 0800 ----- Depth Cell Size (cm)
WT = 0000 ----- Transmit Length (cm) [0 = Bin Length]
WU = 0 ----- Ping Weighting (0=Box,1=Triangle)
WV = 125 ----- Mode 1 Ambiguity Vel (cm/s radial)
WW = 004 ----- Mode 1 Pings before Mode 4 Re-acquire
WX = 999 ----- Mode 4 Ambiguity Vel (cm/s radial)
WZ = 010 ----- Mode 5 Ambiguity Velocity (cm/s radial)
>CQ?
CQ = 255 ----- Xmt Power (0=Low, 255=High)
>C?
CB = 811 ----- Serial Port Control (Baud [8=115200]; Par;
Stop)
CC = 000 000 000 ----- Choose External Devices (x;x;x x;x;x
x;x;SBMC)
CD = 000 000 000 ----- Serial Data Out (Vel;Cor;Amp PG;St;P0
P1;P2;P3)
CE ----- Retrieve Last Ensemble
CF = 11101 ----- Flow Ctrl (EnsCyc;PngCyc;Binry;Ser;Rec)
CH = 0 ----- Suppress Banner
CI = 000 ----- Instrument ID (0-255)
CK ----- Keep Parameters as USER Defaults
CL = 1 ----- Sleep Enable (0 = Disable, 1 = Enable)
CM = 0 ----- RS-232 Sync Master (0 = OFF, 1 = ON)
CN = 0 ----- Save NVRAM to recorder (0 = ON, 1 = OFF)
CP = 0 ----- PolledMode (1=ON, 0=OFF; BREAK resets)
CQ = 255 ----- Xmt Power (0=Low, 255=High)
CR # ----- Retrieve Parameters (0 = USER, 1 = FACTORY)
CS ----- Go (Start Pinging)
CX = 0 ----- Trigger Enable (0 = OFF, 1 = ON)
CY # ----- Error Status Word (0=Clear, 1=Display)
CZ ----- Power Down Instrument
>CS
Deployed

```