# AFI 3/16 mooring cruise report JR 121

# Peter Enderlein & Ryan Saunders

### **Background, Aims and Methodology:**

The background, aims and methodology of the AFI 3/16 project: Moorings to investigate intraannual variability in krill abundance and water-mass physical characteristics of South Georgia is described in detail in the JR 82 cruise report

# **Recovery and redeployment during JR 121:**

In order to avoid the problem experienced during the 2003 winter when the deep mooring was snagged by a longline set for Toothfish, both moorings were deployed at the shallow site for the coming Antarctic winter period. The 'Deep Mooring' being placed 500m west of the 'Shallow'.

The recovery process started with the "Deep Mooring" at 09:44 GMT of April 3rd with a CTD to 200m followed by EK 60 acoustics for 1/2 hour from 10:15 to 10:45 GMT. The weather was ok, (force 4-5), moderate sea, and good visibility. The releases were activated at 11:07 with a positive feedback. After approximate 10 min the mooring still had not surfaced. So the releases where activated again and the bridge was asked to check on the VHF frequency for any signals form the mooring. A signal from the mooring was received and a search for the mooring started. At 12:26 the mooring was sighted and at 13:13 the whole long deep mooring successful recovered.

After steaming to the shallow site at 15:11 we started with the CTD to 200m followed by EK 60 acoustics for 1/2 hour from 15:40 to 16:10 GMT. The releases were activated at 16:22 and the buoy was sighted just 4 minutes later at 16:26. At 17:04 the whole shallow mooring was successful recovered.

After data download, the required battery replacements and a quick check and maintenance of the mooring rigs the shallow water mooring was successfully redeployed at 53.7987'S & 37.9359'W on 04.04.2005, 10:26 GMT.

Immediately afterwards the Deep mooring was redeployed just 500 m of the shallow mooring position at 53.7986'S & 37.9438'W, on 04.04.2005, at 11:51 GMT.

Both deployment took place as described in the second deployment report in JR96 with the changes described in the JR100 mooring cruise report: To control the release of the weights, they were lowered over the stern with the starboard Effer crane on a strop and a sacrificial rope attached to the weights was threaded through two deck eyes. The weights were then lowered down until the sacrificial rope took up the weight. Then the strop was taken of. At the release point the rope was cut on top of a piece of wood between the eyebolts using an knife.

#### Data verification:

This time, for the first time ever in the last 2 ½ years, all 6 instruments have worked perfectly fine. The CTD data indicate that the shallow water mooring had been sitting at around 201 m and the deep mooring at around 223. Both ADCP data as well as the WCP data are showing a clear vertical migration of zooplankton and krill swarms over the last deployment. All instruments have worked all the time, without any problems. Overall, this was the best performance so far by the instruments resulting in a very nice dataset.

#### Work carried out:

#### WCP:

- Data download
- Main O-Ring on 004 replaced
- Clock Batteries replaced

#### CTD:

- Data download
- Main O-Ring replaced
- Batteries replaced

#### ADCP:

- Data download
- Batteries replaced

#### **NOVATEC** beacons

• Batteries replaced

#### **ARGOS** beacons

• Batteries replaced

#### Releases

• Batteries in all 4 releases replaced

#### WCP problems:

It looks like, that we have a connecter problem with them. One of the pins of the main connector must getting power all the time during a deployment, so on WCP 004 the pin was heavily corroded but could connect to the computer cable, but on WCP 005 the same pin was so heavily corroded that when touched it fell of, so with a bit of help from ETS we managed to talk to the instrument and where able to download the data and set up the instrument again – has to be discussed with ASL for long term solution!! **Both connecters have to be replaced after next recovery and before new deployment!** 

# New Instrument settings (general):

## CTD

*shallow:* start time: 04.04.05 sample interval: 300 sec.

*deep:* start time: 04.04.05 sample interval: 300 sec.

### ADCP

Shallow: Start time: 04.04.05 Duration: 210 days Sample interval: 5 min Pings in interval: 7

*Deep:* Start time: 04.04.05 Duration: 210 days Sample interval: 5 min Pings in interval: 7

# WCP

```
Shallow:
year = 5
month = 4
day = 4
hour = 12
burst resolution = 1
ping_length = 600
lockout_range = 0
gain = 1
max_range = 200
burst_multiplier = 148
burst_count = 18
bin_size = 8
EndYear = 5
EndMonth = 11
EndDay = 30
EndHour = 12
Deep:
```

year = 5
month = 4
day = 4
hour = 12
burst\_resolution = 1

ping\_length = 600 lockout\_range = 0 gain = 1 max\_range = 200 burst\_multiplier = 148 burst\_count = 18 bin\_size = 8 EndYear = 5 EndMonth = 11 EndDay = 30 EndHour = 12 burst\_count = 18 bin\_size = 8 end time: 27.04.05

Eventlog during mooring activities:

06/04/2005 08:59         -54.2106         -36.4424 Whale buoy released at entrance to Cumberland Bay.           04/04/2005 13:48         -54.033         -38.0663 Buoy released.           04/04/2005 13:46         -54.033         -38.0661 ship on mooring deployment transit           04/04/2005 13:41         -54.033         -38.0652 ship on D.P. in Whale bouy mooring position.           04/04/2005 11:51         -53.7966         -37.9438 mooring released stern clear           04/04/2005 11:34         -53.7976         -37.9402 commenced mooring operations           04/04/2005 11:34         -53.7967         -37.9402 commenced mooring operations           04/04/2005 11:34         -53.7967         -37.9402 commenced mooring operations           04/04/2005 10:26         -53.7977         -37.9359 Mooring released.           04/04/2005 10:16         -53.7967         -37.9368 Mooring released.           04/04/2005 10:16         -53.7979         -37.9320 Moring released.           04/04/2005 10:16         -53.7499         -37.9320 hortino ready for shallow mooring deployment.           03/04/2005 17:54         -53.7729         -38.0707 Commence deploying ARP W1 Buoy           03/04/2005 17:54         -53.7749         -37.9338 Mooring released           03/04/2005 17:54         -53.794         -37.9338 Mooring release onboard           03/04/2005 17:54 <th>Time</th> <th>Lat</th> <th>Lon Comment</th>	Time	Lat	Lon Comment
04/04/2005         13:46         -54.03         -38.0661 ship on mooring deployment transit           04/04/2005         13:41         -54.03         -38.0652 ship on D.P. in Whale bouy mooring position.           04/04/2005         11:51         -53.7986         -37.9438 mooring released stern clear           04/04/2005         11:34         -53.7966         -37.9402 commenced mooring operations           04/04/2005         11:34         -53.7967         -37.9403 main bouy away           04/04/2005         11:34         -53.7967         -37.9403 main bouy away           04/04/2005         10:16         -53.7976         -37.9346 Mooring released.           04/04/2005         10:16         -53.7976         -37.9336 Mooring released.           04/04/2005         10:16         -53.7976         -37.9336 Buoy deployed.           04/04/2005         10:07         -53.796         -37.9332 On station ready for shallow mooring deployment.           03/04/2005         19:16         -53.7729         -37.9320 N station ready for shallow mooring deployment.           03/04/2005         17:52         -53.7729         -38.071 Commence deploying ARP W1 Buoy           03/04/2005         17:52         -53.7740         -37.9359 Main bouy recovered           03/04/2005         17:51         -53.794	06/04/2005 08:59	-54.2106	-36.4424 Whale buoy released at entrance to Cumberland Bay.
04/04/2005         13:41         -54.033         -38.0652 ship on D.P. in Whale bouy mooring position.           04/04/2005         11:51         -53.7946         -37.9438 mooring released stern clear           04/04/2005         11:41         -53.7967         -37.9403 mooring streaming astern           04/04/2005         11:34         -53.7967         -37.9403 main bouy away           04/04/2005         11:31         -53.7967         -37.9403 main bouy away           04/04/2005         10:16         -53.7987         -37.9346 Mooring released.           04/04/2005         10:16         -53.7987         -37.9346 Mooring ready for release.           04/04/2005         10:16         -53.7987         -37.9346 Mooring ready for release.           04/04/2005         10:16         -53.7959         -37.9346 Mooring ready for release.           04/04/2005         10:16         -53.7959         -37.9320 Mosting released.           04/04/2005         10:16         -53.7945         -37.9320 Mosting released.           03/04/2005         17:54         -53.7729         -38.0707 commence deploying ARP W1 Buoy           03/04/2005         17:54         -53.7729         -38.0707 commence deploying ARP W1 Buoy           03/04/2005         17:55         -53.7746         -37.9358 Maccoustic release onboard	04/04/2005 13:48	-54.0332	-38.0663 Buoy released.
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04/04/2005 11:41         -53.7973         -37.9413 Moorings streaming astern           04/04/2005 11:34         -53.7966         -37.9402 commenced mooring operations           04/04/2005 11:34         -53.7967         -37.9403 main bouy away           04/04/2005 11:31         -53.7967         -37.9403 main bouy away           04/04/2005 10:26         -53.7987         -37.9359 Mooring released.           04/04/2005 10:16         -53.7979         -37.9336 Buoy deployed.           04/04/2005 10:07         -53.7959         -37.9334 Commence deployment.           04/04/2005 10:06         -53.7959         -37.9320 Nostation ready for shallow mooring deployment.           03/04/2005 19:16         -53.7749         -37.9323 Acoustic buoy released.           03/04/2005 17:54         -53.7729         -38.0707 Commence deploying ARP W1 Buoy           03/04/2005 17:54         -53.7729         -38.0707 V/I on site for ARP W1 Buoy release           03/04/2005 17:54         -53.7729         -37.9358 Main bouy recovered           03/04/2005 16:55         -53.794         -37.9328 Moorings sighted           03/04/2005 16:55         -53.794         -37.9328 Moorings sighted           03/04/2005 16:22         -53.7984         -37.9328 Moorings sighted           03/04/2005 16:21         -53.7984         -37.9328 Moorings sighted	04/04/2005 13:42	-54.033	-38.0652 ship on D.P. in Whale bouy mooring position.
04/04/2005 11:34       -53.7966       -37.9402 commenced mooring operations         04/04/2005 11:34       -53.7967       -37.9403 main bouy away         04/04/2005 11:31       -53.7965       -37.934 ship on mooring deployment transit         04/04/2005 10:26       -53.7987       -37.9359 Mooring released.         04/04/2005 10:16       -53.797       -37.9346 Mooring ready for release.         04/04/2005 10:07       -53.795       -37.9336 Buoy deployed.         04/04/2005 10:06       -53.7959       -37.9320 n station ready for shallow mooring deployment.         03/04/2005 19:16       -53.7459       -37.9320 n station ready for shallow mooring deployment.         03/04/2005 17:54       -53.7729       -38.071 Sonar Buoy released         03/04/2005 17:51       -53.7746       -37.9359 Main bouy recovered         03/04/2005 17:51       -53.7945       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9358 Accoustic release onboard         03/04/2005 16:45       -53.7944       -37.9328 Mooring sighted         03/04/2005 16:45       -53.7944       -37.9328 Mooring sighted         03/04/2005 16:21       -53.7944       -37.9328 Mooring sighted         03/04/2005 16:22       -53.7944       -37.9328 Mooring sighted         03/04/2005 16:21       -53.7944 <td>04/04/2005 11:52</td> <td>-53.7986</td> <td>-37.9438 mooring released stern clear</td>	04/04/2005 11:52	-53.7986	-37.9438 mooring released stern clear
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04/04/2005 10:26       -53.7987       -37.9359 Mooring released.         04/04/2005 10:16       -53.797       -37.9346 Mooring ready for release.         04/04/2005 10:07       -53.796       -37.9336 Buoy deployed.         04/04/2005 10:06       -53.7959       -37.9334 Commence deployment.         04/04/2005 09:27       -53.7459       -37.932 On station ready for shallow mooring deployment.         03/04/2005 19:16       -53.7791       -37.8233 Acoustic buoy released.         03/04/2005 17:54       -53.7729       -38.071 Sonar Buoy released.         03/04/2005 17:52       -53.7729       -38.0707 Commence deploying ARP W1 Buoy         03/04/2005 17:54       -53.7729       -38.0707 commence deploying ARP W1 Buoy         03/04/2005 17:51       -53.7729       -38.0707 v/I on site for ARP W1 Buoy release         03/04/2005 17:04       -53.7946       -37.9359 Main bouy recovered         03/04/2005 17:01       -53.7946       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.794       -37.9328 Moorings sighted         03/04/2005 16:26       -53.794       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7984       -37.9350 V/L complete acoustics         03/04/2005 15:1	04/04/2005 11:34	-53.7967	-37.9403 main bouy away
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04/04/2005 10:07         -53.796         -37.9336 Buoy deployed.           04/04/2005 10:06         -53.7959         -37.9334 Commence deployment.           04/04/2005 09:27         -53.7945         -37.932 On station ready for shallow mooring deployment.           03/04/2005 19:16         -53.7469         -37.8233 Acoustic buoy released.           03/04/2005 17:54         -53.771         -38.071 Sonar Buoy released           03/04/2005 17:52         -53.7729         -38.0707 Commence deploying ARP W1 Buoy           03/04/2005 17:51         -53.7746         -37.9359 Main bouy recovered           03/04/2005 17:04         -53.7946         -37.9359 Main bouy recovered           03/04/2005 17:01         -53.7947         -37.9358 Accoustic release onboard           03/04/2005 16:45         -53.7942         -37.9338 Buoy tail hooked           03/04/2005 16:45         -53.7944         -37.9328 Moorings sighted           03/04/2005 16:26         -53.7984         -37.9328 Moorings sighted           03/04/2005 16:21         -53.7984         -37.9329 hydrophone deployed           03/04/2005 16:21         -53.7984         -37.9329 hydrophone deployed           03/04/2005 16:11         -53.7984         -37.9325 N/L on station at shallow mooring site for Acoustinc listening.           03/04/2005 15:39         -53.7984         -37.9307 CT	04/04/2005 10:26	5 -53.7987	-37.9359 Mooring released.
04/04/2005 10:06         -53.7959         -37.9334 Commence deployment.           04/04/2005 09:27         -53.7945         -37.932 On station ready for shallow mooring deployment.           03/04/2005 19:16         -53.7469         -37.8233 Acoustic buoy released.           03/04/2005 17:54         -53.7731         -38.071 Sonar Buoy released           03/04/2005 17:52         -53.7729         -38.0707 Commence deploying ARP W1 Buoy           03/04/2005 17:51         -53.7729         -38.0707 v/l on site for ARP W1 Buoy release           03/04/2005 17:51         -53.7946         -37.9359 Main bouy recovered           03/04/2005 17:01         -53.7945         -37.9358 Accoustic release onboard           03/04/2005 16:55         -53.7942         -37.9328 Moorings sighted           03/04/2005 16:45         -53.794         -37.9328 Moorings sighted           03/04/2005 16:26         -53.794         -37.9329 hydrophone deployed           03/04/2005 16:21         -53.794         -37.9329 bydrophone deployed           03/04/2005 16:21         -53.794         -37.9326 V/L complete acoustics           03/04/2005 16:21         -53.7984         -37.9305 V/L on station at shallow mooring site for Acoustinc listening.           03/04/2005 15:39         -53.7986         -37.9307 CTD recovered - moving off station           03/04/2005 15:11         <	04/04/2005 10:16	-53.797	-37.9346 Mooring ready for release.
04/04/2005 09:27       -53.7945       -37.932 On station ready for shallow mooring deployment.         03/04/2005 19:16       -53.7469       -37.8233 Acoustic buoy released.         03/04/2005 17:54       -53.771       -38.071 Sonar Buoy released         03/04/2005 17:52       -53.7729       -38.0707 Commence deploying ARP W1 Buoy         03/04/2005 17:51       -53.7729       -38.0707 v/l on site for ARP W1 Buoy release         03/04/2005 17:51       -53.7729       -38.0707 v/l on site for ARP W1 Buoy release         03/04/2005 17:01       -53.7946       -37.9359 Main bouy recovered         03/04/2005 16:55       -53.7942       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9328 Moorings sighted         03/04/2005 16:26       -53.7944       -37.9329 Mydrophone deployed         03/04/2005 16:21       -53.7944       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7944       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7944       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7944       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:11       -53.7987	04/04/2005 10:07	-53.796	-37.9336 Buoy deployed.
03/04/2005 19:16       -53.7469       -37.8233 Acoustic buoy released.         03/04/2005 17:54       -53.7731       -38.071 Sonar Buoy released         03/04/2005 17:52       -53.7729       -38.0707 Commence deploying ARP W1 Buoy         03/04/2005 17:52       -53.7729       -38.0707 V/l on site for ARP W1 Buoy release         03/04/2005 17:51       -53.7729       -38.0707 v/l on site for ARP W1 Buoy release         03/04/2005 17:04       -53.794       -37.9359 Main bouy recovered         03/04/2005 16:55       -53.794       -37.9358 Accoustic release onboard         03/04/2005 16:56       -53.794       -37.9358 Moorings sighted         03/04/2005 16:26       -53.794       -37.9328 Moorings sighted         03/04/2005 16:21       -53.7984       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7987       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 15:23       -53.7987       -37.9308 ship	04/04/2005 10:06	5 -53.7959	-37.9334 Commence deployment.
03/04/2005 17:54       -53.7731       -38.071 Sonar Buoy released         03/04/2005 17:52       -53.7729       -38.0707 Commence deploying ARP W1 Buoy         03/04/2005 17:51       -53.7729       -38.0707 v/l on site for ARP W1 Buoy release         03/04/2005 17:51       -53.7746       -37.9359 Main bouy recovered         03/04/2005 17:01       -53.7946       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9358 Accoustic release onboard         03/04/2005 16:45       -53.7942       -37.9338 Buoy tail hooked         03/04/2005 16:26       -53.794       -37.9328 Moorings sighted         03/04/2005 16:21       -53.7984       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:17       -53.7987       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 15:11       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 15:23       -53.514       -37.8626	04/04/2005 09:27	<b>-53.7945</b>	-37.932 On station ready for shallow mooring deployment.
03/04/2005 17:52       -53.7729       -38.0707 Commence deploying ARP W1 Buoy         03/04/2005 17:51       -53.7729       -38.0707 v/l on site for ARP W1 Buoy release         03/04/2005 17:04       -53.7946       -37.9359 Main bouy recovered         03/04/2005 17:01       -53.7945       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9338 Buoy tail hooked         03/04/2005 16:62       -53.7944       -37.9328 Moorings sighted         03/04/2005 16:26       -53.7984       -37.9329 Mydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:17       -53.7987       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514	03/04/2005 19:16	5 -53.7469	-37.8233 Acoustic buoy released.
03/04/2005 17:51       -53.7729       -38.0707 v/l on site for ARP W1 Buoy release         03/04/2005 17:04       -53.7946       -37.9359 Main bouy recovered         03/04/2005 17:01       -53.7945       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9351 Trimsin bouy recovered         03/04/2005 16:56       -53.7942       -37.9338 Buoy tail hooked         03/04/2005 16:26       -53.794       -37.9328 Moorings sighted         03/04/2005 16:26       -53.7944       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7944       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 15:12       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off <td>03/04/2005 17:54</td> <td>-53.7731</td> <td>-38.071 Sonar Buoy released</td>	03/04/2005 17:54	-53.7731	-38.071 Sonar Buoy released
03/04/2005 17:04       -53.7946       -37.9359 Main bouy recovered         03/04/2005 17:01       -53.7945       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9351 Trimsin bouy recovered         03/04/2005 16:56       -53.7942       -37.9338 Buoy tail hooked         03/04/2005 16:26       -53.7944       -37.9328 Moorings sighted         03/04/2005 16:22       -53.7984       -37.9329 Mydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off			
03/04/2005 17:01       -53.7945       -37.9358 Accoustic release onboard         03/04/2005 16:55       -53.7942       -37.9351 Trimsin bouy recovered         03/04/2005 16:45       -53.794       -37.9338 Buoy tail hooked         03/04/2005 16:26       -53.7944       -37.9328 Moorings sighted         03/04/2005 16:22       -53.7984       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 17:5	-53.7729	-38.0707 v/l on site for ARP W1 Buoy release
03/04/2005 16:55       -53.7942       -37.9351 Trimsin bouy recovered         03/04/2005 16:45       -53.794       -37.9338 Buoy tail hooked         03/04/2005 16:26       -53.7944       -37.9328 Moorings sighted         03/04/2005 16:22       -53.7984       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7984       -37.9329 V/L complete acoustics         03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 17:04	-53.7946	-37.9359 Main bouy recovered
03/04/2005 16:45       -53.794       -37.9338 Buoy tail hooked         03/04/2005 16:26       -53.7984       -37.9328 Moorings sighted         03/04/2005 16:22       -53.7984       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 17:01	-53.7945	-37.9358 Accoustic release onboard
03/04/2005 16:26       -53.7984       -37.9328 Moorings sighted         03/04/2005 16:22       -53.7984       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 16:55	5 -53.7942	-37.9351 Trimsin bouy recovered
03/04/2005 16:22       -53.7984       -37.9329 hydrophone deployed         03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:21       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 16:45	5 -53.794	-37.9338 Buoy tail hooked
03/04/2005 16:21       -53.7984       -37.9329 V/L in position for hydrophone deployment.         03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 16:26	5 -53.7984	-37.9328 Moorings sighted
03/04/2005 16:11       -53.7984       -37.9356 V/L complete acoustics         03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 16:22	-53.7984	-37.9329 hydrophone deployed
03/04/2005 15:39       -53.7984       -37.9355 V/L on station at shallow mooring site for Acoustinc listening.         03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 16:21	-53.7984	-37.9329 V/L in position for hydrophone deployment.
03/04/2005 15:23       -53.7986       -37.9307 CTD recovered - moving off station         03/04/2005 15:17       -53.7987       -37.9307 CTD at 200 metres recovering.         03/04/2005 15:11       -53.7987       -37.9306 CTD deployed depth 210m         03/04/2005 15:01       -53.7987       -37.9308 ship on D.P. in shallow mooring stand off position.         03/04/2005 13:28       -53.514       -37.8626 ship moving off	03/04/2005 16:11	-53.7984	-37.9356 V/L complete acoustics
03/04/2005 15:17 -53.7987 -37.9307 CTD at 200 metres recovering. 03/04/2005 15:11 -53.7987 -37.9306 CTD deployed depth 210m 03/04/2005 15:01 -53.7987 -37.9308 ship on D.P. in shallow mooring stand off position. 03/04/2005 13:28 -53.514 -37.8626 ship moving off	03/04/2005 15:39	-53.7984	-37.9355 V/L on station at shallow mooring site for Acoustinc listening.
03/04/2005 15:11 -53.7987 -37.9306 CTD deployed depth 210m 03/04/2005 15:01 -53.7987 -37.9308 ship on D.P. in shallow mooring stand off position. 03/04/2005 13:28 -53.514 -37.8626 ship moving off	03/04/2005 15:23	-53.7986	-37.9307 CTD recovered - moving off station
03/04/2005 15:01 -53.7987 -37.9308 ship on D.P. in shallow mooring stand off position. 03/04/2005 13:28 -53.514 -37.8626 ship moving off	03/04/2005 15:17	-53.7987	-37.9307 CTD at 200 metres recovering.
03/04/2005 13:28 -53.514 -37.8626 ship moving off	03/04/2005 15:12	-53.7987	-37.9306 CTD deployed depth 210m
03/04/2005 13:13 -53.5105 -37.8578 Main bouy recovered			
-			-
03/04/2005 13:12 -53.5106 -37.8577 Accoustic release onboard	03/04/2005 13:12	2 -53.5106	-37.8577 Accoustic release onboard

03/04/2005 13:05	-53.511	-37.8562 600m line recovered
03/04/2005 12:57	-53.5111	-37.8554 300m of line recovered
03/04/2005 12:40	-53.5114	-37.8533 Trimsin bouy recovered
03/04/2005 12:36	-53.5114	-37.8514 Moorings grapled
03/04/2005 12:31	-53.5125	-37.8458 making aproach to pick up the moorings
03/04/2005 12:26	-53.5158	-37.851 moorings sighted
03/04/2005 11:48	-53.5249	-37.8392 hydrophone onboard
03/04/2005 11:42	-53.5249	-37.8393 hydrophone deployed
03/04/2005 11:30	-53.5254	-37.8367 hydrophone onboard
03/04/2005 11:07	-53.5253	-37.8366 ship pinging mooring
03/04/2005 11:04	-53.5253	-37.8366 Ship on station. to ping mooring
03/04/2005 10:15	-53.5244	-37.8424 On location over mooring for acoustics.
03/04/2005 09:47	-53.5254	-37.8362 CTD deployed. 200 metres.
03/04/2005 09:44	-53.5254	-37.8363 On location for CTD. Deep mooring. 1297 metres depth.