AFI 3/16 mooring cruise report *JR 121*

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Background, Aims and Methodology:

The background, aims and methodology of the AFI 3/16 project: **Moorings to investigate intra-annual 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:

Time	Lat	Lon	Comment
06/04/2005 08:59	-54.2106	-36.4424	Whale buoy released at entrance to Cumberland Bay.
04/04/2005 13:48	-54.0332	-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	-53.7986	-37.9438	mooring released stern clear
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	-53.7965	-37.94	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	-53.796	-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	-53.7731	-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 17:04	-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 16:45	-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 16:11	-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 13:13	-53.5105	-37.8578	Main bouy recovered
03/04/2005 13:12	-53.5106	-37.8577	Accoustic release onboard

03/04/2005 13:05	-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.