CIAM :
a frame for ADCP deployment
Châssis d’Instrumentation Autonome de Mesures

Service Techniques d’observation in-situ
Laboratoire de Physique des Océans
CIAM

OVIDE 05/ASTEX 08

ASTEX 08/ASPEX 09

ECOLE 05/ASTEX 08/ASPEX 09

18-21/11/2014 - INMARTECH
CIAM : needs

- Long term measurement in harsh environments: natural conditions, human activities, ...
- Deployment: dropped from the surface
- Recovery: weight released by acoustic commands
- Alternative to mooring lines
Two versions

- 75 KHz or 150 KHz
- Aluminium Structure
- Nautilus glass spheres
- RDI ADCP
- SBE 37
- In house small releases
- Ixblue acoustic commands
- Argos beacon
- (Stain) steel weight

300 KHz or 600 KHz
Aluminium frames (Al 6060)

- 3 x 2 x 0.60 m
- 1.50 x 1.50 x 0.60 m

Gimbal for ADCP ➔ Vertical profiles
2 x Titanium release

Stirrup and axis:
mounting weight/frame
Weight

➢ Mounting weight / frame
➢ Thru compressed springs
➢ Double function:
   Retainer and separation

Stirrup
In house small release

- IXBlue AR9 acoustic controller
- Nautilus glass sphere 13"
- Titanium container TA6V
- Pressure 600 bars
- Buoyancy +30 N
- Release load 120 kg

- Maxon gear motor
- Powered by acoustic controller

18-21/11/2014 - INMARTECH
Connexion : power, release command, execution return

Pivoting arm

Release socket

clevis

29 cm

12 cm
Applications

- Drifting instrumented float to monitor mud avalanches in submarine canyons: loosely weighted to be moved by a mudslide

- OBS: lowtop version

- Release on pressure or time for freefall instruments

- …
Frame with ADCP 300/600 kHz

- ADCP
- Argos beacon
- Floats
- Acoustic controller
- SBE37 P, T, C sensors
- Recovery rope
- Weight ~100kg
- In air weight ~350 kg
SBE37 P,T, C sensors

Acoustic controller

Gimbal

Frame for ADCP 75/150 kHz

Argos

ADCP

Buyoancy

Weight ~120 kg

In air weight ~450 kg
## Deployments assessment

<table>
<thead>
<tr>
<th></th>
<th>Deploy (#)</th>
<th>Recov (#)</th>
<th>Trawl (#)</th>
<th>Length (month)</th>
<th>ADCP (month)</th>
<th>SBE (month)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>WH 300</td>
<td>17</td>
<td>12</td>
<td>5</td>
<td>135</td>
<td>128</td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>
| WH 150| 7          | 4         | 3         | 62             | 46           | 62          | 1 ADCP flowed due to trawling  
1 ADCP stopped due to corrosion on connector |
| WH 75 | 11         | 9         | 2         | 98             | 89           | 90          | 1 ADCP flowed due to corrosion on connector  
1 SBE37 flowed due to trawling  
Lost 2 acoustic transducers |
| Total | 35         | 25        | 10        | 295            | 263          | 283         |                                               |
| Percent| 71         | 29        |           | 89             | 96           |             |                                               |

### Key points

**Mudding**

- Change weight design: add foots

**Transducer**

- Protective grid. Setting the sphere upside down

**Trawling**

- ??????????? / Communicate?
Conclusions

• Robustness
• Easy to deploy
• Instruments stability and verticality
• Autonomy
• From shallow to deep water: limited by instruments pressure ranges
• Alternative to mooring lines
• Small releases
• Extension with pop-up buoys: SYREDOMY