CIAM :
a frame for ADCP deployment

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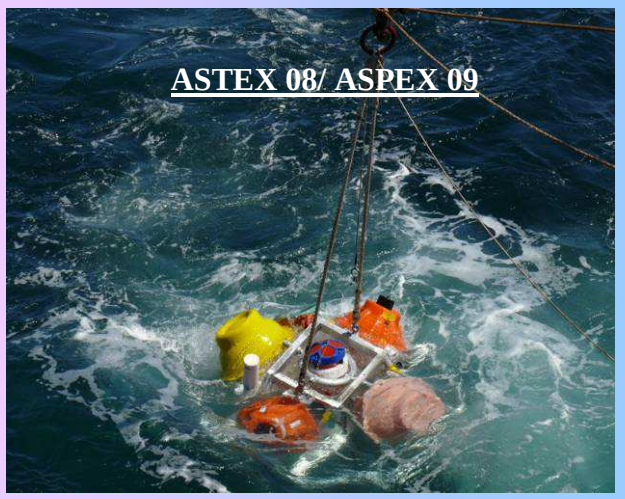
OVIDE 05/ ASTEX 08

ECOLO 05/ ASTEX 08/ ASPEX 09



ASTEX 08/ ASPEX 09

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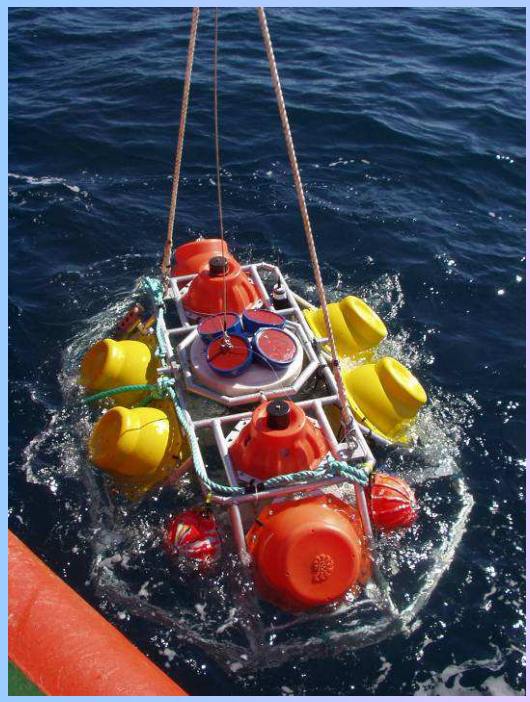
18-21/11/2014 -
INMARTECH

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

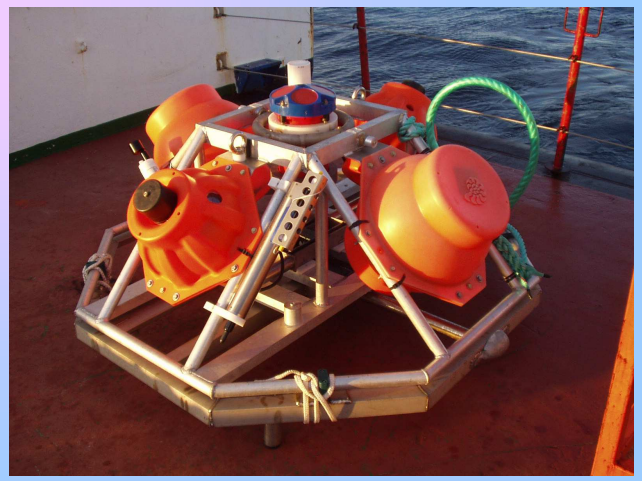
Two versions

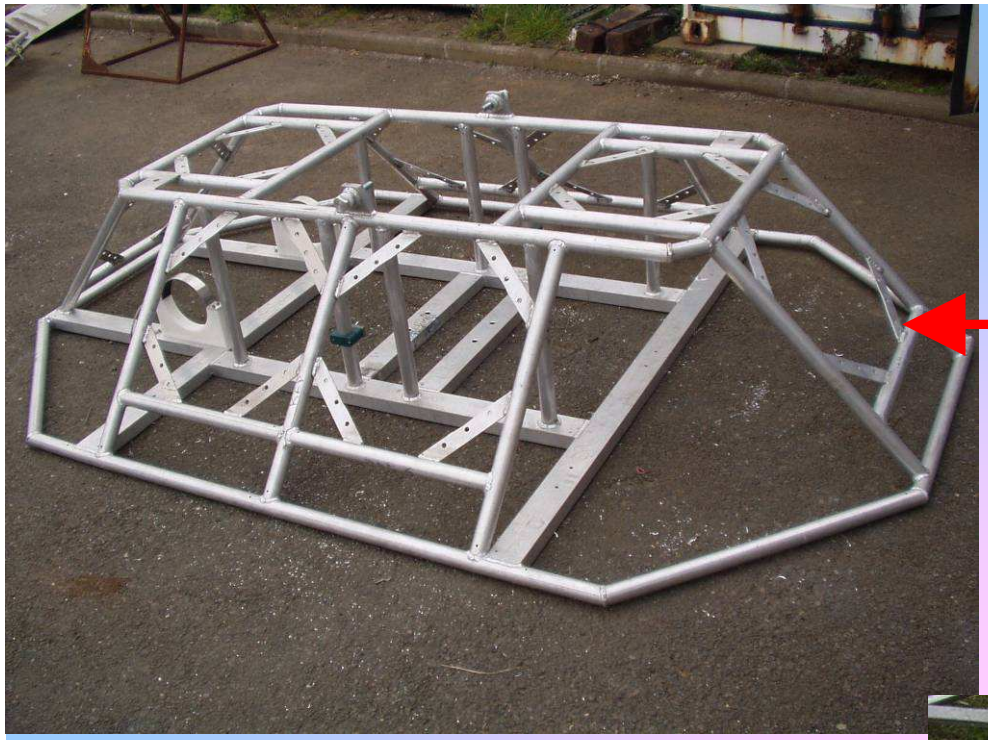


75 Khz or 150 Khz

- Aluminium Structure
- Nautilus glass speres
- RDI ADCP
- SBE 37
- In house small releases
- Ixblue acoustic commands
- Argos beacon
- (Stain) steel weight

300 Khz or 600 Khz





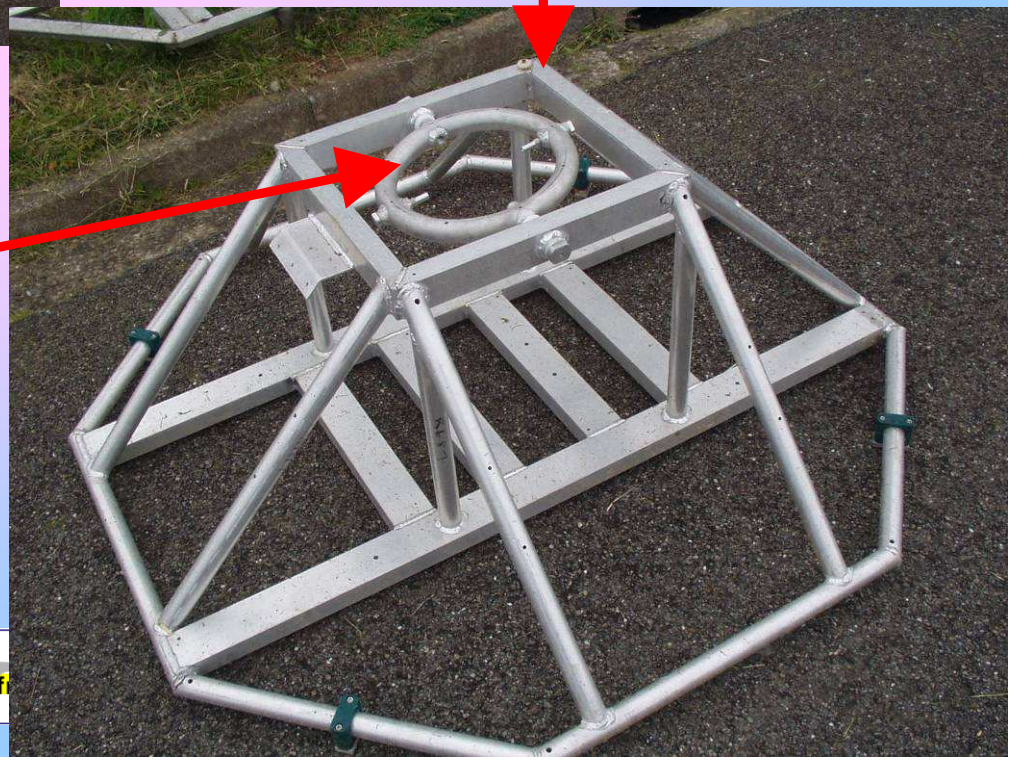
Aluminium frames (Al 6060)

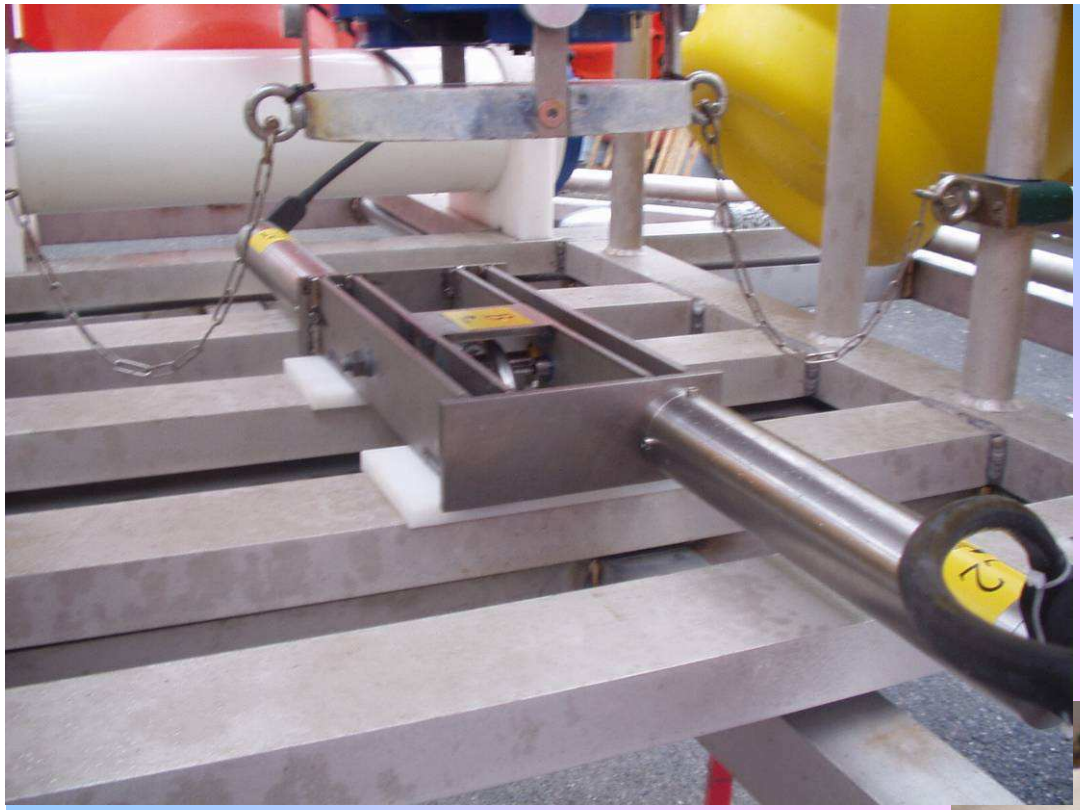
3 x 2 x 0.60 m

1.50 x 1.50 x 0.60 m

Gimbal for ADCP

➔ Vertical profiles

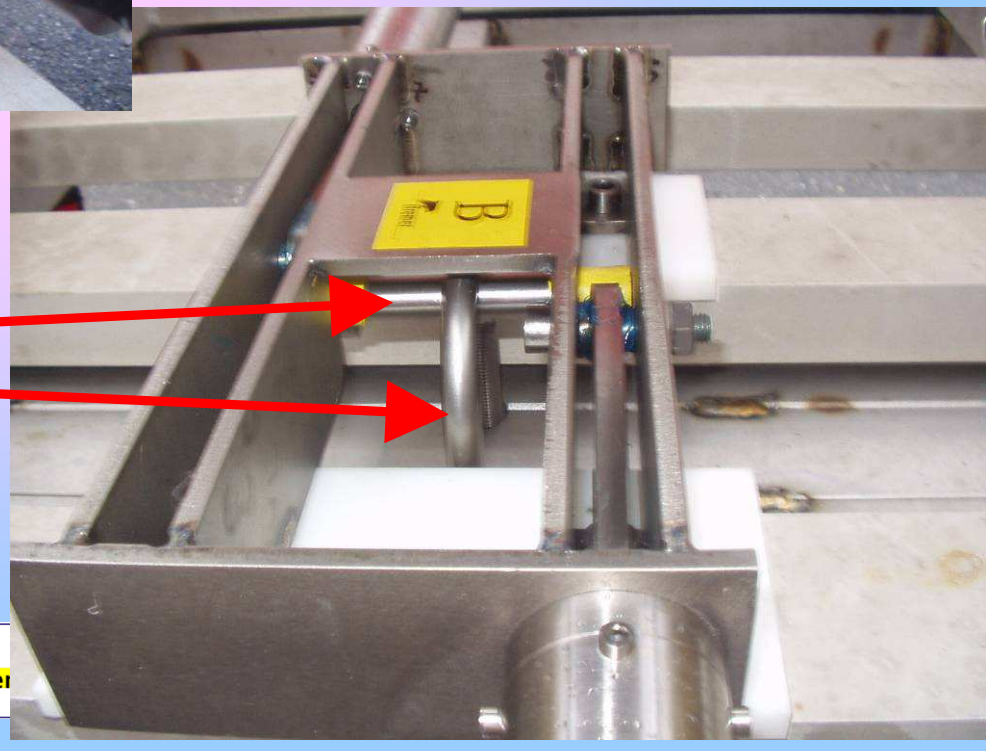




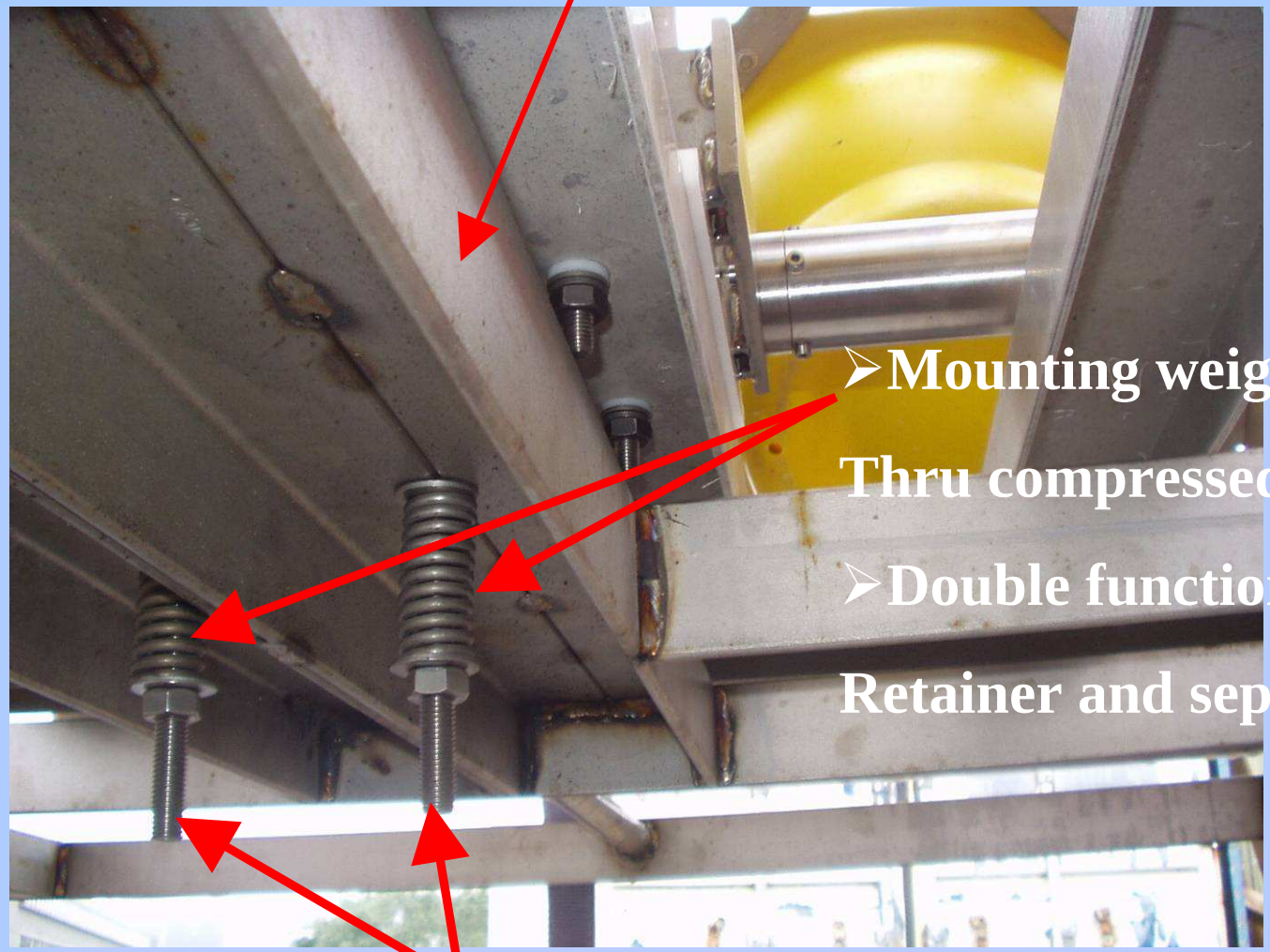
2 x Titanium release

Stirrup and axis :

mounting weight/frame



Weight



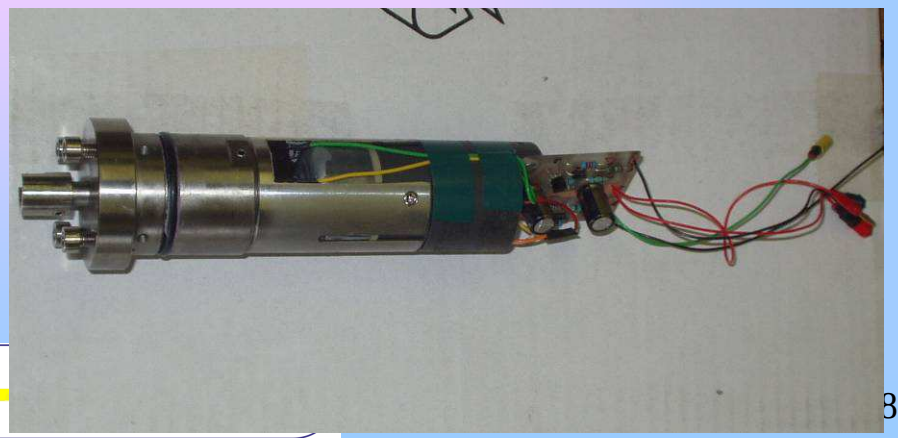
- Mounting weight / frame Thru compressed springs
- Double function : Retainer and separation

Stirrup

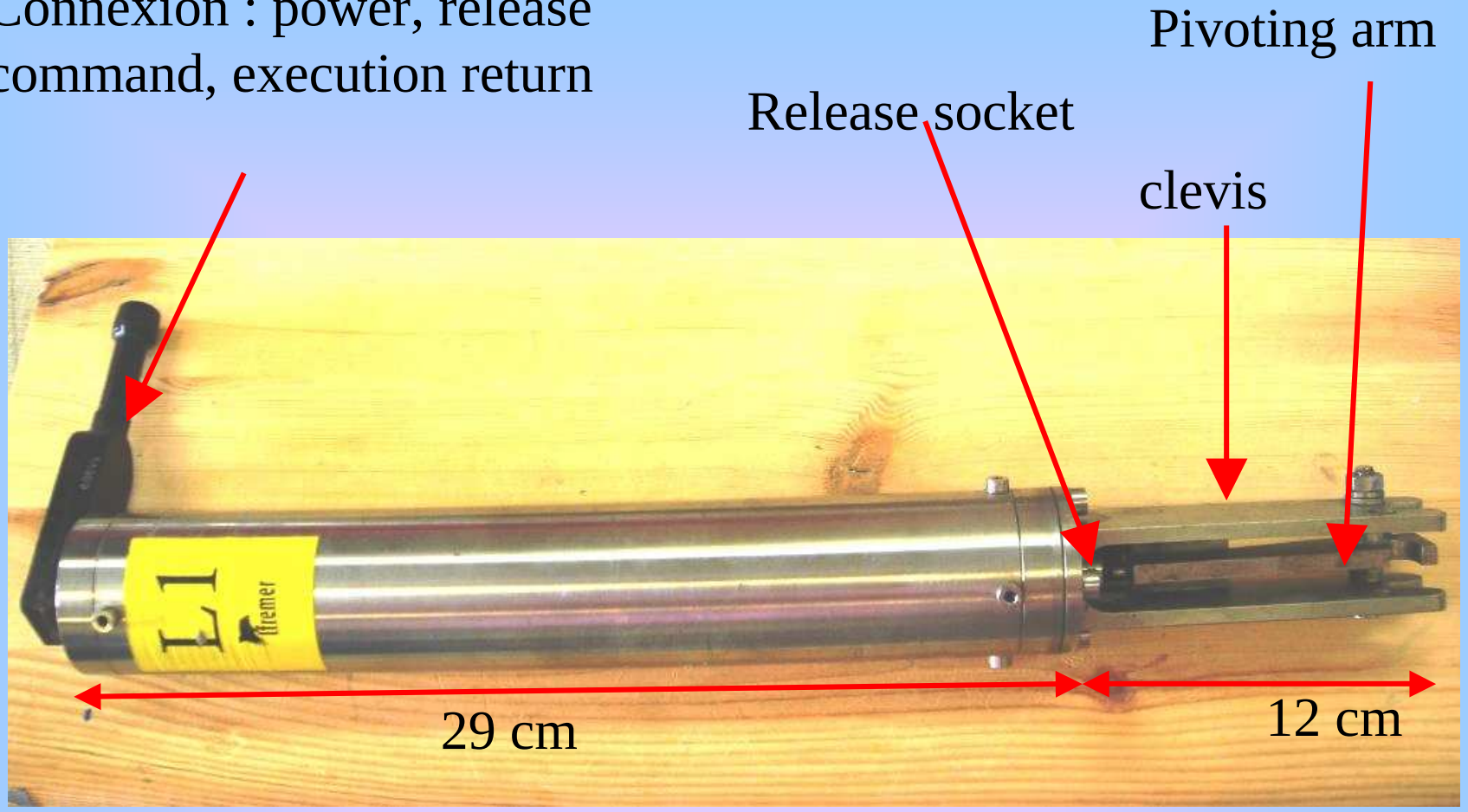
In house small release

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

- Maxon gear motor
- Powered by acoustic controller



Connexion : power, release command, execution return



Applications

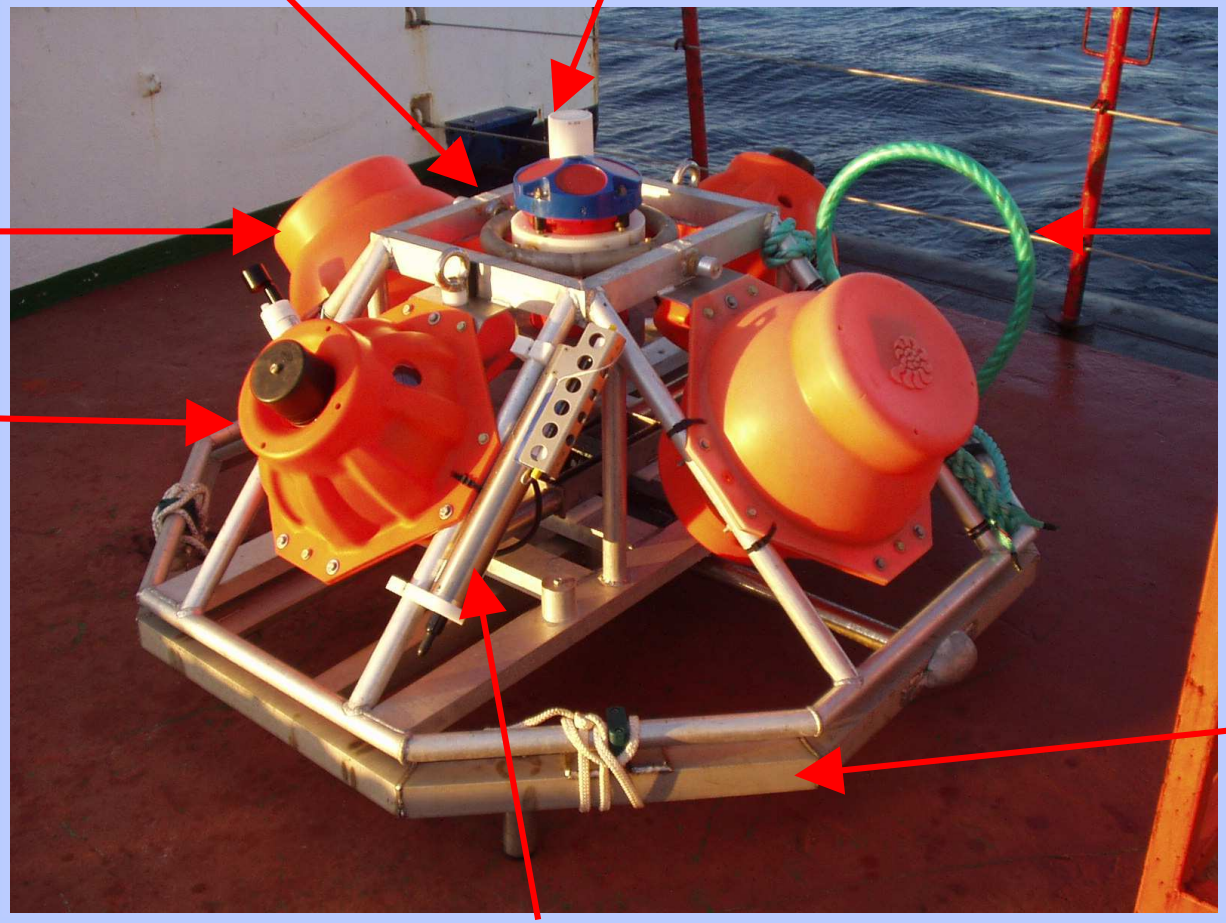
➢Drifting instrumented float to monitor mud avalanches in submarine canyons : losely weighted to be moved by a mudslide

➢ OBS : lowtop version

➢Release on pressure or time for freefall instruments

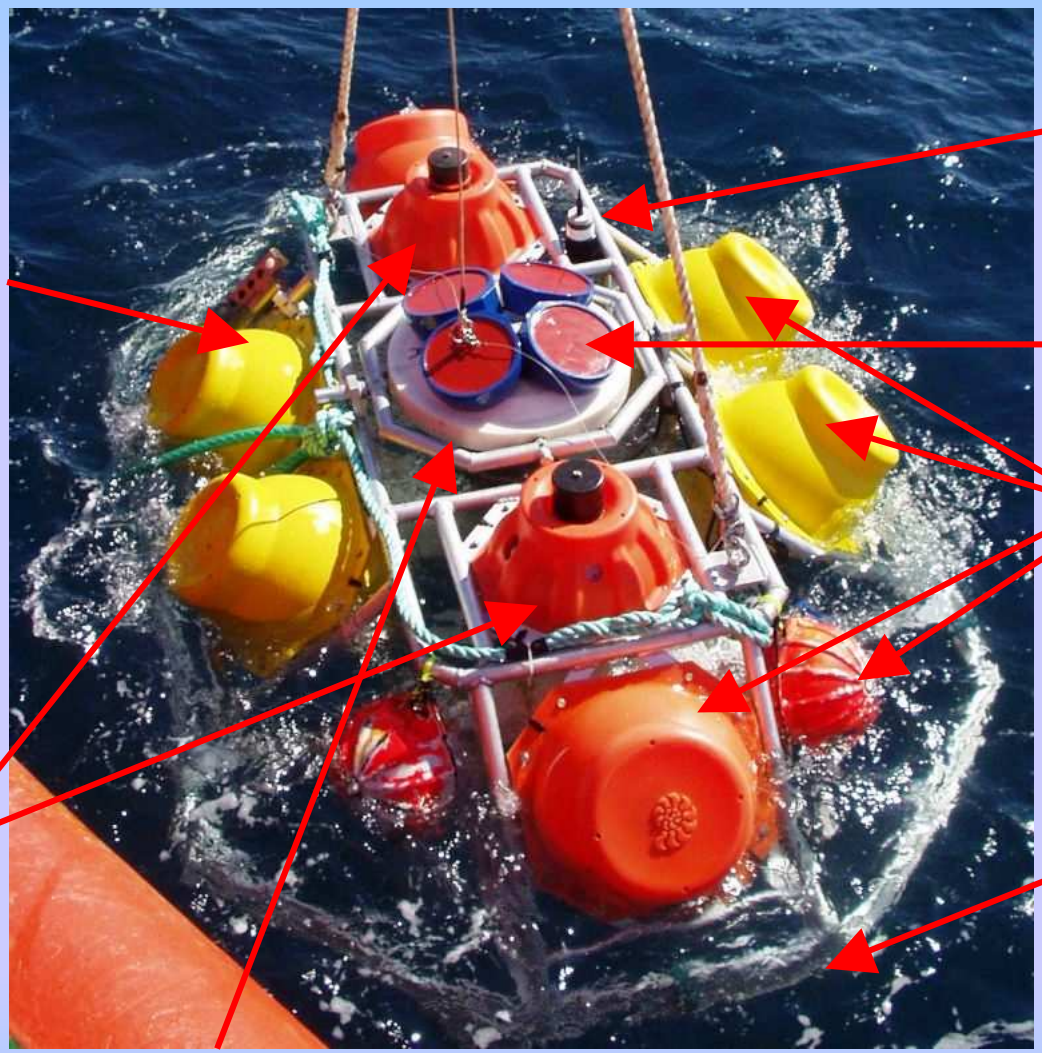
➢ …

Frame with ADCP 300/600 kHz



In air weight ~350 kg

Frame for ADCP 75/150 kHz



Argos

ADCP

Buyoancy

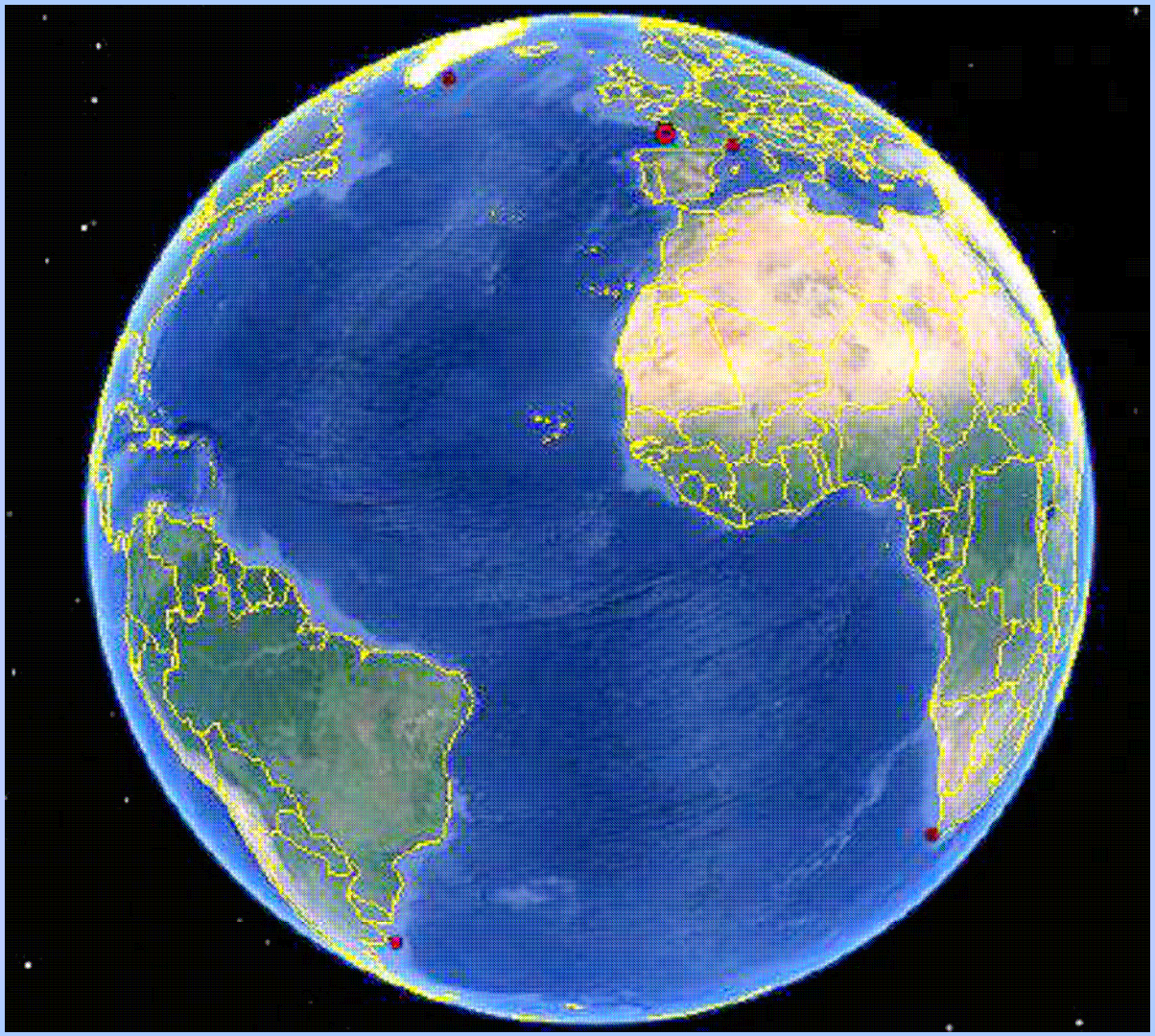
SBE37
P,T, C sensors

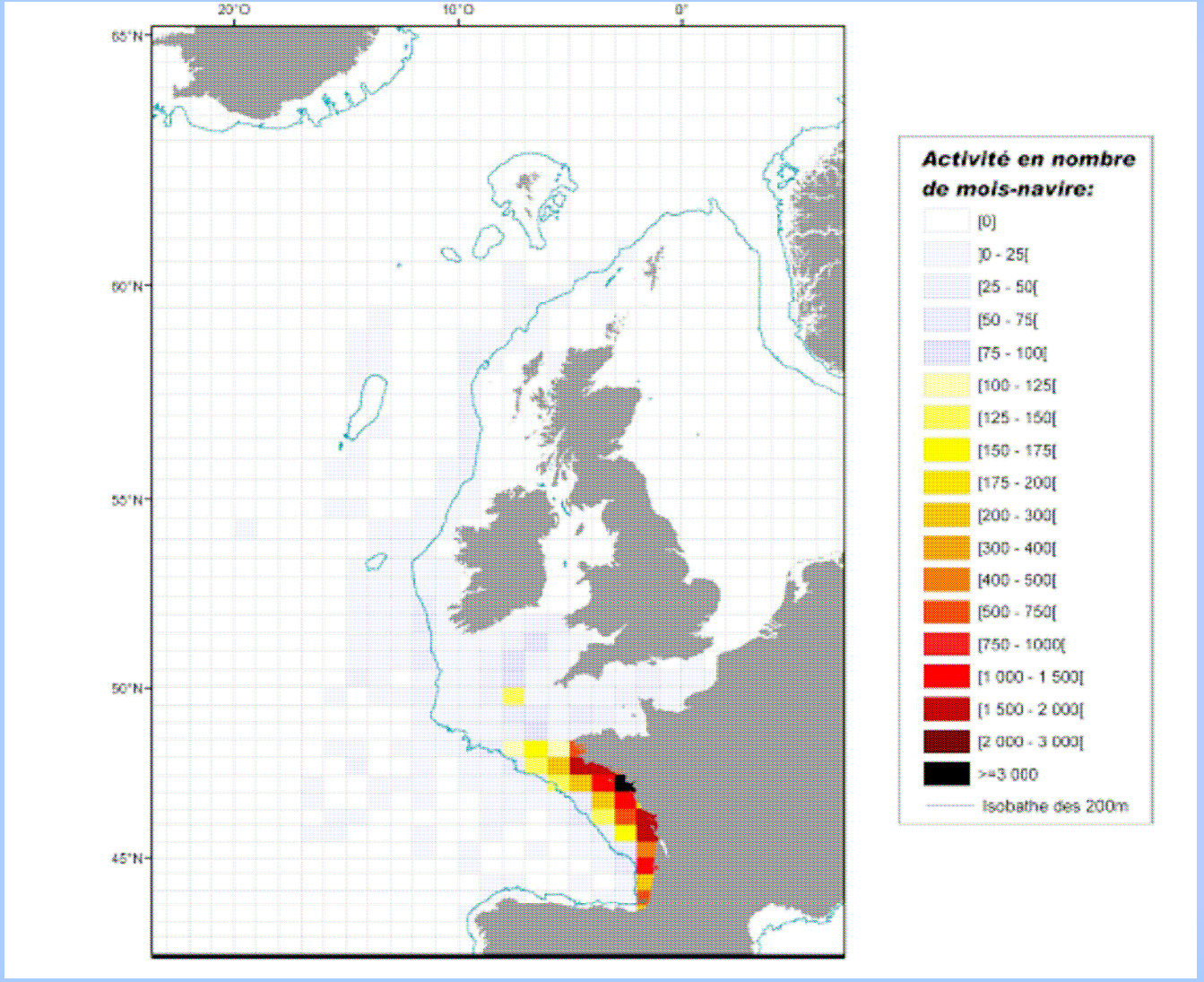
Acoustic
controller

Weight ~120
kg

Gimbal

In air weight ~450 kg




20°O
10°O
0°
65°N
60°N
55°N
50°N
45°N
Activité en nombre de mois-navire:
[0]
]0 - 25[
[25 - 50[
[50 - 75[
[75 - 100[
[100 - 125[
[125 - 150[
[150 - 175[
[175 - 200[
[200 - 300[
[300 - 400[
[400 - 500[
[500 - 750[
[750 - 1000[
[1 000 - 1 500[
[1 500 - 2 000[
[2 000 - 3 000[
>=3 000
Isobathe des 200m

Deployments assessment

	Deploy (#)	Recov (#)	Trawl (#)	Length (month)	ADCP (month)	SBE (month)	Comments
WH 300	17	12	5	135	128	131	
WH 150	7	4	3	62	46	62	1 ADCP flowded due to trawling 1 ADCP stopped due to corrosion on connector
WH 75	11	9	2	98	89	90	1 ADCP flowded due to corrosion on connector 1 SBE37 flowded 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